

Environmental Information



# EN2015

## Western States Water Council's Water Data Exchange (WaDE) Update

Sara Larsen, *WSWC*

**2015 Exchange Network National Meeting**

Supporting the Business of Environmental Protection

September 29–October 1, 2015  
Sheraton Philadelphia Society Hill Hotel  
Philadelphia, Pennsylvania

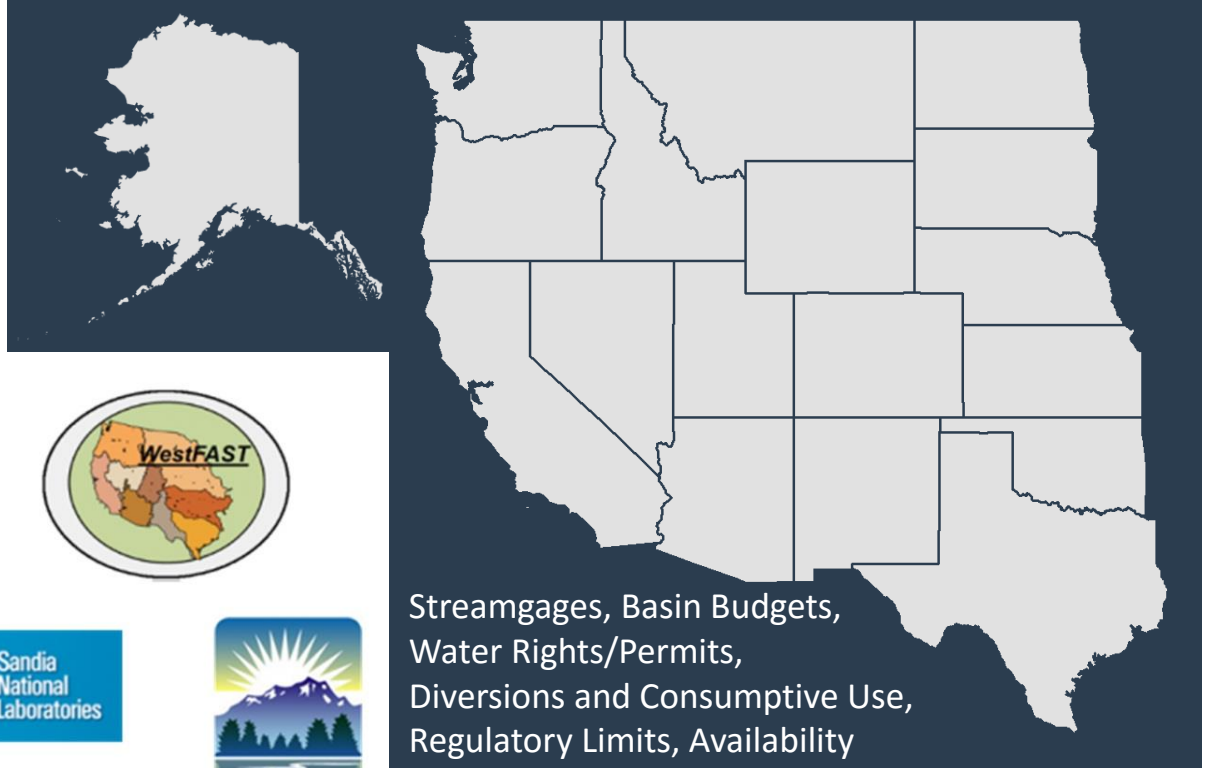
<http://www.exchangenetwork.net/en2015>

# ABSTRACT

The Western States Water Council (WSWC), in collaboration with the Department of Energy (DOE), Western Governors' Association (WGA), Western States Federal Agency Support Team (WestFAST), Texas Council of Environmental Quality (TCEQ) and the Exchange Network, have been developing a water data exchange project for sharing and publishing water availability, water use, and other water planning information created by its member states' water agencies. WSWC efforts include laying the foundation for the exchange by reviewing members' water data and IT capabilities, and developing a common vocabulary that could support much of the states' most commonly generated datasets. Member states are working hard to complete their WaDE deployments. Once existing state data are shared, the WSWC hopes to host a discussion on what workflow tasks/data elements could be included or modified by their members to arrive at a more comparable, regional picture of water data in the West.

Water Needs and Strategies  
for a Sustainable Future:  
Next Steps

# Background: Data-sharing



# Big Picture Goals

- To better enable the states to share data with each other, the public and federal agencies
- Encourage sharing of federal data using standardized schemas (formats) with the states, to assist with their planning efforts

# Groundwork

- Variability between the states and a common schema (format) for water planning data
- Develop prototypes for databases and web services
- Outreach and education
- Encourage use of standardized data schemas where appropriate (WaterML, GWML, etc.)

# Western Water Data Exchange (WaDE) Central Portal

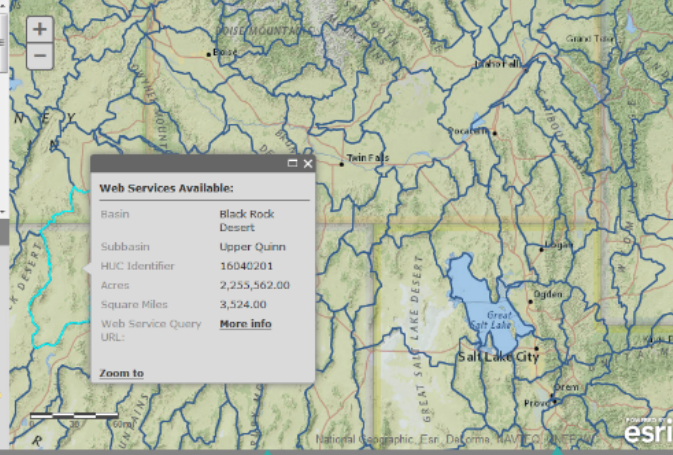
A mapping application for discovering water data web services hosted by the states, federal agencies and Sanidia National Lab

An state agency sponsored initiative to better share water data was begun in 2005 and has taken on a greater importance in more recent years. Faced with the need to collaborate on regional watershed management issues and the growing requests for access to water data, state agencies have initiated the Water Data Exchange (WaDE) project.

This Central Portal for WaDE

## LEGEND

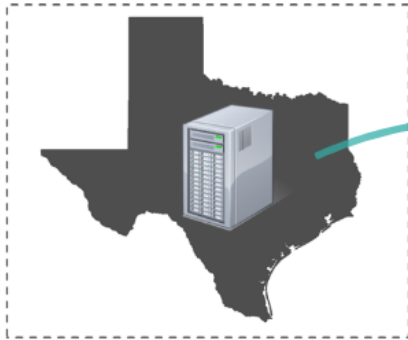
### Western 8-Digit HUC Layer



#### Web Services Available:

Basin	Black Rock Desert
Subbasin	Upper Quinn
HUC Identifier	16040201
Acres	2,253,562.00
Square Miles	3,524.00
Web Service Query URL:	<a href="#">More info</a>

Zoom to

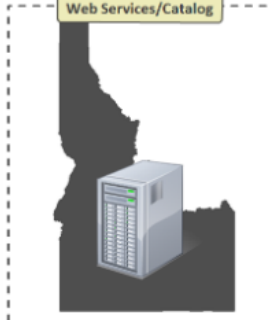


Web Services/Catalog

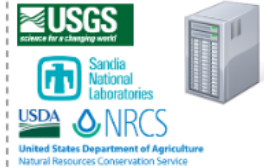
Web Services/Catalog



Web Services/Catalog



Web Services/Catalog

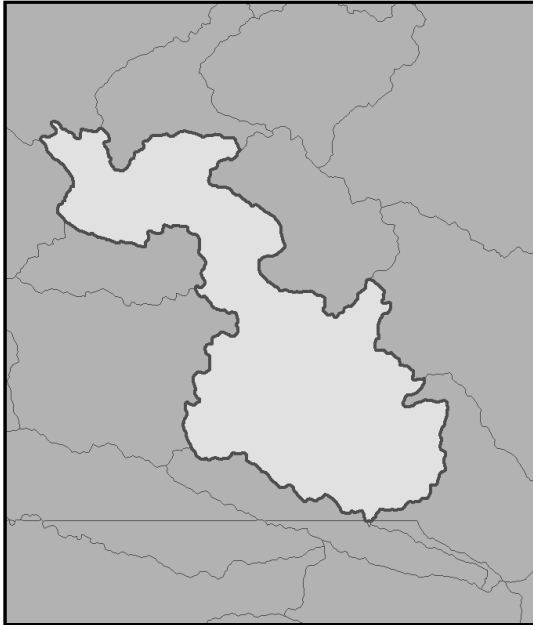


Representational State Transfer (REST) Endpoint

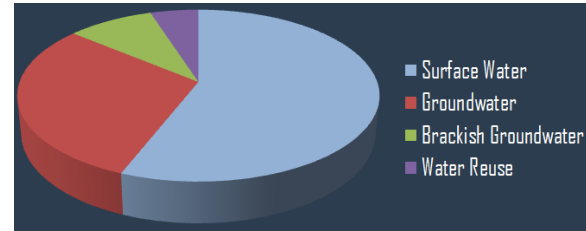
<http://www.state.gov/webservices/GetSummary...>

# Types of Data Exchanged

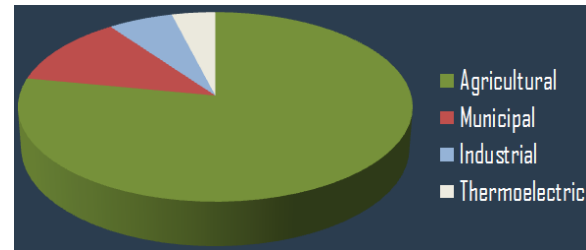
- Summary-level data



Availability Summary: 2,000 AFY



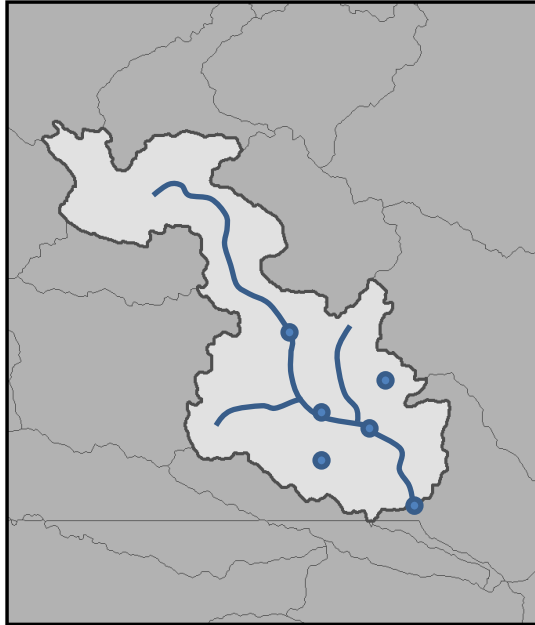
Water Use Summary: 1,500 AFY



Water Supply and Regulatory Information

# Types of Data Exchanged

- Detailed/site-specific data



## Water Rights/Permit Data

- Owner
- Beneficial Use
- Legal Status
- Priority Date

## Diversions

- Locations, Amounts

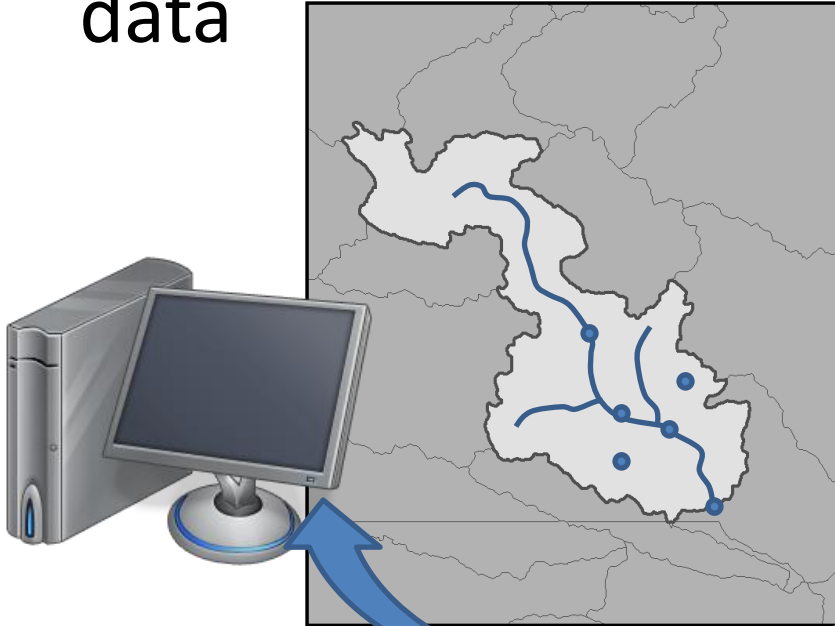
## Uses

- Locations, Amounts
- Return Flows
- Locations, Amounts



# Types of Data Exchanged

- Detailed/site-specific data



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# Funding Status - 2015

- States had limited funding for WaDE so WSWC staff have worked to find additional resources (WA, OR, ID, OK, TX, CA, SD, and NV).
- Some states are deploying with minimal or no assistance (WY, UT, CO, NE, KS).

# Technology Update for 2015

- WaDE Databases and web services are finalized for Version 0.2
- Cloud deployment option
- Online documentation for guiding partners on data-mapping, set up, etc.



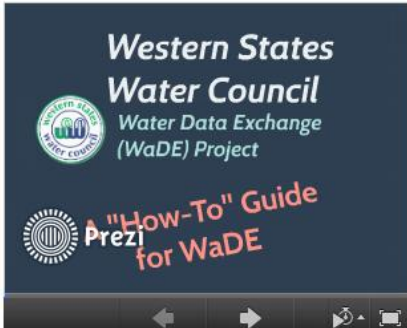
# Water Data Exchange (WaDE) Central Portal - Beta

## HOW DOES IT WORK?



Conceptual diagram of WaDE distributed framework

If this is your first visit to WaDE, please step through the short tutorial below for an overview of what type of data are accessible within the WaDE portal, how to access them, and what their limitations may be. Enjoy!





Data shared within WaDE are organized by "reports," which are yearly encapsulations of the data, either a water year (Oct. 1st - Sep. 30th), an irrigation year (Nov. 1st - Oct. 31st), or a calendar year. There may be multiple reports for any given year based on the methods used to generate that report.

**\*\*NOTICE\*\*** For all data provided, please review the associated methodology information thoroughly to discover data provenance and quality before using, especially when comparing data between states or organizations.

## Organization: Utah Division of Water Resources

Geospatial Reporting Unit: REPORTUNIT - 00-01-02

For a listing of methods used by Utah Division of Water Resources and shared within WaDE, [click here](#).

To retrieve ALL of Utah Division of Water Resources's SUMMARY datasets OR ALL of its DETAILED (site-specific) datasets by report:

Report	Data Category	View Entire Report
2005	SUMMARY	<a href="#">All Summary Data</a>
2006	SUMMARY	<a href="#">All Summary Data</a>
2007	SUMMARY	<a href="#">All Summary Data</a>
2008	SUMMARY	<a href="#">All Summary Data</a>
2009	SUMMARY	<a href="#">All Summary Data</a>
2010	SUMMARY	<a href="#">All Summary Data</a>
2011	SUMMARY	<a href="#">All Summary Data</a>
2012	SUMMARY	<a href="#">All Summary Data</a>
2013	SUMMARY	<a href="#">All Summary Data</a>

\*Note: Requests for ALL DETAILED DATA may have more extensive data-retrieval times. Use the table below to access detailed datasets by data category and type.

To retrieve summaries or detailed datasets by report and by data category and type:



**\*\*NOTICE\*\*** For all data provided, please review the associated methodology information thoroughly to discover data provenance and quality before using, especially when comparing data between states, organizations or applications.

### Organization: Utah Division of Water Resources

Geospatial Reporting Unit: UT - CUSTOM - 00-01-02 - Park Valley

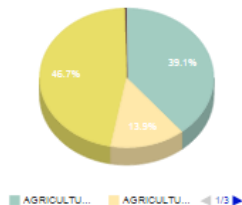
Related Web Feature Service(s) (WFS):

**WFS Type** [WFS Link](#) [Unique ID Field](#)

This summary is relevant for the reporting year: 2012

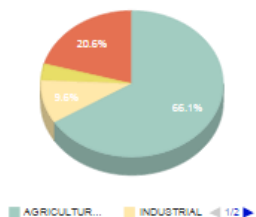
These data were reported on: 2015-03-22

### Water Use



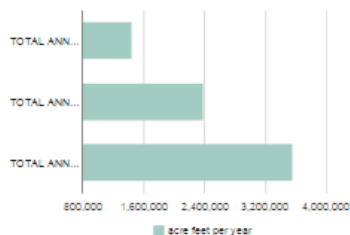
Beneficial Use	Consumptive Use?	Fresh/Saline	Source Type	Irrigation Type	Acres Irrigated	Crop Type	Population Served	Power Generated (MWH)	Amount	Units	Start Date	End Date	Unique ID	Water Use Methodology
AGRICULTURE	N	FRESH	SURFACE						26204.634	acre feet/year	10/01	09/30		<a href="#">CONSUMPTIVE USE</a>
AGRICULTURE	N	FRESH	GROUND						9293.639	acre feet/year	10/01	09/30		<a href="#">CONSUMPTIVE USE</a>
AGRICULTURE	Y	FRESH	SW/GW						31303.630	acre feet/year	10/01	09/30		<a href="#">CONSUMPTIVE USE</a>
MUNICIPAL/INDUSTRIAL	N	FRESH	SURFACE						12.900	acre feet/year	10/01	09/30		<a href="#">CONSUMPTIVE USE</a>
MUNICIPAL/INDUSTRIAL	N	FRESH	GROUND						176.450	acre feet/year	10/01	09/30		<a href="#">CONSUMPTIVE USE</a>
MUNICIPAL/INDUSTRIAL	N	FRESH	SW/GW						71.061	acre feet/year	10/01	09/30		<a href="#">CONSUMPTIVE USE</a>

## Water Use



Beneficial Use	Consumptive Use?	Fresh/Saline	Source Type	Irrigation Type	Acres Irrigated	Crop Type	Population Served	Power Generated (MWH)	Amount	Units	Start Date	End Date	Unique ID	Water Use Methodology
AGRICULTURAL IRRIGATION	Y	FRESH	SURFACE						389324.000	acre feet/year	10/01	9/30	2	<a href="#">Green River Basin Report Consumptive Use Estimation</a>
INDUSTRIAL	Y	FRESH	SURFACE						56833.000	acre feet/year	10/01	9/30	2	<a href="#">Green River Basin Report Consumptive Use Estimation</a>
MUNICIPAL/DOMESTIC/STOCK	Y	FRESH	SURFACE				60284.000		21859.000	acre feet/year	10/01	9/30	2	<a href="#">Green River Basin Report Consumptive Use Estimation</a>
RESERVOIR EVAPORATION	Y	FRESH	SURFACE						121300.000	acre feet/year	10/01	9/30	2	<a href="#">Green River Basin Report Consumptive Use Estimation</a>

## Derived Water Supply



Supply Type	Amount	Units	Unique ID	Water Supply Methodology
TOTAL ANNUAL FLOW ESTIMATE - DRY	1452316.000	acre feet/year	2	<a href="#">Green River Basin Annual Streamflow</a>
TOTAL ANNUAL FLOW ESTIMATE - NORMAL	2381316.000	acre feet/year	2	<a href="#">Green River Basin Annual Streamflow</a>
TOTAL ANNUAL FLOW ESTIMATE - WET	3553316.000	acre feet/year	2	<a href="#">Green River Basin Annual Streamflow</a>



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WGA, etc.

- Models, maps, planning, coordination, cooperation, visualization.....

Sandia & Other Map Applications

- WaDE assembles estimates from state agencies using common data schema

WaDE: Data Aggregation

- State agency ingests NGWMN data into groundwater models to estimate current aquifer status or water availability - publishes estimate to WaDE

Data Review & Interpretation

- Example: Groundwater elevations or streamflow reported using WATERML, GWML, or other...

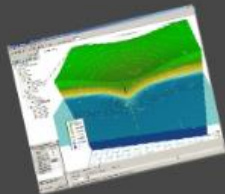
Sensor/Measurement Data

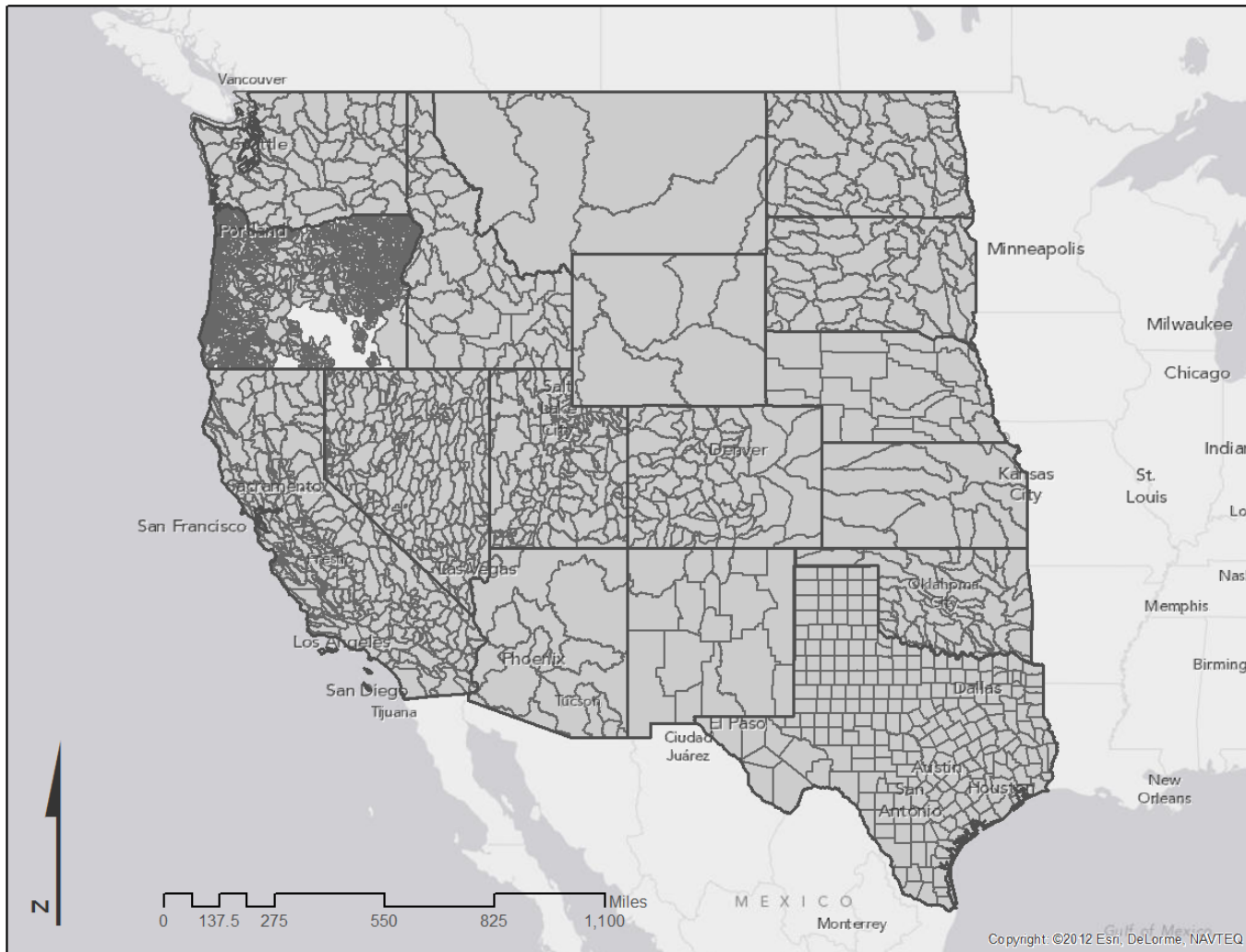
POLICY

POLICY TOOLS

RESEARCH & ANALYSIS

DATA







# Questions?



To learn more or to participate in workgroups, etc., please see:

[www.westernstateswater.org](http://www.westernstateswater.org)

and click on the “WADE” tab

OR

email Sara Larsen: saralarsen (at) wswc.utah.gov