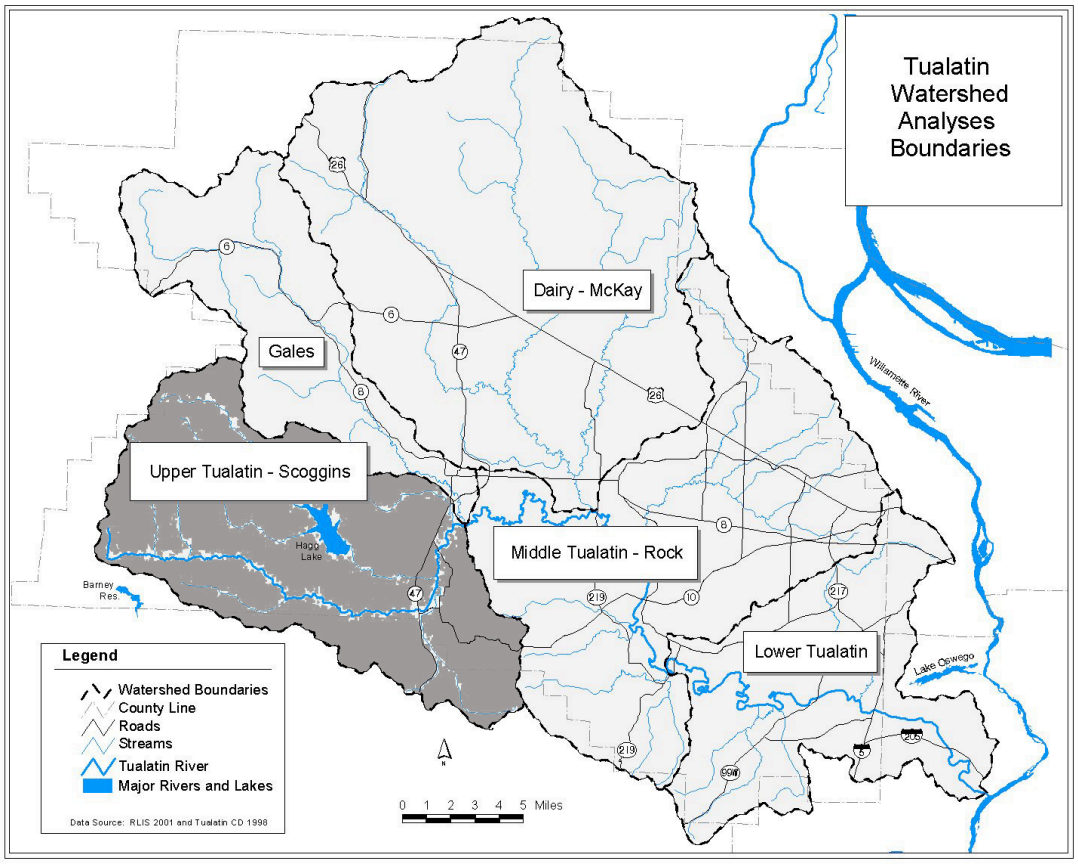
TUALATIN RIVER WATERSHED COUNCIL

Upper Tualatin - Scoggins



WATERSHED CHARACTERIZATION

Physical

The Upper Tualatin-Scoggins watershed (watershed) drains 136 square miles (86,900 acres). From its headwaters in the Coast Range, the river flows about 12 miles through mountains in an easterly direction and enters Patton Valley near Cherry Grove at river mile (RM) 68. The gradient abruptly drops and the river changes to a lowland floodplain stream. At RM 62, the river enters the Wapato Valley and turns northward until its confluence with Gales Creek at RM 56.7 which is the lower boundary of this watershed.

The watershed is drained by the mainstem Tualatin River and two fourth order tributaries, Scoggins and Wapato Creeks. Annual precipitation ranges from 110 inches near Windy Point in the Coast Range to 46 inches near its confluence with Gales Creek. Most of the sizable streams within this watershed are perennial with high peaks in winter and very low flows in summer. 84% of the precipitation falls from November to March. Stream channels vary with topography, in the upper reaches gradients often exceed 20% and can be as high as 71%. Typical gradients average 3-20%. Soils are typically fine-grained silts, some silty loams, stony loams, clay loams and mucky clay.

Watershed Analysis Summary

What is a Watershed Analysis?

A watershed analysis is a process for evaluating how well a watershed is working. This process includes steps for identifying issues, examining the history of the watershed, describing its features, and evaluating various resources within the watershed.

This summary contains:

- a watershed characterization
- a description of major issues
- key recommendations

The full report can be downloaded from our website.

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Organic valley soils potentially have high phosphorus content.

Vegetation in the mountains is dominated by Douglas-fir with western red cedar and western hemlock in small amounts. Hardwood stands are dominated by red alder. Big leaf maples are abundant on canyon walls and in the foothills with Oregon white oak in drier locations. Riparian zones are dominated by Oregon ash, black poplar, and big leaf maple and stream banks are dominated by native red-osier dogwood and invasive Himalayan blackberry.

The Upper Tualatin is home to diverse animal species including deer and elk. Native species of fish include steelhead trout and cutthroat trout. Introduced coho salmon spawn in the watershed. Numerous native non-salmonid species such as sculpin and dace are present in streams, as well as non-native warm water species such as smallmouth bass and perch. Animals such as bats and birds (Bald Eagles, owls, pileated woodpeckers, etc.), amphibians (frogs and salamanders), reptiles (turtles and snakes), in addition to invertebrates (insects, worms and mollusks) are important in the food web.

Land Use

The population is concentrated in the eastern portion. Gaston, with an estimated 1997 population of 690, is the only incorporated city within the watershed. Half of the watershed has fewer than 10 people per square mile. Growth has mainly been in suburban areas adjacent to Forest Grove and rural residential growth in the Chehalem Mountains.

Land is primarily privately owned (87%). About 27,800 acres (36.5%) is private industrial timberland and 43,693 acres (50.3%) is other private lands. Roughly 10,280 acres (11.8%) of the watershed is public land managed by the Oregon Department of Forestry (ODF). Another 3,763 acres (4.5%) of the lands (OR and CA railroad lands) are managed by the Bureau of Land Management (BLM). Other small amounts of public lands are managed by the Bureau of Reclamation and the City of Hillsboro. Under the Washington County Comprehensive Plan, there are zones of forestry (68.8%), agriculture (10.8%) and urban uses (1.2%) and also areas of mixed forestry-agricultural use (22.2%). Forestry uses center in the mountainous portions while agriculture dominates the central to lower portions of the watershed. Urban use will be restricted to the area surrounding Gaston, the Highway 47 corridor and the Chehalem Mountains.

The most important mineral resource within the watershed is crushed rock. Both basalt and sandstone are quarried and commonly used for construction and road maintenance. Clay is extracted at one site in the Carpenter Creek subwatershed.

Recreational activities such as hiking, camping, hunting, fishing, water-skiing, picnicking, birding, bicycling and off-highways vehicles are supported by the watershed.

DESCRIPTION OF MAJOR ISSUES

Erosion

Soil-disturbing activities on steep and unstable forested lands lead to increased surface erosion, mass wasting (land slides), and sediment delivery. Roads are a major contributor to erosion, and stream crossings facilitate sediment delivery to streams.

Sheet, rill and gully erosion from fields plus stream bank erosion are widespread in valleys and adjacent foothills. Surface erosion occurs when soil is inadequately protected from rainfall and runoff. Bank erosion occurs in areas of impaired riparian vegetation. Road drainage ditches provide channels that transport sediments from fields to streams. Systematic methodologies to assess the effectiveness of Voluntary Water Quality Farm Plans and agricultural Best Management Practices, both individually and in combination, are lacking.

Hydrology

Wetland and floodplain area is greatly diminished from historical levels. This has resulted in loss of hydrologic regulation of flows on the Tualatin River upstream of Scoggins Creek and on tributaries. Scoggins Dam has largely replaced this function at downstream sites, and some tributaries have small dams that control flow.

During the summer, surface flow may be insufficient to support all beneficial uses at some locations. Current instream water rights may be inadequate to protect resources.

Stream Channels

Most valley and some foothill and mountain stream channels are severely deficient in large woody debris. This has limited the development of pools, which provide essential habitat for fish and other aquatic life. Little potential exists for recruitment of large woody debris to streams.

Water Quality

In many portions of the watershed, sediments are delivered to streams at levels well above reference conditions. These sediments often carry adsorbed pollutants such as bacteria, phosphorus, and organic carbon. In some cases, inputs of these constituents have caused streams to be listed under section 303(d) of the Clean Water Act. This resulted in the establishment of TMDLs (Total Maximum Daily Loads) for the Tualatin Basin.

The Tualatin River between Haines Falls and Scoggins Creek, as well as Carpenter Creek, has temperatures detrimental to salmonids and other aquatic life preferring cool water conditions. Other tributary streams likely have similarly elevated water temperatures.

Winter dissolved oxygen levels in Scoggins Creek below Henry Hagg Lake are below optimal levels for spawning salmonids. This has caused this section or reach to be listed on the Oregon Department of Environmental Quality (ODEQ) 303(d) list.

Sedimentation appears to be impairing biological function in the watershed. Some sediment impairment exists in Scoggins-Parson, Sain Creek, Tanner Creek, and Scoggins Dam subwatersheds and it is expected to be present elsewhere. Besides the resulting effects on stream ecology, sedimentation also threatens to reduce the useful life of Henry Hagg Lake.

Aquatic Species and Habitat

Salmonid populations are declining. A large proportion of this decline can be attributed to degradation of habitat and water quality.

Reductions in wetland areas have led to depletion of habitat for wetland and riparian species. This has adversely impacted populations of these species, especially amphibians. Practices such a clear-cut harvesting of riparian and upland areas may have adversely impacted the quality and quantity of amphibian habitat. Predation by non-native bullfrogs has also been implicated in declines in native frog and turtle populations.

Terrestrial Species and Habitat

Management practices have resulted in a change in vegetation characteristics. Late-succession vegetation stages have been severely reduced. Hardwoods have invaded areas formerly dominated by conifers.

Native species richness within much of the watershed has been compromised by invasive exotic and noxious weeds. This problem is most extensive in the eastern valleys and foothills.

Many plant and animal species in the watershed are sensitive to management-induced habitat changes. The Bureau of Land Management has included many of these species on its list of sensitive species. Habitat for many of these species has been reduced.

Geographic Areas to be Addressed

Timber, agricultural, domestic, industrial, and wildlife interests often compete for limited resources. As population increases, this competition will intensify.

Near stream recreational activities can lead to disturbance of the riparian zone and contribute pollutants to streams. Support activities associated with recreational facilities can contribute pollutants to streams.

Poor access limits recreational opportunities in the western portion of the watershed. Natural features such as Lee Falls are not accessible.

Native Americans were known to utilize the area surrounding Wapato Lake. Excavation activities surrounding the lake may disturb artifacts. Similarly, pictographs near Patton Valley may be sensitive to vandalism.

KEY RECOMMENDATIONS

Erosion Control

Highly erodible areas need to be stabilized. Specific activities depend on the site:

- Revegetate streambanks,
- Avoid building new roads on steep and unstable lands, revegetating the land surface and drainage ditches, and clean/repair/remove culverts,
- Incorporate outsloping, subsoiling to restore infiltration,
- Use cross-slope farming, rotations with sod-building crops, cover crops, filter strips, and grassed waterways.
- Promote implementation of Best Management Practices (BMP) by agricultural interests.
- Keep databases of practices implemented in each plan and enhance monitoring of farms to determine effectiveness.

Restore Hydrology

Protect existing floodplain and wetland resources:

- Restrict further residential and industrial development within the 100 year floodplain,
- Acquire wetlands, replace reed canary grass and other exotic plants with natives,
- Conserve water to optimize water supply for all beneficial uses.
- Use soil moisture-sensing devices and convert sprinklers to drip irrigation system on appropriate crops.
- Determine if current instream water rights provide sufficient conditions for aquatic life.

Water Quality

Measures should be taken in order to clean up the water, such as:

- Reduce sediment inputs to streams and Hagg Lake. NRCS / TSWCD continue efforts to expand implementation of Best Management Practices to reduce sediment discharge to streams and to revegetate eroding areas.
- Reduce nutrient inputs such as phosphorus. Agencies should further implement measures to reduce inputs of manure, grass clippings and other organic matter to streams.
- Manage manure so that it benefits the land but does not enter the streams
- Maintain septic systems to keep human waste from streams. Offer incentives such as cost-share opportunities to homeowners.
- Use pesticides sparingly and keep them away from streams. Evaluate stream-friendly methods of pest control to reduce impacts on streams.

- Riparian reforestation is needed to reduce water temperatures, filter pollutants, and control erosion. This should be focused in areas with a high potential for improved habitat for native fish.

Riparian

Perform population surveys to determine extent of amphibian species (such as red-legged frog, tailed frog, clouded salamander, western pond turtle), as well as other wetland-dependent species, Tualatin River Watershed Council should facilitate a forum to explore opportunities for production of beaver wetland habitats, as well as means of resolving potential conflicts between beavers and people.

Preserve existing spawning and rearing habitat for salmonids. Focus on habitat preservation and restorations in the mountains and narrow valleys. Restore riparian vegetation (especially in Tualatin River area between Haines Falls and Gaston).

Restore instream habitat for salmonids. Due to very poor large woody debris recruitment potential, there is a need to put logs or other habitat factors into the stream to slow down water, provide hiding and spawning areas. Re-introduction of conifers to hardwood stands for long-term recruitment. For short term, place large wood pieces in channels and construct instream structures to create pools in degraded habitat with high fisheries potential. Landholders should manage riparian areas to develop late-succession characteristics which can include re-introduction of conifers to hardwood stands and some thinning within riparian zones.

Remove obstructions to fish passage by replacing culverts or other stream crossing structures which do not provide good passage. Acquire land or conservation easements in crucial riparian habitats. Promote incentives for private land owners to implement BMPs designed to protect aquatic habitat.

Promote cooperative efforts to eradicate weeds, emphasizing non-chemical methods near aquatic systems. Distribute pamphlets encouraging eradication of currently listed noxious weeds. Study plants which may become future problems, especially giant reed and Pampas grass.

Remove introduced invasive Scotch broom (especially around Mercer Creek). Other exotic species to eradicate include Himalayan blackberry, reed canarygrass, and thistles.

Seek funding to conduct systematic surveys for sensitive species (Check the Oregon Natural Heritage Program list for species that may be found within the Upper Tualatin-Scoggins Creek watershed).

The Oregon Watershed Enhancement Board (OWEB) should continue funding for the Watershed Council to help achieve Oregon's environmental policy objectives. It should conduct a survey to determine impacts due to recreational access to streams. Agencies should monitor parks to ensure that they do not contribute fertilizers, pesticides and herbicides to streams. Conduct a survey to determine the public perception of recreational needs. The Watershed Council should monitor greenspace acquisition efforts by Metro. Landowners should avoid building new roads on steep terrain (e.g. portions of the Roaring Creek subwatershed).

STRATEGIES

Coordinate and work together to achieve watershed improvement by planning/studies, education, or on the ground restoration. The Tualatin River Watershed Council can act as a facilitator to promote implementation of the recommendations. Government and governmental agencies (e.g. cities, counties, BLM, NRCS/SWCD) have specific directives and duties to achieve watershed objectives. Other partners (individuals, landowners, grassroots organizations, and corporations) can voluntarily organize educational activities, donate material, contribute labor and expertise, and/or manage their lands in order to achieve overall desirable watershed objectives.