

Western States Water Council (WSWC) Water Resources Data State Capabilities Assessment Survey – February 2012

Background

The Water Information and Data Subcommittee, a subcommittee under the WSWC's Water Resources Committee, is initiating an effort to better enable the sharing of water supply planning, water availability, and water use data between the western states and other partners. This effort is in support of a Western Governors' Association (WGA)/Department of Energy (DOE) study that is evaluating water availability for energy production in the West. This project is supporting that study by developing the framework and building the infrastructure by which the information that contributes to the study can be easily accessed, and the study, or others like it, can be repeated as needed without undue burden on the states. For more information on this project go to: <http://www.westgov.org/wswc/wateruse/>.

In order to build the framework effectively, the Subcommittee must first get a better understanding of the states' current capabilities in regards to data collection, management, sharing, and data generation. To acquire this information, the Subcommittee has commissioned a workgroup to develop this survey. The workgroup has members from both state and federal agencies, and is administered by the WSWC.

Who Should Respond to This Survey?

This survey covers a wide range of topics. Some topics may be best covered by data management staff, other topics may be best covered by policy staff. The Subcommittee asks that responders coordinate their responses accordingly. This survey is being sent to state water resource agencies via the members of the WSWC.

How Should I Respond?

You can use this word document to respond to the survey. Use as much space as you need for each question. Once the survey has been completed, you can email your survey to Dwane Young (dayoung@wswc.utah.gov). If some of these questions don't apply to your agency, please indicate who would be the appropriate contact. Please try to complete the survey by March 1, 2012.

How Will This Information Be Used?

Following the collection of the information from these surveys, the workgroup will draft a summary report that will be presented to the Subcommittee. The various sections of the draft report will also be shared with the respondents to ensure that the report accurately reflects the states' responses. Once finalized, this report will be posted to the project website. This information will also be used to guide the design of the water data exchange sharing framework.

Who Can I Contact if I Have Questions?

The Subcommittee desires that the information collected in this survey be as useful as possible. If you have any questions about the survey or just need more information, you may contact Dwane Young (dayoung@wswc.utah.gov) or Sara Larsen (saralarsen@wswc.utah.gov) or 801-685-2555.

Capabilities and Assessment Survey: General Questions

- 1. Contact Information (even though different individuals may be responding to different sections of this report, please provide one point of contact):**

a. Agency Responding:	Department of Natural Resources, Division of Mining, Land, & Water
b. Contact Name:	Brent Goodrum
c. Contact Phone:	907.269.8625
d. Contact Email:	brent.goodrum@alaska.gov

- 2. Please briefly describe your approach to managing water availability, allocation, use, and planning data and any issues that you think would be relevant to this data exchange (use as much space as you need).**

Surface and groundwater resources are appropriated as mandated by the Alaska Water Use Act, Alaska Statute Title 46 Chapter 46.15 by the Department of Natural Resources, Division of Mining, Land, & Water, Water Resources Section, Water Management Unit.

The recording, evaluation, distribution, and publication of water quantity, quality, and location are mandated by Alaska Statute Title 41 Chapter 41.08 and are managed by the Department of Natural Resources, Division of Mining, Land, & Water, Water Resources Section, Alaska Hydrologic Survey Unit.

Detailed information regarding Alaska Statute 46.15 and Alaska Statute 41.08 are available at the url below:

<http://www.legis.state.ak.us/basis/folio.asp>

- 3. Please describe any future development plans that you may have related to water availability, allocation, use, and planning data (use as much space as you need).**

We developed a regional groundwater monitoring program in cooperation with the U.S. Geological Survey for an area experiencing the highest population growth in the state. We currently use data collected from this project quantitatively in our water budget estimates of water availability.

Additionally, we used the data collected in the monitoring program to develop a steady-state regional-scale numerical groundwater flow model. We plan on expanding our data collection efforts so that we may calibrate a transient numerical groundwater flow model that can be used for evaluating groundwater availability.

Capabilities and Assessment Survey: **Surface Water Questions**

4. Types of Data: Please identify the types of **surface water** data maintained in your data systems (use as much space as you need):

Question No.	Question
4a.	Do you store streamgaging data? Yes <u> x </u> No <u> </u>
	i. Do you manage your own streamgages? Yes <u> x </u> No <u> </u>
	ii. If the data are from USGS, how are you acquiring the data? <u>We manage our own stream gages, but we also fund the U.S. Geological Survey to maintain stream gages. We download the data from the U.S. Geological Survey website.</u>
	iii. Do you use the data to estimate water availability? Yes <u> x </u> No <u> </u>
4b.	Do you track and store water use data? Yes <u> x </u> No <u> </u>
	i. Is it tracked by beneficial use category or another application category? Yes <u> x </u> No <u> </u>
	ii. At what spatial scale are the data (HUC, county, site specific, etc.)? <u>specific locations throughout the state</u>
	iii. For what time scale are the data (daily, monthly, yearly)? <u>daily, monthly, yearly</u>
4c.	Do you store spatial data related to your water resources program? Yes <u> x </u> No <u> </u>
	i. Do you have spatial data for water availability? Yes <u> </u> No <u> x </u>
	ii. Do you have spatial data for water uses? Yes <u> x </u> No <u> </u>
	iii. Do you have summary data (i.e. water supply, use, and/or allocation/appropriation) organized by location? Yes <u> x </u> No <u> </u> <u>site specific & associated with case file</u>
	a. If Yes, describe the summaries that you have. <u>Alaska Mapper 3.0 (tentative release on or around 7/9/12)</u> <u>& Alaska Land Status Map http://www.navmaps.alaska.gov/AlaskaLandStatus/</u>
	iv. Do you have locations for water diversions? Yes <u> x </u> No <u> </u>
	v. Do you have locations for return flows? Yes <u> </u> No <u> x </u>
	vi. Do you have spatial data for closed basins (i.e. no additional allocations/appropriations are allowed)? Yes <u> </u> No <u> x </u>
	vii. Do you have spatial data for any designated special management areas? Yes <u> </u> No <u> x </u>
4d.	Do you store water allocation/appropriation data? Yes <u> x </u> No <u> </u>
	i. Do you track which have been adjudicated? Yes <u> x </u> No <u> </u>
	ii. Do you track acres irrigated? Yes <u> x </u> No <u> </u> <u>but only at initial appropriation</u>
	iii. Do you track irrigation method? Yes <u> x </u> No <u> </u>
	iv. For water allocated to energy production, do you track the amount of energy produced? Yes <u> </u> No <u> x </u>

Question No.	Question
	v. For water allocated to energy production, do you track the facility generator type (i.e. open or closed loop system or fuel type)? Yes _____ No <u>x</u>
	vi. For Community Water Systems (CWS), how do you verify the reported population served and how often do you perform that verification? we rely on the type of water permit issued by the Alaska Department of Environmental Conservation
4e.	Do you have any other comments or information that you'd like to provide that you think would be helpful?

5. Reporting Requirements: What are the reporting requirements for **surface water** users in your state (use as much space as you need)?

Question No.	Question
5a.	How often are water users required to report? varies for each permit (varies from no reporting to semi-monthly, monthly, quarterly, or annually)
5b.	What are they required to report? diverted quantities, or in some cases estimated flow upstream from the withdrawal point
5c.	Do they report consumptive use? Yes <u>x</u> No _____
5d.	Do they report diverted flow? Yes <u>x</u> No _____
5e.	Are diversions metered? Yes _____ No <u>x</u>
	i. If yes, please provide information for which uses are metered: Typically, diversions are not metered, with the exception of power generation. Reported or metered quantities are not currently posted on our website.
5f.	Are all beneficial uses required to report? Yes _____ No <u>x</u>
	i. Please provide any additional comments on which uses are or are not required to report. only required to report if specified in water right
	ii. For uses that don't report, do you estimate their use? Yes _____ No <u>x</u>
	iii. Are any use reports proprietary (i.e. can't be shared with the public)? Yes <u>x</u> No _____
	a. If yes, please describe which beneficial use reporting is proprietary. possible exceptions are military installations for homeland security purposes
5g.	Does your state have policies related to instream flow? Yes <u>x</u> No _____
	i. If yes, please briefly describe those policies or provide a url for more information. below is the url for a fact sheet discussing instream water reservations http://dnr.alaska.gov/mlw/factsht/wtr_fs/instream.pdf below is the url for a fact sheet discussing federal reserved water rights http://dnr.alaska.gov/mlw/factsht/wtr_fs/fed_rsv.pdf

Question No.	Question
5h.	Does your state have policies related to interbasin transfers? Yes <u> x </u> No <u> </u>
	<p>i. If yes, please briefly describe those policies or provide a url for more information.</p> <p>Detailed explanation available in Alaska Statute 46.15.035. which is available at the url below: http://www.legis.state.ak.us/basis/folio.asp</p>
5i.	<p>Do you have any other comments or information that you'd like to provide that you think would be helpful?</p> <p>Alaska Administrative Code Title 11 Natural Resources, Part 6 Lands, Chapter 93 Water Management, Article 1 Existing Rights and Article 2 Appropriation and Use of Water, (specifically 11 AAC 93.141 application for a reservation of water) are available at the url below: http://www.legis.state.ak.us/basis/folio.asp</p> <p>below is the url to our website which discusses glacial ice harvesting: http://dnr.alaska.gov/mlw/water/glacier.cfm</p>

Capabilities and Assessment Survey: **Groundwater Questions**

6. Types of Data: Please identify the types of **groundwater** data maintained in your data systems (use as much space as you need):

Question No.	Question
6a.	Do you store groundwater level data? Yes <u> x </u> No <u> </u>
	i. Do you manage your own monitoring wells? Yes <u> </u> No <u> x </u>
	ii. If the data are from USGS, how are you acquiring the data? We download it from the U.S. Geological Survey database.
	iii. Do you use the data to estimate water availability? Yes <u> x </u> No <u> </u>
6b.	Do you store groundwater use data? Yes <u> x </u> No <u> </u>
	i. Is it tracked by beneficial use category or another application category? Yes <u> x </u> No <u> </u>
	ii. At what spatial scale are the data (aquifer, county, site specific, etc.)? specific locations throughout the state
	iii. For what time scale are the data (daily, monthly, yearly)? daily or yearly
6c.	Do you store any spatial data? Yes <u> x </u> No <u> </u>
	i. Do you have spatial data for well locations? Yes <u> x </u> No <u> </u> However, we do not always have latitude and longitude, in some cases we only have meridian, township, range, and section.
	ii. Do you have summary data (water supply, use, and/or allocation/appropriation) organized by location? Yes <u> x </u> No <u> </u> site specific & associated with case file
	a. If Yes, describe the summaries that you have. Alaska Mapper 3.0 (tentative release on or around 7/9/12) & Alaska Land Status Map http://www.navmaps.alaska.gov/AlaskaLandStatus/
	iii. Do you have locations for injection wells or recharge basins that are used to increase underground storage? Yes <u> </u> No <u> x </u>
	iv. Do you have spatial data for closed basins (i.e. no additional allocations/appropriations are allowed)? Yes <u> </u> No <u> x </u>
	v. Do you have spatial data for any designated special management areas? Yes <u> </u> No <u> x </u>
	vi. Do you track which aquifer from which the water is drawn? Yes <u> x </u> No <u> </u>
6d.	Do you store groundwater allocation data? Yes <u> x </u> No <u> </u>
	i. Do you track which have been adjudicated? Yes <u> x </u> No <u> </u>
	ii. Do you track acres irrigated? Yes <u> x </u> No <u> </u> but only at initial appropriation
	iii. Do you track irrigation methods? Yes <u> x </u> No <u> </u>
	iv. For water allocated to energy production, do you track the amount of energy produced? Yes <u> </u> No <u> x </u>

Question No.	Question
	v. For water allocated to energy production, do you track the energy facility generator type (i.e. open or closed loop system or fuel type)? Yes _____ No <u>x</u>
	vi. For CWSs that utilize groundwater, how do you verify the reported population served and how often do you perform that verification? <u>we rely on the type of water permit issued by the Alaska Department of Environmental Conservation</u>
6e.	Do you have any other comments or information that you'd like to provide that you think would be helpful? <u>below is the url for a fact sheet discussing water rights</u> <u>http://dnr.alaska.gov/mlw/factsht/wtr_fs/wtr_rght.pdf</u>

7. Reporting Requirements: What are the reporting requirements for groundwater users in your state (use as much space as you need)?

Question No.	Question
7a.	How often are water users required to report? <u>varies for each permit (varies from no reporting to semi-monthly, monthly, quarterly, or annually)</u>
7b.	What are they required to report? <u>withdrawn quantities</u>
7c.	Do they report consumptive use? Yes <u>x</u> No _____
7d.	Do they report an amount withdrawn? Yes <u>x</u> No _____
7f.	Are withdrawals metered? Yes _____ No <u>x</u> <u>Typically not, however public supply is metered. Reported or metered quantities are not currently posted on our website.</u>
	i. If yes, please provide information for which uses are metered: <u>public supply and some commercial uses</u>
7e.	Are all beneficial uses required to report? Yes _____ No <u>x</u>
	i. Please provide any additional comments on which uses are or are not required to report. <u>only required to report if specified in water right</u>
	iv. For uses that don't report, do you estimate their use? Yes _____ No <u>x</u>
	v. Are any use reports proprietary (i.e. can't be shared with the public)? Yes <u>x</u> No _____
	b. If yes, please describe which beneficial use reporting is proprietary. <u>possible exceptions are military installations for homeland security purposes</u>
7g.	Do you have any other comments or information that you'd like to provide that you think would be helpful? <u>Alaska Administrative Code Title 11 Natural Resources, Part 6 Lands, Chapter 93 Water Management, Article 1 Existing Rights and Article 2 Appropriation and Use of Water, (specifically 11 AAC 93.040 application for a water right) are available at the url below:</u> <u>http://www.legis.state.ak.us/basis/folio.asp</u>

Capabilities and Assessment Survey: **Data Management Questions**

8. Please describe the server environment used to store your data (use as much space as you need):

Question No.	Question
8a.	Do you use a database to store your information? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
	i. If yes, what format(s) do you use (check all that apply)? <input checked="" type="checkbox"/> Oracle <input type="checkbox"/> SQL Server <input type="checkbox"/> Informix <input type="checkbox"/> Dbase <input checked="" type="checkbox"/> MS Access <input type="checkbox"/> MySQL <input checked="" type="checkbox"/> Other: <u>MS Excel</u>
	ii. If no, do you use MS Excel to store your data? Yes <input type="checkbox"/> No <input type="checkbox"/>
8b.	What server environment do you use for hosting web applications? <input checked="" type="checkbox"/> Microsoft <input type="checkbox"/> Linux <input type="checkbox"/> Mac OS <input type="checkbox"/> Other: _____
8c.	What programming environments does your office support? <input checked="" type="checkbox"/> Java <input type="checkbox"/> .Net <input checked="" type="checkbox"/> Python <input type="checkbox"/> Other: _____
8d.	Do you have any other comments or information that you'd like to provide that you think would be helpful?

9. What methods do you use to make your data available to the public (use as much space as you need)?

Question No.	Question
9a.	Are your data available via a website? Yes <u> x </u> No <u> </u>
	i. Please provide the url(s) for accessing your data: http://dnr.alaska.gov/mlw/water/hydro/streams/streams.cfm http://dnratwmlwims02.dnr.state.ak.us/welts/ http://www.navmaps.alaska.gov/AlaskaLandStatus/ * http://dnr.alaska.gov/Mapper/ http://dnr.alaska.gov/projects/las/lasmenu.cfm http://dnr.alaska.gov/mlw/mapguide/water/twup_start_tok.cfm *will change when Alaska Mapper 3.0 is released
9b.	Are your data available via web services? Yes <u> </u> No <u> x </u>
	i. Please provide the endpoints or url(s) for these services: not applicable
9c.	Do you provide other reports that may not be interactive, but are based on the data in your system? Yes <u> x </u> No <u> </u>
	http://dnr.alaska.gov/mlw/water/hydro/qw.cfm
9d.	Do you have any other comments or information that you'd like to provide that you think would be helpful?

Capabilities and Assessment Survey: **Methodology Questions**

- 10.** Various entities have defined the term ‘Water Availability’ in various ways. This term can also be defined differently when used in different contexts or for different purposes. To help the WSWC better understand the variability among the states; please provide the definitions used by your state for the term ‘Water Availability.’ (use as many rows as you need)

Agency	Definition	Purpose for which the water availability determination is made (i.e. permitting, planning, etc.)	Web link for more information
Example 1	"Maximum amount of water available during the drought of record, regardless of whether the supply is physically or legally available [to water user groups]."	Used for regional and state water planning over 50-year horizon	http://examplelink1.com
Example 2	"...the amount of water that would be in a river or stream under a specified set of conditions"	"To determine whether water would be available for a newly requested water right or amendment."	http://examplelink1.com
Department of Natural Resources, Division of Mining, Land & Water	Per Alaska Statute Title 46 Chapter 46.15.030 "Wherever occurring in a natural state, the water is reserved to the people for common use and is subject to appropriation and beneficial use and to reservation of instream flows and levels of water . . ." so long as the removal meets the requirements of Alaska Statute 46.15.080	appropriation	http://www.legis.state.ak.us/basis/folio.asp

11. Please provide information on the methods your agency currently uses to determine water availability (use as many rows as you need).

Watershed(s), aquifer, groundwater basin, or river basin for which the method applies, or say 'Statewide' if it applies statewide. Specify HUC codes at whatever scale is appropriate (4, 6, 8-digit)	Method Name	Description and purpose for which the water availability method is used (i.e. permitting, planning, etc.)	Date Developed	Website where more information can be obtained	Method Timescale (i.e. daily, monthly, annual)	Resource Type (Surface Water, Groundwater, Reuse, All)	Are Data from This Method Available to the Public? (Y/N)
<i>Example: By 8-digit HUC</i>	<i>Bear River Method 1</i>	<i>Example method used to determine the amount of water available in the Lower Bear River Basin using modeling techniques that incorporate stream gage data, precipitation, land use, and appropriations.</i>	<i>11/2011</i>	<i>www.somewebsite.gov</i>	<i>monthly</i>	<i>surface water</i>	<i>Y</i>
site specific, but applies statewide	water budget calculations	Site specific water budget calculations are typically performed for appropriation. The types of data we utilize vary depending on the issue we are addressing, but typically include stream gage data, lake level data, evapotranspiration, recharge, and appropriated quantities. Sources for these data include: USGS, consultant, or our own instrumentation/databases.	not applicable	not available	varies	surface & groundwater	calculated results are within the public domain, but are not posted online

12. Please provide information on the methods your agency currently uses to determine consumptive use*. (use as many rows as you need)

Watershed(s), aquifer, groundwater basin, or river basin for which the method applies, or say 'Statewide' if it applies statewide. Specify HUC codes at whatever scale is appropriate (4, 6, 8-digit)	Method Name	Description and purpose (if appropriate) for which the water availability method is used (i.e. permitting, planning, etc.)	Date Developed	Website where more information can be obtained	Method Timescale (i.e. daily, monthly, annual)	Resource Type (Surface Water, Groundwater, Reuse, All)	Are Data from This Method Available to the Public? (Y/N)
Example: By 8-digit HUC	CU Bear River Method 1	Example method used to determine the amount of water consumed by irrigated agriculture in the Lower Bear River Basin. This method uses LandSAT data to determine evapotranspiration from various crop types to derive an estimated consumptive use.	11/2011	www.somewebsite.gov	monthly	surface water	Y
site specific, but applies statewide	water budget calculation	We typically assume that appropriated values are consumed for our water budget calculations (if metered quantities are not available, and/or water is not diverted & returned to the basin).	not applicable	see definition of "non-consumptive water use" in Alaska Administrative Code 11 AAC 93.970 (33) http://www.legis.state.ak.us/basis/folio.asp	varies	surface & groundwater	calculated results are within the public domain, but are not posted online

Consumptive use, for the purposes of this survey, means water that is diverted and NOT returned to the basin. The water is lost to the atmosphere, consumed in a process, or transferred to another basin.

Are you planning any changes to your methodology for either water availability or consumptive use estimation?

Numerical models would be a valuable tool for evaluating regional groundwater availability. Should additional funding become available to develop long-term regional monitoring programs (which are needed to develop and calibrate numerical models) yes, otherwise no.

13. What data inputs are needed to run your availability or consumptive use models or to perform your estimates?

Data Input	Data Readily Available (Y/N)
<i>Example: USGS Stream Gage Data</i>	Y
We typically perform water budget calculations to determine availability. The types of data we utilize vary depending on the issue we are addressing, but typically include stream gage data, lake level data, evapotranspiration, recharge, and appropriated quantities. Sources for these data include: the U.S. Geological Survey, consultant, or our own instrumentation/databases.	N