A National Water Census

* Part of the Initiative
Our objective for the Water Census:

To place technical information and tools in the hands of stakeholders, allowing them to answer two primary questions about water availability:

Does the Nation have an enough freshwater to meet both human and ecological needs?

Will this water be present to meet future needs?
How did we get to where we are today?

2002
Great Lakes Pilot Study

2005

2007
SECURE Water Act

2009

2009

2011
Water Availability and Use Assessment

2002

2005

2007

2009

2011

Great Lakes Pilot Study

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2002

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Great Lakes Pilot Study

SECURE Water Act

Water Availability and Use Assessment

2002

2005

2007

2009

2011
# Stakeholders on ad hoc committee

<table>
<thead>
<tr>
<th>Organization</th>
<th>Acronym</th>
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<tr>
<td>Association of American State Geologists</td>
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<td>Association of Fish and Wildlife Agencies</td>
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Account for water with a “budget”
And if you could get that info for all accounting components:

- Precipitation
- Runoff
- Baseflow
- ET
- Recharge
- Surface Storage
Information Delivery

A web application for delivering water availability information at scales that are relevant to the user

Select the area of interest.

Generate information on water accounting components

Work with the online tool to construct your water budget

Access trend information
Enhancing the Nation’s Water Use Information

Use New Methods to Estimate Water Use
- Stratified Random Sampling
- Regression Models

Ability to track water from point of withdrawal thru to return of flow.

Develop models of water use based on land use
New Authority: Water Use Grants to States
Flows Needs for Wildlife and Habitat

- Assist classifying water bodies for their hydro-ecological type
- Provide tools and data to systematically assess the ecological affects of hydrologic alteration
- Assist users to develop flow or water level alteration – ecological response relationships by type of water body
Assess Water Quality’s role in Water Availability

Use the strength of the NAWQA Program and tools like SPARROW to:

• Demonstrate the degree of water quality impairment that limits water availability.
• Define the main compounds of importance.
• Relate to water use and return.
• Trends.
Assess the Nation’s Brackish Resources

Continue and strengthen the effort begun under the Challenge Projects RFP for 2010

- Locations of the res.
- Hydrologic properties
- Water quality properties
- Current uses
Assess Groundwater’s role in Water Availability

Use the strength of and enhance the resources within this program to provide the information on:

- Recharge
- GW yields
- Changes in storage.
- Saltwater Intrusion
- Trends in GW Indices
- Artificial Recharge
- GW/SW Interactions
Finally, three studies focused on selected watersheds: the Colorado River, the Delaware River, and the ACF Rivers - where there is significant competition over water resources. Here, the USGS will work collaboratively with stakeholders to comprehensively assess the technical aspects of water availability.
Focused Water Availability Assessments

- State, Local, Regional Stakeholder Involvement
- SW Trends, Precipitation, etc
- Groundwater Resources
- Water Quality
- Water Use
- Eco Flows
- Global Change

Defined Technical Questions to be Answered
Framework for GW Availability at a Regional Scale--Principal Aquifers

Priority Aquifers for a National Assessment of Groundwater Availability
California’s Central Valley

Central Valley Groundwater Budget

Pre-development

Post-development
Spatial Variability

Average annual groundwater budget for 21 water balance areas

Source: Faunt, 2009
Temporal Variability

Groundwater budget changes through time

Source: Faunt, 2009
Cumulative Change in Storage

Source: Faunt, 2009

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Legend:
- Central Valley Overall
- Sacramento
- San Joaquin Basin
- Delta and Eastside Streams
- Tulare Basin

‘Variable’ to Dry
Outcomes

- Water budgets of major aquifers systems
- Trends in groundwater use, storage, recharge, and discharge
- Groundwater models that provide
  - Regional context for more local studies
  - Tools to make future projections of groundwater availability
- Region-wide estimates of key hydrologic variables
- Assess climate variability effects on future groundwater availability
- Evaluation of existing networks for monitoring groundwater availability