Climate study predicts life-altering changes for Greater Yellowstone

The Wyoming Tribune-Eagle (Cheyenne)

April 29, 2021 Thursday

Section: FROM THE WIRE; Pg. 8

Length: 1172 words

Byline: By Dustin Bleizeffer | WyoFile.com

Body

MAMMOTH HOT SPRINGS - Average temperatures are rising in the Greater Yellowstone Area, resulting in less snow, earlier runoff and major economic implications in the western headwaters region, according to a newly released ***climate*** study. The ***changes*** threaten to upset traditional land uses and commerce for a region that has seen its population more than double in the past 50 years.

"Temperature increases will bring warmer days and nights, warmer winters, and hotter summers in the coming decades," according to the draft ***climate*** and water assessment for the region. "These warmer conditions will affect water supplies, natural and managed ecosystems, economies, and human and community well-being in the [Greater Yellowstone Area]."

The peer-reviewed "Greater Yellowstone ***Climate*** Assessment: Past, Present, and Future ***Climate Change*** in Greater Yellowstone Watersheds" is open for public comment until April 30. The final report is scheduled for release in late June.

It's the first major ***climate*** assessment to focus on the Greater Yellowstone Region, which the National Park Service describes as "one of the largest nearly intact temperate-zone ecosystems on Earth." The region is the ancestral home to more than a dozen Native American tribes, a diversity of wildlife, hydrothermal features and, of course, the nation's first national park.

According to the study:

Average temperatures are projected to increase 0.31°F per decade.

Snowpack is shrinking between 5,000 and 7,000 feet of elevation.

Drier conditions will make the region more prone to fire.

Mature whitebark pine trees are dying off.

The region is more prone to invasive species outbreaks.

Changes in the timing and rate of snowmelt are affecting fish spawning and the health of aquatic systems.

Changes in grassland habitats are altering bison migratory patterns.

Rising temperatures are affecting food availability for songbirds.

The assessment has implications for a large portion of Wyoming beyond the borders of Yellowstone National Park and the Greater Yellowstone Region, said Bryan Shuman, director of the University of Wyoming-National Park Service Research Center at the AMK Ranch in Grand Teton National Park, a lead author of the report.

"We already see the state being transformed by ***climate change***," Shuman said. "It's going to ***change*** our agriculture, it's going to impact our forests and increase our fire risk. These are things we already see happening, and we can expect that to get more intense."

The draft ***climate*** assessment is the first phase in what authors say is a critical effort to understand how rising global temperatures are impacting the Greater Yellowstone Area and what to expect. More analysis is needed to better understand implications to human health, wildlife and myriad quality-of-life factors tied to the region, scientists say.

Those efforts will include a lot of conversations that extend beyond the realms of science, Shuman said.

"We hope to work with stakeholders around the region to identify what are the additional research needs that people have, what information do people need in order to plan for this future where it's warmer and drier," Shuman said.

The study's authors said that, scientifically, it's important to analyze ***climate change*** on the ecosystem scale rather than for areas defined by man-made boundaries. Doing so provides consistency across a vast and varied landscape that's dissected by three different states and multiple state and federal jurisdictional boundaries.

"The Greater Yellowstone ***Climate*** Assessment is also being completed at a time when public concerns about ***climate change*** are on the rise at regional, national, and international levels," said Charles Drimal, waters conservation coordinator for the Greater Yellowstone Coalition. "It's hard not to notice ***climate change***'s impacts to our region's environment and how that is influencing economic sectors and public engagement on the topic."

The GYC, which interviewed more than 40 stakeholders throughout the region, describes the study as both a science and "stakeholder driven" assessment.

Notably, no state or federal agency commissioned the Greater Yellowstone ***climate*** assessment. It was produced in cooperation between scientists from the U.S. Geological Survey and National Park Service, university researchers in Montana and Wyoming, as well as several nongovernmental organizations such as the GYC.

Wyoming, home to 96% of Yellowstone National Park and the majority of the Greater Yellowstone Area, and with an economy and budget closely tethered to fossil fuels extraction, has declined to directly assess local ***climate*** trends and implications in the global ***climate*** crisis.

The current and previous gubernatorial administrations have not filled the Wyoming State Climatologist position.

"At this time there are no ***climate*** assessment or studies currently in the works," Gov. Mark Gordon's spokesman Michael Pearlman told WyoFile.

That type of "red state" resistance was a concern in Montana, too, said Cathy Whitlock, professor of Earth Sciences, fellow and former co-director of the Montana Institute on Ecosystem at Montana State University.

Without prompting from official channels of political power, she helped convene interest from Montana universities, tribes, and scientists at state and federal agencies to produce a Montana ***climate*** assessment, published in 2017. They found financial support from the National Science Foundation.

Since, Montana officials have regularly referred to the assessment when discussing the state's future. She is no longer reluctant to discuss ***climate change*** in public forums because her initial fears of backlash have been allayed, Whitlock said.

The Greater Yellowstone ***climate*** and water assessment is an extension of Montana's ***climate*** assessment effort, and the plan is to expand the work to support full ***climate*** and human health assessments for Wyoming and Idaho.

For Whitlock, the effort to understand local ***climate change*** and its implications were as much personal as professional; she loves Montana's expansive landscape, and especially loves the Yellowstone region, she said.

"I've done research in Yellowstone for 40 years," Whitlock said. "It pulls at my heartstrings, the whole ecosystem."

The first phase of the Greater Yellowstone ***climate*** assessment focuses on historic, current and projected ***climate*** conditions and what they indicate for the future of a warming region in the six headwaters watersheds that span vast areas of Wyoming, Montana and Idaho.

Whitlock said the work is a foundation for continued ***climate*** and human-health assessments throughout Montana, Idaho and Wyoming. It's stunning, she said, that the headwater states of Wyoming and Montana are so vital to the rest of the nation on both sides of the Continental Divide, yet their politics have not prioritized this type of work.

"People want information, and they'll evaluate it," she said, especially when they can apply their own experiences and are asked to share their own observations and learn how to prepare for a very different future.

Graphic

A Yellowstone National Park sunset. A newly released ***climate*** study says ***changes*** threaten to upset traditional land uses and commerce for the region that has seen its population more than double in the past 50 years. Steve Halama photo Unsplash

Classification

Language: ENGLISH

Publication-Type: Newspaper

Subject: NATIONAL PARKS (92%); ECOSYSTEMS & HABITATS (90%); FRESHWATER ECOSYSTEMS (90%); LAND USE & DEVELOPMENT (90%); LAND USE PLANNING (90%); PARKS & RECREATION DEPARTMENTS (90%); PUBLIC LAND MANAGEMENT (90%); WATER RESOURCES (90%); ***CLIMATE CHANGE*** (89%); CLIMATOLOGY (89%); FISHES (89%); RESEARCH REPORTS (89%); WILDLIFE (89%); AQUIFERS & WATERSHEDS (78%); BIRDS (78%); FORESTS & WOODLANDS (78%); GLOBAL WARMING (78%); INDIGENOUS PEOPLES (78%); MAMMALS (78%); RIVERS (78%); SCIENCE & TECHNOLOGY (78%); WRITERS (78%); INVASIVE SPECIES (76%); MEDICINE & HEALTH (76%); NATIVE AMERICANS (73%); RESEARCH INSTITUTES (73%); news (%); wyoming & the west (%); yellowstone national park (%); average temperatures (%); headwaters region (%); ***climate*** study (%); upset traditional land uses and commerce (%); population more than double (%); warmer days and nights, warmer winters, and hotter summers (%); warmer conditions will affect water supplies, natural and managed ecosystems, economies, and human and community well-being (%); national park service (%); snowpack is shrinking (%); whitebark pine trees (%); prone to invasive species (%); fish spawning (%); health of aquatic systems (%); grassland habitats (%)

Organization: NATIONAL PARK SERVICE (82%)

Industry: NATIONAL PARKS (92%); LAND USE PLANNING (90%); GEOTHERMAL ENERGY (78%); GLOBAL WARMING (78%); WRITERS (78%); PUBLISHING (74%)

Geographic: WYOMING, USA (94%)

Load-Date: June 27, 2021

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