



Declining groundwater levels in domestic wells

DOH Response to Aid Municipal Water Suppliers in E. WA

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PUBLIC HEALTH
ALWAYS WORKING FOR A SAFER AND
HEALTHIER COMMUNITY



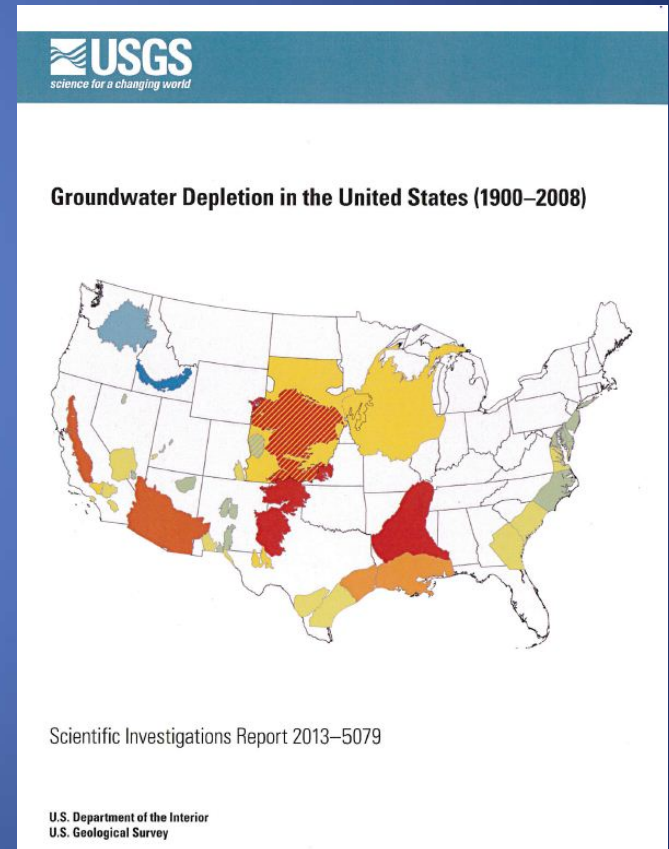
Office of Drinking Water's Mission

- We work with others to protect the health of the people of Washington State by ensuring safe and reliable drinking water.



USGS Report, GW Depletion in U.S., 2013

- GW level declines in 83% wells
 - Declines >7.6m were measured in 29% of wells
 - Some >30m up to 91m declines
 - Greatest in the deeper hydrogeologic units

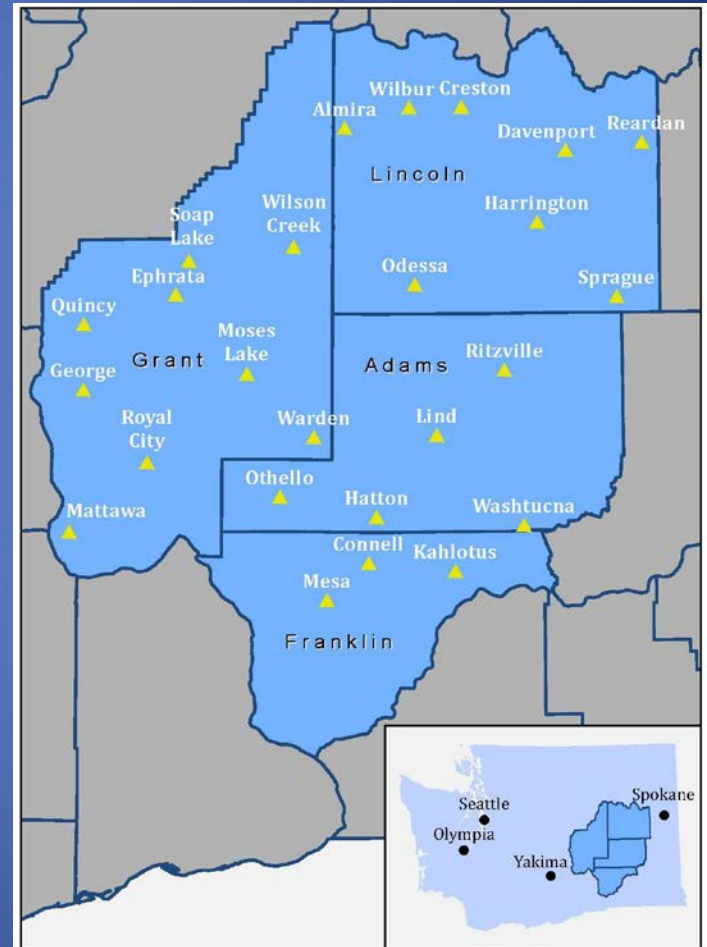


Columbia Basin GW Management Area -2012 Study

Compared current and future water supply conditions using data from 124 wells owned by 25 different water systems in the basin

Findings

At least 1/2 likely wouldn't be able to meet future water needs



DOH Strategy Since 2013

- ***Vision:** Consistent with our mission to ensure reliable water supplies, we are committed to **providing targeted planning assistance** to municipalities affected by declining groundwater supplies in the Columbia Basin supplies now and for the long-term.*
- **Our goal:** To help municipalities that are facing water supply challenges plan for a more reliable future water supply.

Focus Area: Franklin, Lincoln, Adams and Grant Counties

- Declining water supplies could be a substantial public health problem, potentially impacting a large number of communities.
- We recognize that each municipality is unique and solutions must be tailored accordingly.
- It is the responsibility of the municipalities to identify and implement solutions.

Multiple DOH Programs Involved

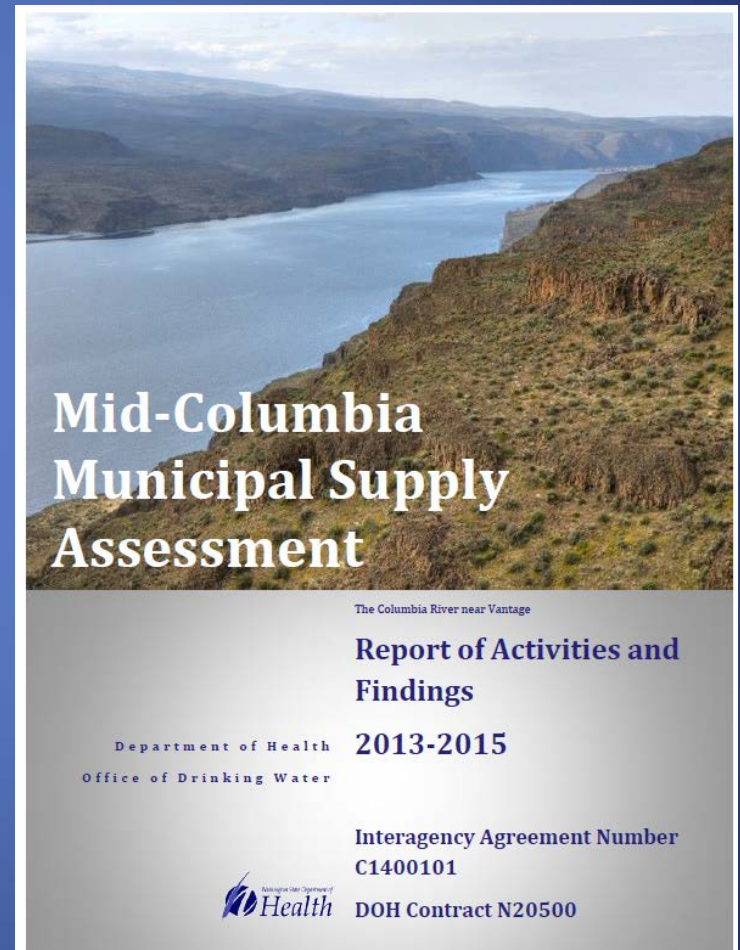
1. Planning
2. Water use efficiency
3. Capacity Program (Technical, Managerial and Financial)
4. Source Water Protection

Short-Term Strategies

- 2013 - Conducted survey of 25 municipalities
- 2014 - Open Forum Held in Moses Lake
- 2014/15 – Spoke at technical sessions regarding declining water supply and water level readings
- 2015 – Completed Mid-Columbia Municipal Supply Assessment

DOH Summary Report

Conclusion: More water level data is needed from municipal supply wells.



Is it really that bad?

City/ County	Total Well Capacity (gpm)	2030 Peak Demand (gpm)	Deficit (gpm)	2060 Peak Demand (gpm)	Deficit (gpm)
Othello/ Adams	5,050	7,900	2,850	13,700	8,650
Warden/ Grant	2,100	2,600	500	4,200	2,100
Quincy/ Grant	8,400	8,500	100	12,500	4,100

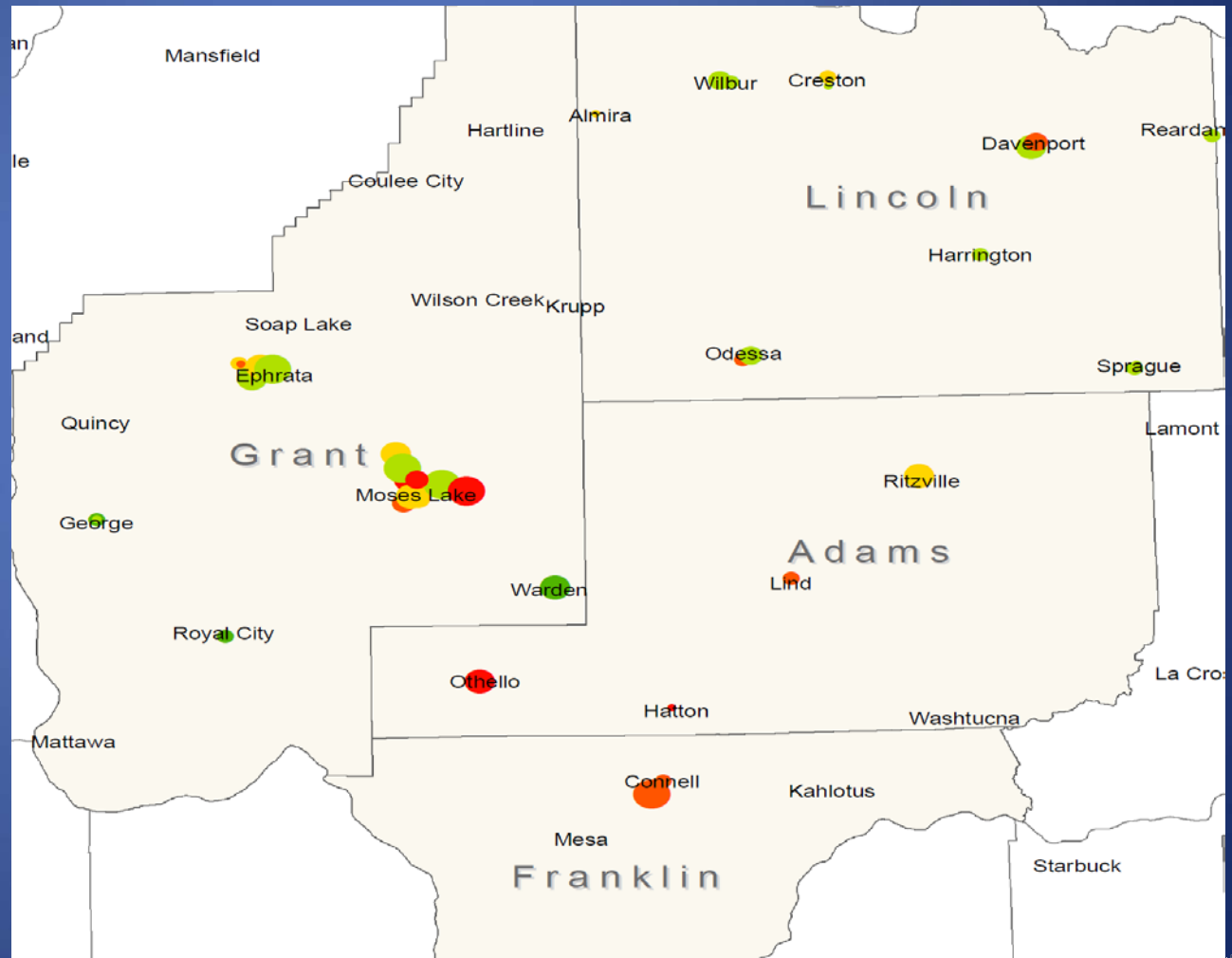
Well Map- Depth to Water and Source Capacity

Color indicates change in depth to water over time

Red = worse

Green = not so bad

Size of dot indicates well Pump capacity



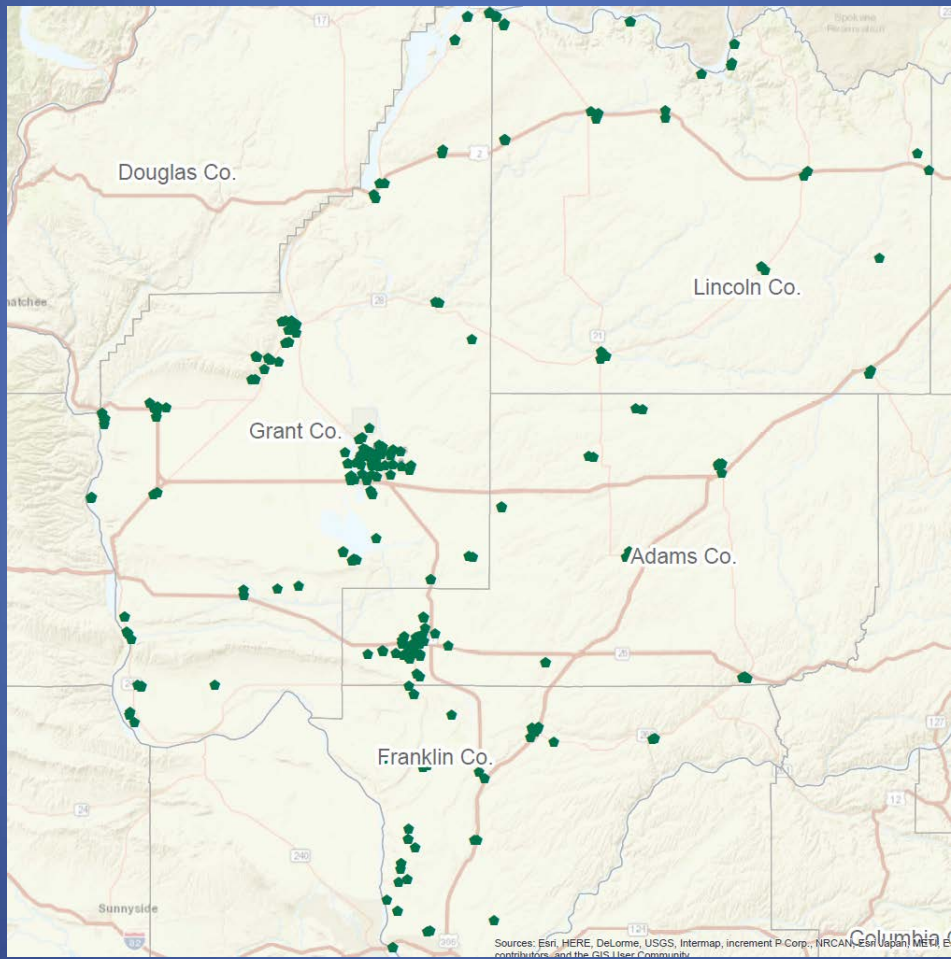
Long Term Strategies

- Identify the most vulnerable affected water systems & prioritize the development of long-term water supply solutions.
- Install water level measuring devices to monitor declining water levels in wells throughout the basin.
- Provide depth to water measurements beyond the 25 towns/cities.

2016 Mid-Columbia Basin Data Collection and Technical Assistance Project

- Objective: Survey Group A-Community public water systems within the Mid-Columbia Basin on their depth-to-water measurements and organize an appropriate technical assistance response.
- Project timeline
 - July 2016-July 2017

Location of 100 Targeted Water Systems



Project Components

- Target 100 non-city/town water systems (about 200 sources)
- Determine feasibility to collect water level data
 - Based on well construction, identify changes needed
- Provide hands on technical assistance to teach
 - a. Proper WL measurement techniques
 - b. Risk assessment and possible follow-up action
- DOH to eventually provide recommendations

Measuring GW Levels

- Using e-tape
 - Identify depth to water when pump is NOT running
 - Quarterly measurements
 - Static water levels



City of George & ERWOW



After the Data Collected

- Report the findings of depth to water in all 200 wells
- Identify possible consolidations of water systems
- Explain the risk as it relates to other declining wells in the area

Implications of Not Measuring Water Levels

- Limit growth by capping number of connections
- WAC 246-290-415(9)
 - (9) All purveyors utilizing groundwater wells shall monitor well levels from ground level to the static water level on a seasonal basis, including low demand and high demand periods, to document the continuing availability of the source to meet projected, long-term demands. Purveyors shall maintain this data and provide it to the department upon request.

Options when Well Runs Dry

- Drill deeper
 - Water rights barriers; WQ concerns (temperature, higher concentration As, F); Pumping cost; Continue to exacerbate the underlying problem
- Switch to shallow aquifers
 - WQ concerns (increased cost with treatment of shallow GW contaminants: Nitrate, pesticides, herbicides)
- “We’ll truck it in if we run out of water.”

Really?



Hauled Water (cont'd)

- For Group A
 - Emergencies only (WAC 246-290-131)
- For Group B
 - State DOH won't approve new Group B system
 - Local can approve, if adopt own Group B regulations
- For individual homes
 - Local can approve, if adopt ordinance

Hauled Water

- For potable use from a cistern.
 - Generally comes from a public water system filling station, no guarantee of potability once it passes the meter.
 - Water hauling companies don't guarantee potability once hauled water enters cistern.
 - Filtration and disinfection recommended. Point-of-entry treatment. Locally enforced.

U-Haul Water



Really?



Need to Think Outside the Box

- Consider other Water Supply Alternatives
 - ASR
 - Reclaimed Water

Need for Data Analysis

- Make it real for the public water systems
- Compare against ECY and USGS data to define scope of the problem for domestic supplies

Need for Collaboration

- Creation of a collaborative work plan amongst water purveyors for depth-to-water measuring device installation
 - Data collection
 - Reporting and sharing of information
- Collaboration of stakeholders to raise awareness and develop regional water supply plan
 - Long-range
 - Water shortage response plan

Finding Help Elsewhere

- Limited DOH staff can't help all water systems
- Small Communities Initiative (SCI)
 - Collaborative effort between the departments of Commerce, Health, and Ecology.
 - Provides technical advice to make strategic investments, identify/access fund sources.
 - Fill DOH staffing gap to speak on behalf of the municipal water systems.
 - Assist individually and regionally – help systems find possible solutions and work toward them.

Questions?

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