Colorado River Basin State Water Data Initiatives

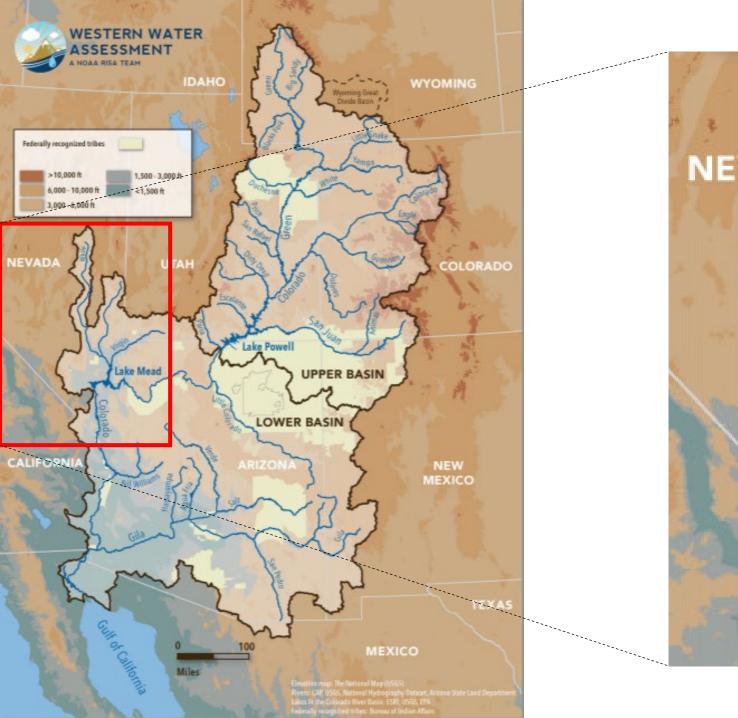
Perspectives from Southern Nevada

Seth A. Shanahan

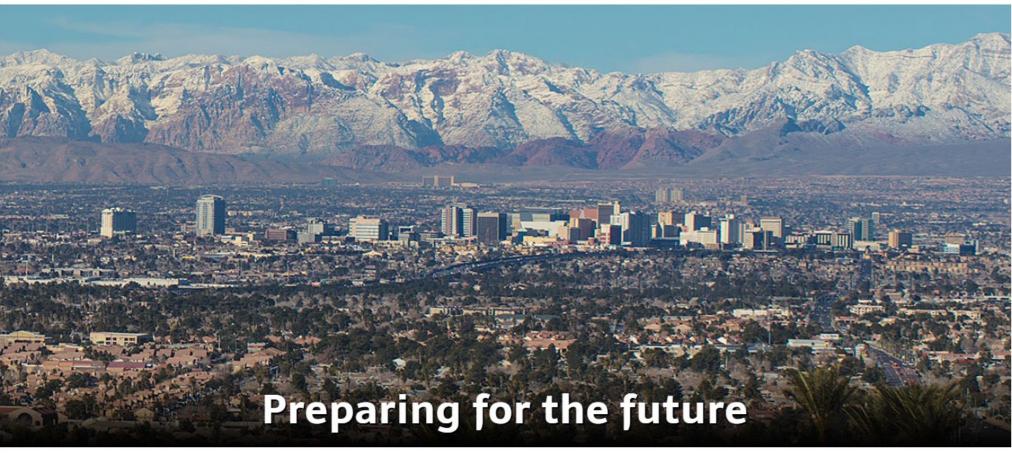
Colorado River Programs Manager

Southern Nevada Water Authority

May 28, 2020







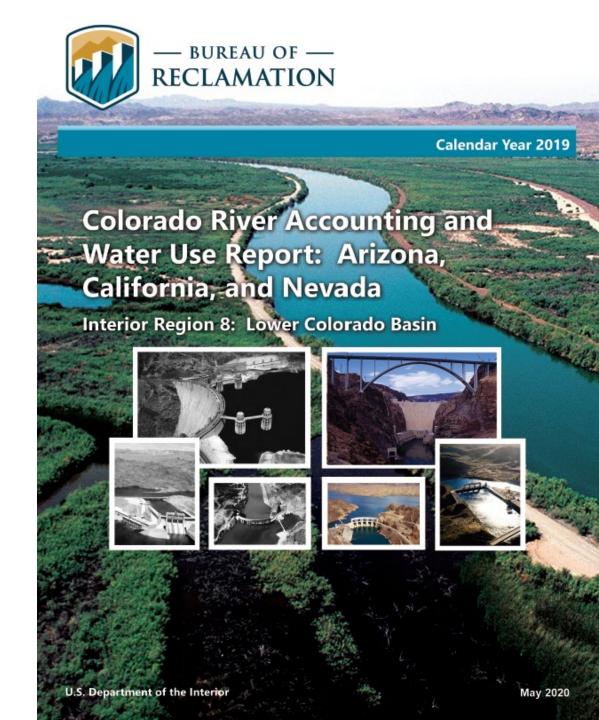
The Water Authority has worked diligently to maximize existing water available to Southern Nevada and to plan for our community's future.

Water resource portfolio

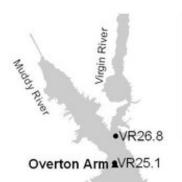
The Water Authority maintains a flexible portfolio of water resources that can be used to meet the short- and long-term water needs of our community. Having a

Presentation Topics Requested

- Progress report
 - Water data initiatives
 - Data sharing
 - Consumptive use modeling
- IOW, OpenET, and WADE use in the Basin
 - Ways to collaborate
 - Case studies



LCR Water Quality Database



•VR18.0

Legend

- SNWA Intake
- USGS Platforms
- Sampling Station Locations





Thermal stratification

During warmer months, the lake's top portion of water heats up faster than the deeper portions, causing a distinct layering of water or thermal straffication. Separating warm and cold water, thermal straffication protects the deeper layer of water by forming a natural barrier that keeps crapanisms and pollution near the surface. Located at the same depth as the intakes, the deeper layer of water also is of better quality.

Destratification—the breakdown of these layers as the water becomes isothermic, or one temperature throughout—can occur in the winter, increasing the possibility of pollutants traveling near the intakes.

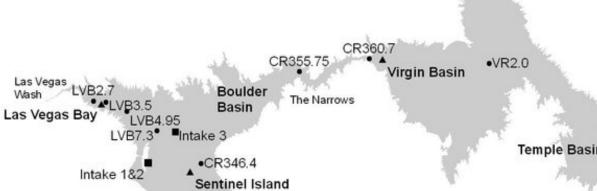
Lower Colorado River water quality monitoring

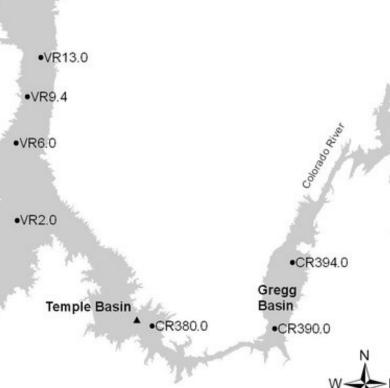
The Lower Colorado River Regional Water Quality Database contains more than a million records covering nearly 1,000 parameters including depth, temperature, pH, conductivity, dissolved oxygen, nutrients, metals, and organics.

Information in the database is provided by SNWA. City of Las Vegas, Clark County Water Reclamation District, UNIX, Bureau of Reclamation Denver, Bureau of Reclamation Lower Colorado River, City of Henderson, Metropolitan Water District of Southern California, Clark County Regional Flood Control District, Colorado River Regional Severe Coalition, Central Arizona Project, and Nevada District of Southernage and Protections.

Email us for access to the Lower Colorado River Regional Water Quality



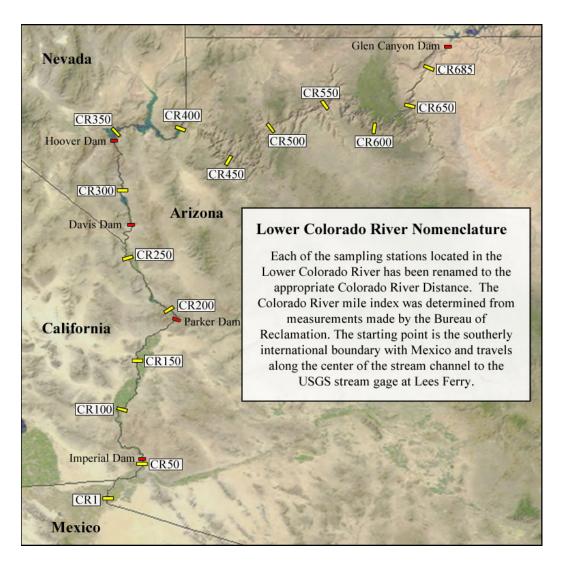




•CR342.5

Hoover Dam

LCR Water Quality Database



- Data from Lake Powell to the US-Mexico border
 - Most from upper Lake Mead to Lake Mohave and the Las Vegas Wash
- Data from 1919 to present
 - Most 1990's to present
- Data from all agencies sampling Lake Mead and the Las Vegas Wash
 - SNWA, Rec., NPS, USGS, cities, States

LCR Water Quality Database

- Approx. 2 million records
- Several hundred parameters
 - Organic, inorganic chemistry
 - Physical and optical
 - Biological (limited)
 - Reports and synthesis documents

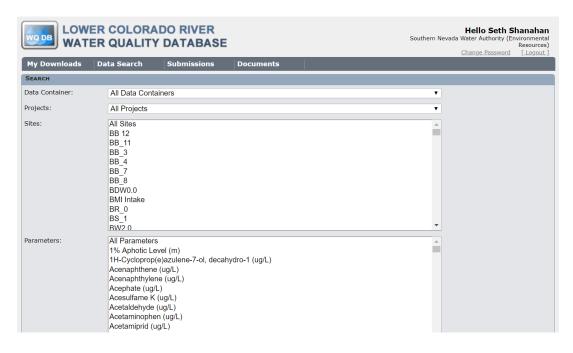


LCR Water Quality Database – Quality Control

- SNWA oversees the database structure and is responsible for data we collect
 - We submit, review and approve data within 1 week to 1 month of collection for most parameters
- Data provided by other agencies is their own responsibility
 - QA/QC, uploads, timeliness, parameters, detection limits, etc.

LCR Water Quality Database — Structure

Current



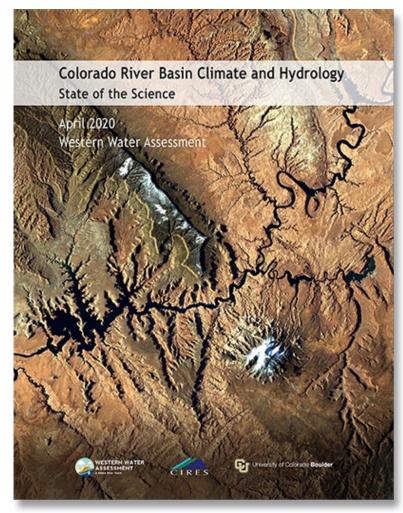
Future



LCR Water Quality Database — Data Availability

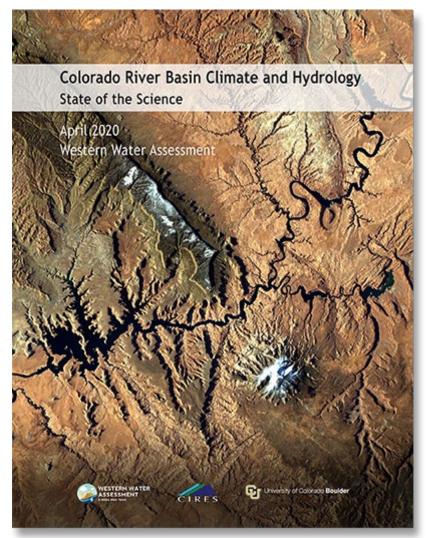
- Data is available to interested parties and the public
- For access please contact:
 - todd.tietjen@snwa.com
 - Include contact email and a brief statement of interest

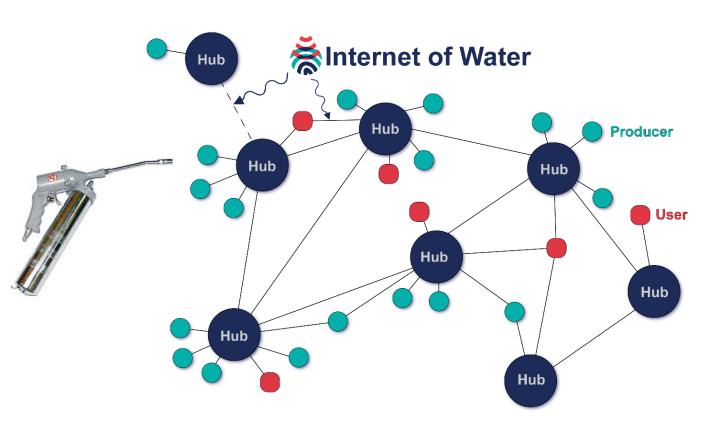
- Volunteer group of more than a dozen federal, state, and local water management agencies and other ad-hoc participants
- Goals
 - Advance scientific understanding to improve the accuracy of hydrological forecasts and projections
 - Enhance the performance of predictive tools
 - Better understand the uncertainty related to future supply and demand conditions in the Colorado River Basin
- ~\$1.5M in research investments to date



State of the Science Report

- Goal "...the report seeks to establish a broadly shared understanding that can guide the strategic integration of new research into practice."
- Funded by the Work Group
- What's in it?
 - Major links in the chain of data and models are examined
 - Challenges identified
 - Opportunities to address challenges





Consumptive Use Modeling Project

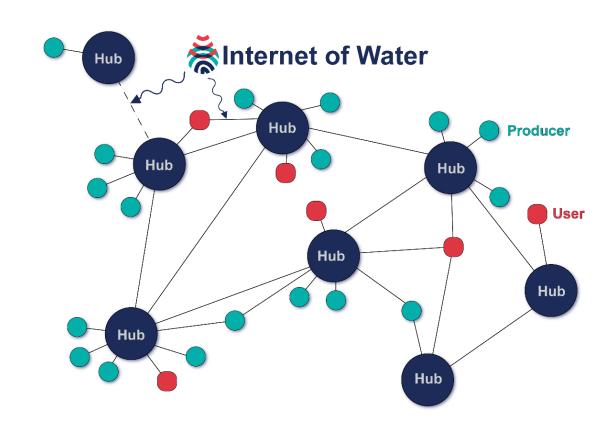
- Goal Improve CBRFC streamflow forecast
- Funded by 6AC, ADWR, CAP, CBRFC, DW, Reclamation, SNWA, UDWR, and in-kind
- Term Nov. 2019 to Nov. 2020
- Tasks
 - Evaluate CO's StateCU model
 - Calibrate model to natural flow (unregulated) time series
 - Design and implement CU model into CBRFC framework

OpenET – Opportunities

- Managing and verifying the agricultural surface water rights that SNWA controls on the Muddy and Virgin Rivers
- Quantify system conservation programs
- Estimating agricultural and urban landscape demands, e.g., for Reclamation's SECURE Water Act reporting, etc.
- Integration of OpenET "ensemble" approach wherever OpenET is adopted

IOW – Opportunities

- Lower Colorado River water quality data "Hub"
- Climate and Hydrology Work Group can help facilitate IOW



Questions







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