REDUCING AGRICULTURAL GROUNDWATER USE (9)

Objective 1: To encourage groundwater irrigators to use less water; To protect the water rights of an irrigator who conserves by changing their irrigation system to operate at a lower rate than what was originally permitted, and to keep conserved water from being used by another irrigator (i.e., "leave it in the ground")

Strategy 1: Reduce groundwater use through conservation measures to help stop the decline in GW levels

Recommended Actions:

1.1.1 Educate groundwater irrigators on the misperception of umbrella phrase: "use it or lose it."

1.1.2 Demonstrate successes of irrigators reducing groundwater use for others to learn and to be encouraged.

1.1.3 Obtain legal recommendations of where the barriers lie in State's 'allocation of conserved water' program (e.g., in statute, rule, etc.), and what options are for overcoming those barriers.

1.1.4 Find a way to reward irrigators for reducing groundwater use (i.e., incentives), when it is ensured that irrigators are indeed using less

1.1.5 Work with OWRD staff to identify barriers and options, and consider reaching out to state legislators to help raise awareness that this is an issue, and one that applies across Oregon—this is not an issue only in Harney County; this type of coordination and outreach could be done through an organized local process

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Objective 2: To irrigate with less water by using more efficient technology to help stabilize or recover groundwater levelsand maintain a good crop in an economically sustainable manner. (Note: the Groundwater Study will help determine the extent to which groundwater levels will be able to stabilize or recover in different areas of the basin)

Strategy 2: Increase use of efficient irrigation technology

Recommended Actions:

2.1.1 Identify incentives for adopting more efficient technology (e.g., finding equipment grants to help convert to more efficient technology, such as Natural Resources Conservation Service's Environmental Quality Incentives Program, Bonneville PowerAdministration/Harney Electric Cooperative, Oregon Trail Electric Co-Op)

2.1.2 Promote precision irrigation and irrigation scheduling, informed by data such as AgriMet data

2.1.3 Support a full time equivalent (FTE) position in the basin to help support irrigators in utilizing efficient technology (i.e., a crop advisor for irrigation efficiency)

2.1.4 Demonstrate successful use of efficient technology to help gain local support to implement new conservation technologies (e.g., "smart farms" like in Columbia River Basin)

2.1.5 Ensure technical support is available in the basin to help maintain the equipment (e.g., technicians, technician school/courses for people to educate themselves)
2.1.6 Continue researching irrigation technology, including sub-surface irrigation, and disseminate information (outreach) so irrigators know how to use the technology
2.1.7 Utilize data and data-collecting technology for increased water use efficiency (AgriMet)

Objective 3: To increase science-based and basin-specific information about economically-viable alternative crops and reducing groundwater use; To increase adoption of alternative crops and efficient irrigation practices to reduce groundwater use

Strategy 3: Partner with Oregon State University, the County, and the Eastern Oregon Agriculture Research Center to hire a professor of practice, who would research the development of alternative crops and improving irrigation efficiencies

Recommended Actions:
3.1.1 See Recommendation 2.1.3 (find reoccurring funds to support a full- or part-time position)
3.1.2 Partner with Oregon Department of Agriculture's Market Access Group and other experts (e.g., market-analysis consultants)
3.2.1 Develop demonstration fields
3.2.2 Develop and disseminatemarket-analysis, economic, and risk-management analysis information to groundwater irrigators

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Objective 4: To install accountable water measurement devices on all permitted groundwater points of appropriation (excludes permit-exempt uses); To develop appropriate reporting procedures for metered groundwater points of permitted groundwater use

Strategy 4: Reduce gw use through conservation measures to help stop the decline in GW levels

Recommended Actions:
4.1.1 Implement accountable water measurement and reporting on all permitted groundwater points of appropriation, using technology appropriate for each area (e.g., sub-basin) (i.e., smart meters where voluntary agreements are enacted).
4.1.2 Recommend installation of real-time, accurate, and self-reporting metering (e.g., smart meters) on all permitted groundwater points of appropriation, in order to allow effective implementation of the recommended strategies that have come forth from the Collaborative.
4.1.3 Find cost-share measures to assist in uniform measurement.
4.1.4 Explore requiring and/or providing (depending on legal authority) incentives for installing smart meters for exempt groundwater uses, with information reported locally
4.1.5 Ensure the water use information is available to the groundwater user and reported to Oregon Water Resources Department and other appropriate water management agencies.

4.1.6 Find cost-share measures to assist in reporting.

Objective 5: To reduce groundwater use through a groundwater CREP with enrollment of up to 20,000 acres.

Strategy 5: Support a CREP program as reflected in the proposal

Recommended Actions:

5.1.1 The interagency team convened by the Oregon Watershed Enhancement Board (OWEB) develops a draft groundwater CREP proposal to be reviewed by Harney Basin stakeholders. The draft proposal should: a) meet federal requirements, including stewardship of enrolled lands (e.g., crop-cover and weed-management requirements), and b) have state willingness to participate. If the proposal lacks buy-in from stakeholders, the interagency team should create an avenue for further stakeholder input for improvement.

5.1.2 If the CREP proposal is funded and a program is implemented, the CBWP Collaborative helps conduct outreach to encourage irrigator enrollment.

5.1.3 Design a mechanism(s) that helps ensure that water 'saved water' through reduced use remains in the aquifer.

Objective 8: To prepare for and strategically manage groundwater resources during drought events in a way that helps to meet the short-term needs of the Harney basin's people, ecosystems, and economy, while helping to keep the basin on track with long-term groundwater-level goals

Strategy 8: Develop a plan to help mitigate and respond to the impacts of drought on the basin's groundwater (meteorological, hydrological, precipitation and seasonal weather)

Recommended Actions:

8.1.1 Collect and summarize information to help understand how the Harney Basin is affected by and responds to the impacts of drought events, as related to water supply and use.

8.1.2 Develop a basin plan with specific actions and tools to help mitigate and respond to meteorological drought impacts. Develop this plan in conjunction with, or as part of, the Harney County's Natural Hazards Mitigation Plan, based on the Harney Community-Based Water Plan, and in consideration of other drought plans from similar basins (e.g., temporary fallowing programs for groundwater irrigated fields during times of drought).

8.1.3 Collect measurements that can be used to ground-truth remotely sensed and airborne data, and develop higher resolution Groundwater Drought Indicator Maps for the Harney Basin through the National Integrated Drought Information System (NIDIS)

8.1.4 Explore the accuracy and utility of Arizona's long-term drought mapping methods, and consider supporting similar methodology for Oregon to help provide drought projections for the Harney Basin

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Objective 9: To help understand how and when supplemental groundwater use influences the basin's groundwater levels, and how reliant the basin is on supplemental groundwater rights. This understanding would help inform the development of a drought-impacts mitigation and response plan, as well as the development of voluntary agreements.

Strategy 9: Understand permitted and actual use of supplemental groundwater rights in the basin to better manage water resources during drought events

Recommended Actions:

9.1.1 Determine maximum authorized use of supplemental groundwater rights in the basin

9.1.2 Determine if maximum authorized supplemental groundwater use is significant in the basin and, if so, engage stakeholders to learn what triggers the use of supplemental groundwater rights (e.g., well issues, drought conditions)

9.1.3 Determine actual use of supplemental groundwater rights in the basin

[redacted]

ADDRESSING DOMESTIC WELL ISSUES (4)

Objective 1: Continue to secure funding for DWUs and ensure effective implementation of the funded programs

Strategy 1: Develop a fund to assist impacted domestic well owners, starting with the 2021 session of the Oregon legislature

Recommended Actions:

1.1.1 Utilize background information to request funding (for specific actions) from legislature for domestic well users experiencing decline in water quantity/quality to remedy well issues without going through a Burden of Proof.

Objective 3: Present community with alternative water delivery mechanisms (i.e. community wells, cisterns, etc…) and offer support to affected rural areas; In developing alternative water delivery mechanisms, provide protection for exempt livestock use

Strategy 3: Identify feasible alternative water delivery mechanisms to meet exempt water supply needs of rural residents

Recommended Actions:

3.1.1 Using the Anderson Perry report, Harney County GIS will identify areas of groundwater decline where there is an economically feasible cluster of homes that would benefit from alternative water delivery mechanisms

3.1.2 Harney County Court will determine community support/interest in alternative water delivery mechanisms

3.1.3 Develop a strategy and pursue funding with community support for alternative water delivery mechanisms where feasible

CONSERVING GROUNDWATER DEPENDENT ECOSYSTEMS (2)

Objective 1: Protect and conserve groundwater dependent ecosystems to preserve their ecosystem services

Strategy 1: Implement actions to protect and conserve groundwater dependent ecosystems

Recommended Actions:

1.1.1 Identify and prioritize incentives (like CREP) to reduce groundwater use in areas where it would otherwise impact GDEs
1.1.2 When data are available, identify areas that could impact GDEs from groundwater withdrawals
1.1.3 Develop Collaborative consensus on managing springs on public lands for ecological benefits
1.1.4 Identify management tools that could help reduce groundwater use where it would otherwise impact GDEs.
1.1.5 Pursue more aggressive reductions in groundwater withdrawal in areas that affect GDEs
1.1.6 Assess what legal protections exist for springs

Objective 2: Pursue monitoring for GDEs in the Harney Basin

Strategy 2: Implement a monitoring program for groundwater dependent ecosystems (GDEs) and priority plants and animals that depend on them

Recommended Actions:

2.1.1 Recommend that OWRD groundwater monitoring for the basin include consideration of the effects on GDEs
2.1.2 Develop a comprehensive GDE monitoring program that includes priority species of flora and fauna
2.1.3 Utilize monitoring data to inform adaptive management plans

LOCAL ORGANIZATIONS/PLANS + MEASURING & REPORTING (5)

Objective 1: To assure development does not further deplete available supplies

Strategy 1: Integrate water availability into land use planning

Recommended Actions:

1.1.1 Build an understanding of City and County authorities, tools, and limitations pertaining to land use and water planning (can lay out a vision for the community that State cannot--Refer to OAR 690 10)
1.1.2 County planning department take up the issue of considering water under goals 3 and 5 given the info that has been developed by both the GW study and PBP effort

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Objective 2: To install approved groundwater meters on all permitted groundwater points of appropriation (excludes permit exempt uses) to ensure proper management and accountability of groundwater resources; Develop appropriate reporting procedures for permitted groundwater points of appropriation in the GHVGAC

Strategy 2: Measure and report irrigation groundwater use to inform water management decisions and outcomes and provide accountability.

Recommended Actions:
2.1.1 In the GHVGAC, require uniform groundwater meters installed on all groundwater points of diversion, except for exempt uses, and report, at least annually, to entities TBD and OWRD
2.1.2 Approved meters correctly installed, at minimum, meeting requirements of OWRD
2.1.3 Develop a list of approved meters to use in the Harney Basin
2.1.4 Create infrastructure for smart meter compatibility and create incentives to encourage people to install smart meters
2.1.5 Find cost-share measures to assist in cost of meters and installation

2.2.1 Ensure the water use information is available to the certificate/permit-holder and reported to Oregon Water Resources Department and other appropriate water management agencies (e.g., water districts).
2.2.2 Develop a funding mechanism for collecting, reporting, and interpreting groundwater use data

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Objective 3: To improve our understanding and management of water use in the Harney Basin

Strategy 3: Support development and use of OpenET as a tool to monitor consumptive water use and support on-farm irrigation water management

Recommended Actions:
3.1.1 Continue participation of the Harney Basin as a pilot project of OpenET

Objective 4: Develop a management plan for reducing groundwater irrigation use; Reduce GW use in the Harney Basin

Strategy 4: Based on review of the USGS/OWRD GW study, consider setting benchmarks and timelines for gw use reduction by sub-area to propose to OWRD in the form of a Voluntary Agreement or other mechanisms.

Recommended Actions:

4.1.1 Compile existing strategies discussed to reduce groundwater irrigation and quantify and prioritize the actions based on their effects on groundwater use. [current work of the Collaborative]

4.1.2 Implement the conservation implementation strategy by NRCS to reduce groundwater use by 3000 acre feet/year

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Objective 5: To pay for conservation and management of groundwater / restitution for injured domestic wells

Strategy 5: Explore idea of assessing fees for groundwater use

Recommended Actions:

5.1.1 Due diligence re: other places that have employed fee structure (Nevada system?)

5.1.2 Should be part of a water improvement district (?)

5.1.3 OWRD/OWRC establish a water use fee system

IMPROVING STANDARDS + ENSURING COMPLIANCE (X)

Objective 1: Work with OWRD to prioritize compliance to ensure all water is being used legally within accordance of permit and certificates and has accountability to OWRD and the public; Ask OWRD to demonstrate all water use is accounted for so we can implement other parts of the water plan

Strategy 1: Work with OWRD to enact improvements in its enforcements of water rights and well construction standards in a publicly transparent manner

Recommended Actions:

1.1.1 Ensure all permits conditions and water use limits are met

1.1.2 Ensure all water right data, including water use data as required, is up to date and publicly available

1.1.3 Ask Harney County to ask OWRD to enforce certificate conditions

1.1.4 Include a recommendation for enforcement in the integrated plan

1.1.5 Enforce well construction standards (48)

1.1.6 Support OWRD in ensuring that all illegal water use ceases

1.1.7 Request that OWRD systematically assess where non-use of groundwater rights is occurring and pursue timely cancellation of unused groundwater rights when five years of consecutive non-use has occurred

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Objective 2: Influence the decision of Oregon Water Resources Commission in helping to reduce groundwater use in the Harney Basin

Strategy 2: Propose community supported actions for OWRD to implement (through upcoming rulemaking or otherwise) to manage groundwater sustainably and to meet statutory requirements

Recommended Actions:

2.1.1 Utilize science-based, site-specific conditions, and cumulative effects when determining the reduction of water use by regulating well depth and capacity

2.1.2 Once a reasonably stable aquifer is defined, utilize science-based, site-specific conditions, and cumulative effects to reduce water use in areas of significant decline identified by OWRD

2.1.3 Once a reasonably stable aquifer is defined, utilize science-based, site-specific conditions, and cumulative effects to reduce water use basin-wide

2.1.4 OWRD should continue to utilize science-based, site-specific conditions, and cumulative effects when considering transfers and the development of new wells.

Objective 3: Identify number of unused wells; Develop cost share program to address unused wells

Strategy 3: Develop a well clean up and safe harbor program

Recommended Actions:

3.1.1 Identify funding sources to conduct an inventory of unused wells

3.1.2 Develop a community outreach program to notify people of the need to address unused wells

3.1.3 Ask OWRD to provide guidance on developing cost share programs (i.e. Mosier)

3.1.4 Explore alternative funding sources for cost share program (SWCD, HDP,…) both in the short and long term

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Objective 4: Water is a public resource, managed by the State; The public must have a robust opportunity to weigh in on the Department's processes

Strategy 4: Strongly encourage that OWRD rebalances processes to give equal weight to the voice and comments of the general public regarding OWRD actions on groundwater permit matters

Recommended Actions:

4.1.1 Ensure public notice and opportunity for public engagement where the department reverses a decision

4.1.2 (THIS IS NOT THE FULL SUITE. WHAT ELSE?)

Objective 5: To increase accountability and ensure that all water use occurs in compliance with a valid water right

Strategy 5: Strongly encourage that OWRD initiate cancellation of terminate all expired permits and water rights that haven't been used in 5 years in the Harney Basin

Recommended Actions:
5.1.1 Request OWRD initiate continuous cancellation process for expired permits and water rights that haven't been used in 5 years and share information with the public

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Objective 6: Ensure deliberations and recommendations from the CBWP Collaborative, as well as stakeholder interests, are heard during rule-making process

Strategy 6: Strongly encourage that OWRD ensure fair representation in RAC

Recommended Actions:
6.1.1 Ensure balanced representation on the RAC

Objective 7: Ensure that water permitting decisions by OWRD properly account for the over appropriation of the basin and do not make matters worse

Strategy 7: Strongly encourage that OWRD increase scrutiny of all applications (new permits, extensions, transfers) and create a process requiring review ofwell-deepening, all with improved public input

Recommended Actions:
7.1.1 Request OWRD increase scrutiny of all applications
7.1.2 Request OWRD create a process requiring review of well deepening
7.1.3 Request OWRD improve public input on processes related to new applications

COLLECTING/SHARING INFORMATION (5)

Objective 1: Use the GW study for GW management considerations

Strategy 1: Fully utilize information from the Groundwater Study, including both the conceptual and numerical models.

Recommended Actions:

1.1.1 Clearly identify what is known about aquifer structure as well as what in unknown about the structure, boundaries, and groundwater movements
1.1.2 Identify the age of groundwater for consideration in regulation
1.1.3 Use the GW study for GW management decisions in the future

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Objective 2: Building upon the , identify information gaps that affect management

Strategy 2: Identify ongoing needs for further research and information, including evaluating above and below ground conditions periodically

Recommended Actions:
2.1.1 Use existing information and models to identify additional information necessary for effective management

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Objective 3: Use the GW study, community-based information, and other verified information as a basis for the best information available on GW conditions

Strategy 3: Build community understanding of water resource conditions in the Harney Basin

Recommended Actions:
3.1.1 Acknowledge the value of data gathering efforts and the ongoing use of such data to management of water resources into the future. Use the products to engage the community's understanding of groundwater quantity and quality in the basin
3.1.2 Improve water resource data collection, interpretation, and information sharing in the Harney Basin
3.1.3 Encourage community support for the development and calibration of a groundwater model for the Harney Basin that is usable for testing alternative water management options
3.1.4 Encourage the continuation of evaluation of groundwater dependent ecosystems and culturally significant species

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Objective 4: Ensure Harney County residents have access to information on the GW conditions in the basin as well as the current and past efforts of the CBWP Collaborative

Strategy 4: Develop community communications and information program to inform the public about conditions and planning effort

Recommended Actions:
4.1.1 Develop communication plan
4.1.2 Build a coordinated communications story of the many components of this collaborative effort

4.1.3 Develop short summary products for the community when major Collaborative milestones are passed
4.1.4 Collaborative members coordinate communications amongst themselves and partners to develop short outreach products for implementation of other strategies (audience: other water users) (i.e. develop short brochure outlining strategy and digestible summary of implementation)
4.1.5 Explore funding partnerships for outreach/communications endeavors

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Objective 5: To determine the comprehensive economic value of water in the Harney Basin

Strategy 5: Obtain/request state funding for economic feasibility studies/analyses

Recommended Actions:
5.1.1 Secure funding to conduct economic analyses

TOTAL STRATEGIES= 32