**Mid-Coast Water Planning Partnership Strategy Development (62 actions)**

**Water Conservation and Efficient Use (13 actions)**

* The Mid-Coast needs a coordinated water conservation initiative/strategy that focuses on reducing water use, educating stakeholders, promoting incentives, and effectively using limited water supplies, especially in times of water shortage.
* Rural residents and businesses need improved access to information, incentives, funding, and resources to help them implement water conservation measures.

**Enhanced Regional Collaboration (8 actions)**

* Cultivate active coordination and collaboration among all regional water providers to improve access to resources and funding that enhance system resilience and reliable source water quantity and quality.

**Reliable Water Infrastructure and Operations (12 actions)**

* The degradation of aging water infrastructure used to divert, store, treat, and convey water can lead to water loss and water quality issues, and poses a threat to the health and safety of communities.
* Infrastructure to manage water for self-supplied uses (rural residences and agricultural operations) is oftentimes undocumented, old, inefficient, and fails to meet current construction and quality standards, which negatively affects water security and source water quality throughout the region.
* Multiple sources of funding are needed to address current and legacy infrastructure issues and to design and build resilient infrastructure that can withstand natural hazards and help communities adapt to climate change.

**Ecosystem Protection and Enhancement (16 actions)**

* Opportunities exist in the Mid-Coast for enhancing beaver habitat and management to improve water storage, stream health, and support the recovery of key native fish species.
* Degraded riparian areas throughout the Mid-Coast negatively affect water quality, wildlife habitat, and overall watershed health. Opportunities exist to improve these areas.
* Summer streamflows are insufficient in some areas of the Mid-Coast to meet the instream water needs of fish and wildlife. Low streamflows contribute to water quality impairments (e.g., high temperatures) that negatively affect fish and wildlife.
* Many streams in the Mid-Coast lack: 1) legal protections (e.g., instream water rights) to protect streamflows for the full range of ecological flows, and 2) streamflow targets to guide instream flow restoration efforts where there are already significant out-of-stream uses.
* Some watershed systems, such as the Siletz, have insufficient water to meet the needs of all uses (both instream and out-of-stream) leading to ecological impacts on the rivers, insecurity for water users, and the potential for conflict.​
* Multiple river and stream segments consistently do not meet Oregon and federal water quality standards: high temperature and low dissolved oxygen threaten fish, and elevated turbidity affects the ability to treat and use water.

**Source Water Development and Protection (12 actions)**

* Some municipal and special district water providers are currently facing water shortages late in the summer and during dry years.
* Rural residents and landowners, agricultural irrigators, and industrial water users currently experience chronic seasonal water scarcity due to limited water availability.
* Low stream flow and high temperatures in the summer months, and high turbidity due to winter storms, pose challenges for drinking water suppliers to meet state and federal regulations to provide safe drinking water.
* Self-supplied rural residents are increasingly concerned about drinking water quality and need adequate and timely data to determine regional, local, or site-specific water quality contamination issues that may pose a health risk.

The following tables include the highest priority actions that were identified by charter signatories that ranked 155 initial actions developed by the signatories in January and February of 2021, with the exception of 1 action: Support the creation and approval of an integrated regional water resources plan. This action was not included in the plan because the partnership is in the process of implementing this action.

The grey text in the plan includes those actions that signatories, during the ranking process, and the Project Team, during the compilation process, was able to incorporate into the table, either because of redundancy, or opportunity for compilation.

Of the 155 initial actions proposed by the partnership, 98 were high priority. Through compilation and addressing redundancies, we were able to incorporate all 98 high priorities into 62 actions in the tables on the following pages.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **All categories are considered of equal importance.** | | | | |  |  |  |  | |
|  |  | **Water Conservation and Efficient Use** | **Enhanced Regional Collaboration** | **Reliable Water Infrastructure** | **Ecosystem Protection and Enhancement** | **Source Water Protection** | **SUM** |  |  |  | |
| **Extremely High** | 1.0-1.25 | 6 | 1 | 4 | 10 | 6 | **27** | 98 |  | 62 |
| **Very High** | 1.26-1.50 | 9 | 4 | 8 | 12 | 7 | **40** |
| **High** | 1.51-1.75 | 6 | 6 | 6 | 6 | 7 | **31** |  |  |  | |
| **TIER 2** | 1.75-2.25 | 21 | 2 | 10 | 6 | 8 | **47** |  |  |  | |
| **TIER 3** | 2.25-3.00 | 3 | 1 | 4 | 1 | 1 | **10** |  |  |  | |
|  | **TOTALS** | **45** | **14** | **32** | **35** | **29** | **155** |  |  |  | |

| **MCWPP Water Conservation and Efficient Use States, Objectives, and Proposed Actions[[1]](#footnote-1)** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **States** | **Objectives** | **Actions** | **Lead/Participants** | **Timeline[[2]](#footnote-2)** | **Budget** | **Desired Outcome** |
| Inadequate promotion of information and comprehensive outreach on water conservation.  Lack of adequate use and implementation of available information. | 1. Promote tools and information for water conservation. 2. Develop a culture of water conservation. | 1. **~~Create~~ Foster a higher level of culture of water conservation** by promoting water conservation opportunities and need, water rights and their management, the water cycle in the coastal region, how water moves through Mid-Coast watersheds, and how water is used, at local events, on the MCWPP website and the websites of regional partners and entities, in news articles, in water bills, and via social media (A). Educate and inform people of the interdependence of economy, ecology, and society as it relates to water use. | **Lead:** Education (all levels), interpretive facilities (Oregon Coast Aquarium, HMSC), water provider agencies (private and public), OWRD  **Participants:** Water use industries, tourism industry, water rights holders | Phase I, Phase II | [[3]](#footnote-3) | Residents and industries in, and visitors to, the Mid-Coast region that are aware and proud of, and practicing a culture of water conservation.  Public and private water suppliers are participating in water management and conservation planning and outreach to communities.  Uniform region-wide messaging about water use and conservation. |
| 1. Develop drought declaration and audience-specific water conservation and curtailment messages (A). | **Lead:** Regional water providers (e.g., Mid-Coast Water Conservation Consortium), Lincoln County (Board of Commissioners) | Phase I | $40K | Messaging associated with drought and water curtailment developed and distributed. |
| 1. **Develop a Water Conservation Public Awareness Program**, or social marketing campaign, aimed at changing behaviors of highest priority water users (A). | **Lead:** Regional water providers (Mid-Coast Water Conservation Consortium) | Phase I (recognizing importance of continuity through time) | $4,000/mo for 12 months = $48K | Everyone has an awareness of and embraces the importance of water to quality of life, the environment, etc. |
| 1. Work with NRCS to develop a Conservation Implementation Strategy to cost-share with agricultural irrigators\* on irrigation system improvements, pursuing incentives and support for irrigators that want to increase efficiencies (I), e.g., irrigating during off-peak times (e.g., night) to minimize evaporation losses.   \*Recognize the need to engage irrigators in this conversation and in the implementation of this strategy. | **Lead:** NRCS, McKenzie River Trust  **Participants:** Soil and Water Conservation Districts, Oregon Watershed Enhancement Board, OWRD, irrigators, Mid-Coast Watershed Council | Phase II | $1.5 million | Agricultural irrigators that are able to access incentives and other cost-share opportunities to conserve water and enhance efficiencies.  By 2023, an RCPP (RCPP – Regional Conservation Partnership Program) is established in the region.  Incorporation of existing global technologies to enhance irrigation efficiencies. |
| Insufficient planning for water conservation and curtailment. | C. Expand water conservation planning programs and initiatives. | 1. Develop and update water management and conservation plans for Mid-Coast regional municipal and self-supplied ~~industrial~~ direct water systems (I, R). | **Lead:** Water Providers and Water Users, all municipalities[[4]](#footnote-4),  **Participants:** OWRD Management Conservation Planning Program (OWRD) (for agriculture and municipalities), AWWA | Phase II | $0-XX$ (Harmony to provide range) | Each municipality has an updated water management and conservation plan they are implementing. |
| 1. Explore opportunities for water conservation with self-supplied industrial water users (I). | **Lead:** OWRD (consider asking Department to expand guidance to industrial users) |  |  |  |
| 1. Coordinate water curtailment plans for Mid-Coast water providers (A). | **Lead:** Entities with shared water systems/sources, (emerging) Mid-Coast Water Conservation Consortium  **Participant:** OWRD | Phase I-II |  | Entities with shared water systems and sources coordinate water curtailment plans and messaging. |
| 1. Support existing Mid-Coast Water Conservation Consortium by helping municipalities update and implement actions identified in their Water Conservation and Management Plans (A). | **Lead:** Mid-Coast Water Conservation Consortium water providers | Phase II |  | Municipalities update and implement actions identified in their Water Conservation and Management Plans. |
| 1. Implement more efficient (AMI) ~~advanced~~ metering infrastructure, and expand real-time streamflow monitoring to accurately assess supply source water and enable faster identification of leaks and shortages(A). | **Lead:** Municipalities  **Participants:** Water users | Phase II | For meter installation, online platform, app-based system – Newport $3 million, 10K residents, 5.3K meters (excluding staff time for meter replacement) | Real-time information on water use and water loss is documented to better manage water and engage everyone in water conservation.  X% of connections in the Mid-Coast region have meters/associate infrastructure (apps, online platform) within 5 years. |
| 1. Support best practices ~~the continued requirements~~ for municipalities and small system water providers to meet industry standards for unaccountable water loss (WP). To split into 2 strategies – documenting water loss, and then dealing with it | **Lead:** Municipalities, Mid-Coast Water Conservation Consortium  **Partners:** OWRD | Phase I-Phase III | Water Management Conservation Plan (nominal monthly labor costs -2 hrs); costs to prevent water loss can be significant – infrastructure upgrades | Water providers are documenting unaccountable water loss.  Master meters, new meters, pressure sensors, e.g., data system oversight exists to acquire system-wide current and accurate data.  Water providers demonstrate reductions in unaccountable water loss - by 2030 - all systems are at 10% or less of unaccountable water loss. |
| The Need for Water Conservation and Re-use[[5]](#footnote-5), [[6]](#footnote-6)  Minimal re-use of gray water, harvesting, conservation of water in-home/out-of-home, and in commercial and municipal facilities, hospitality | D. Effectively use limited water supplies, especially during times of water shortage.  E. Reduce water use. | 1. Use recycled and gray water to irrigate landscapes (RR, B, U). | **Lead:** DEQ, OHA, Municipalities  **Partners:** Homeowners and businesses | Phase II |  | Support an analysis of regulatory issues and pilot/model programs (e.g., Beaverton’s purple pipe programs) to determine realistic and safe options for the use of recycled water.[[7]](#footnote-7) |
| 1. Develop voluntary incentives for water conservation (A). | **Lead:** Municipalities (incentive), Mid-Coast Water Conservation Consortium, County  **Partner:** OWRD, Water users (homeowners) | Phase II – Phase III | [[8]](#footnote-8) | Develop and implement incentives (rebates on equipment, tax breaks, costly monthly water bills for X amount of use, etc.) to stimulate voluntary water conservation. |
| 1. Consider [water pricing strategies](https://www.epa.gov/sustainable-water-infrastructure/pricing-and-affordability-water-services) and other strategies to stimulate water conservation and raise revenue (I, WP). Explore water savings opportunities at commercial facilities (e.g., implementing shut-offs for water hoses when not in use; conduct water security/conservation audits/assessments of commercial users). | **Lead:** Municipalities  **Partners:** OWRD, Oregon State University | Phase I | $150,000 | Regional alternatives analysis that compares different alternatives (conservation, reuse, storage, water pricing, etc.) for meeting current and future water needs for individual water providers and the region as a whole. |
| 1. Contact WaterReuse | Promoting Sustainable Water Sources (<https://watereuse.org/>) and Clean Water Services in Tualatin/Tigard (<https://www.cleanwaterservices.org/>) for developed methods of reusing treated sewage plant water (and water at water treatment plant, e.g., backwash) for potable and industrial uses (I, WP, B, U). | **Lead:** Mid-Coast Water Conservation Consortium  **Partners:** DEQ, OHA, and OWRD | Phase I | $0 for initial step  $XX to actually implement strategies[[9]](#footnote-9) | Learn from others who have successfully implemented innovative strategies to meet water needs  Achieve lower levels of solids in pre-treatment programs (e.g., sidestream; potential energy sources) to maintain infrastructure longer.  Encourage reuse of backwash water. |

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| **Enhanced regional cooperation states, objectives, and actions to address key water issues in the Mid-Coast region of Oregon.** | | | | | | | |
| **States** | **Objectives** | **Actions** | **Lead/Participants** | **Timeline[[10]](#footnote-10)** | | **Budget** | **Desired Outcome** |
| Lack of access to resources and funding to enhance system resilience and reliable source water quantity and quality. | A. Build capacity of constituents to advocate for state resources and funding. | 1. Coordinate watershed and water system tours to increase awareness and understanding of regional and local water issues. | **Lead:** Mid-Coast Water Planning Partnership | Phase I – Phase III | | ~$0-1,000/field tour (1-2/year) | Increased understanding of regional and local water issues. |
| 1. Support the creation of a 50-year county-wide (including potential increments of 20, 30, 40, and 50 years) water supply plan[[11]](#footnote-11) that will be recognized as feasible, vital, and preferred over individual city/supplier plans for state and federal funding. | **Lead:** Lincoln County, Regional Solutions,  **Partners:** Alliance of all public water suppliers in Lincoln County (Municipalities, SW Lincoln County Water District, Waldport, Seal Rock (nexus with Toledo water supply)), regional stakeholders, OWRD (and other agencies, e.g., DEQ, OHA, ODFW) | Phase I – Phase II | | (We’ll check on costs to develop state-level plans) – e.g., Vision | Conduct an updated analysis of supply and demand (use OSU Study) coupled with an alternatives analysis of potential strategies to reduce demand and/or increase supply (conservation, pricing, storage, reuse, etc.) |
| 1. Explore organizational options for Mid-Coast Water Conservation Consortium that would enable entity to prioritize and fund projects throughout the region on behalf of members. | **Lead:** Mid-Coast Water Conservation Consortium  **Partners:** Independent water suppliers and users | Phase II | |  | The Mid-Coast Water Conservation Consortium is structured to prioritize and fund water projects in the region. |
| Limited communication among regional water providers. | B. Promote opportunities to improve communications, share knowledge, and pool resources. | 1. Strengthen/support the Mid-Coast Water Conservation Consortium (water suppliers that address water conservation issues) that enhances water conservation, increases resiliency during shortages and emergencies, and pools resources of multiple water providers. Support enhanced coordination with state and federal entities outside of the Mid-Coast. | **Lead:** Mid-Coast Water Conservation Consortium  **Partners:** Water Providers | Phase I | | Annual operation costs? | Water suppliers have a strengthened ability to address water conservation issues, increase resiliency, and pool resources. |
| 1. Develop tiered communication trees to address: a) typical support needs (materials, expertise, spare hands); b) response to localized emergencies affecting one or multiple Public Water Systems (but not a majority); and c) Cascadia Subduction Zone quake, volcanic eruption, regional wildfire. Provide communication alternatives for inoperable phone/internet (HAM resources; meeting locations and days/times). | **Lead:** County, Water Providers | Phase II | |  | Ensure a mutual aid network exists on the coast to communicate and respond effectively during emergencies. |
| Insufficient monitoring of stream flow and water quality. | C. Improve the effectiveness of water quality and quantity monitoring programs throughout the region. | 1. Fully fund, install, and monitor real-time stream gauging stations throughout region. Identify priority locations and times of year where gauging and stream flow measurements are needed most. | **Lead:** OWRD, USGS  **Partners:** Mid-Coast Water Planning Partnership, MCWC, Water Providers, Lincoln SWCD |  | Phase II | $[[12]](#footnote-12) | Identification of sites for highest priority gages. Funding and staff secured to maintain monitoring network.  An updated basin study that addresses water uncertainties in the Mid-Coast region (improved granularity of measurements).  Exploration of newer AI technologies is supported by the partnership. |
| 1. Develop a coordinated network of people conducting stream flow monitoring and water quality monitoring to share resources and data. Explore cost-effective ways to incorporate volunteers in data collection to complement gauging network. | **Lead:** OWEB, Stream Team, Lincoln County  **Partners:** MCWC, SWCD, OWRD, DEQ, OWEB, Salmon-Drift Creek WC, US Forest Service | Phase I |  | A robust coordinated network of volunteers are conducting stream flow and water quality monitoring and sharing that information via a Mid-Coast network. |
|  |  | 1. Develop a database for data entry and access by multiple parties. | **Lead:** Stream Team?  **Partners:** Local, State, Federal, and Citizen involvement |  |  |  | A water monitoring tool that consolidates water data for the public and water managers to access and use.  The Mid-Coast serves as a pilot to demonstrate water quality and quantity database sharing. |

| **Reliable Water Infrastructure and Operations states, objectives, and actions to address key water issues in the Mid-Coast region of Oregon.** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **States** | **Objectives** | **Actions** | **Lead/Participants** | **Timeline[[13]](#footnote-13)** | **Budget** | **Desired Outcome** |
| Degradation of aging infrastructure that diverts, stores, treats and conveys water.  Rural residences and agricultural operations often have undocumented, old, inefficient infrastructure that fails to meet current standards. | A. Create more resilient infrastructure.  B. Replace aging infrastructure. | **Self-supplied water users**   1. Establish a revolving loan program for ~~people on private wells for~~ infrastructure improvements to private wells. 2. Establish a revolving loan program for infrastructure improvements for septic systems. (SEPARATE private wells from septic systems). | **Lead:** Lincoln County[[14]](#footnote-14) (David Waltz to provide funding sources for each)  **Participants:** NRCS Rural Development, Craft 3, DEQ | Phase II | $1 million  [Rural Decentralized Water systems Grant concept - $15K/household, 20-year maximum term, 1% interest rate)] | Loans are available on a consistent basis for private wells and septic systems. |
| 1. Improve efficiency of irrigation systems[[15]](#footnote-15) and replace aging systems.   (Funding source - OWRD – Water Projects Grants and Loans) | Lead: NRCS CIS and RCPP | Phase II | [$1,800-$2,500/acre)] | Aging systems are replaced, and the efficiency of existing systems is improved. |
| 1. Support the aggregation and update of current self-supplied water system databases, including system description, system status, and system needs. DETERMINE WHAT EXISTS FROM CURRENT DATABASES. Tracking wells going dry via self reporting.   ISSUE FOR DATA GROUP TO DISCUSS (OE) | Lead: County  Partners: Private well drillers, private septic companies, OWRD well log database | Phase I | GIS Specialist (FTE) | There is comprehensive regional knowledge of self-supplied water system information in the Mid-Coast region. |
| **Water suppliers (Municipal, special districts, and private suppliers)**   1. Identify funding programs to support infrastructure enhancements that advance sustainable water solutions for the region. Study how other cities and counties have funded their infrastructure improvements through time. | **LEAD:** Water suppliers  Use Business Oregon’s One-Stop to develop funding strategy. | Phase II | $200,000 | Funding options for individual providers and the region are well understood, and a strategy exists to upgrade and maintain critical infrastructure.  Mid-Coast municipalities have capital improvement plans. |
| 1. Develop a regional initiative/training to improve coordination and provide education to water providers on infrastructure financing and funding. (Includes exploring sources of funding that fund water development, treatment, and infrastructure), and provides education to municipal water customers re: the costs and workload associated with maintaining and improving infrastructure). | **Lead:** Municipal water Suppliers (MCWCC), Fund Managers | Phase I | $25K to $50K | Water providers receive information on infrastructure financing and funding. |
| 1. Support upgrading and maintaining water metering system infrastructure, where possible.\*   \*Note: Automated read systems (not SMART) can be installed at reduced cost. | **Lead:** Municipal water suppliers (MCWCC) | Phase II | $1.5M (for a community with 2,600 service connections installing a smart water grid system); other systems with less sophistication could be used to manage water efficiently. | Install smart water grid systems in Mid-Coast communities.  Achieve water balance in community systems (Stream to Tap). |
| 1. Support the expansion of the state-supported revolving fund (including developing a new fund for self-suppliers) to accelerate water infrastructure improvements. Improve access to funding by enhancing coordination and collaboration with communities.   \* OWRD has a $14-$20 biennial revolving fund. | Lead: Business Oregon (1-stop program) (Infrastructure Finance Authority)  Partners: MCWCC (educational role for municipalities), OWRD and other funding agencies | Phase III | $20 Million | Achieve enhanced water resiliency infrastructure in the Mid-Coast region. |
| 1. ~~Design water system repair/replacement projects to withstand landslides and earthquakes to the greatest extent feasible.~~   \*Every county is required to develop a mitigation and natural hazard plan. Not necessary in this voluntary plan. Acknowledge a plan exists. We will add appendices of existing plans in our plan. | Local and State Agencies: (DOGOMI) | Phase III |  | Water system infrastructure in the Mid-Coast region is capable of withstanding landslides, earthquakes, and other natural disasters. Seismic design approaches are considered during WMP updates. |
| Lack of adequate workforce of skilled water technicians to maintain present and future water supply systems | C. Support training and professional development to ensure the availability of skilled water technicians. | 1. Support an internship program that provides hands-on training for water technicians. | Oregon Coast Community College | Phase II | $250K | Skilled and trained water technicians are available in the workforce. |
| Lack of identified additional and alternative sources of water. | D. Identify additional and alternative sources of water for the Mid-Coast region of Oregon. | 1. Consider existing studies for additional water sources, such as the 2001 CH2MHill Report on the Rocky Creek Regional Water Supply Project and Preliminary Water Management Plan, and conduct an updated analysis of supply and demand. | **Lead:** County, DLCD  **Partners:** Mid-Coast Water Conservation Consortium, OWRD | Phase I | $200 K | Updated analysis of supply and demand (use OSU Study) coupled with an alternatives analysis of potential strategies to reduce demand and/or increase supply (conservation, pricing, storage, reuse, etc.)  Watershed Management Plans. |
| Insufficient water infrastructure to address water emergencies (e.g., tsunamis, earthquakes). | E. Create redundancy, water system interconnections, and alternative sources of water to ensure access to safe drinking water in case of emergencies. | 1. Collaborate with emergency operations planners to identify highest priority water needs and develop alternative systems and plans. Where is redundancy needed? Where will infrastructure fail? What water sources are available and what has to be done so it can be used?    1. Identify opportunities and access for shared water available for addressing emergency interconnections. | **Lead:** Municipal water providers, MCWCC[[16]](#footnote-16) | Phase I | $1 M (example cost for 1 intertie in MC Region) | Water vulnerabilities are clearly articulated in updates to the Natural Hazard Mitigation Plan. |
| * 1. Address distribution system failures by installing earthquake valves in water tanks to retain water even if distribution system fails. | Lead: Water Suppliers | Phase II | $125K (1 automatic seismic value installed at a 1.5 MG reservoir = $125K) | Expanded water system monitoring and controls are in place. |
| * 1. Use the latest technologies (e.g., In system monitoring and controls, pumping efficiency, automating and controlling potential zone isolations) available when retrofitting, or replacing, water infrastructure. | Lead: Water Suppliers | Phases I-III | $$$$$ | Isolations are implemented in emergencies. |
| Insufficient water infrastructure to address water shortages (e.g., peak summer visitation to the Mid-Coast region). | F. Ensure adequate water supplies exist in the Mid-Coast in mid-summer. | 1. Using the Water Management Economic Assessment Model (Oregon State University, Oregon Water Resources Department, and MCWPP are developing a Water Management Economic Assessment Model using existing water supply, pricing, and consumption data integrated with climate change projections to simulate the impact of future water shortages and illustrate trade-offs among potential adaptation measures.), develop a suite of adaptation measures (e.g., storage investments, conservation rebate programs, and new pricing models) to address existing and predicted water shortages in the region. | Lead: MCWCC  LISA x 2 compile with previous assessment (#33) | Phase I | $200,000 | Document updated supply and demand projections for individual users and the region as a whole, including an analysis of alternatives and costs/benefits to meet current and future needs. |
| 1. Use green/natural infrastructure to create resilience that can support insufficient water infrastructure to help prevent water shortages. (REVIEW – determine if we will get at this in Ecosystem Protection and Enhancement Section) |  |  |  |  |
| * 1. Enhance reservoir security and seek additional sources for water storage. | MCWC | Phase I | $?$? | Water reservoirs in the Mid-Coast region are secure, and there is adequate water storage for the region. |
| * 1. Seek opportunities to collect and store water (e.g., expanding raw water impoundments) in the winter season to be used in the summer as a replacement for summer withdrawals. | MCWC | Phase II | $?$? | Raw water impoundments hold adequate storage for summer withdrawals. |
| e. Consider water pricing strategies to stimulate conservation and raise revenue. | Municipalities | Phase I | $50K | A comprehensive rate study is conducted that considers tiered rate methodology . |

| **Ecosystem Protection and Enhancement states, objectives, and actions to address key water issues in the Mid-Coast region of Oregon.** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **States** | **Objectives** | **Actions** | **Lead/Participants** | **Timeline[[17]](#footnote-17)** | **Budget** | **Desired Outcome** |
| Reduced health of watersheds and degraded riparian areas.  Insufficient habitat to facilitate recovery of key native fish species.  Multiple river and stream segments consistently do not meet Oregon and federal water quality standards. | A. Restore watershed ecological function (ridgetop to river approach)  1. Restore riparian areas and instream habitat functions, values, and benefits.  2. Re-establish hydrologic regimes (and sediment transport regimes) to a more natural state.  3. Restore natural channel morphology.  4. Protect, maintain, and improve water quality in the region for all beneficial uses. | Support and advocate for the compilation of a hierarchy of necessary spatial analyses and modeling to determine which conservation strategies, and locations on the landscape, will result in the greatest environmental returns on investment (ROI) (e.g., ecological function) and achieve the highest priorities in existing species recovery plans (e.g., improving winter and summer rearing habitats).[[18]](#footnote-18) | Lead: MCWCC, OWEB,  DEQ, USFS, LCSW, OWRD, Lincoln County | Phase II | $250,000 for analyses and compilation | Spatial analyses are conducted/compiled to identify strategies, and locations on the landscape, to achieve the greatest ROI and support existing recovery plans. |
| Furthering a Working Lands concept (i.e., recognizing the existence of, and working with a diversity of landowners and their goals in the Mid-Coast landscape), advocate for the value and implementation of watershed restoration projects, in locations that will achieve the greatest returns on investment, that cool streams and improve summertime flows for sensitive species and water quality impairments.   1. Work with the Oregon Invasive Species Council, local watershed groups, and others to identify high priority invasive species in each watershed, and seek funding to support control and management of these species. Control/remove invasive vegetation along stream corridors (e.g., reed canary grass, Himalayan blackberry, Asian knotweeds) to encourage establishment of native trees and shrubs. Support the Oregon Conservation Strategy’s seven statewide actions to prevent new invasive species introductions, and decrease the scale and spread of infestations. | Lead: OWEB  Participants: SWCDs, Salmon Safe, Mid-Coast Watershed Council | Phase I and II | $5 million | Natural storage (e.g., beavers) projects are implemented.  Invasive species are eradicated, or controlled, to desired levels.  Riparian zones, including intermittent flow streams zones, are expanded, to desired levels. |
| 1. Prioritize streams reaches for buffer establishment and improvement using several ~~using, a the Department of Environmental Quality’s Heat Source and other~~ models\* as well as local knowledge of these streams and reaches.   \*We will incorporate document from DEQ into Appendix. | Leads: DEQ, OWRD, ODFW, MCWCC | Phase I | Included in Action #1 | Achieve a clear understanding of stream reaches where implementation of stream buffer projects would generate the greatest improvements in water quality. |
| 1. Advocate for the restoration and conservation of riparian vegetation exists using native plants, i.e., woody buffers along streams (especially conifer retention), to facilitate large natural wood recruitment, to maintain water quality and ensure ecological function, and produce habitat for beavers. | Leads: DEQ, ODFW, MCWCC  Participants: All watershed councils, USFS, LCSW | Phase I | Included in Action #1 | Healthy riparian areas.  Achieve a clear understanding of locations/stream reaches where preservation of existing functional buffers would result in greatest protection against degradation of existing water quality. |
| ~~Conduct habitat restoration using native plants.~~ |  |  |  |  |
| 1. Create collaborative opportunities to support projects that foster ~~convenor/supporter/promoter/information sharer in~~ actions that restore watershed ecological function in the Mid-Coast region. ~~the management of riparian area vegetation in the Mid-Coast region.~~ ~~by planting native trees, promoting a diversity of successional stages and species in riparian corridors (including an adequate representation of late-successional forest stages), augmenting large wood to achieve ecological goals, and excluding livestock/other changes in grazing management.~~ | Lead: MCWPP\*, [watershed councils]  Participants: Mid-Coast Watersheds Council, USFS, LCSW, ODFW, volunteers \*uncertainty of role of MCWPP capacity to convene in the future – will discuss in near future | Phase I - III | Potential project cost for this activity from MCWC | MCWPP outreach efforts support strategies that result in riparian areas that support beneficial uses.  Lincoln SWCD has stable funding source to work with agricultural and other landowners. |
| 1. Explore resources available to support community source water protection activities. (PUT IN SOURCE WATER PROTECTION TABLE – or broaden the tent) | Lead: MCWPP\*  Participants: OWEB, other potential funders  \*see note above | Phase I and II |  | Resources (e.g., carbon credits, carbon exchange, tax credits, and acquisition opportunities) are explored and implemented. Expand outcomes. |
| 1. Furthering a Working Lands concept, (i.e., recognizing the existence of, and working with a diversity of landowners and their goals in the Mid-Coast landscape), advocate for incentives, and other strategies, that promote silvicultural practices that support restoration of watershed ecological function and protect drinking water source areas. (PUT IN SOURCE WATER PROTECTION TABLE) \*Working Lands Concept Summary – add to Plan |  |  |  |  |
| 1. Flood attenuation and summertime-flow augmentation 2. Increase water retention in channel upstream via re-meandering, addition of large wood and coarse sediment, reopening of side channels, assess road crossing structures for repair/replacements, removing physical structures (dams), decreasing bank slopes, encouraging beaver activity. | USFS, ODFW, Watershed councils OWRD  DCLD, State Lands, USACE and other partners depending on scale | Phase I and II | $10 million | Restoration projects, rezoning, removing old roads  Achieve a clear understanding of stream reaches where implementation of instream restoration projects would generate the greatest improvements in summertime streamflow. |
| 1. Increase water retention capacity in the floodplain upstream by reconnecting floodplains, address incised downcut channels, and enhance and reconnect riparian wetlands, and dry buffer strips. | USFS, DOFW, Watershed councils OWRD |  |  | Restoration projects, rezoning , |
| c. Increase water retention capacity in upstream and adjacent uplands via upland wetlands, forest planting and revegetation, and green roofs/green areas and underground water storage areas (urban areas). |  |  | 10 million | Restoration projects, rezoning , increase riparian zones, carbon credits or exchange, Beavers |
| Inadequate water availability to meet instream and out-of-stream uses (“Balance in the Basin”). | B. Identify, meet, protect, and restore peak and ecological flows. | 1. Determine ecological flows and establish in-stream needs. Expand the geographic range of flow restoration efforts by identifying flow restoration priorities. | Lead: ODFW, DEQ  Participants: OWRD, MCWC, Water Users | Phase I |  | Ecological flows are identified for the highest priority waterways. |
| 1. Establish or obtain additional, or transfer existing, instream water rights where needed to protect the full suite of flows for fish and wildlife, water quality, recreation, and scenic attraction. 2. Acquire water rights from willing water right holders and transfer those (or temporary in-stream leases) to in-stream use. 3. Consider financial incentives to trade water rights and water use for instream needs. | Lead: ODFW, DEQ, OPRD (state agencies for new rights)  Participants: McKenzie River Trust, MCWC, OWRD, OWEB (nonprofits for existing rights), water rights holders | Phase I (conduct analysis)  Phase II – obtain or transfer rights |  | An analysis is conducted in Mid-Coast watershed basins to prioritize instream water rights.  Protect the full suite of flows for a diversity of uses by establishing additional instream water rights. |
| 1. Recommend installation and use of flow meters to gain a more accurate estimate of water use in the region. (Note: One discrete action could be to request OWRD pursue a serious water management problem area (update the basin program rules). ~~Use information~~ to gain a more accurate estimate of water use ~~and availability~~. | Lead: Local SWCD (with resources) |  |  | Prioritize installation on priority withdrawals determined using an established set of criteria (e.g., SIGPOD). |
| 1. Support increased real-time river monitoring/gauging in priority locations (and collaboratively among numerous organizations) to enable innovative demand-reduction actions during periods of critical ecological need, protection of instream water rights, etc. Note: It also delivers valuable information to inform other aspects of this plan. | Lead: USGS, ODFW, OWRD, private landowners, OWEB, watershed councils, organizations, municipalities |  |  | Real-time river monitoring/gauging in priority locations. |
| 1. Look for multi-benefit water storage opportunities, such as collecting and storing water in the winter season to be used in the summer as a replacement for summer withdrawals and as a source for summertime streamflow augmentation. | Lead (note: scale determines lead)  Municipalities, counties, landowners, etc.  Partner: OWRD |  |  | Define options for multi-benefit water water storage in the Mid-Coast region. Assess opportunities for small dispersed storage projects. |
| 1. Recommend that further appropriation of water on high priority streams is limited (e.g., OWRD basin rules) ~~and reserve stored water for future economic development~~. | Lead: OWRD |  |  | The criteria for high priority streams is identified (e.g., streams where lack of summertime flow is deficient).  High priority streams have limited further appropriation of water, addressing the interests and concerns of multiple stakeholders and their interests and values. |
| Inadequate natural water storage. | C. Promote natural water storage in the region using beavers and green infrastructure.  D. Balance instream and out-of-stream water uses.  E. Ensure summer stream flows are sufficient to meet the instream water needs of fish and wildlife. | 1. Protect beaver populations and strategically encourage beaver pond creation. | Leads: USFS, MCWC | Phase I |  | Stored water for low summer flows is increased. |
| 1. Evaluate the mechanisms for restoring hyporheic flows (the transport of surface water through sediments in flow paths that return to surface water) in the Mid-Coast using a suite of strategies (articulated in the Oregon Plan and other plans).~~by building instream structures (log jams) to capture gravels at confluences of cooler tributaries~~. | Lead: MCWC  Participants: Confederated Tribes of Siletz Indians of Oregon |  |  | Hyporheic flows are increased/restored.  Performance metric: Monitoring to assess bedload increase at project scale (e.g., 2 feet of bedload accumulation). Restore to original historic levels (groundwater elevations). |
| 1. Improve stream flows and off-channel water storage by creating instream log jams to capture bedload, refill incised channels, and reconnect floodplains, and improving groundwater storage capacity. (COMBINE WITH PREVIOUS #50 and set of 3 on 3 pages prior) |  |  | .5million/project | Restoration |
| 1. Evaluate how much natural storage could be produced in the region/subareas as well as limitations to achieving natural storage (e.g., incised stream channels). | Lead: MCWC  Participants: USGS, federal agencies |  | $0.5 million/project | As assessment of how much natural storage can be produced in the region is conducted, including an articulation of limitations to achieving natural storage. |
|  |  | 1. Evaluate the information available (peer-reviewed science) on how stream flows are impacted by land use practices |  |  |  |  |
|  |  | 1. Implement actions to better mimic natural hydrology. |  |  |  |  |
|  |  | 1. Connect private landowners with resources and information about best management practices to improve water quality and quantity. | Lead: Local stewardship foresters, local SWCD staff, and USDA NRCS, OSU Extension |  |  |  |

| **Source Water Development and Protection states, objectives, and actions to address key water issues in the Mid-Coast region of Oregon.** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **States** | **Objectives** | **Actions** | **Lead/Participants** | **Timeline[[19]](#footnote-19)** | **Budget** | **Desired Outcome** |
| Some Mid-Coast waters do not meet Oregon and federal water quality standards for turbidity, E. coli, or other contaminants of concern for drinking water providers.  Source water quality may be at risk from unregulated contaminants, or contaminants, which are currently within water quality standards, but pose a risk to drinking water. | A. Assess the levels and presence/absence of contaminants in Mid-Coast waters and describe negative effects to human health.  B. Consistently attain water quality standards that protect drinking water and other beneficial uses.  C. Anticipate and prepare for the effects of climate change stressors, which are predicted to influence precipitation, temperature, coastal inundation, ecosystem function, and water quality.  D. Prioritize restoration work and support land management practices that reduce contaminants of concern to drinking water. | 1. Develop and implement long-term water quality monitoring program to improve understanding of baseline conditions and event- caused conditions (i.e., storm, low-flow) for nutrients, bacteria, temperature, dissolved oxygen, pH, turbidity and other specific contaminants identified by DEQ. | DEQ, OHA, US FS, industrial tree farms, municipalities |  | 1 million | Frequent testing at source water and real time data sharing with municipalities. |
| 1. Encourage longer forest rotations, improve riparian buffers, and implement more erosion control practices. Seek funding opportunities to reduce landslide and other sediment delivery hazards (e.g., undersized culverts, outdated road maintenance, legacy roads) in locations that are not currently regulated. | USFS, DEQ, LCSW, OWRD | 1 to 10 years |  | Remove old roads and culverts, improve steep slope logging laws. |
| 1. Advocate for increasing wooded buffer zones associated with intermittent and non-fish bearing streams that feed source water as well as perennial streams that are not currently regulated (e.g., rural residential, urban, legacy agricultural areas). |  |  |  | Increased riparian zones for intermediate streams |
| 1. Implement education and restoration projects with partners to directly address impairments and improve conditions (e.g., erosion prevention and control, riparian and wetland buffers, urban tree and forest protection) | Water councils, DEQ, ODFW |  |  | Restoration projects |
| 1. Identify cause, educate and support the reduction of nutrient inputs to source water to prevent algal blooms (e.g., grants, well water nitrate screening, well water and septic system education, low-input gardening). |  |  |  | Link to septic loan program. |
| 1. Lessen the amount of sediments and debris from harvested areas from entering source waters. |  |  |  | Minimize logging on steep slopes and increase riparian zones. |
| 1. Advocate for integrated pest management associated with use of pesticides in the Mid-Coast region. For example, minimize aerial spraying in watersheds adjacent to source water; promote hand clearing, when possible, in riparian zones (versus hand spraying); support notification of all water treatment facilities when and where spraying will occur); advocate for education and technical assistance to landowners and others on best management practices. Partner with agencies and OSU to deliver education on safe pesticide application practices coupled with vegetation management practices that reduce or eliminate pesticide use. | DEQ, OHA, OWRD, USFS, County, municipalities |  |  | Formation of a Pesticide Stewardship Partnership.  Eliminate aerial pesticide, fertilizer, and insecticides. |
| 1. Create a Source Water Protection Plan, or multiple source-specific plans, to reduce, or minimize contaminants from entering source waters. Advocate for funding to support the development and implementation of these plans. | County, City, DEQ, OHA | 1 to 5 years | 2 Million | A Source Water Protection Plan, or multiple plans, include actions that minimize the amount of contaminants that enter source waters. |
| 1. Encourage municipalities to update/complete stormwater management control plans to incorporate Green Infrastructure/Low-Impact Development practices, using statewide LID technical design guide, and update codes and ordinances that are barriers to implementing these practices. Assist smaller communities, that are not currently required, in developing similar stormwater management plans and technical design guides. |  |  |  |  |
| There exists insufficient data in the Mid-Coast to assess water quality and draw firm conclusions about the presence or levels of toxic chemicals in drinking water source areas. | E. Sample throughout the Mid-Coast to accurately identify the quantity and type of toxics entering source waters to assess potential risks to both drinking water quality and aquatic life. | 1. Implement monitoring programs that collect water samples to identify pollutant sources (location, source, practices influencing input, transport and fate of pollutants), and use results to prioritize outreach and incentive programs to modify practices.    1. Advocate for additional sampling in headwaters (where herbicides and pesticides are applied and at municipality intakes. | DEQ, OHA, USFS, OWRD, Counties, and cities | 1 to 5 years | 1 million | [[20]](#footnote-20)Source water protection plan that includes a record of amount and location of chemicals used. Samples taken in head waters and City intakes frequently. |
| b. Conduct comprehensive and ongoing water testing, and use results to guide BMP implementation, restoration, etc. to address water quality impairments. Implement regular private well and intake outreach/education/testing. | DEQ, OHA, USFS, Counties |  |  |  |
| Public information is lacking re: source water protection measures and sources of contamination and concern. | F. Informed self-supplied water users that need and want adequate and timely data to determine regional, local, or site-specific water quality contamination issues that may pose a health risk. | 1. Develop and implement an outreach plan to inform self-supplied water users with water quality information from source waters.    1. Notify and educate the public re: the need for source water protection measures. |  |  |  |  |
| * 1. Provide outreach/education programs and info campaigns re water quality impacts of lawn management near streams and ponds, pesticides and fertilizers . Share ways to reduce impacts, find alternatives. |  |  |  |  |
| * 1. Provide outreach/education on septic system management to protection groundwater and surface water. |  |  |  |  |
| d. Advocate for increasing the accessibility of data and the sharing of data that is easily interpreted and used by the public. Provide training on use, access, and interpretation of available local data. |  |  |  |  |
| There is no regional emergency response and management communication and action network in the Mid-Coast. | G. Support a regional emergency response and management communication and action network. | 1. Ensure Emergency Response Plans address water system needs and specific vulnerabilities, and are interconnected to create a regional network during emergency situations. |  |  |  |  |
| Lack of protected public drinking water source areas reduces water system control over potential impacts to watersheds. | H. Seek opportunities to protect and conserve public drinking water source areas. | 1. Acquire land, or obtain conservation easements, to protect critical land areas managed for water quality protection. Form collaborative efforts with funders, agencies, and NGOs to develop pathways for land purchases, or increased percentage of acreages managed for source water protection and enhancement. | Counties, Citys, Watershed councils, OWEB, NGOs, Corporations (Boeing, Microsoft, ext.) | 1to 10 years | 50 million | Purchase land in watershed for conservation! Publicly own and manage! Research Carbon credits and Carbon exchange. |

1. ALL USERS (A); INDUSTRIAL (I); WATER PROVIDERS (WP); AGRICULTURAL USERS/IRRIGATORS (A/I), RURAL RESIDENTS (RR); BUSINESSES (B); AND URBAN RESIDENTS (U) [↑](#footnote-ref-1)
2. Phase I (Short Term – 6-24 months); Phase II (Mid-Term – 2-5 years); Phase III (Long Term – 5-10 years). [↑](#footnote-ref-2)
3. Develop curriculum for all education levels; Conduct a water use analysis by Mid-Coast industries; Host career fairs and other education events; Encourage presentations by local industries; Poll the public every other year to track progress in achieving a culture of water conservation; Establish uniform region-wide messaging about water conservation. [↑](#footnote-ref-3)
4. Advocate for municipal water management advisory groups to councils. [↑](#footnote-ref-4)
5. Note: Water runoff capture under certain methods and times of year will require permitting through OWRD. Gray water permits are through DEQ. [↑](#footnote-ref-5)
6. <https://www.oregon.gov/deq/wq/programs/Pages/Water-Reuse.aspx> [↑](#footnote-ref-6)
7. Potable, stormwater, gray water, and black water. [↑](#footnote-ref-7)
8. Las Vegas xeriscaping, Bend [↑](#footnote-ref-8)
9. The implementation strategy can be very expensive depending on the local geology (e.g., Yachats). [↑](#footnote-ref-9)
10. Phase I (Short Term – 6-24 months); Phase II (Mid-Term – 2-5 years); Phase III (Long Term – 5-10 years). [↑](#footnote-ref-10)
11. Creation of a Water Board for the Mid-Coast – potential suggestion for strategy to add (GAP) [↑](#footnote-ref-11)
12. Current approach versus SMART technologies for measuring stream flows and extrapolating/using statistical tools. $15,000 per gage - each gage needs to be measured every 4-6 weeks (time and travel) and data needs to be processed (1 week per year of staff time) - right now OWRD has insufficient funding to maintain and process data from additional gages - any new gages need to be considered in the context of the statewide monitoring strategy - are there other alternatives for monitoring streams? [↑](#footnote-ref-12)
13. Phase I (Short Term – 6-24 months); Phase II (Mid-Term – 2-5 years); Phase III (Long Term – 5-10 years). [↑](#footnote-ref-13)
14. Note: OWRD is currently pursuing legislation that would develop a fund for well remediation - HB 2145 - other agencies are also offering funding for wells - see USDA Rural Development. IFA may also have resources…Craft 3 revolving loan fund may receive additional funding (legislation introduced this year) [↑](#footnote-ref-14)
15. According to the Ag Census, only about 414 acres are irrigated in the Mid-Coast. [↑](#footnote-ref-15)
16. (LC-Multi Jurisdictional Hazard Mitigation Plan amendments. Updated December 2020) [↑](#footnote-ref-16)
17. Phase I (Short Term – 6-24 months); Phase II (Mid-Term – 2-5 years); Phase III (Long Term – 5-10 years). [↑](#footnote-ref-17)
18. OC Coho (Oregon’s Coast Coho Business Plan – OWEB), OC Coho Conservation Plan (ODFW), Recovery Plan for OC Coho (NMFS). [↑](#footnote-ref-18)
19. Phase I (Short Term – 6-24 months); Phase II (Mid-Term – 2-5 years); Phase III (Long Term – 5-10 years). [↑](#footnote-ref-19)
20. See Pesticide Stewardship Partnership. This Partnership uses a data driven process to determine presence of pesticides/herbicides and reduce application/risk. [↑](#footnote-ref-20)