



OKLAHOMA
Water Resources Board

Groundwater Use and Availability in Oklahoma: A Regulatory Overview Interim Study-2012

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October 3, 2024

Water Use Permitting

The statutes and regulations governing the use of water in Oklahoma are divided into two categories:

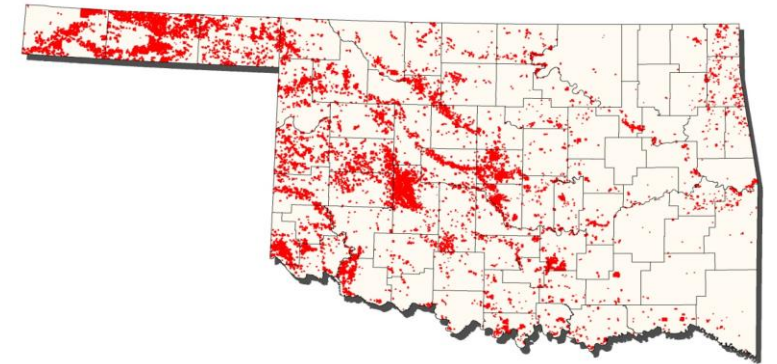
- **Stream water** – public domain
 - 82 O.S. § 105.1 - 105.32 and OAC Title 785:20, “Appropriation and Use of Stream Water.”
- **Groundwater** - private property right
 - 82 O.S. § 1020.1- 1020.22 and OAC Title 785:30, “Taking and Use of Groundwater.”

Any use, other than domestic use, requires a permit from the OWRB. These are called beneficial uses.



Oklahoma Groundwater Law

- Groundwater is a private property right belonging to overlying surface owner, subject to “reasonable regulation” by the State (e.g. quantity, well spacing)
- Current 1973 law enacted for economic development; mining law allowing for depletion
- Apportionment based on land ownership; no priority in application date or water use type
- Allocation based on prescribed methodology



- 11,245 active groundwater permits
- 4.02 million acre-feet/yr. permitted

<u>Purpose</u>	<u>Total Amount (AF/YR)</u>
Irrigation	2,974,995
Public Water	673,910
Other	378,843



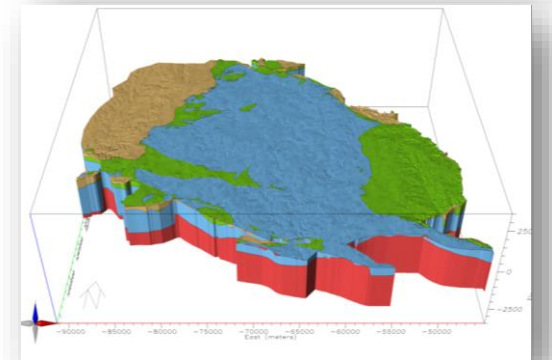
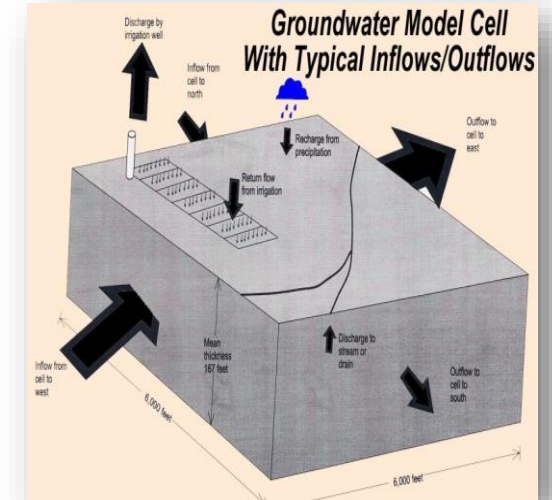
Maximum Annual Yield

- Allocation based on Maximum Annual Yield of water in a groundwater basin underlying the land
- MAY is a determination by the Board of the **total** annual **amount of fresh groundwater** that can be produced from a basin or subbasin allowing at **minimum a 20-year life**.
- “Equal Proportionate Share”: Each landowner has right to the MAY in proportion to the land they own or lease over the gw basin.
- Statute requires MAY be reviewed/updated each 20-years



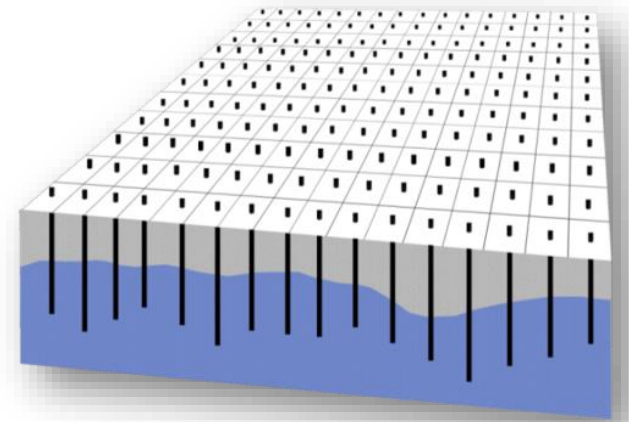
MAY Determination Process

- OWRB conducts hydrologic investigation- intensive, multi-year study. Statutorily prescribed criteria: land area overlying basin, amount of water in storage, transmissivity, rate of recharge, total discharge
- Tentative determination of MAY considered by OWRB
- Public hearing in basin area, 30 days notice, evidence presented
- Proposed final determination considered by OWRB, with arguments on proposed findings, conclusions, and order
- May be delayed/phased in if <25% appropriated (SB 1294)
- Aggrieved persons can appeal to district court



Life of Groundwater Basin

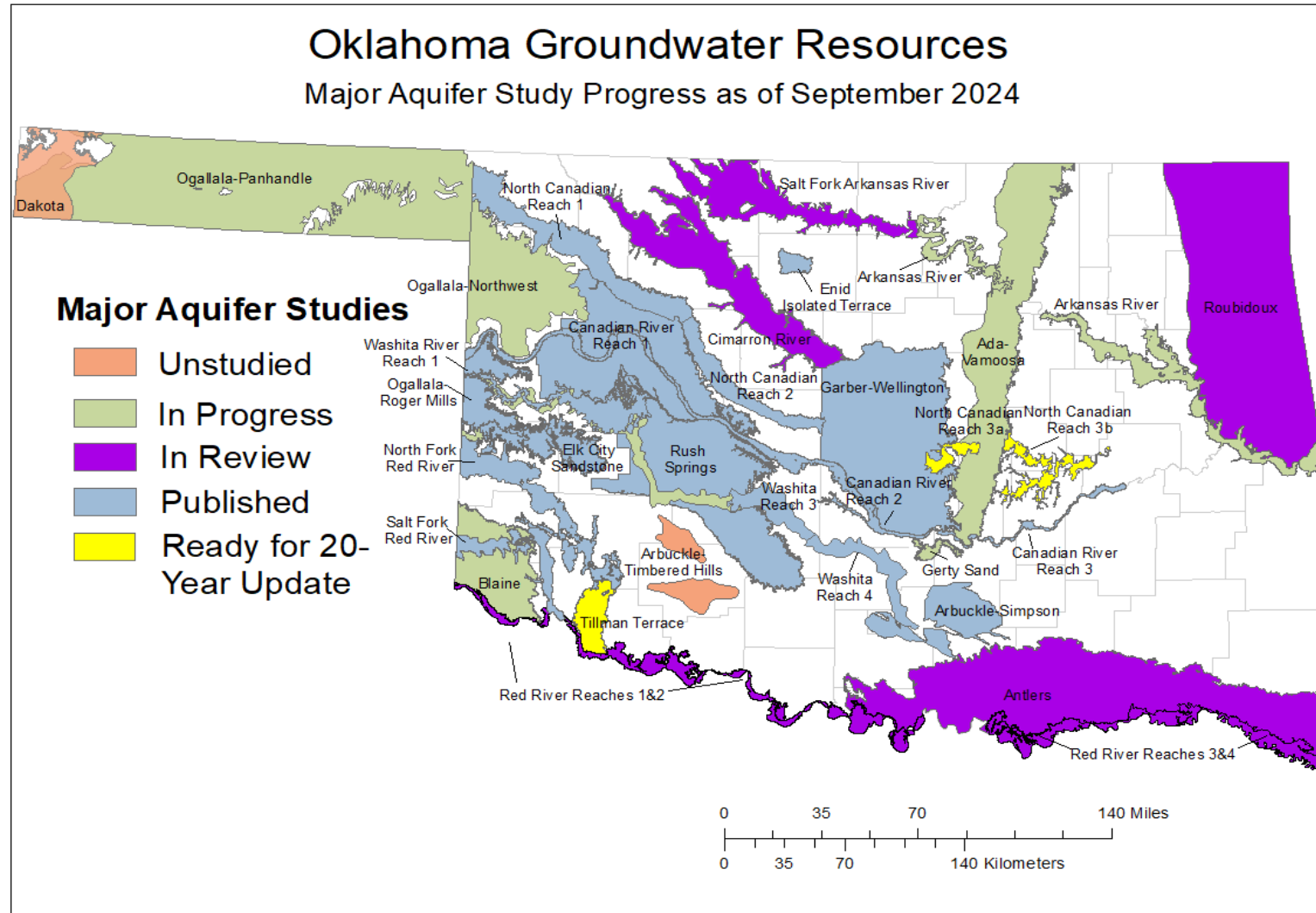
- Depletion can be simulated for various life-of-basin scenarios; typically run at 20, 40, and 50 years
- Typically the larger the EPS the shorter the basin life
- Model assumes pumping of every acre of land
- Specially protected basins can have different requirements.
 - Arbuckle-Simpson is designated a “sole source aquifer”
 - 2023 legislation called for developing a MAY that would ensure gw pumping would not reduce the natural flow of water from springs and streams
 - Only MAY that considers surface water impacts



Aquifer	Equal Proportionate Share Scenarios (acre/feet per year)		
	20-year	40-year	50-year
Garber-Wellington	4.5	2.0	1.4
Rush Springs	0.8	0.5	0.4
North Fork Red River	0.6	0.5	0.5



Hydrologic Investigations



Groundwater Permits

- Authorize use of a specific amount of water for specific beneficial uses from authorized wells locations
- In aquifers with no MAY, Board issues “temporary” permits w/default allocation of two (2) acre-feet of water per acre of land per year
- Once MAY is established, permits are converted to “regular” permits that are permanent and cannot be reduced by future MAY determination
- Use-it-or-lose-it requirement only applies to surface water permits
- Permits conditions require annual use reporting



Water Use Reporting in Oklahoma

- Annual self-reporting required by permit
- Currently no measuring method defined by law and no way to verify:
 - Irrigation is typically estimated (acres x inches x cycles)
 - Significant % of non-reporting or reporting EPS amount
 - Metering with monthly reporting is required for public water suppliers (DEQ PWS permit)
 - For other uses, metering not required by State, however can be required “...upon request of a **majority of landowners** residing within a basin...” (82 O.S. § 1020.19)

The image shows a form titled "2021 ANNUAL GROUNDWATER USE REPORT - Mining". The form is from the Oklahoma Water Resources Board (OWRB) and is addressed to ATTN: CODY RHODES, ARBUCKLE STONE LLC, 15129 CR 3500, Ada, OK 74602. The form includes a barcode with the number 018300 and a "OFFICE USE ONLY" section for check number and amount. It contains several tables for reporting water use, including a table for "Water Right Information" and a table for "Legal Description of Wells". The "Water Right Information" table has columns for "WATER RIGHT NO.", "COUNTY", and "FACILITY". The "Legal Description of Wells" table has columns for "Legal Description of Wells" and "Amount of Water Authorized". The form also includes a section for "For each purpose listed, indicate the amount of water used in gallons or acre-feet" and a section for "If you wish to cancel this water right, please check this box".

Water Right Information	WATER RIGHT NO.	COUNTY	FACILITY
	2020511	Johnston	SOURCE 1190 - Arbuckle-Simpson

Legal Description of Wells	Amount of Water Authorized
NE SW SW 08 015 07E; NW SE SW 08 015 07E	4.0 Acre Feet / Year

PURPOSE	AMOUNT IN GALLONS or ACRE-FEET (SPW units used)
Mining	



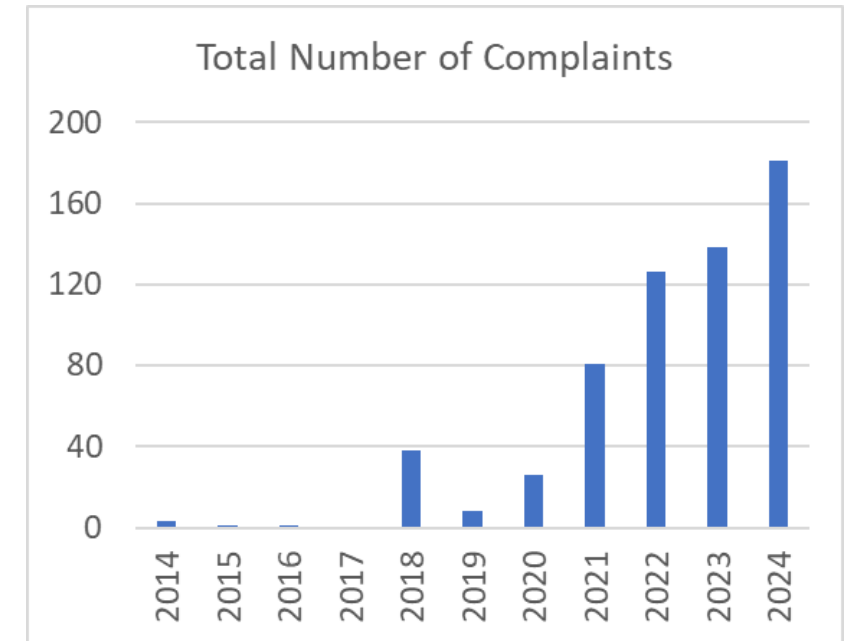
Water Use Accounting Methodologies

- Estimated self-reporting
- Metering. Majority of western states require as permit condition or by local self-governed groundwater management district (e.g. Kansas, Texas (local-level), Nebraska, North Dakota, New Mexico, Colorado, Montana (in certain cases), Idaho, Utah, Nevada, Arizona (in AMAs), California (in GSA), Oregon (in certain cases))
- Precision Agriculture Technology. telemetry
- Satellite remote sensing using evapotranspiration. For example, Idaho has used since 1990s for calculation of water **consumption** mapping, long-term **supply and demand analysis**, water budgets that support **hydrologic models**, **forecasts** for upcoming irrigation seasons, confirmation of eligibility of lands for **Comprehensive Reserve Enhancement Program**



Compliance and Enforcement

- Designed to protect private and public sector (water suppliers) and domestic users from interference and waste
- OWRB goal is voluntary compliance
- Stream water use violations (82 O.S. § 105.20)
- Groundwater "waste" (82 O.S. § 1020.15)
- Permit conditions: domestic interference of stream water; groundwater well spacing
- Construction standards: dams and water wells
- Have largely relied on complaints to initiate compliance activities due to lack of funding



Water Rights Program Responsibilities

STREAM WATER

PERMITTING

- Application review
- Notice of application
- Publication notice
- Hearing if protested
- Board order
- Permit writeup
- Appeals/litigation
- Court transcriptions
- Document storage, imaging, file retrieval
- Annual water use reporting
- Change of water right ownership
- Enforcement of special conditions
- Expiring ownership documents
- Updating contact information

- Commencement of works
- Forfeiture proceedings

STUDIES

- Water availability determinations
- Instream flow studies
- Interstate stream compacts
- Water settlement agreement

FIELD WORK

- Complaints
- Unauthorized or overuse investigations
- Interference investigations
- Stream gauging
- Completion of works

GROUNDWATER

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- Updating contact information

STUDIES

- Maximum annual yield determinations
- Maximum annual yield updates
- Public notice and hearing
- Groundwater/stream water interaction studies
- Water quality/quantity studies

FIELD WORK

- Complaints
- Unauthorized or overuse investigations
- Well inspections
- Intent-to-drill
- GPS well locations



Compliance and Enforcement, continued

- Traditionally poorly funded, however new appropriation will cover ~52% of original estimated cost to meet statutory programmatic requirements
- Will help OWRB expedite permitting and increase communications, online information, field activities, and education/training.
- New authority allows issuance of notice of violations, assessment of penalties for illegal/unlawful water use (2022 HB 3382)
- If unresponsive, hearing examiner shall draft proposed order for Board consideration, which may include:
 - Administrative penalties up to \$5,000 per day for each violation
 - Filing of misdemeanor charges



Water Well Driller & Pump Installer Licensure

- Manage licensure for persons engaged in commercial drilling/plugging of groundwater wells: 620 drillers
- Administer examinations, continuing education, and establish requirements for licensure;
- Respond to complaints and conduct routine inspections to ensure compliance with well construction standards;
- Manage filing of intent-to-drill (non-domestic) and well logs by well drillers;
- May issue penalties for violations of licensure requirements and well drilling standards (up to \$5,000 per).

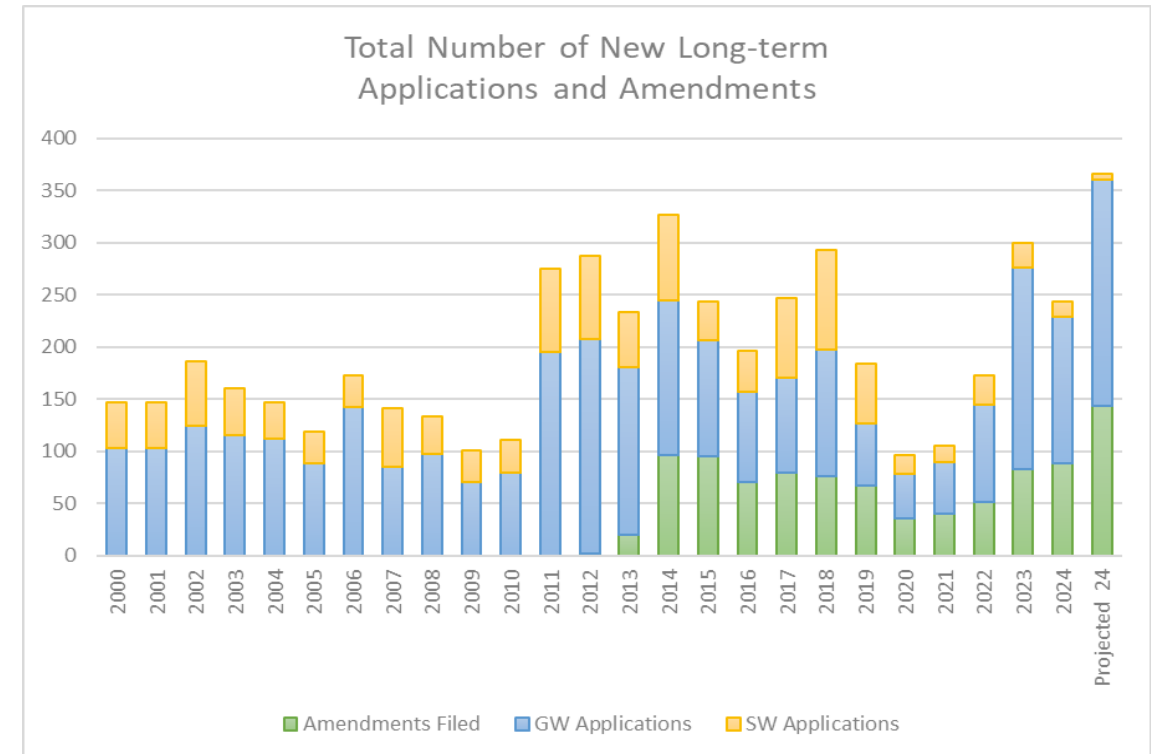


Training drillers to ensure proper well construction



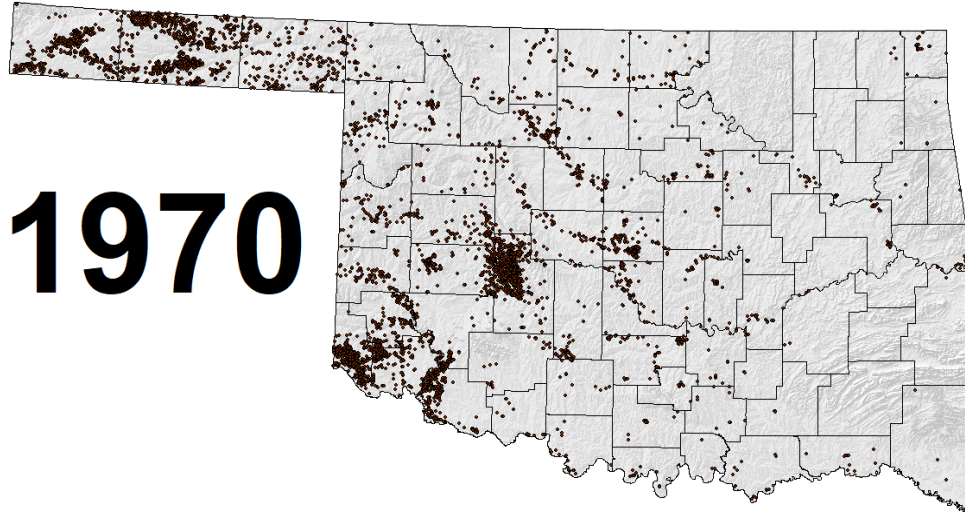
10-yr Trends in Water Right Applications

- Number and complexity of water right applications continues to increase
- Protested water right applications continue to increase due to type of use and fear of water scarcity due to drawdown and frequency and magnitude of drought conditions
- Requires additional layer of legal hearing process

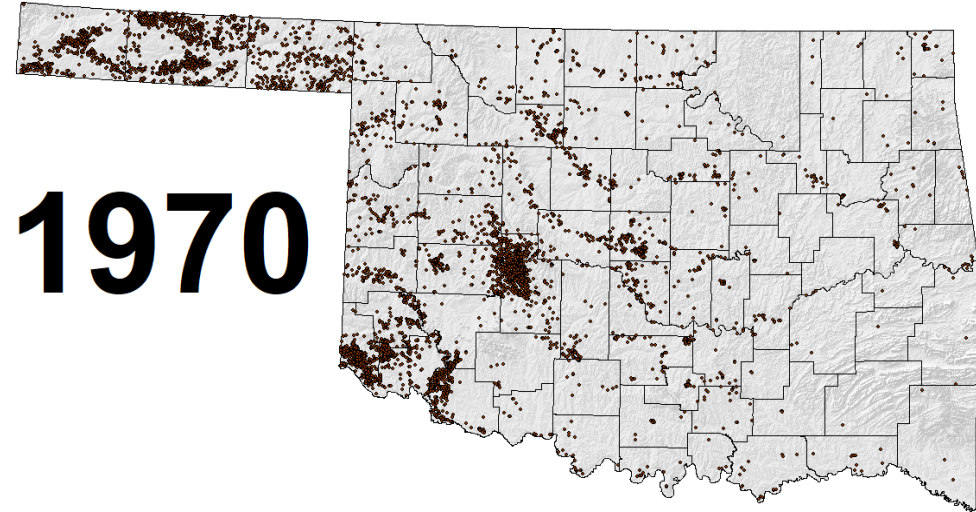


50-year Water Well Construction

**Reported Non-Domestic
Groundwater Wells in Oklahoma:
6,196**



**Reported Groundwater Wells
in Oklahoma:
6,625**



[2012 OCWP Recommendation](#) for abandoned well plugging program, unfunded to date



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Areas for GW Policy Evaluation, Investment

Voluntary Incentive-based Conservation & Efficiency

- OSU Master Irrigator/NGWA Well Drillers' U. workforce, drought grants, SRF low-interest loans, soil moisture probes, basin-wide advisors/technical assistance
- Water system efficiency, loss reduction/smart metering/technology

Water Education and Information Resources and Regional Planning Assistance

- Online publication of water use, trends in aquifer levels, new permits; contracts with regional planners/info. service providers, engineering consultants

New Source Water Development/Diversification. Aquifer Storage and Recovery; improve/understand surface reservoir water yield

Technologies. Water conservation applications using satellite-based evapotranspiration data



Areas for GW Policy Evaluation, Investment

Explore designated water districts, measurement districts, irrigation districts, gw management areas, etc.

- Non-regulatory or regulatory to provide local planning, infrastructure needs evaluation, aquifer level monitoring, water use oversight and reporting, water supply banking, or local conservation funding initiatives.
- Some states use these to place additional protections on specific basins (e.g. showing excessive decline or well to well impact, frequent water shortages or user disputes)
- Could be initiated by request from groundwater users or OWRB
- Could adopt hearing process with public input similar to MAY process
- Could be time limited to review impacts of the program



Western State Groundwater Management Districts

- Groundwater Management Districts with local control – Kansas, Texas, Nebraska, Colorado, Idaho, California
- Wyoming – Water Control Areas (stricter regulations)
- New Mexico – Critical Management Areas and Active Water Resource Management Areas (AWRM) (stricter regulations)
- Montana – Controlled Groundwater Areas (CGWAs) for higher restrictions
- Idaho – local groundwater districts and Groundwater Managements Areas/Critical Groundwater Areas (GMAs/CGWAs)
- Utah – Groundwater Management Areas (GMAs) and Critical Management Areas (CMAs)
- Nevada – Groundwater Management Areas (GMAs) with tailored regulations and Active Management Areas (AMAs)
- Arizona – Active Management Areas (AMAs) to achieve a safe yield
- Oregon – Critical Groundwater Areas GCAs (restrictions in place for conservation)



Thank You

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Critical Groundwater Management Areas

Groundwater Administrative Controls and Criteria Allowing Implementation	
Control	Criteria
Serious Water Management Problem Areas ORS 540.435 OAR 690, Div 85	ORS 540.435: The Commission can require installation of a measuring device if it finds water use information is necessary because of serious water management problems caused by: <ol style="list-style-type: none"> 1. Groundwater level decline OR 2. Unresolved user disputes OR 3. Frequent water shortages
Critical Groundwater Area Designation ORS 537.730 to 537.742 OAR 690, Div 10	ORS 537.730: The Commission may by rule designate and area a CGWA if: <ol style="list-style-type: none"> 1. Groundwater levels are declining or have declined excessively OR 2. The Department finds a pattern of well to well interference OR 3. The Department finds a pattern of substantial interference between wells and senior surface water rights OR 4. The groundwater is being or about to be overdrawn OR 5. The groundwater has been or is expected to become contaminated to an extent contrary to public welfare, health and safety OR 6. Groundwater temperatures are expected to be, are being or have been substantially altered except as specified in ORS 537.796

