USGS
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Water Availability and Use Science Program Strategic Direction

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USGS Water Mission Area

Four Budget Programs

- Groundwater and Streamflow Information Program (GWSIP)
- National Water Quality Program (NWQP)
- Water Resources Research Act Program (WRRA)
- **Water Availability and Use Science Program (WAUSP)**
  - **National Water Census**
  - **Water Use Data and Research Program (WUDR)**

SECURE Water Act
Section 9508

Establish a national assessment program to be known as the "national water availability and use assessment program"

Program Elements – National Water Census	
Water Use	**Water Availability**
• Maintain a comprehensive national inventory • Incorporate water use science with emphasis on applied research and statistical estimation • Integrate State datasets • Integrate water use, flow, and quality to evaluate the impact of human activity on water and ecological resources	• Develop nationally consistent indicators of availability for both surface and groundwater resources • Maintain national database of availability (electronically available maps, reports, and data) • Develop and apply predictive modeling tools that integrate groundwater, surface water, and ecological systems

SECURE Water Act

Water Use by HUC and Aquifer (9508)

- Comprehensive national inventory of spatial and temporal patterns of water use
- Applied research and statistical water use estimation of the human impacts on water and ecological resources

Water Availability Assessments (9508)

- Develop and evaluate nationally consistent indicators of water availability including;
  - streamflow and storage
  - recharge, withdrawals, saltwater intrusion, mine dewatering, land drainage, artificial recharge, other relevant factors
  - impaired supplies used to meet demand
- Develop and apply predictive models and tools that integrate groundwater, surface water, and ecological systems

SECURE Water Act

WAUSP Grants Program Authority (9508)

- Improve the availability, quality, compatibility, and delivery of water use data that is collected and/or estimated by States.
- Integrate State water resource agency water-use or water-availability datasets into USGS databases.

Brackish Groundwater Assessment (9507)

- Describe significant brackish aquifers in the US
- Identify data gaps required to fully characterize brackish resources
- Collect and summarize current brackish groundwater use
- Report total dissolved solids in each brackish aquifer

Goals of the USGS National Water Census

1. Provide an accurate **assessment of the status of the water resources** of the Nation
2. Assist in the determination of the **quantity of water** that is available for beneficial uses
3. Identify **long-term trends** in water availability
4. Provide a more accurate assessment of the **change in the availability** of water in the Nation
5. Develop the basis for an improved ability to **forecast the availability of water for future economic, energy production, and environmental uses.**

Water Use Future Directions

- Estimation Techniques and Model Development
- Water Use Data Services
- Interbasin Transfer Database
- Conveyance Loss
- Reservoir Storage

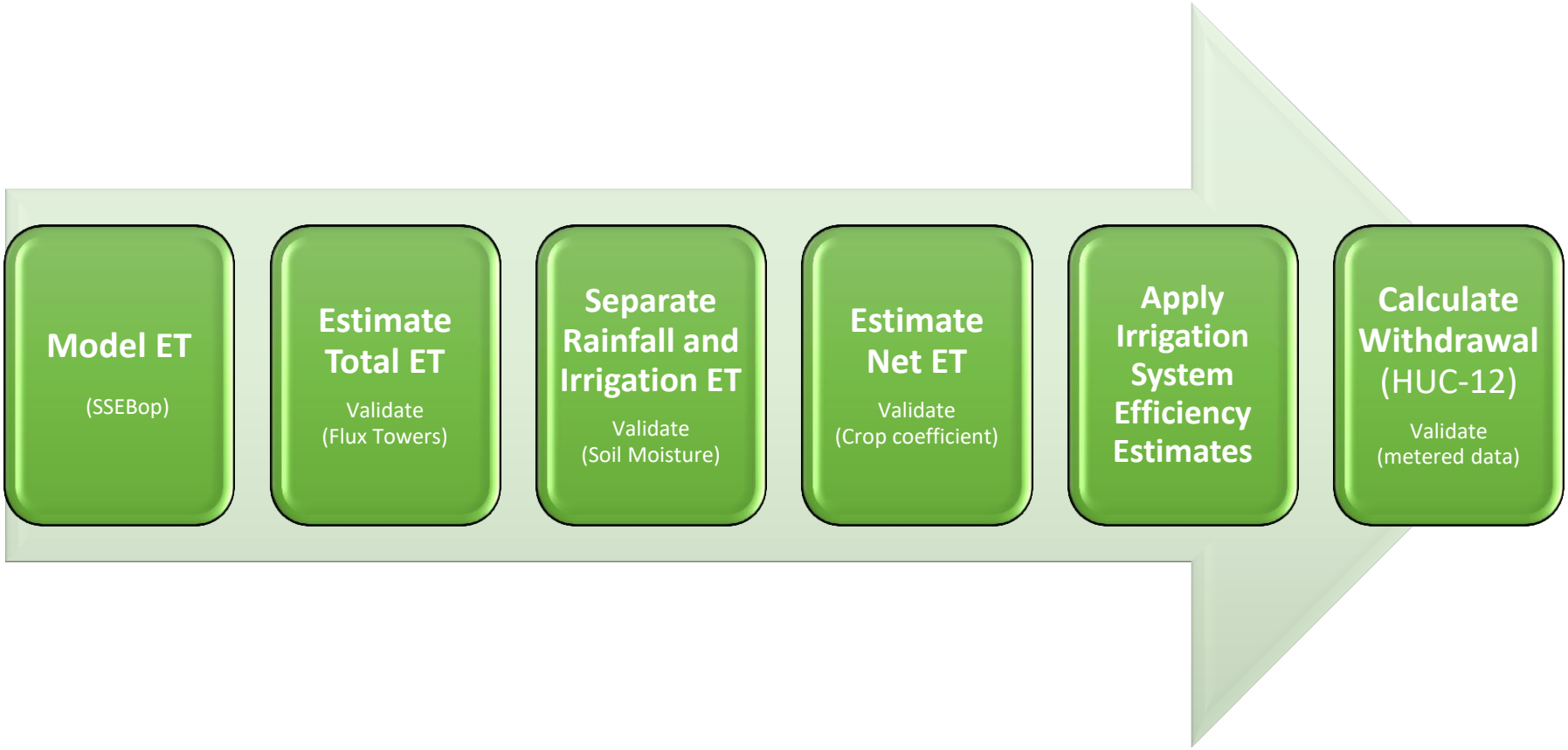
Water Use Estimation

Estimation

- Focused on 3 categories (90% of use)
  - Irrigation
  - Thermoelectric
  - Public Supply
- Plan to have baseline efforts completed by 2022
- Refine methods in following years
- Need data for validation more frequently
- $2M in Cooperative Matching Funds directed to Water Use Research

Process Model

Irrigation Withdrawal and Consumptive Use



WUDR and Water Use Data Services (WUDS)

Data Services

- Re-scope Water Use Data and Research program (WUDR) to provide funds for data services
- Align with WaDE – funding can be used to add to WaDE
- Collaboration with National Groundwater Monitoring Network (NGWMN)
- Automate data sharing and access
- Provides ability to validate estimation models and deliver national compilations more frequently

Integrated Assessments

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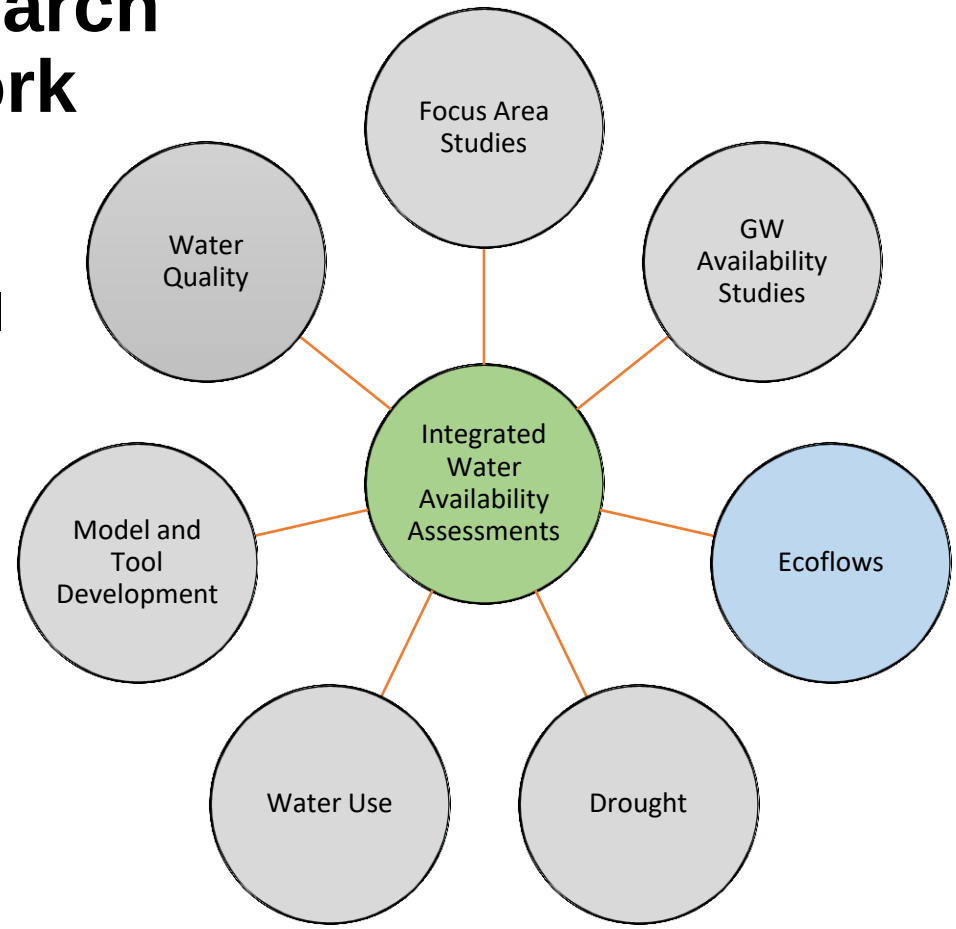
Water Availability

- Develop National Scale Indicators
- Develop and Apply Predictive Tools to Integrate Assessments

Integrated Assessments

Ecohydrological Research and Monitoring Network

- Nationally consistent network of low-cost methods for estimating streamflow in small streams
- Quantify precision and accuracy of alternative streamflow procedures (including metadata)
- Develop USGS low flow methods and techniques to support future drought monitoring



Integrated Water Availability Assessments

- Unified approach
- Establish a core set of analyses, tools and data sets to evaluate:
  - water availability for human and ecological use
  - infrastructure
  - water security
  - economic optimization
- Basin Specific
- Stakeholder driven

Feedback

- What are your needs in regards to our plans for water use estimation and integrated assessments?
  - Data – daily, monthly, by aquifer, by HUC
  - Databases – development, data services
  - Tools – models, decision support
  - Delivery - web based, data services
  - Others

Questions

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