BUREAU OF RECLAMATION

2021 SECURE Report

Presentation for the Western States Water Council

October 15, 2020

Overview of Presentation

- Introducing the 2021 SECURE Water Act (SWA) Report – Avra Morgan
- West-Wide Climate and Hydrology Assessment – Subhrendu Gangopadhyay

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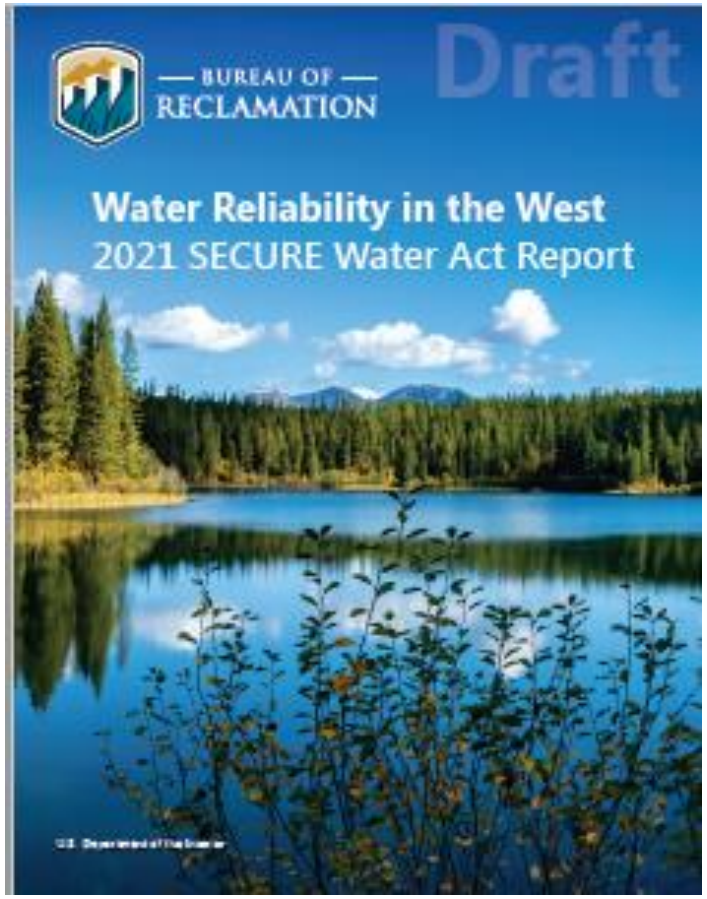
2021 SECURE Water Act Report



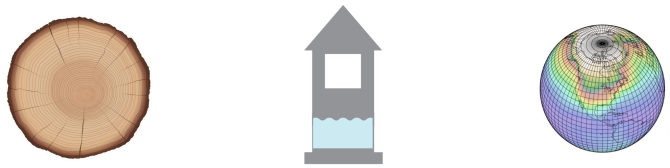
P.L. 111-11, Subtitle F, SECURE Water Act, Section 9503(c) Requirement

REPORTING. Not later than 2 years after the date of enactment of this Act, and every 5 years thereafter, the Secretary shall submit to the appropriate committees of Congress a report that describes—

1. Effects and risks resulting from global climate change with respect to the quantity of water resources
2. Impacts of global climate change with respect to operations
3. Mitigation and adaptation strategies considered and implemented
4. Coordination activities conducted
5. Implementation of a monitoring plan in coordination with NOAA, USGS and NRCS

2021 SECURE Report Overview

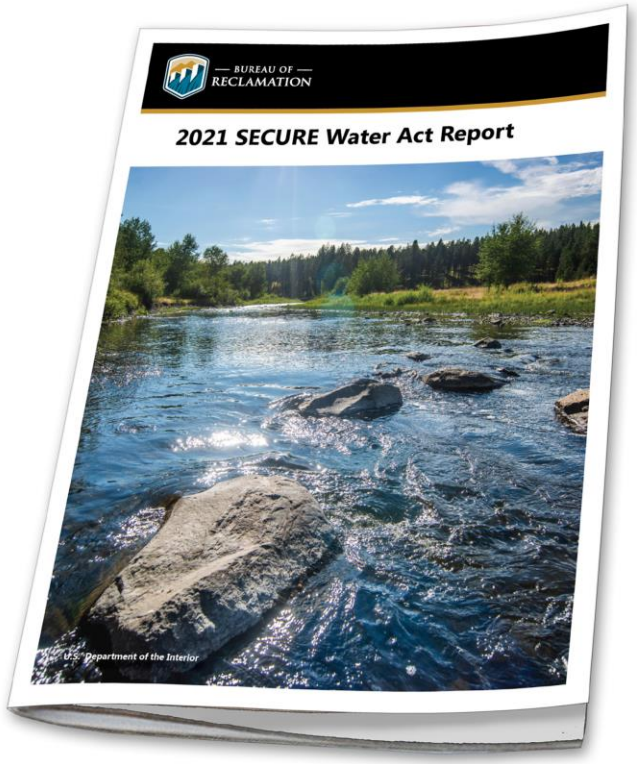
- Describes long-term trends in hydrology and actions to increase reliability of water and power deliveries
- Provides information useful in future hydrology assessments
- Compiles work completed since 2016 SWA Report and draws on:
  - West-Wide Assessment



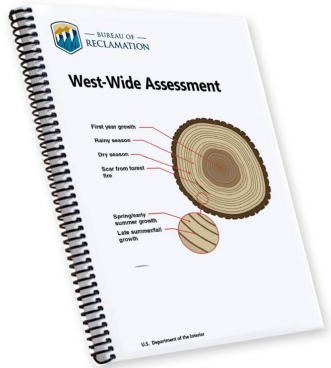
  - Basin reports for each of the “eight major Reclamation river basins”
  - Actions across Reclamation to improve the reliability of water and power deliveries
- Uses a streamlined approach tailored to the audience, Congress.

2021 SECURE Report Components

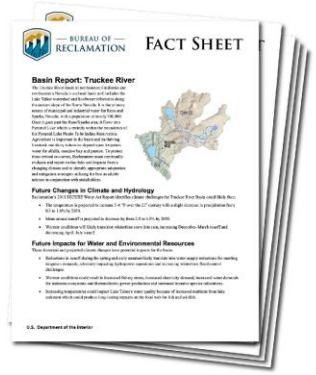
Summary Report to Congress



Supporting Technical Materials and Other Resources



West-Wide Assessment



Fact Sheets

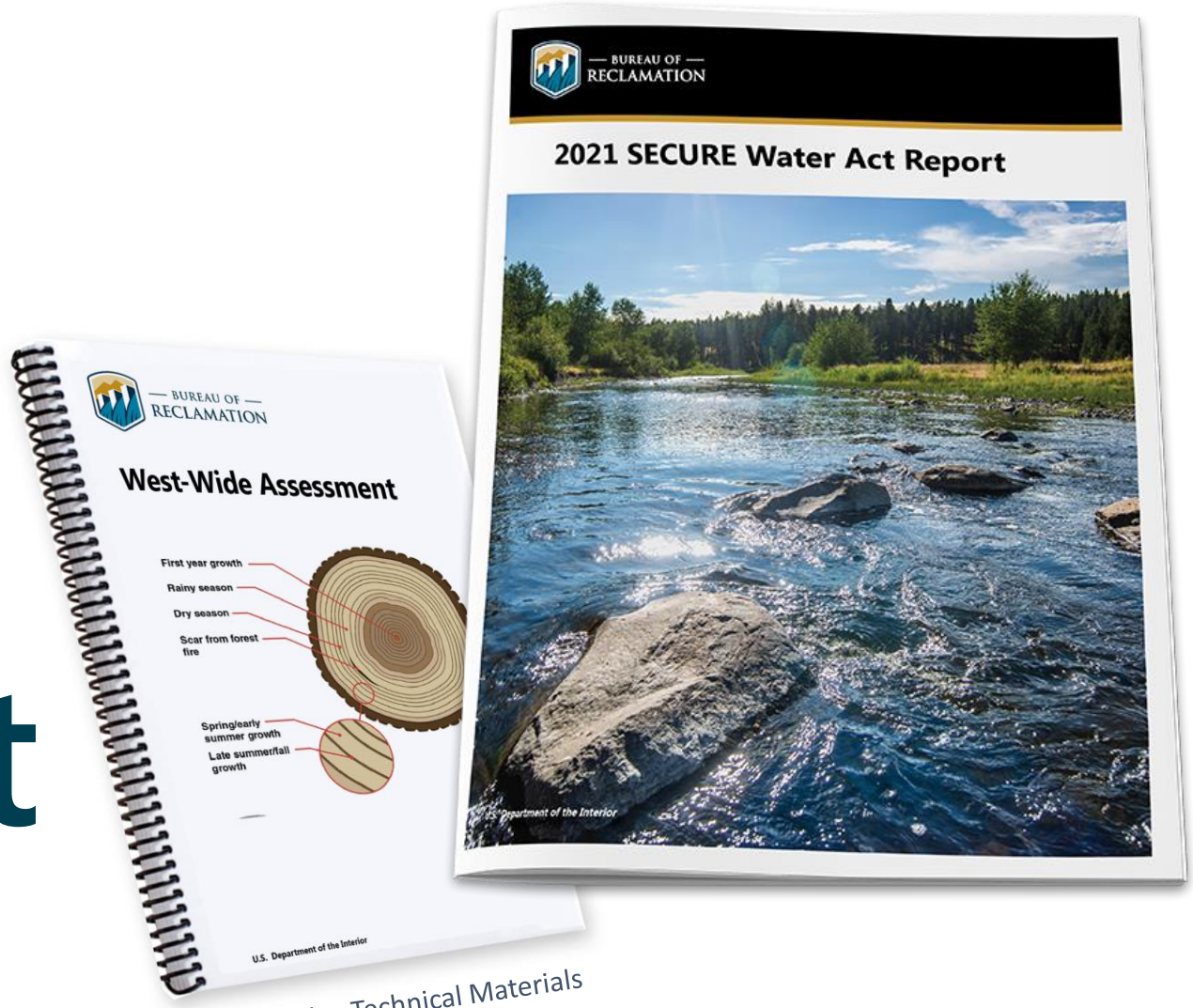
Basin Chapters
Results from Basin Studies, Pilots and Innovations

Online Tool

Schedule

- Peer Review of West-Wide Assessment: November 2020
- External review of Summary Report to Congress: January 2021
- Submit to Congress: March 2021

West-Wide Assessment

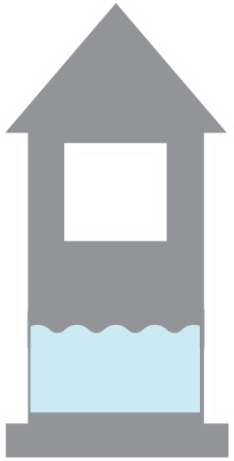


Supporting Technical Materials

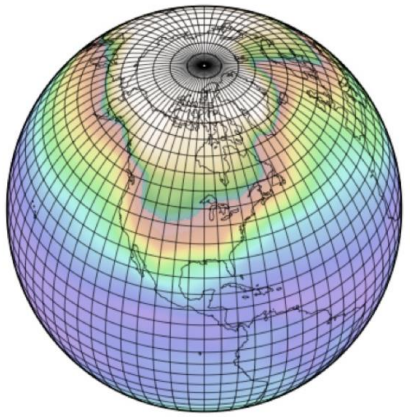
Overview of analyses

West-wide evaluations of hydroclimate information to help inform system reliability during warmer, wetter, and drier periods using:

Paleohydrology



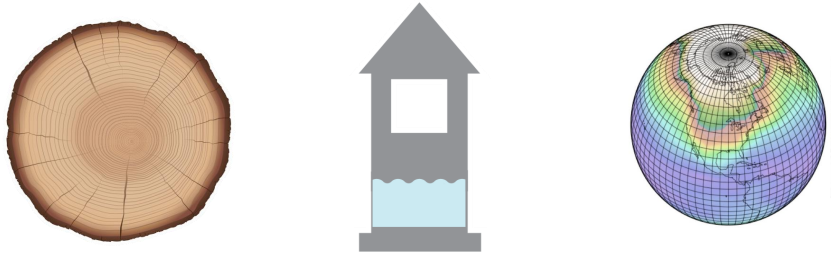
Stream gages



Future climate projections

SECURE Water Act and 2021 Report Analysis

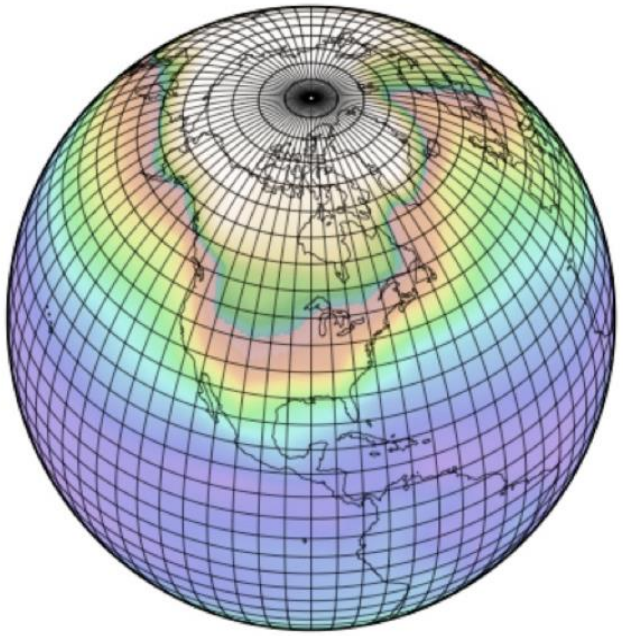
Supporting risk-informed decision making



Risk-informed decision making incorporates **a diverse set of information** to support water management decisions

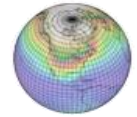
- Assessment of risks to water supply related to changes in precipitation, temperature, snowpack, runoff, groundwater recharge and discharge, water demand, reservoir evaporation
- Analyze risks, including the likelihood of occurrence of droughts and their impacts to metrics of water reliability based on river systems models
- Past SECURE Reports (2011 and 2016) include future West-wide hydroclimate Assessment
- 2021 SECURE Report expands into West-wide Analysis using a risk-informed decision-making framework

Future hydroclimate projections



- Provide state-of-the-science climate projections that are consistent throughout the West
- Uses new, LOcally Constructed Analog (LOCA) downscaling approach with CMIP5
- Results similar to 2016 SECURE Report (BCSD-CMIP5), including impacts to temperature, precipitation, snowpack and runoff

Risk Analysis and Assessment

Water			Data and Time Periods			2021 West-Wide Climate and Hydrology Assessment
 Supply	 Demand	 Management	 Paleo-reconstructions pre-20th Century	 Instrumental 20th Century	 Climate Projections 21st Century	
✓	✗	✗	✗	✓	✓	Hydroclimate Projections for Major Reclamation River Basins (Ch. 3)
✓	✓	✗	✓	✓	✓	West-Wide Drought Analysis (Ch. 4)
✓	✓	✗	✓	✓	✗	Storage-Deficit Ratios and Risk Analysis (Ch. 5)
✓	✓	✓	✓	✓	✓	Water Supply Reliability Assessment (Ch. 6)

West-Wide Climate and Hydrology Assessment Report Chapters

- Ch. 1 Introduction
- Ch. 2 Background
- Ch. 3 Hydroclimate Projections for Major Reclamation River Basins
- Ch. 4 West-Wide Drought Analysis
- Ch. 5 Storage-Deficit Ratios and Risk Analysis
- Ch. 6 Water Supply Reliability Assessment
- Ch. 7 Urban Landscape Demands Analysis
- Ch. 8 Climate Impacts on Groundwater
- Ch. 9 Uncertainty Analysis
- Ch.10 References

Questions?

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