



2.0 GOALS AND OBJECTIVES

The over-riding goal of the Salt Lake Countywide Watershed, Water Quality Stewardship Plan (WaQSP) is to improve watershed functions (i.e. water quality, hydrology, habitat and social services) in Salt Lake County. In order to develop and implement a comprehensive Plan, Salt Lake County has worked, and continues to work, towards the following goals: 1) Provide for high

quality waters that support the nationwide goals of “fishable” and “swimmable”, 2) Provide leadership and facilitate implementation and coordination of water quality projects with stakeholders, and 3) Develop a dynamic plan and process, with stakeholder support, that will guide Salt Lake County’s water quality improvement efforts over the next six (6) years and beyond. To accomplish these goals, Salt Lake County has targeted the tasks outlined in Table 2.1.

Table 2.1 WaQSP Universal Goals and Tasks

Goal	Task
<p>Provide for high quality waters that support the nationwide goals of “fishable” and “swimmable”.</p>	<p>Characterize existing and anticipated physical, chemical and biological conditions in the Salt Lake Countywide Watershed.</p> <p>Identify and develop WaQSP Planning Elements to address specific regulatory, management, ecological and social conditions in the Salt Lake Countywide Watershed.</p> <p>Identify priority recommendations and implementation activities that will preserve and improve watershed functions in Salt Lake County.</p> <p>In cooperation with local managers, regulators and stakeholder groups, implement recommendations from the WaQSP in a timely manner.</p>
<p>Provide leadership and facilitate implementation and coordination of water quality projects with stakeholders.</p>	<p>Determine levels of public participation and public information and education necessary to satisfy Environmental Protection Agency (EPA) recommendations and guidance.</p> <p>Coordinate quarterly meetings with the Jordan River Watershed Council core and advisory groups (Stormwater Coalition, Board of Canal Presidents, Community Councils, Headwaters and Water Supply, Publicly Owned Treatment Works, Parks and Recreation, and Environmental Interests). See Appendix J for complete list of Jordan River Watershed Council Participants.</p> <p>Conduct an annual Watershed Symposium to facilitate stakeholder participation and instigate technical review of water quality and watershed issues by regional experts.</p> <p>Facilitate discussions regarding the WaQSP with stakeholder, management and regulator organizations.</p> <p>Facilitate implementation of WaQSP plan elements by management agencies.</p> <p>Facilitate informational tables at public events such as Utah Educators Association (UEA) meetings, Farmers Markets, Water Quality Fairs, Earth Day Celebrations, and the Great Salt Lake Bird Festival.</p>
<p>Develop a dynamic plan and process, with stakeholder support, that will guide Salt Lake County’s water quality improvement efforts over the next six (6) years and beyond.</p>	<p>Using guidance from the EPA, the Clean Water Act and national experts, establish a procedure for WaQSP development that includes robust stakeholder involvement.</p> <p>Establish a procedure for both amending and updating the WaQSP document.</p> <p>Integrate findings and recommendations of TMDLs in future iterations and amendments of the WaQSP.</p> <p>Establish a monitoring tool that will be used to assess the effects of implementation activities and to direct future recommendations.</p>

2.1 WATERSHED FUNCTIONS

Water chemistry and pollutant loads have traditionally dominated water quality planning efforts. However, with a more holistic approach to watershed health, the connection between riparian health, bank stability and biological communities has gained importance. A healthy watershed provides four major functions to the local population. These functions include: water quality, habitat, hydrology, and social/recreational services. As the goal of the WaQSP is to improve watershed functions in Salt Lake County, these four functions are described in detail below.

2.1.1 Water Quality

Healthy watersheds serve to reduce pollutant loads to streams, rivers, lakes and groundwater systems. Pollutants in watersheds may result from erosion, direct discharge, overland flow, or groundwater discharge.

As water flows over the land surface (during rain and storm events) water quality degradation may occur as water picks up contaminants (such as sediment) and nutrients. However, overland flow may also support water filtration depending on the physical, chemical and biological conditions of the watershed. In a watershed with robust riparian corridors and wetland systems, adsorption, bio-uptake, bioaccumulation and deposition all serve to remove sediments, nutrients, and toxins from both surface and groundwater systems. Therefore, the chemical quality of a given watershed is directly related to the physical and biological conditions of that watershed.



Riparian area, Upper Corner Canyon Creek Sub-Watershed

Physical and biological conditions that support water filtration in watersheds include: watershed size, amount of pervious surface area, abundant wetlands and riparian corridors. The size of a watershed and surrounding land use type (i.e. urban / rural) can influence the water quality improvement function of a watershed. The amount of impervious surface area in a watershed has a direct effect on groundwater recharge capabilities and infiltration. Wetlands greatly improve water quality by reducing stream velocity, which causes sediment to “drop out”. Additionally, wetland vegetation removes nutrients from waters and thereby reduces downstream potential for eutrophication. Toxic contaminants, such as heavy metals, may also be removed through adsorption and bio-accumulation in wetlands. Riparian corridors, in conjunction with wetland areas, serve to filter pollutant discharges to the receiving stream or river.



Encroached riparian area, Lower Willow Creek Sub-Watershed

2.1.2 Habitat

Healthy watersheds function to provide habitat for flora and fauna that constitute the local biological community. There are two main types of habitat provided in watersheds – aquatic and terrestrial. Aquatic refers to habitat for water-based organisms such as macroinvertebrates, fish and aquatic vegetation. Terrestrial refers to habitat for land-based organisms such as mammals and plants.

Habitat value (the number of individuals that a given ecosystem can support) is typically based on biological productivity. Biological productivity refers to the rate of production (photosynthesis) in an ecosystem. Therefore, production in a biological sense is energy (food) produced per unit area per unit of time. Because productivity (photosynthesis) requires water to occur, highly productive habitat typically is associated with waterbodies.



Wetland area, Upper Butterfield Sub-Watershed

2.1.3 Hydrology

Hydrology is the study of the movement, distribution and quality of water as it relates to the watershed. This interdisciplinary subject includes the use of scientific and engineering principals to determine the amount and quality of water in the environment.

Watersheds provide numerous hydrologic functions. Some of these functions include: 1) collection of water from rainfall, snowmelt, and groundwater, 2) storage of various amounts of water over time, and 3) discharge of water as runoff.

In an urban setting, such as Salt Lake County, local hydrology is highly managed to accommodate water supply and development (e.g. stream realignments and altered runoff).



Moose foraging, Upper Big Cottonwood Creek Sub-Watershed

Wetlands are generally highly productive ecosystems and provide essential foraging, nesting, and escape habitat for fish and wildlife. Wetlands are particularly important habitat for juvenile fish which benefit from both reduced flow rates and abundant food sources. Additionally, wetlands are an important habitat for migratory birds.

When local hydrology is altered through withdrawals, diversion and stream alterations, there is a direct effect on the habitat value of a watershed.



Mill Creek channelized section, Lower Mill Creek Sub-Watershed

2.1.4 Social/Recreational

Watersheds support numerous social functions such as: recreation (both water and land-based), wildlife viewing, viewsheds, and education.

Watershed stewardship requires understanding and concern on the part of local residents. Promoting this concern and understanding is most easily done through access to the resources. However, providing access to stream corridors and headwater areas may introduce potential degradation due to misuse and/or overuse. For example, personal concern for headwater areas is likely increased by access to that area. However, in driving up a canyon, parking on the shoulder of a road when designated parking areas are full, and hiking on either developed or undeveloped trails, pollutant loads to the area may have been increased. The challenge is therefore to promote watershed social functions without degrading other watershed functions such as water quality, habitat and hydrology.

Salt Lake County residents have access to world class recreational areas. The WaQSP seeks to support compatible recreational use of both headwater and valley opportunities.



Mill Creek, Upper Mill Creek Sub-Watershed



Jordan River Parkway trail, Jordan River Corridor Sub-Watershed



Ensign Peak Trail, Jordan River Corridor Sub-Watershed

2.2 STRATEGIC TARGETS

In order to facilitate improvement of watershed functions in Salt Lake County, seven (7) strategic targets were the focus of this WaQSP planning cycle. Targets may be altered in subsequent WaQSP updates. This planning cycle centered on the following strategic targets that were identified through stakeholder workshops:

2.2.1 Water Quality

“Reduce pollutant loads to improve water quality in the Salt Lake Countywide Watershed sufficient to support aquatic habitat, water supply and social functions”.

This strategic target is at the heart of watershed planning in Salt Lake County. All implementation efforts that result from the WaQSP are directed toward the improvement of water quality in the streams, river and lake in Salt Lake County. Specifically, this target is addressed in the Stormwater, Nonpoint Source, and Water Supply Planning Elements.

2.2.2 Regional Wastewater Planning

“Develop regional wastewater planning procedure requirements to enhance, improve and protect water quality functions.”

This WaQSP planning cycle was initiated as a



Wastewater Treatment Facility, Great Salt Lake Sub-Watershed



Mt. Timpanogas seen from north shore of Utah Lake

result of a proposed amendment to the existing Area-Wide Water Quality Management Plan. Through the amendment process, a need for a comprehensive review of wastewater facilities, technologies, and capacity (both existing and future) in Salt Lake County was apparent. Wastewater planning has been the focus of the Area-Wide Water Quality Management Plan program as outlined in section 208 of the Clean Water Act (CWA).

In order to address this strategic target, the WaQSP Wastewater Planning Element includes:

1. A review of Salt Lake County wastewater planning authority and clarification of the review process.
2. An inventory of the current wastewater treatment technologies and capacities, as well as potential upgrade capacity.
3. An evaluation of future wastewater treatment needs based on population projections and identification of capacity shortfalls.
4. A comparison of current wastewater treatment to the original 208 Plan recommendations.

2.2.3 Utah Lake/Diversion Canals

“Evaluate and prioritize the effects of Utah Lake outflow and diversion canals on water quality and flow by developing optimized management protocols, that will enhance and protect water quality, habitat and hydrologic functions.”



Water quality, habitat and hydrology in Salt Lake County are highly influenced by the management of Utah Lake. In order to address this strategic target, the WaQSP Utah Lake Planning Element includes:

1. A characterization of historical Utah Lake releases, canal diversions, and return flow quantity and quality.
2. An evaluation of water management strategies to enhance water quality and mimic a more natural flow regime.

2.2.4 Wetlands and Stream Bank Protection

“Improve and protect wetlands and stream bank stability to prevent degradation from erosion and sediment transport to protect water quality, habitat, and hydrologic functions.”

Wetlands and stream geomorphology have significant impacts on water quality, habitat and the hydrologic functions of a watershed. In order to address this strategic target, the WaQSP Habitat Planning Element includes:



Harkers Creek stream channel, Coon Creek Sub-Watershed



Little Cottonwood Creek, Upper Little Cottonwood Creek Sub-Watershed

1. An evaluation of methods to improve degraded physical habitat conditions along the Jordan River, its tributaries and wetlands.
2. A review of typical habitat problem types in the watershed and a review of enhancement and restoration options.
3. A protocol for prioritization of habitat enhancement projects in the watershed.
4. An evaluation of mechanisms to increase stream corridor and wetland preservation.

2.2.5 Stream Corridor and Watershed Recharge Preservation

“Increase stream corridor and watershed recharge area preservation to improve habitat, social, recreational and water use functions.”

In order to address this strategic target, the WaQSP Headwaters Planning Element includes:

1. A review of existing authorities and jurisdictions in the headwater/recharge areas of Salt Lake County.
2. A review of existing plans written for these headwater areas.
3. A summary of recommendations from those plans and identification of their implementation status.
4. A review of management and water quality concerns specific to the headwater areas and recommendations to address those concerns.

2.2.6 Instream Flows

“Increase instream flows under normal and drought conditions to support aquatic habitat and recreational functions.”

In order to address this strategic target, the WaQSP Instream Flows Planning Element includes:

1. A characterization of current and natural stream flows, including an inventory of primary diversion locations and quantities.
2. An assessment of current and potential recreational and habitat uses of streams in Salt Lake County.
3. An evaluation of the aquatic habitat and recreational benefits of flow augmentation.
4. An evaluation of methods to provide flow augmentation.



Big Cottonwood Creek, Upper Big Cottonwood Creek Sub-Watershed



Parley's Creek, Upper Parley's Creek Sub-Watershed

2.2.7 Funding Mechanism

“Identify funding mechanisms for plan implementation, long-term watershed monitoring, and on-going adaptive management.”

In order to address this strategic target, the WaQSP Economic Planning Element includes:

1. An analysis of the cost and benefit of current water quality conditions, meeting State standards and exceeding State standards.
2. An evaluation of the economic and social benefits of clean water.
3. An evaluation of funding mechanisms for updating the WaQSP.