National Water Census and Survey of Agricultural Users

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National Water Census

Part of the SECURE Water Act of 2009.
Directs U.S. Geological Survey to assess water availability nationally.

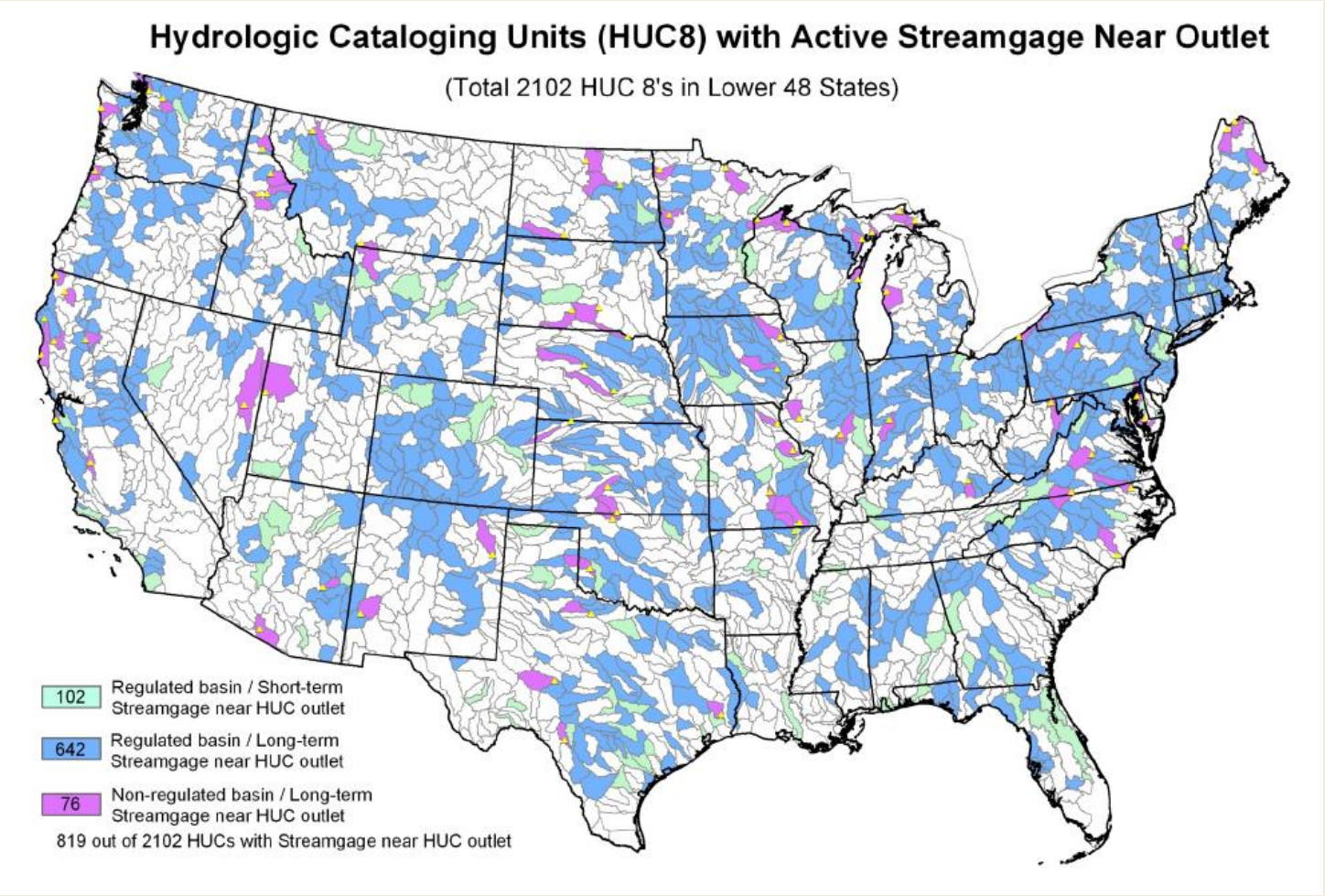
Overarching questions:

1. **Does the Nation have enough fresh water to meet human and ecological needs?**
2. **Will this water be present to meet future needs?**

Water Census Goals:

- **Assess current availability of water**
- **Identify significant trends affecting water availability**
- **Catalog surface and groundwater use across twelve sectors**
- **Identify significant trends in water use**
- **Identify potential conflicts of water use**

National Water Census



Develop water budgets across the nation aggregated at the HUC 8 scale.

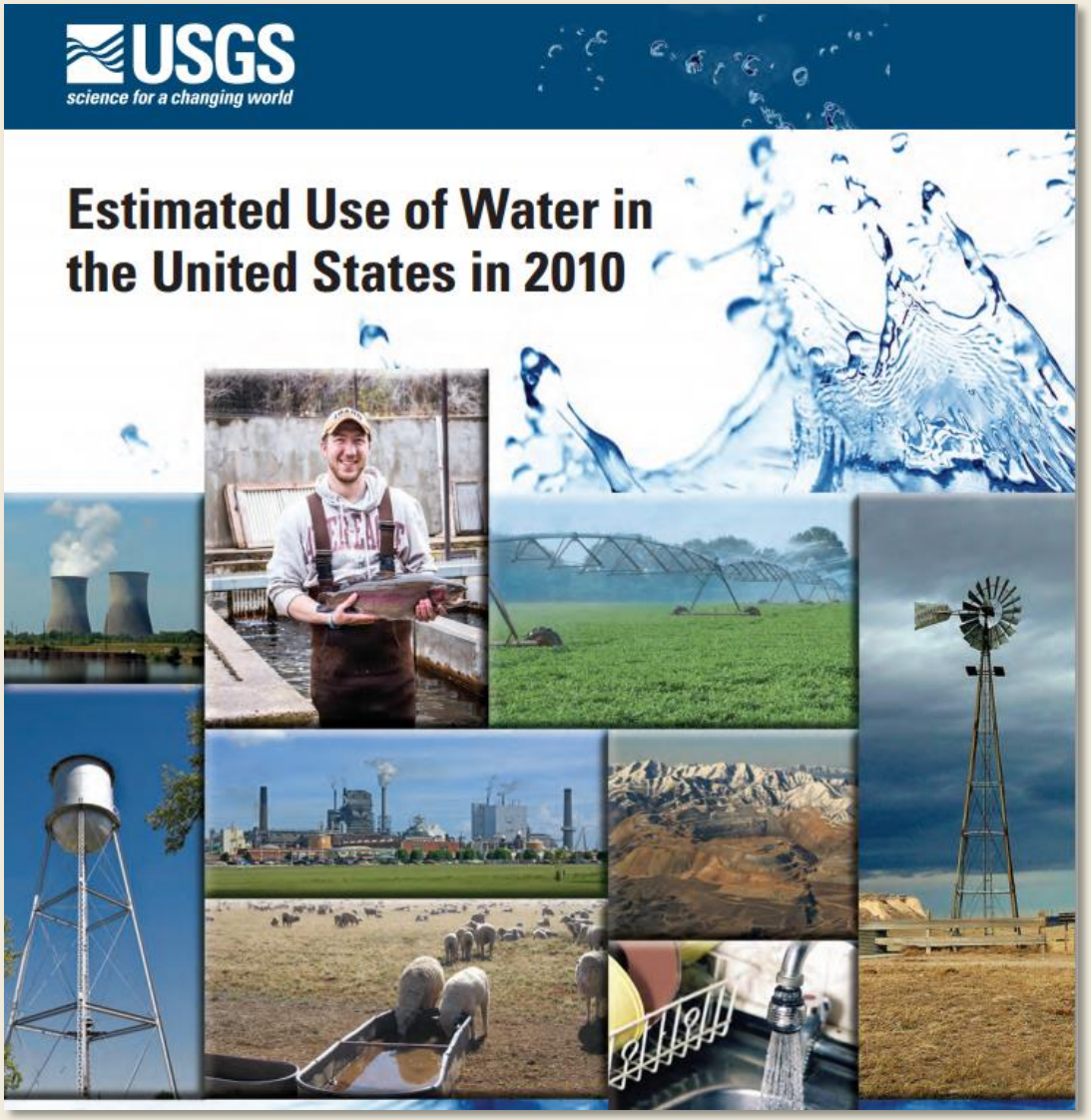
National Water Census

Improving Water Use Information

Cooperative with USGS

Grant to MGS to:

- **Identify gaps in water use information**
- **Align state database with USGS protocols**
- **Develop a plan for improved water use data collection**
  - ✓ **Across 12 categories**
  - ✓ **3 tiers of data**



Improving Water Use Information in Maine:
Work Plan for the State of Maine
under the USGS Water Use Data and Research Program
June 2016

Work plan developed during first year.

- In consultation with DACF Advisory Committee on Water Resources
- Strategy for collecting water use information across categories in next 4 years.

Maine State Water Use Data Collection and Reporting

Water Use Category		Year 1	Year 2	Year 3	Year 4	Year 5
IRRIGATION - CROP						
Tier 1	Aggregate annual withdrawals reported					
	Aggregate withdrawals reported by water source (GW/SW)					
	Acres irrigated and method of irrigation reported by aggregate areas					
	(Aggregate areas are able to summarize to county or HUC8)					
Tier 2	Site-specific monthly withdrawals					
	Withdrawals reported by well/sw diversion, or reclaimed wastewater					
	Withdrawals reported by source, with associated acres irrigated					
	Crop types reported					
	Method of irrigation reported					
Tier 3	Consumptive use and conveyance losses estimated by aggregate areas					
	Site-specific return flows reported					

Years 2 and 3

- Work with MACD and SWCDs
- Survey farmers in each district
- Follow-up communications
- Compile irrigation information electronically
- Site visits of representative irrigators

Survey Goals

- **Better understand *why*, *when*, and *how much* farmers irrigate by crop**
- **Compare to weather conditions in 2016**
- **Feed statewide model to predict water use in the future**

Survey Questions

For each crop type:

- **Area irrigated**
- **Method of irrigation**
- **When crops irrigated (by month)**
- **Amount of water applied**
- **Source(s) of water used for irrigation**

Irrigation Model

Computer model uses a soil water balance (SWB) on a daily time step to determine irrigation needs.

Inputs include:

- Soil properties
- Crop types
- Evapotranspiration for specific crops
- Weather conditions

Irrigation Model

Parameters that need to be adjusted to make the model accurate:

- Crop evapotranspiration coefficients
- Soil water deficit that prompts irrigation

We need survey data so we can adjust these parameters to match real-world irrigation practices.

Goals of the Irrigation Model

- Quantify the relationship between weather and agricultural water needs
- Predict the needs of farmers under potential drought scenarios
- Estimate agricultural water use in future years (without having to repeat this survey each year)

Contact Us

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