

WRIA 13 WATER RIGHTS MAPPING AND ASSESSMENT PROJECT

SPONSOR: Watershed Planning Committee for Water Resource Inventory Area (WRIA) 13. Grant funding was provided by the Washington Department of Ecology.

MAPS PRODUCED BY: Staff from Thurston County Department of Water and Waste Management. For information on the mapping project and data summaries, contact Tom Clingman at (360) 357-2491 or clingmt@co.thurston.wa.us.

GIS MAP PRODUCTS AVAILABLE FROM: Thurston County GeoData center at (360) 754-4594 or www.geodata.org.

Surface Water Rights WRIA 13

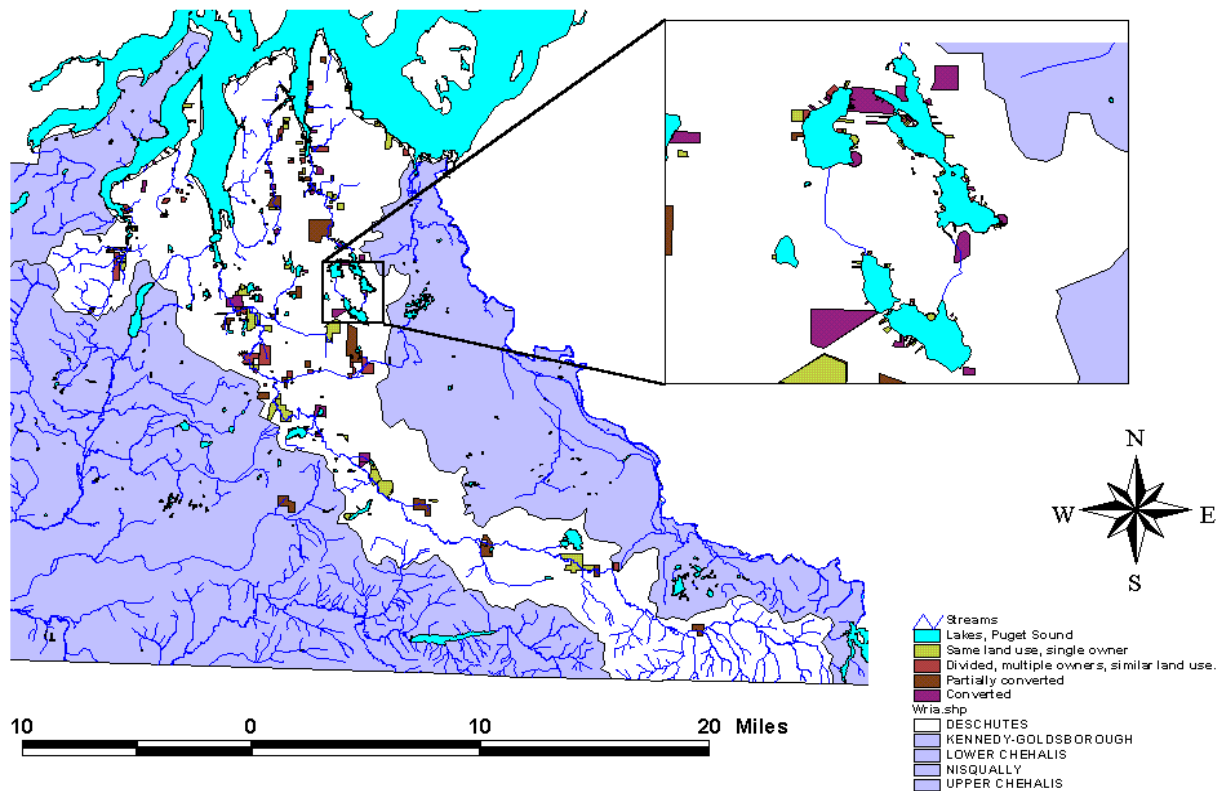


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OVERVIEW

The purposes of the WRIA 13 Water Rights Mapping and Assessment project were:

- Make water right records accessible through creating a linkage between DOE water right microfiche records and the County's GIS coverage. This will improve ability for area-wide and record-specific access to water right records - a fundamental step toward improving water resource management.
- Improve understanding of potential *actual* water use compared to water rights data. In particular, the assessment effort identified water rights that appear to be associated with land that has been *converted* from the use identified in the water right to a distinctly different land use. This assessment was particularly significant for surface water rights, due to the absence of any other existing information on actual use.

All 950 surface and groundwater rights in WRIA 13 were mapped using the Thurston County Geodata Arcview system. Microfiche records at DOE Southwest Regional Office were copied for reference. Using legal descriptions and maps included in the record, the apparent water right Place Of Use (POU), Point Of Diversion (POD) and Point Of Withdrawal (POW) were overlaid with current parcel geography. This provides a linkage to current ownership records, aerial photos and other information on the Thurston County GIS system.

As records were mapped, an initial assessment was made comparing "purpose" of water use from the water right records with current land use as indicated on aerial photos. Outcome: Nearly 15% of water rights volume is for land that is clearly converted to a different use (for example, irrigated farmland with a surface water right converted to a subdivision with municipal water supply.) In other cases, place of use was either partially converted to a different land use or divided into multiple ownerships.

The mapping and initial assessment are intended to support WRIA 13 Watershed Planning and other users by linking the apparent property associated with water right records to parcel geography, property ownership, sub basin location and other features. The water right mapping and initial assessment provide a starting point for further area-wide and record-specific research into water usage and water rights within WRIA 13. The project does not imply any legal determination regarding which land is appurtenant to a specific right or the highly complex issue of water right legal status.

The WRIA 13 Water Rights Mapping displays geographic location of Department of Ecology Water Right records. Available mapping is currently limited to Water Resource Inventory Area 13, which includes the Deschutes River/Budd Inlet watershed, Henderson Inlet watershed, east Eld Inlet watershed and the Nisqually Reach drainages.

WATER RIGHT MAPPING PROCEDURE

Thurston County Department of Water and Waste Management staff obtained water right permit and certificate microfiche records for Water Resource Inventory Area (WRIA) 13 from the DOE Southwest Region Water Resources office. Thurston County Geodata Center (TGC) overages utilized in the mapping project include parcels, streams, and sections. Software was Arc View

version 3.2a. Mapping protocol was largely based on the DOE Water Resources Program Geographic Water Information System (GWIS) protocol issued in support of metering compliance. Complete metadata documentation prepared for the project is available from the Thurston County Geodata Center at www.geodata.org.

Four associated water right data themes were created in the TGC system:

- Surface Water Rights Place of Use (POU)
- Surface Water Right Point of Diversion (POD)
- Groundwater Rights Point of Withdrawal (POW)
- Groundwater Rights Place of Use (POU).

Location is mapped as accurately as allowed by DOE records, including legal descriptions and location sketches. Level of accuracy achieved is identified for each record.

Data tables associated with each theme summarize permit information from DOE records including approved water use, maximum allowed quantities and conditions of use.

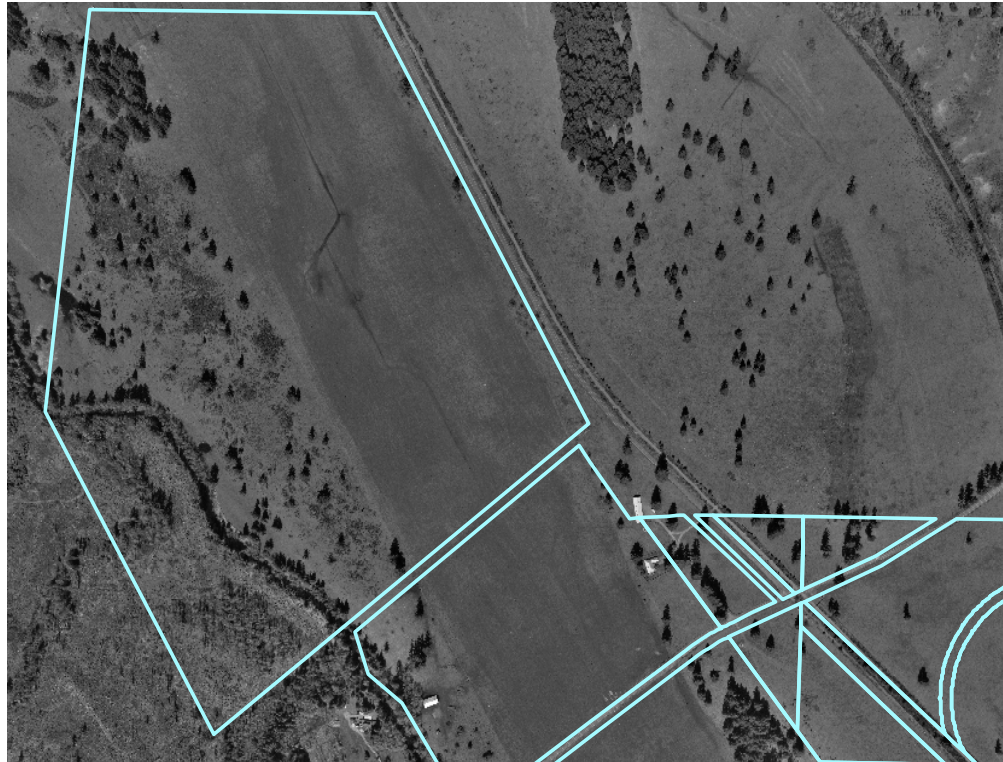
ASSESSMENT PROCEDURE

Current land use was identified from aerial photographs and compared to “purpose” from water right records. While this does not define actual water source or use, the comparison indicates whether current land use is consistent with the water right Purpose. The four comparison categories derived for the assessment were:

- “Same”: Place of Use for the water right record is in the same land use as the “Purpose” identified in the water right record. Additionally, the Place of Use still in a single property ownership. For example,
- “Divided”: The Place of Use appears to have a similar land use as the “Purpose” identified in the water right record but is now in divided ownership. Most commonly, a Place of Use for an irrigation right is now divided into 5 – 10 acre tracts and at least some degree of agricultural activity potentially using irrigation is evident on the aerial photos.
- “Partially converted”: Portion of original area is still in the use identified in the water right Purpose, with part of the property converted to a distinct land use. In nearly all cases, this involved development of a portion of the Place of Use into residential land use.
- “Converted”: Distinct change has occurred in land use compared to water right “Purpose” (for example, a farm with irrigation rights has been converted to a residential subdivision served by the city water system).

These four categories are illustrated on the following aerial photos:

Same Land Use, Single Owner



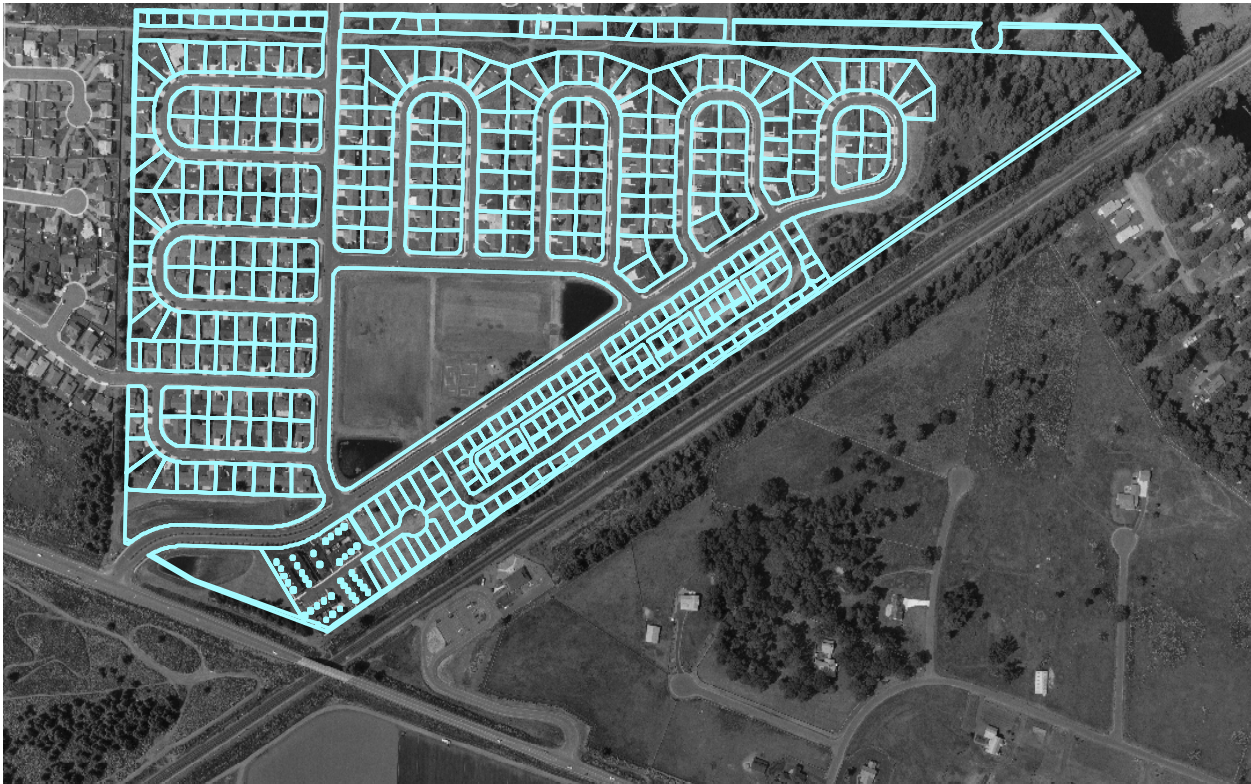
Divided, Similar Land Use



Partially
Converted
Land Use



Converted Land Use



Project Cost

The 950 WRIA 13 water right records required 985 staff hours to accomplish the following:

- Copying microfiche records at DOE Southwest Region office;
- Mapping POD/POU into the County Geodata system;
- Initial assessment of water right purpose versus current land use;
- Metadata documentation;
- Analysis and summary reports;
- Map production for presentations; and
- Preparation and electronic transfer to DOE Southwest Region Water Resources.

The Watershed Planning Committee allocated budget of \$20,000 for the project. Actual expenditures were \$13,400 for temporary project staff and \$1,600 for technical assistance from Environmental Health staff, for total project cost of \$15,000. (Note: Original estimates for the WRIA 13 mapping project were based on the WRIA 1 water right mapping: In WRIA 1, mapping entailed an average of about approximately 1 hour per right. This benchmark figure was confirmed by results of the WRIA 13 mapping project.)

CAUTIONS IN USING WATER RIGHT MAPPING AND DATA

1. **Legal status:** Water rights are legally very complex. The mapping does not imply a legal determination conclusively identifying the land appurtenant to each specific water right, nor resolve the legal status of the water right. Some rights may no longer be valid due to disuse. Information on water rights is available from the Department of Ecology at www.ecy.wa.gov/programs/wr/rights/water-right-home.html.
2. **Water volume:** The instantaneous and annual volumes associated with a water right indicate the *maximum* diversion or withdrawal allowed. Aggregating water right data provides an extreme “worst case” volume of water – assuming that *every* water right is still valid and *every* right was utilized at the *maximum* volume simultaneously.
3. **Water right mapping level of accuracy:** The mapping does not provide or imply a legal determination conclusively identifying the land appurtenant to each specific water right. These maps provide general spatial information derived from DOE water rights records. In most cases, accurate mapping of Place of Use was possible from legal description and sketch included in the DOE records. However, as identified in tables associated with the GIS maps, location accuracy varies and in some cases may not be useful at the parcel scale.
4. **Completeness of coverage:** Not all WRIA 13 water rights are necessarily included in the mapping. Mapping relied on the DOE Water Right Application Tracking System (WRATS). Other water rights may be located in the subject area but could not be identified from the WRATS table.
5. **Claims:** Claims are not included in the mapping or initial assessment. Numerous Claims to water use preceding the requirement for formal surface or groundwater rights have been filed with DOE.

ASSESSMENT OUTCOME

Findings of the WRIA 13 water right initial assessment:

Surface water rights

- 52% of the surface water rights (by volume) appear to be the “same” regarding the Place of Use. For example, land with a water right for irrigation is still in agricultural use that likely involves some amount of irrigation, and the Place of Use is still owned by a single party. (This project makes no claim as to where this water is coming from, i.e. surface or ground source.)
- Nearly half of the volume associated with surface water records is for property that is partially or totally converted to other land uses. In most of these cases (termed “divided”, “partial conversion” and “converted” in the table below), property with surface rights for irrigation has been divided into parcels ranging from 5 acre tracts to urban-level subdivisions.
- 25% of the rights – incorporating over 15% of the total volume associated with surface water right records – are for property where a distinct change in land use has occurred compared to the water right Purpose.
- Properties associated with the 478 surface water right records now involve approximately 5,168 parcels.
- The largest 17% of surface water records comprised 80% of the total Qi (instantaneous quantity).

Surface water rights in WRIA 13 Compared to Current Land Use

	Same	Divided	Partial	Converted	Total
Total # of water rights	227	78	40	131	478
Flow represented (cfs)	37.09	10.63	10.85	13.16	71.73
Number of current parcels	1,284	449	1,418	2,017	5,168
Percentage of total flow	52%	16%	16%	16%	100%

Surface water rights for irrigation

Irrigation using surface water is a particular concern due to potential direct impact on streamflow – as irrigation diversions would occur during the low-flow period of the year. The degree of actual use of surface water rights for irrigation in WRIA 13 is not known. However, the initial assessment indicates that nearly 60% of the volume associated with irrigation rights from surface water is linked to partially or fully “converted” lands.

Nearly 25% of the volume associated with irrigation rights from surface waters is for land that is fully converted to non-agricultural uses. These 109 “converted” rights are now divided into over 1,800 parcels. An additional 1,500 parcels are associated with the 58 “divided” and “partially converted” irrigation rights to surface waters. These two categories comprise 35% of the water volume associated with irrigation surface water rights in WRIA 13.

Irrigation surface water rights in WRIA 13

	Same	Divided	Partial	Converted	Total
Total # of water rights	88	21	37	109	255
Number of current parcels	216	160	1,340	1,821	3537
Flow represented (cfs)	16.86	4.06	10.27	10.02	41.21
Percentage of total flow	41%	10%	25%	24%	100%

Surface Water Rights Divided by Watershed

Over ½ of surface rights by volume are located in the Deschutes/Budd Inlet watershed, with 33% in Henderson Inlet watershed and about 13% in the east Eld watershed. “Converted” land use conditions are particularly significant for Henderson surface water rights – 30% of the Henderson surface water rights (by volume) were for “converted” Places of Use.

Deschutes Watershed

	Same	Divided	Partial	Converted	Total
Total # of water rights	93	28	20	55	196
Number of current parcels	682	198	1269	1085	3234
Flow represented (cfs)	19.145	6.03	6.98	5.605	37.76
Percentage of flow within watershed	51%	16%	18%	15%	100%
Percentage of total flow	27%	8%	10%	8%	53%

Henderson Inlet Watershed

	Same	Divided	Partial	Converted	Total
Total # of water rights	91	30	17	67	205
Number of current parcels	162	133	128	863	1286
Flow represented (cfs)	11.075	2.4	3.1955	7.045	23.7155
Percentage of flow within watershed	47%	10%	13%	30%	100%
Percentage of total flow	15%	3%	4%	10%	33%

Eld Inlet Watershed

	Same	Divided	Partial	Converted	Total
Total # of water rights	31	16	2	6	55
Number of current parcels	57	88	16	67	228
Flow represented (cfs)	6.41	2.06	0.56	0.48	9.51
Percentage of flow within watershed	67%	22%	6%	5%	25%
Percentage of total flow	9%	3%	1%	1%	13%

Ground water rights

- For most groundwater rights, current land use is largely consistent with the purpose stated in the water rights records. 75% of the rights by Qi appear to be the “same”, this percentage changes to 83% when looking at Qa (acre-feet/year)
- Rights for private wells located within city limits account for about 10% of total flow in the groundwater rights records.
- 10% of groundwater rights (by volume) are for property that appears to be fully converted to other land uses, typically irrigation rights for land converted to residential.
- The largest 28% of the groundwater rights comprise 80% of the total quantity associated with the groundwater right records.

Ground water rights in WRIA 13

	Same: Muni & private	Private well w/in city	Partial	Converted	Total
Total # of water rights	268	86	28	90	472
Total # of current parcels	47,632	3,237	1,540	2,659	55,068
Total acre feet/year	41,818	2,626	1,377	2,386	48,207
Percentage of total acre feet/year	83%	7%	4%	6%	100%
Instantaneous flow (gpm)	68,819	6,564	3,786	7,508	86,677
Percentage of total flow	75%	10%	5%	10%	100%

Groundwater Rights by Watershed

As a percentage of total annual flow represented in the DOE records, WRIA 13 groundwater rights are predominately in the Deschutes watershed (45%) and Henderson watershed (35%). In contrast to surface rights, most groundwater rights (in number and volume) are for land which is in a use consistent with “purpose” shown on the water right records. This applies to all watersheds.

Only about 7% - 10% of rights (by volume) are associated with “converted” or “partially converted” land. However, continued residential use of land may mask conversions from private wells to public water systems. Results of examining this issue are shown in the “private well within city” category. In this category are 82 rights with over 2,000 acre feet/year of annual allocation (4% of WRIA total). The number of these wells still in use is not possible to ascertain.

Deschutes Watershed

	Same: Muni & private	Private well within city	Partial	Converted	Total
Total # of water rights	445	36	12	44	537
Number of Current parcels	29,258	822	339	1,258	31,677
Flow represented (gpm)	31,089	2,590	2,036	4,291	40,006
Percentage of flow within watershed	78%	6%	5%	11%	100%
Percentage of total flow	36%	3%	2%	5%	46%
annual quantity (AFY)	19,480	670	584	1,472	22,206
Percentage of annual quantity with watershed	88%	3%	3%	7%	100%
Percentage of total annual quantity	40%	1%	1%	3%	45%

Henderson Watershed

	Same: Muni & private	Private well within city	Partial	Converted	Total
Total # of water rights	108	43	12	35	198
Number of Current parcels	16,128	2,124	470	1,475	20,197
Flow represented (gpm)	20,558	3,239	1,335	2,334	27,466
Percentage of flow within watershed	75%	12%	5%	8%	100%
Percentage of total flow	24%	4%	2%	3%	31%
annual quantity (AFY)	14,307	1,551	548	729	17,135
Percentage of annual quantity with watershed	83%	9%	3%	4%	100%
Percentage of total annual quantity	29%	3%	1%	1%	35%

Eld Inlet Watershed

	Same: Muni & private	Private well within city	Partial	Converted	Total
Total # of water rights	41	3	3	9	56
Number of Current parcels	2,016	25	247	65	2,353
Flow represented (gpm)	4,712	75	237	378	5,402
Percentage of flow within watershed	87%	1%	4%	7%	100%
Percentage of total flow	5%	0%	0%	0%	6%
annual quantity (AFY)	1,844	30	58	76	2,008
Percentage of annual quantity with watershed	92%	1%	3%	4%	100%
Percentage of total annual quantity	4%	0%	0%	0%	4%

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