

NATIONAL WATER REUSE ACTION PLAN

COMPLETED ACTION

Action 5.4 Develop National Integrated Water Availability Assessments



Background

Water resource managers need tools and information that support decision-making for human and ecological water uses, including potential reuse of water supplies. The U.S. Congress tasked the USGS and other federal agencies with conducting regular, comprehensive assessments of water availability in the United States through the requirements under Subtitle F of the Omnibus Public Land Management Act of 2009 (Public Law 111-11), also known as the SECURE Water Act. The USGS, through Integrated Water Availability Assessments (IWAAAs), is developing the capacity to understand current and future water availability in terms of quantity, quality, and water use. IWAAAs allow water managers to: 1) evaluate current water supply and demand, 2) evaluate long-term trends in water availability, 3) provide seasonal to decadal forecasts of availability, and 4) inform water resource decisions through development of socioeconomic tools.

The USGS is actively developing the capacity to report periodic water availability through indices that integrate quantity, quality, and use. In December 2019, the USGS released the initial [National IWAAAs](#), which report water availability in terms of quantity only. Building upon decades of water quality data collection and assessments, as well as current research to better understand the downstream impacts of wastewater discharge on water quality, the USGS is adding indices that represent water quality to the National IWAAAs. In January 2025, the USGS developed the [U.S. Geological Survey Integrated Water Availability Assessment—2010–20](#), as part of the fulfillment of the mandates of the SECURE Water Act.

Accomplishments/Impact

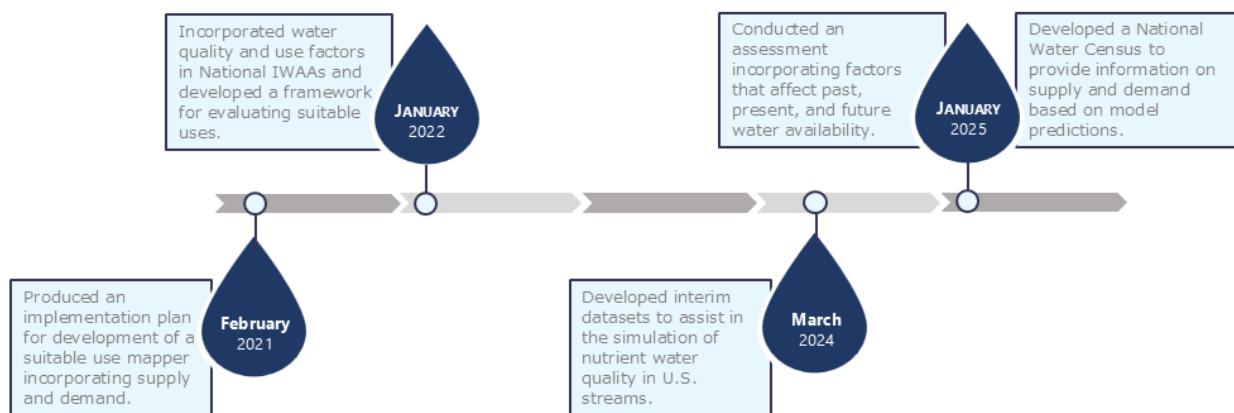
- Developed the [U.S. Geological Survey Integrated Water Availability Assessment—2010–20](#), which examines the spatial and temporal distribution of water quantity and quality in surface water and groundwater, as related to human and ecosystem needs and as affected by human and natural influences. The National IWAA culminates with an integrated assessment of water availability that considers the amount and quality of water coupled with the suitability of that water for specific uses, including reuse. The assessment uses state-of-the-art models to enable a new evaluation of the balance between natural water supply and water demands at fine scales, providing new insight on areas of the United States with a supply-use imbalance. In addition, the underlying modeled water supply and demand data spanning multiple decades into the past are available in the [National Water Availability Assessment Data Companion](#).
- Developed an interactive web-based [Water Availability in the United States](#) tool to visually present the eight key findings of the National IWAA and companion data.

Lessons Learned

Key findings of National IWAA, as summarized in the report and web-based [Water Availability in the United States](#) tool, include the following lessons learned regarding the Nation's water availability:

- An understanding of withdrawals of water (where, when, how much, and for what purpose) for human use is fundamental to the evaluation of the Nation's water availability.
- Understanding how changes in major drivers impact the water cycle and simulating these impacts accurately in hydrological models is crucial to predicting future water availability. The top threats to water availability for humans and ecosystems in North America include increases in drought and aridification, flooding and heavy precipitation, and cryosphere decline (decreases in the timing and extent of ice or frozen ground).
- Predictions of future water availability can support the development of adaptation strategies to ensure sufficient quantity and quality of water supplies for humans and ecosystems.
- Water availability, which the report defines as the spatial and temporal distribution of water quantity and quality, as related to human and ecosystem needs, can be limited by different factors depending on the needs of a water user. The comprehensive description of water availability requires consideration of multiple aspects such as the amount and conditions of water (quantity and quality), along with the sensitivity of users to those conditions.
- High water use can lead to limitations in water availability because it is associated with depletion of water supplies and potential impairment of water quality, which can affect water availability for downstream users. Water supply, calculated as runoff in the National IWAA, is much higher than total nationwide consumptive water use; however, in arid and semiarid parts of the United States (such as the High Plains and Western aggregated regions of the United States) limitations on water are more common.
- Approximately 27 million people live in areas where water use is a high percentage of surface-water supply, indicating a high degree of local water stress. Further, a higher proportion of the people living in these areas are considered socially vulnerable compared with those living in areas of more local water availability.

Action Implementation Process



Potential Future Activity

USGS is planning to develop another National IWAA for release in 2030, which will include future water availability scenarios. Additional datasets and model results will be included in the associated data companion as they become available.

Additional Resources

- Additional information on National IWAAAs can be found at [Integrated Water Availability Assessments | U.S. Geological Survey](#).