

INTERMOUNTAIN WEST CLIMATE SUMMARY



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The National Climate Assessment – Available and forthcoming resources for the Intermountain West and beyond

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Introduction and Background

The National Climate Assessment (NCA) is a periodic synthesis of climate change science and projected impacts across the United States. It serves a role similar to the reports produced by the Intergovernmental Panel on Climate Change (IPCC), which operates at the global scale. The reports and products of the most recent NCA present both a broad overview of climate science, and more specific information and guidance for regions and sectors. While these resources have been available for a few years, many people outside of the climate research community may not be aware of them. In this article we describe NCA products likely to be of greatest relevance to WWA stakeholders in the Intermountain West. We also describe the ongoing effort to produce the next NCA, to be released in 2013, and to engage stakeholders in a continuous assessment of climate impacts.

The NCA originated with the 1990 Global Change Research Act, signed by President G. H. W. Bush, which requires a report every four years evaluating and synthesizing the findings of the interagency U. S. Global Change Research Program (USGCRP). The USGCRP coordinates and integrates federal research, conducted in 13 federal departments and agencies, on changes in the global environment and their implications for society. Collectively, USGCRP research is supported by about \$2.6 billion of federal funds annually.

The 2000 Assessment

The first National Climate Assessment, completed in 2000, produced a national-level synthesis entitled “Climate Change Impacts on the United States”. It included nine regional and five sector chapters. As part of the development of this assessment, local

workshops were held to develop more detailed regional climate change assessments. The Rocky Mountains and Great Basin Assessment, which included much of Colorado, Utah, and Wyoming, was released in 2003. Both the national and regional assessments were limited by the use of climate projections from only two global climate models (GCMs). In the Rocky Mountains and Great Basin, those two GCMs projected much greater precipitation for the region by the late 21st century, a result inconsistent with the larger ensemble of next-generation GCMs used for the next assessment.

The 2009 NCA and relevant products for stakeholders

The next and most recent National Climate Assessment was completed in 2009. The main report, entitled “Global Climate Change Impacts in the United States,” includes chapters on nine regions and seven sectors. The report summarizes 21 separate Synthesis and Assessment Products (SAPs), in-depth reports that address key policy-relevant issues in climate science. The main

Mission of the National Climate Assessment

To establish a continuing, inclusive national process that:

- Synthesizes relevant science and information
- Increases understanding of what is known and not known
- Identifies information needs related to preparing for climate variability and change, and reducing climate impacts and vulnerability
- Evaluates progress of adaptation and mitigation activities
- Informs science priorities
- Builds assessment capacity in regions and sectors

Source: National Climate Assessment program office



report also draws on the latest IPCC reports (AR4; 2007) and the much broader set of GCMs, more than 20, used in the IPCC's Fourth Assessment reports.

Global Climate Change Impacts in the United States is under 200 pages, written for a non-technical audience, and extensively illustrated. It provides in a single document many key maps, charts, and graphics depicting ongoing and projected climate change. Chapters that may be of particular interest to IWCS readers are those on Water Resources, Ecosystems, Energy Supply and Use, Agriculture, and on regional climate impacts on the Southwest (including Utah and most of Colorado) and the Great Plains (including Wyoming and eastern Colorado). The box below provides the key findings of the report.

Of the 21 SAPs, most address different aspects of climate science and climate modeling. Several others assess the sensitivity and vulnerability of different natural and managed systems to climate change, including, in SAP 4.3, agriculture, forest resources, water resources, and biodiversity. Three examine the use of climate information to support decision-making in the context of uncertainty related to climate forecasts and projections. The box on p.3 lists selected SAPs most likely to be of interest to IWCS readers.

The forthcoming National Climate Assessment

Work is already well underway on the next NCA, to be completed in 2013. This process is different from previous national assessments in several respects, as it

will:

- Be a continuing assessment effort, not only a periodic report-writing activity;
- Use a risk-based framework, employing national indicators of change;
- Include an evaluation of national progress in climate adaptation and mitigation;
- Provide region- and sector- specific web-based information that supports decision-making processes; and
- Build capacity for assessments in regions and sectors.

Towards the last objective, many stakeholders in our region took part in a workshop co-sponsored by WWA in June 2011 in Boulder to review and build the capacity to conduct regional climate assessment for the Colorado River Basin (workshop homepage: http://www.climas.arizona.edu/workshops/NCA_CRB).

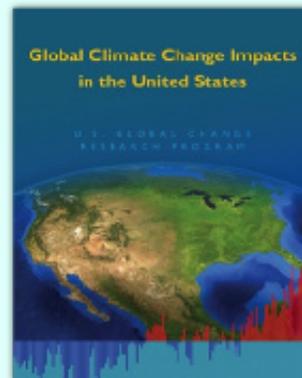
As with previous assessments, this NCA will produce an overall report with regional and sector chapters, while also covering cross-cutting topics such as energy, water, and land; urban areas, infrastructure, and society; rural communities, agriculture, and development; tribal lands and resources, and land use and land cover change. In addition, there will be three cross-sector river basin case studies, including one on the Colorado River. Our three-state Intermountain West region is again split into two regions in the NCA: Southwest (Utah and Colorado, with four other states), and Great Plains (Wyoming, with eight other states).

***Global Climate Change Impacts in the United States* – the main report of the 2009 National Climate Assessment**

Available for download at
<http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/download-the-report>

Key findings:

- Global warming is unequivocal and primarily human-induced.
- Climate changes are underway in the United States and are projected to grow.
- Widespread climate-related impacts are occurring now and are expected to increase.
- Climate change will stress water resources.
- Crop and livestock production will be increasingly challenged.
- Coastal areas are at increasing risk from sea-level rise and storm surge.
- Risks to human health will increase.
- Climate change will interact with many social and environmental stresses.
- Thresholds will be crossed, leading to large changes in climate and ecosystems.
- Future climate change and its impacts depend on choices made today.



WWA researchers are participating in the development of reports for both of those regions and also assisting with multiple sector reports.

The Southwest Climate Assessment – coming out in summer 2012

To develop the Southwest region chapter of the NCA, WWA has joined its sister RISA programs, Climate Assessment for the Southwest (CLIMAS) and the California-Nevada Applications Program (CNAP), and other research groups within the Southwest Climate Alliance (<http://www.southwestclimatealliance.org>), which is spearheading the DOI-funded Southwest Climate Science Center. The Southwest Climate Alliance has put together an author team from universities and agencies throughout the region. The regional report will be given to NCA program staff in spring 2012 and then refined and released to the public as the “Southwest Climate Assessment” in summer 2012, separately from the NCA process. This report will be a stakeholder-oriented document along the lines of WWA’s 2008 *Climate Change in Colorado* report, though covering a much larger area and many

more sectors and topics.

Continuing Stakeholder Engagement

As mentioned above, the ongoing National Climate Assessment is intended to develop a process for long-term stakeholder engagement and continual assessment of climate science and impacts. As part of that effort, the NCA is seeking assistance in developing an engagement strategy and is looking for more input on how to ensure that their work is useful to stakeholders around the country. For more information on the NCA engagement strategy, or to offer feedback, visit the NCA homepage below and click on “NCA Activities”.

Additional Resources

The National Climate Assessment homepage: <http://www.globalchange.gov/what-we-do/assessment>

Selected Synthesis and Assessment Products (SAPs) produced by the USGCRP to support the 2009 National Climate Assessment

These and the other 13 SAPs are available for download as PDFs; go to <http://www.globalchange.gov/publications/reports/scientific-assessments/saps> and click on the SAP of interest to open the download page for that SAP. The same page also allows you to order a free hardcopy of the SAP from the USGCRP.

Climate Models: An Assessment of Strengths and Limitations (2008) – SAP 3.1

Weather and Climate Extremes in a Changing Climate (2008) – SAP 3.3

Abrupt Climate Change (2008) – SAP 3.4

Thresholds of Climate Change in Ecosystems (2009) – SAP 4.2

Effects of Climate Change on Agriculture, Land Resources, Water Resources, and Biodiversity (2008) – SAP 4.3

Preliminary Review of Adaptation Options for Climate-Sensitive Ecosystems and Resources (2008) – SAP 4.4

Uses and limitations of observations, data, forecasts, and other projections in decision support for selected sectors and regions (2008) – SAP 5.1

Best practice approaches for characterizing, communicating, and incorporating scientific uncertainty in decision-making (2009) – SAP 5.2

Decision support experiments and evaluations using seasonal to interannual forecasts and observational data (2008) – SAP 5.3

