

2006 Summary Report on the Status of Oregon DEQ Laboratory Volunteer Program Data January 2007

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Summary

Organizations working with the Oregon DEQ Laboratory Volunteer Monitoring Program started collecting and submitting continuous temperature and basic grab water quality data to the DEQ almost ten years ago. The agreement with these partners requires their data should be loaded into the DEQ's Laboratory Analytical Storage And Retrieval database (LASAR). All data in the LASAR database is publicly available and accessible for water quality investigations by DEQ staff and others. Volunteer groups submit their data to the DEQ Volunteer Monitoring Coordinator who is responsible for reviewing and reformatting the data, then shepherding it through internal data upload and review procedures before it finally becomes available in LASAR. Over the past year a large amount of Volunteer Program data has been successfully loaded into LASAR, thanks to improvements in DEQ's data processing procedures and funding from Oregon Watershed Enhancement Board (OWEB) for staff to process the data. As of January 2007 nearly all the Volunteer Program data is either in LASAR or being processed to get into LASAR. The additional DEQ Volunteer Program staff person funded by OWEB will focus on completing the data back log as well as working with Volunteer Program partners to find datasets not yet submitted to the DEQ and load the data into LASAR. Meanwhile the Volunteer Coordinator will work on ways to increase the types of data processed and the efficiency of Volunteer Program data management while maintaining rigorous quality assurance procedures.

Purpose

This is the first of what will hopefully be annual reports on the status of Volunteer Water Quality Data at the DEQ. The purpose of this report is to inform potential water quality data users and providers about the availability of data generated by organizations participating in the Oregon DEQ Laboratory's Volunteer Monitoring Program. The following information is provided below.

- **Background**- The types of water quality data generated; description of the history and process of getting the data into the DEQ database; and where to find the data.
- **Current Status**- The extent of data loaded into LASAR as of January 2007 and the how much data still needs to be loaded into LASAR.
- **Next Steps**- Identifies priorities for future work in processing Volunteer Program data.

Background

Types of data

The Oregon DEQ Laboratory's Volunteer Monitoring Program was created in the mid 1990's to provide technical assistance to watershed councils and other non-governmental or pseudo-governmental organizations interested in conducting water quality monitoring. Part of this technical assistance is to provide participating organizations with high quality water testing equipment and supplies to help improve and standardize the quality of the data generated by groups across the state. The types of equipment lent to organizations includes continuous temperature monitoring devices, dissolved oxygen

kits, digital thermometers, specific conductivity and temperature meters, turbidity meters, pH meters, fecal bacteria testing equipment, stream discharge equipment, and supplies for macro-invertebrate and physical habitat monitoring. The majority of data collected under the Volunteer Program has been continuous temperature monitoring but significant amounts of other water quality testing have also been completed.

Historical context

Equipment is loaned to organizations under an agreement that specifies the data generated with the equipment must be submitted to the DEQ and be publicly available. From 1997 until 2005 the procedure for loading data from Volunteer Program organizations was not well defined. As a result, there was a high failure rate of data that was processed for LASAR but failed to successfully transfer into the database. Furthermore, both the quantity of data generated by Volunteer Program organizations and the time required to process the data were underestimated and resources were insufficient to process the data in a timely manner. Within a few years a large backlog of submitted data developed. To deal with this backlog the Technical Services Section of the DEQ Laboratory developed a system for loading Volunteer data into LASAR; in addition, OWEB funded a DEQ staff position to process the data. With a functioning system and a devoted staff person to process datasets, Volunteer Program data has been pouring into LASAR and the end of the data backlog is clearly in sight.

Data processing description

Water quality data submitted to the DEQ by Volunteer Program organizations is loaded into the DEQ's Laboratory Analytical Storage And Retrieval database (LASAR). In order for data to be loaded into LASAR all data must be assigned to a location defined by a specific latitude and longitude—each of these locations is assigned an existing or new LASAR station number and description. Then each result is evaluated for data quality and classified as meeting particular data quality requirements identified in the DEQ's Data Quality Matrix (<http://www.deq.state.or.us/lab/techrpts/docs/DEQ04LAB0003GD.pdf>). The data can then be loaded into an internal DEQ Laboratory database where it is reviewed by quality assurance officers and DEQ managers, and then released into the LASAR database where it is available to the public on the DEQ webpage (<http://www.deq.state.or.us/lab/lasar.htm>).

When Volunteer Program data is processed at DEQ the data is shepherded through the system in batches which are called "sampling events". Volunteer Program sampling events represent monitoring at many locations, are always from a single sampling organization, and usually represent some logical time period—for example, a summer of continuous temperature data or a year of grab water quality monitoring data with multiple parameters. To shepherd the sampling event from the Volunteer Monitoring Coordinator's files into LASAR requires 3 to 4 weeks if the original data set is well organized and complete with all the required information. The 3 to 4 week processing time can stretch out to months if the data set is missing important information or if a problem is encountered when trying to load the data that requires correction. If the data file is missing required information and the data collectors cannot be contacted, then this data may never enter LASAR. This has only been a problem with historical data and only a small number of datasets (approximately 5-10% of the 2005 backlog) are expected to not make it into LASAR.

Finding Volunteer Program data

All data generated as part of the Volunteer Program and submitted to the DEQ Laboratory Volunteer Monitoring Specialist is public information. Data exists in one of two places.

1. LASAR- The intended home for all Volunteer Program data is the DEQ's LASAR database. The LASARWeb internet interface (<http://www.deq.state.or.us/lab/lasar.htm>) allows data users to query all the raw results after they have been reviewed for data quality. The Volunteer Program results are stored side-by-side with DEQ and other agency generated data. To query the data, "Sampling

Organizations” can be specified in LASARWeb under the “Stations” tab when conducting a Multiple Criteria Search. “Sampling Organization” should also be selected as a field for viewing in the “Set Results Format” step. For more information about getting data from LASARWeb please see the help file (http://deq12.deq.state.or.us/lasar2/webhelp/LAZAR_Help.htm).

2. If data have not been processed by the DEQ it can be requested in its raw format. All data ever submitted to DEQ is stored at the DEQ on a network drive. The data files are organized by organization and year of collection. These original data files are available upon request to the DEQ Laboratory Volunteer Monitoring Coordinator (503.229.5983). These files generally do not all exist in the same format and contain raw results which may or may not have been reviewed by the data originators for data quality.

Current Status

This section provides information on what has happened to the datasets sent by partner organizations to the Volunteer Monitoring Coordinator. First the status of submitted data is described by what work has been done on them. Next the completed datasets currently in LASAR are summarized to describe what and how much information is available from the database.

Status of submitted data

The loading status of Volunteer Program data has been broken down into three categories: complete and in LASAR, being processed, and not processed. “Complete and in LASAR” means anyone can access this data online from LASARWeb. Data sets that are “being processed” were being worked on at the time this report was generated (January 2007). Volunteer data in the “not processed” category are waiting to be started or it has been determined that we cannot process the data because vital information is missing—usually site location information. As of January 2007 the DEQ Volunteer Monitoring Coordinator had received 202 data sets from 42 different organizations across Oregon. The loading status of these datasets as of January 2007 is presented in Figure 1. Specific information about each dataset is provided for continuous temperature in Appendix B and for grab water quality data in Appendix C.

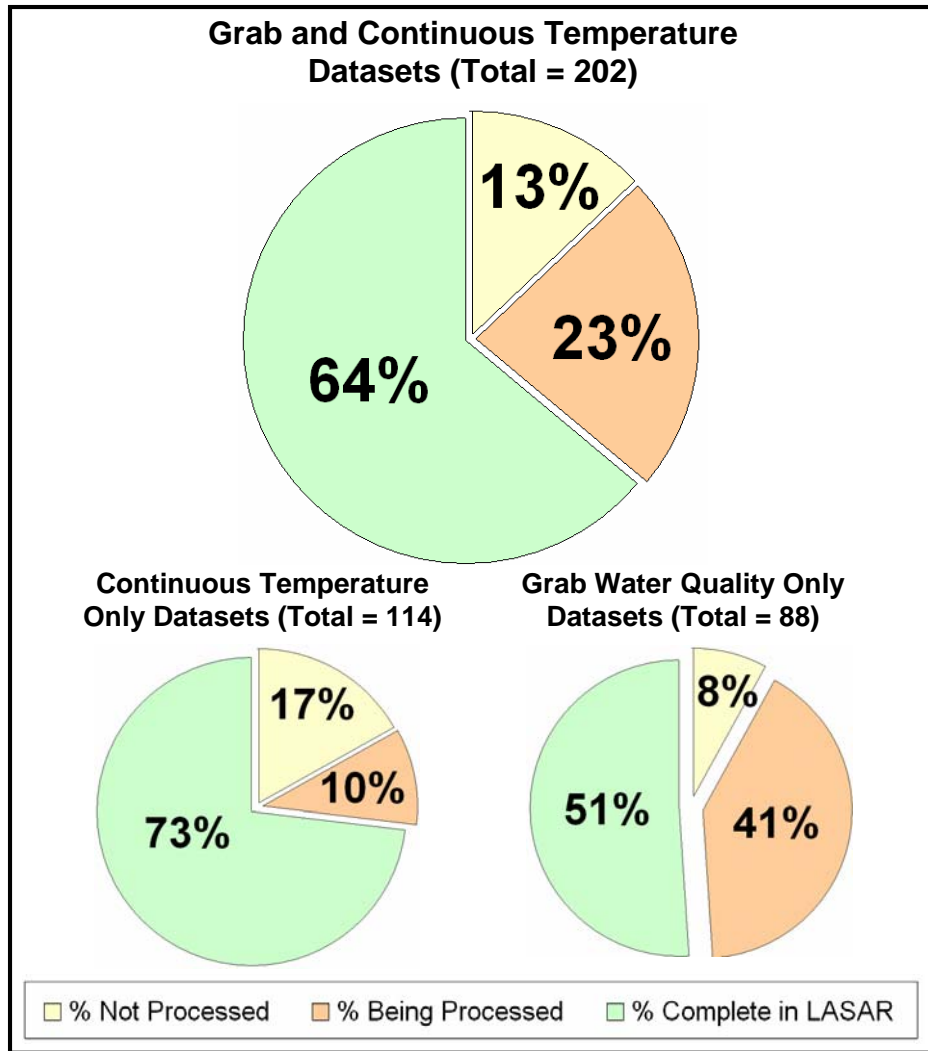


Figure 1: Status of Oregon DEQ Volunteer Program datasets submitted to the Volunteer Monitoring Coordinator.

Data in LASAR as of January 2007

Volunteer Monitoring Program water quality data accounts for about 10% of all the land, water and air data in the LASAR database. The volunteer data consists of over 5.5 million¹ continuous temperature results collected at over 800¹ locations and over 41,000 grab water quality results collected at over 900² stations. The parameters measured, number of stations with data, and description of the distribution of sites are all shown in Table 1.

¹ Generated from LASARSum.xls file used to track all cases released to LASAR

² LASARWeb query by sampling organization, subproject, data type, and parameters

Table 1: Volunteer Monitoring Data in LASAR as of January 25th, 2007.

Parameter	Total Results	Total Sites	Distribution
Continuous Temperature	5.7 million	771	Figure 2
Grab Alkalinity	86	33	Little Butte & Upper Rogue
Grab Conductivity or Salinity	5,104	254	Figure 3
Grab Dissolved Oxygen (mg/L + % sat)	4,366	252	Figure 4
Grab <i>Escherichia coli</i>	15,964	176	Figure 5
Grab nutrients (Nitrates, Ammonia, Total Phosphorus, Ortho Phosphorus)	1,564	34	Figure 6
Grab pH	3,809	251	Figure 7
Grab Temperature	4,701	272	Figure 8
Grab Total Suspended Solids	352	18	Long Tom
Grab Turbidity	5,342	280	Figure 9

Next Steps

The future of water quality data generated by DEQ's Volunteer Program partners looks bright. Thanks to the DEQ Laboratory's Technical Services Section, a well defined procedure enters carefully prepared data files into the DEQ databases. OWEB funded temporary staff reviewed and reformatted the backlogged data for loading into DEQ databases—this work continues now. A number of tasks remain to make the Volunteer Program more efficient at capturing the monitoring done by its partner organizations. The list below provides the current thinking for the next steps in managing Volunteer Program datasets.

- Some back logged data still exists and the OWEB funded position is finishing up either loading these datasets into DEQ databases or documenting why the data can not be loaded into LASAR. This work should be completed in the next few months.
- Many organizations are far behind on submitting data to the DEQ Volunteer Program. The OWEB funded position is working to collect as much of this data as possible and has made progress in the last few months. The OWEB funded position and the DEQ Volunteer Monitoring Coordinator are both available to help organizations come up with the most efficient way for them to transfer their data to DEQ. The effort to obtain and process outstanding datasets will hopefully be completed by June of 2007. In addition, the Volunteer Monitoring Coordinator must continue to work with the DEQ administered 319 Grant Program and the OWEB Monitoring Grant Program to institutionalize water quality data submission procedures.
- The current data management system is only designed to handle water quality data but the Volunteer Monitoring Program also supports groups in collecting biological macroinvertebrate samples and physical habitat data. Oregon DEQ staff is developing a method for storing this type of data in LASAR and it is expected that the Volunteer Program will adopt this system and use it as a template for data submission from groups with biological or physical habitat data. The timeline for this is unknown.
- Without the assistance of the OWEB funded position for processing data, the amount of time required to process the water quality data generated by Volunteer Program partners still greatly exceeds the available staff time to process incomplete files. The DEQ Laboratory is in the earliest stages of developing an Agency wide tool for receiving data generated outside the agency. A portion of the project will include dealing with Volunteer Monitoring Program data which will hopefully provide a long term solution to the problem of time consuming, incomplete datasets. The timeframe for developing such an agency wide tool is likely on the scale of years and it is unknown when the Volunteer Program dataset would be incorporated. In the short term

the DEQ Volunteer Monitoring Coordinator will continue to work on data submission templates and supporting documents to help organizations more efficiently get their data submitted to the DEQ in a timely manner

The larger purpose for entering the Volunteer Program data is to produce information useful for large scale assessments. The first challenge has been to enter the data into the database and the new challenge will now be to produce information from it at multiple scales of space and time. While the volunteer data are well suited for 303(d) listing type of assessments; it is hoped the data can be used for more holistic regional assessments as well. Volunteer data are generally collected at targeted locations on small rivers or streams at a relatively dense distribution. As such, the Volunteer Program data have the opportunity to fill a niche between large river ambient monitoring and large scale, low density probabilistic monitoring.

Conclusions

The volunteer program has the potential to continue to generate large quantities of data of known quality. As of January 2007 a sizeable dataset already exists in LASAR. Data users should be aware that these data are available to them to for use. Volunteer Program partners should review the information provided in the appendixes and make sure all of their data are properly represented.

The DEQ Volunteer Program has the responsibility to promptly transfer data submitted by its partners into LASAR. The reliable, successful transfer of data into LASAR has only been accomplished within the last two years for Volunteer Program data. Temporary funding from OWEB to hire a short term employee has made it possible to catch up on the back logged data and promptly process newly submitted data.

After funding for the OWEB position expires, the current system for getting Volunteer Program data from partner organizations into the LASAR database will be severely strained, at best, to keep up with new data. In addition, new applications and opportunities for capturing and applying biological and physical habitat could create a whole new class of data to be gathered and processed from volunteer organizations. The amount of time it takes to process data now being sent into the DEQ and the prospect of additional new classes of data makes it more important than ever for the DEQ Volunteer Program to be diligent in processing datasets and pursuing ways of making the process more efficient.

Acknowledgements

Special thanks and acknowledgement are extended to those involved in getting the Volunteer Program data into the LASAR database: all 42 Volunteer Monitoring Program partner organizations who have submitted data (See Appendix B and C), the OWEB Board, Elizabeth Brunner (Volunteer Program Intern Summer of 2006), Monica Vogel (Current Volunteer Program Data Specialist), Anjana Sahay (Volunteer Program Temporary Employee, Summer 2006), Greg Pettit (ODEQ Laboratory), Greg Sieglitz (OWEB), and the ODEQ Technical Services Section staff Jeff Jones, Robb Keller, Steve Mrazik, Bob McCoy, Sarah Romero, and Dan Hickman.

Appendix A: LASARWeb generated maps showing distribution of Volunteer Monitoring Program data by parameter.

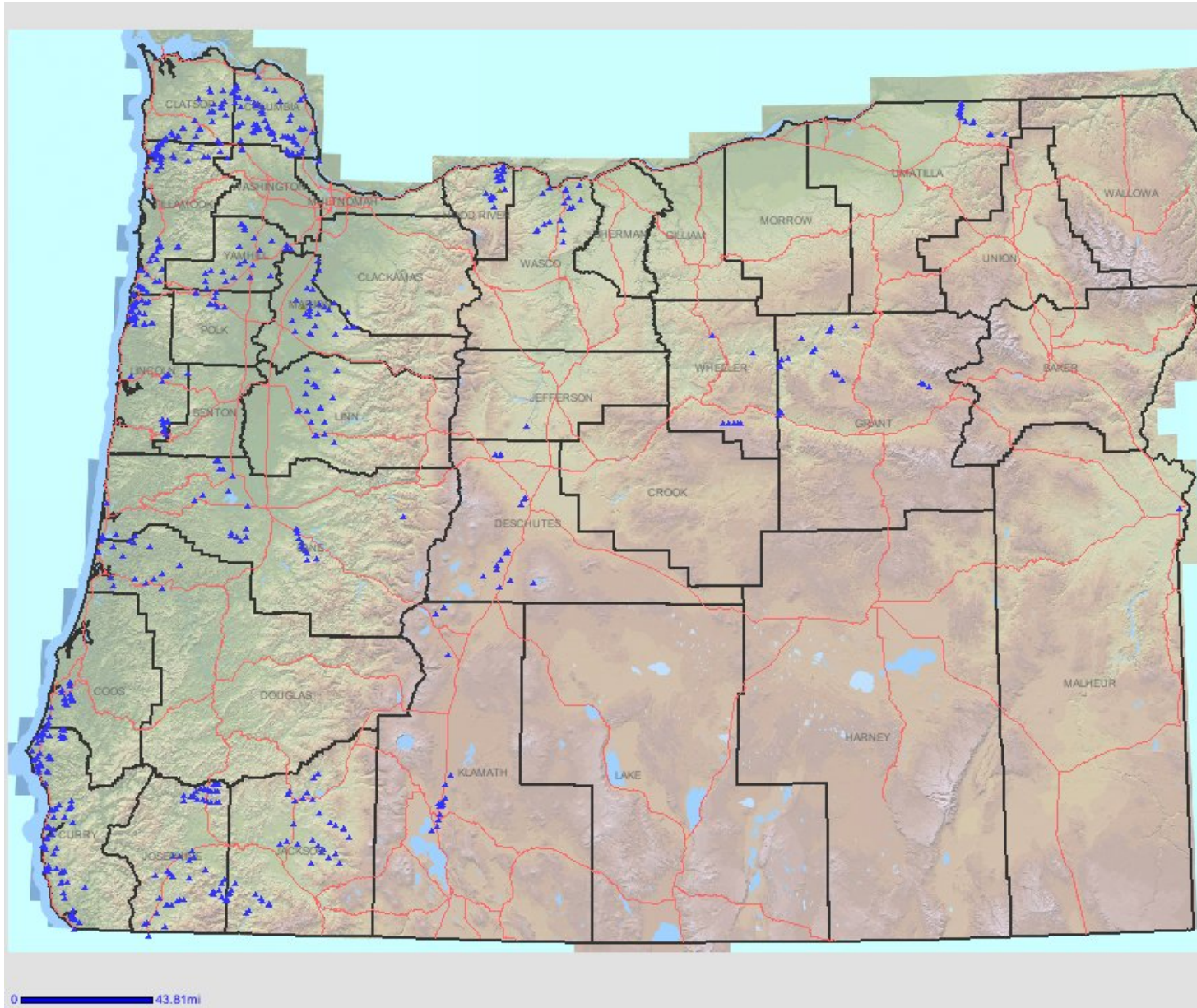


Figure 2 Volunteer Monitoring Program **continuous temperature** monitoring locations based on LASARWeb query by organizations, subproject, and parameter. (Return to **Table 1**)

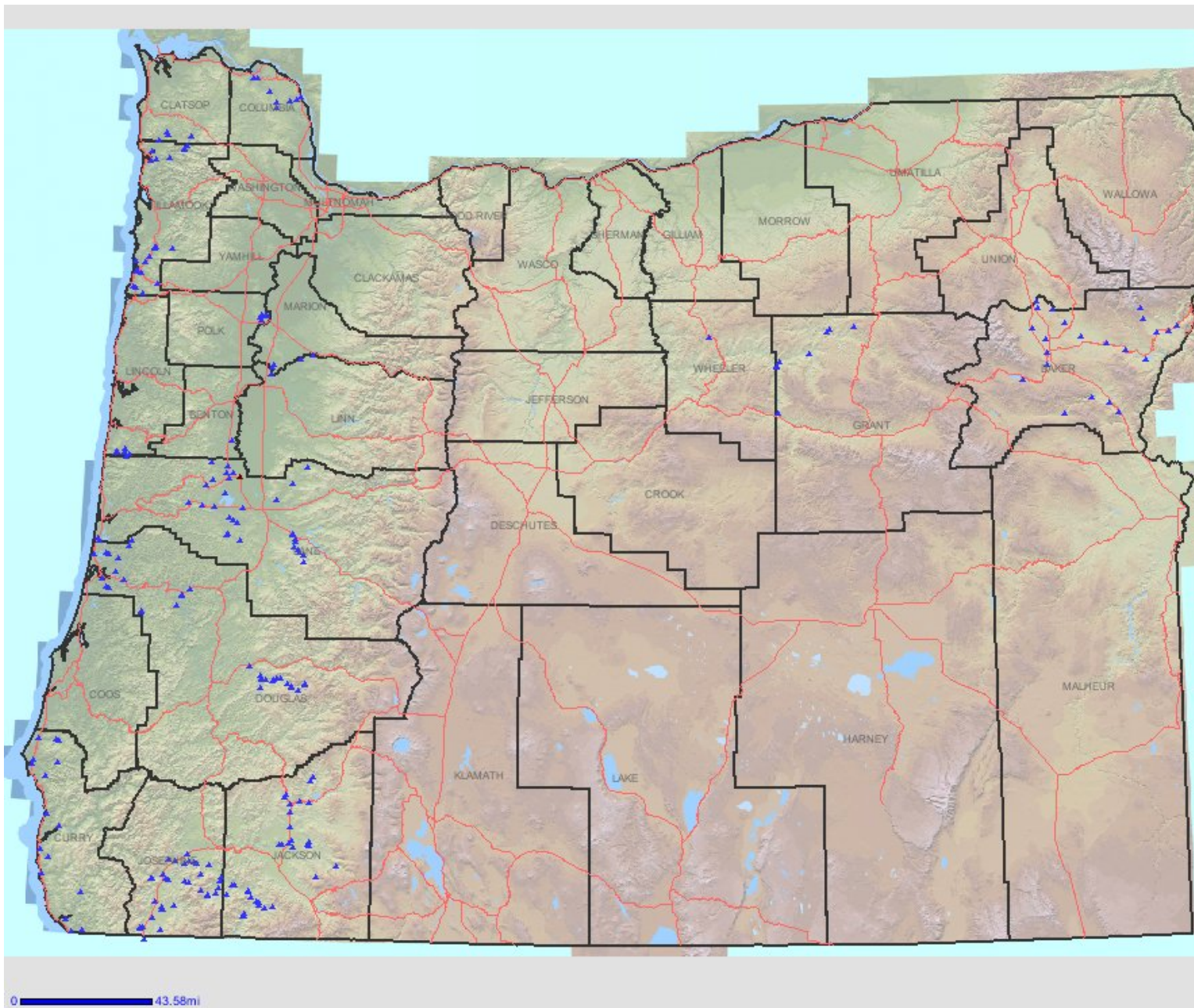


Figure 3: Volunteer Monitoring Program **grab conductivity or salinity** monitoring locations based on LASARWeb query by organizations, subproject, and parameter. (Return to **Table 1**)

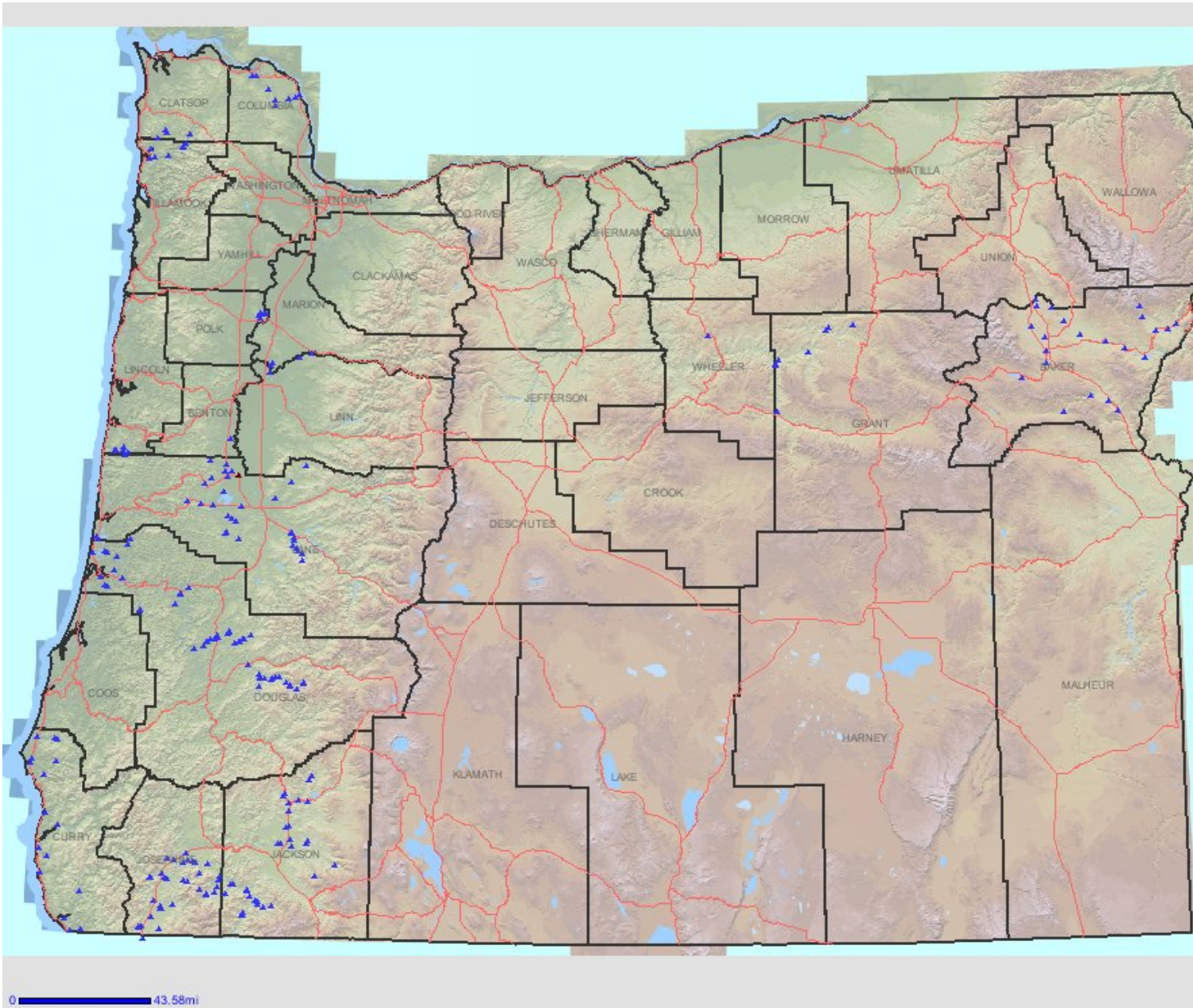


Figure 4: Volunteer Monitoring Program **grab dissolved oxygen** monitoring locations based on LASARWeb query by organizations, subproject, and parameter. (Return to **Table 1**)

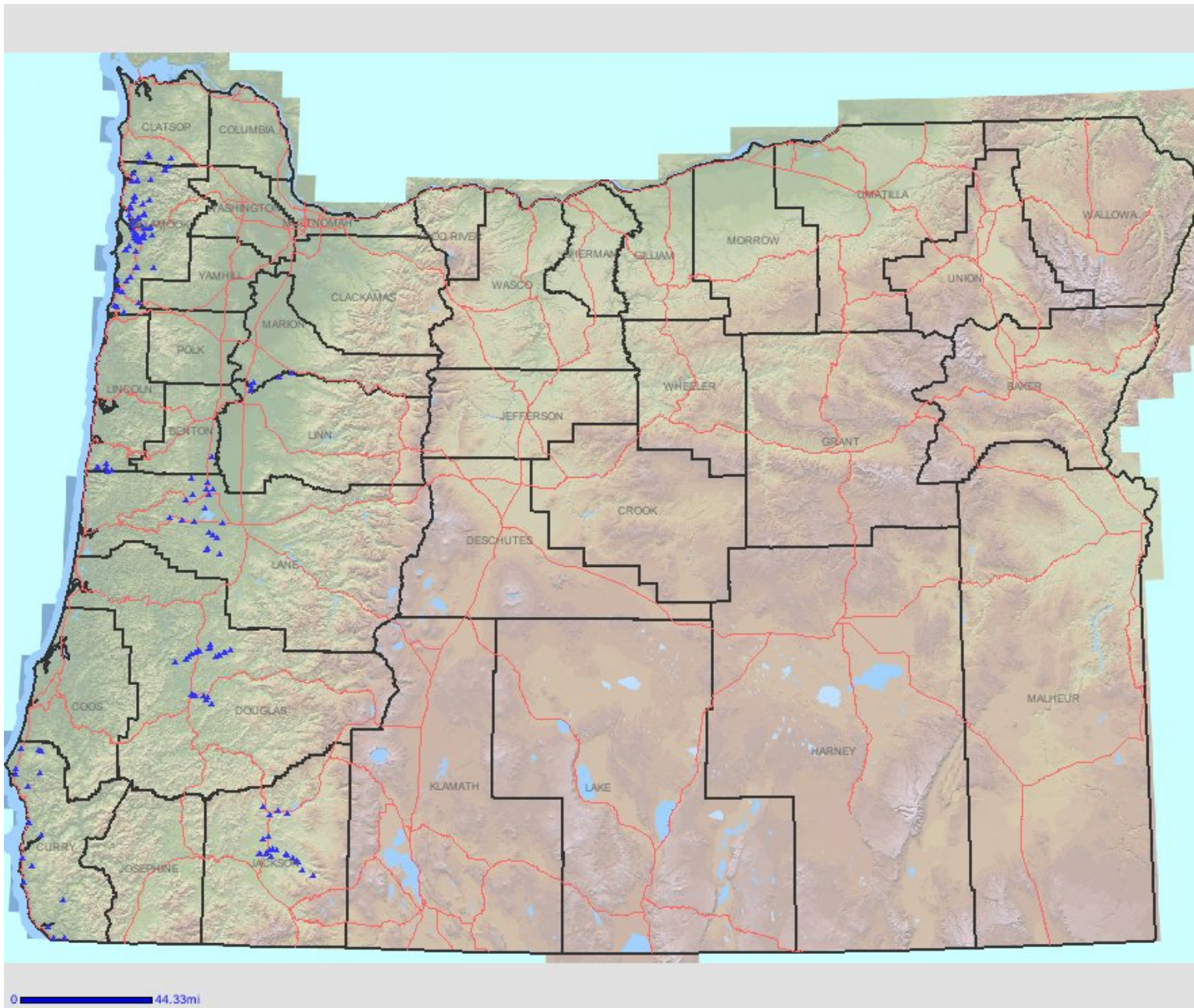


Figure 5: Volunteer Monitoring Program *Escherichia coli* monitoring locations based on LASARWeb query by organizations, subproject, and parameter. (Return to [Table 1](#))

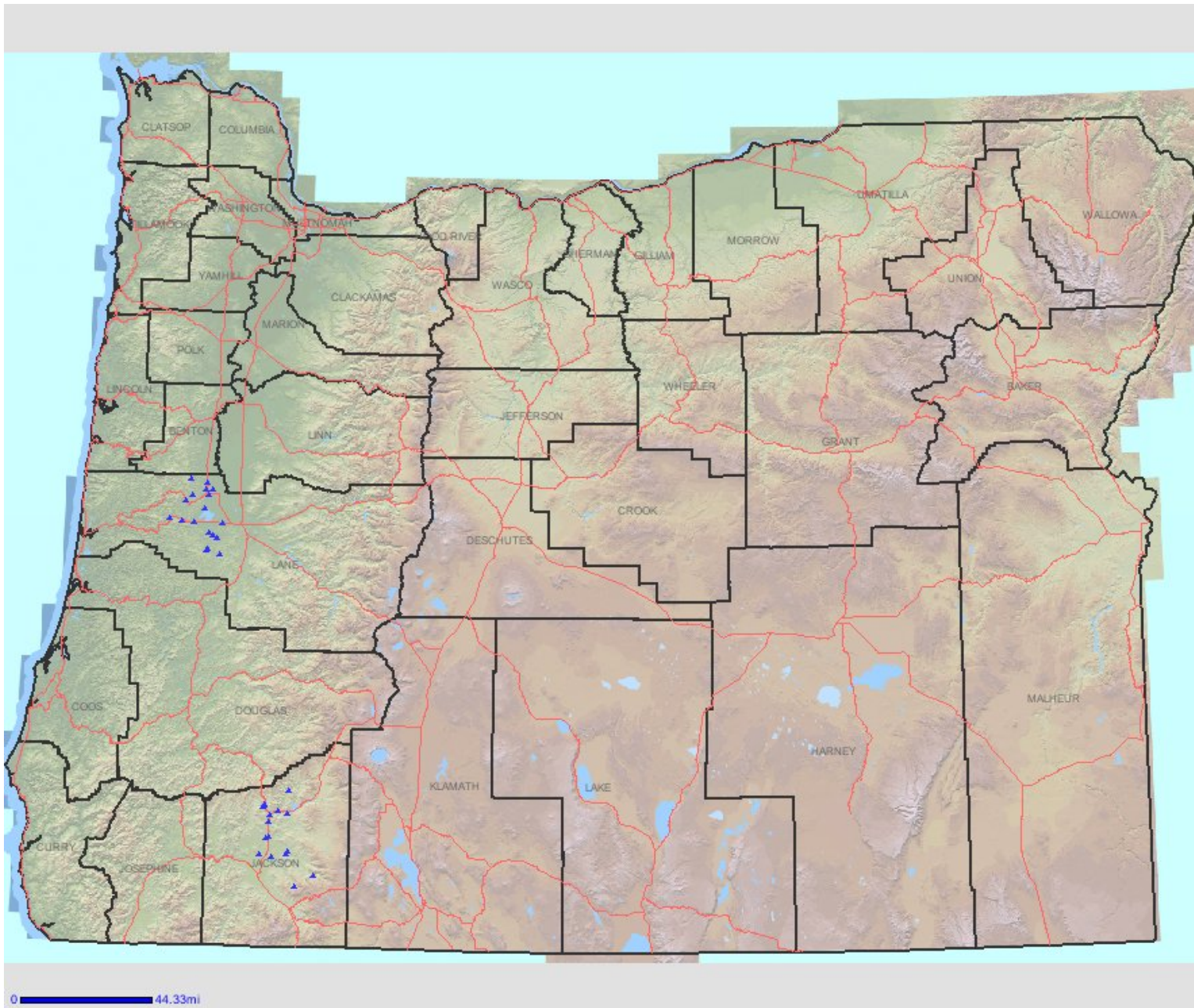


Figure 6: Volunteer Monitoring Program **grab nutrient** monitoring locations based on LASARWeb query by organizations, subproject, and parameter. (Return to [Table 1](#))

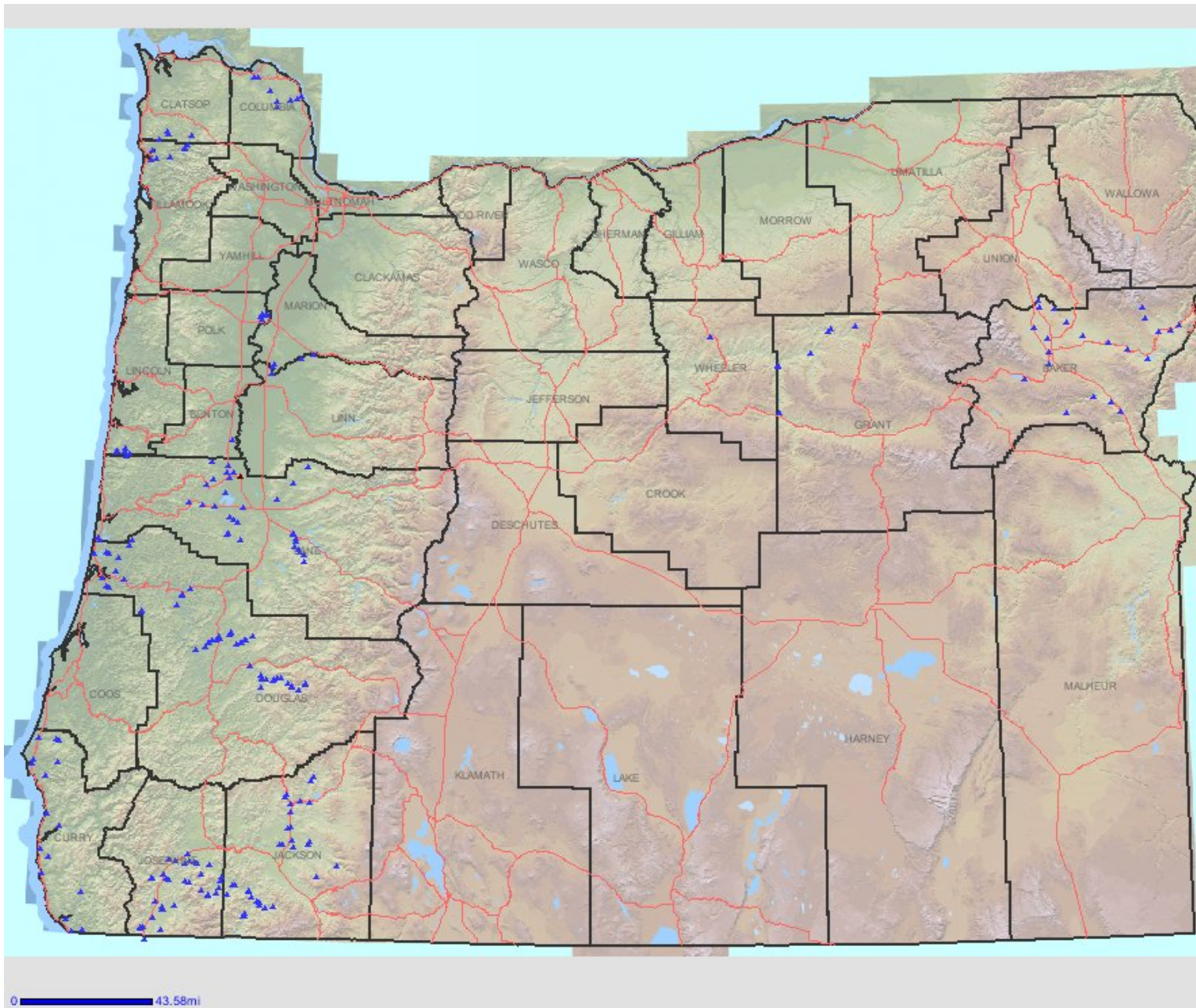


Figure 7: Volunteer Monitoring Program **grab pH** monitoring locations based on LASARWeb query by organizations, subproject, and parameter. (Return to [Table 1](#))

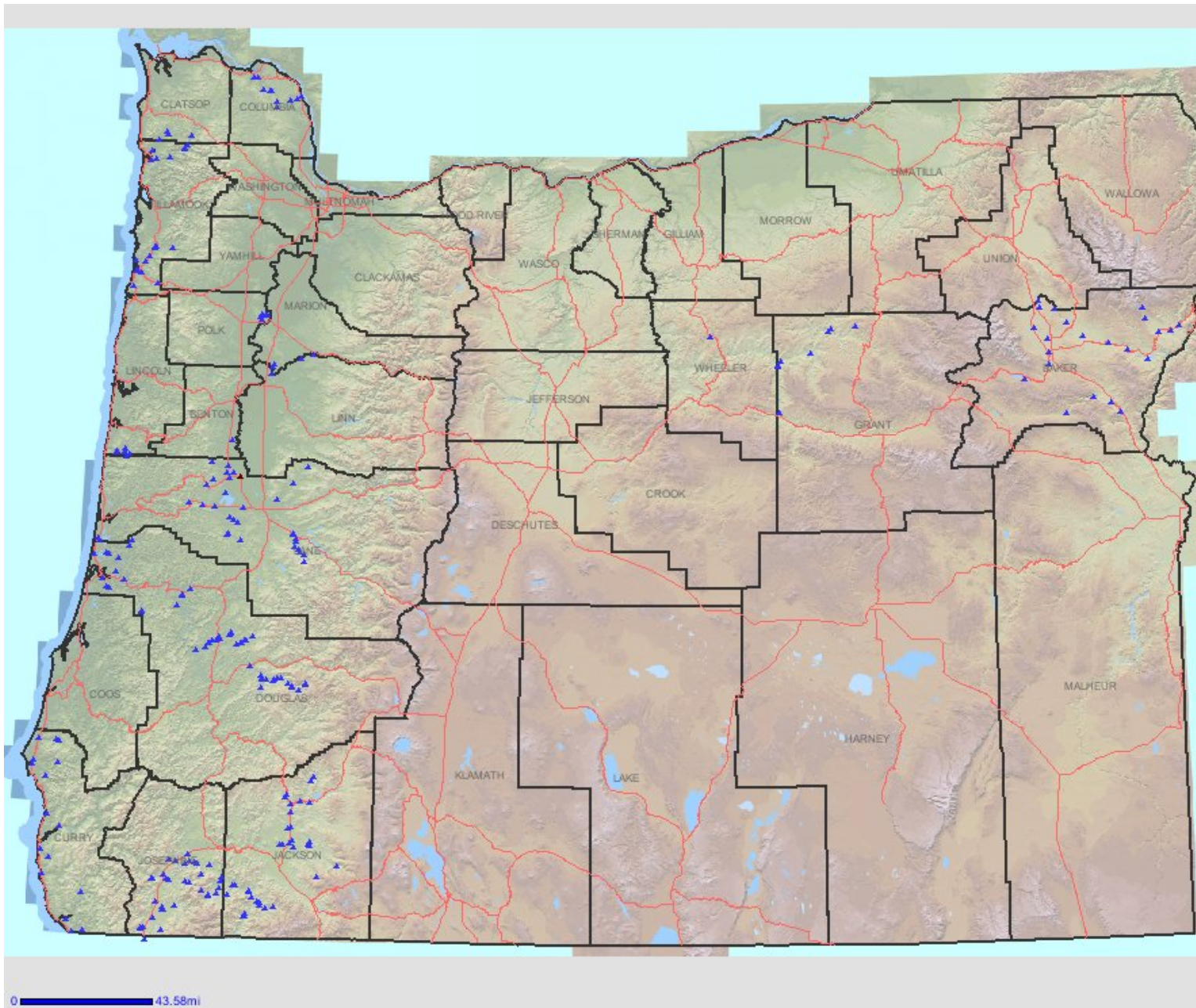


Figure 8: Volunteer Monitoring Program **grab temperature** monitoring locations based on LASARWeb query by organizations, subproject, and parameter. (Return to **Table 1**)

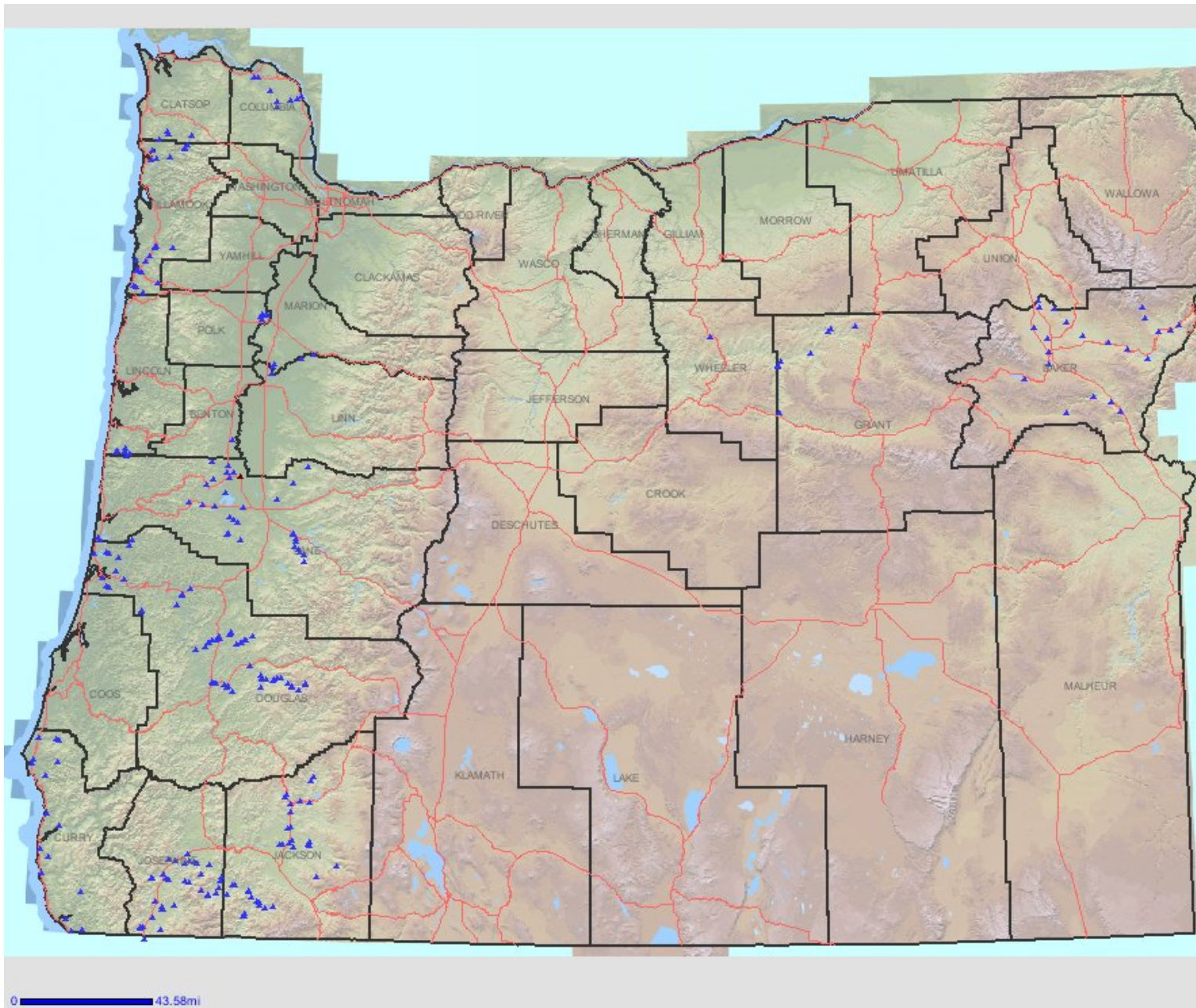


Figure 9: Volunteer Monitoring Program **grab turbidity** monitoring locations based on LASARWeb query by organizations, subproject, and parameter. (Return to [Table 1](#))

Appendix B- Oregon DEQ Volunteer Program continuous temperature data sets and status by partner organization.

Sampling Organization	Date Range	Status	Comments:
Alesea Watershed Council	6/23/1999-10/16/1999	Complete in LASAR	
Alesea Watershed Council	6/10/2001-10/9/2001	Complete in LASAR	
Applegate River Watershed Council	6/1/1998-10/7/1998	Complete in LASAR	
Applegate River Watershed Council	3/3/2002-11/10/2002	Complete in LASAR	
Applegate River Watershed Council	6/5/2003-10/8/2003	Complete in LASAR	
Applegate River Watershed Council	6/5/2004-9/4/2004	Complete in LASAR	
Applegate River Watershed Council	06/01/99	Being Processed	Insufficient site location info
Beaver Creek Watershed Council	7/2006-11/2006	Being Processed	needs to be loaded
Coquille Watershed Association	7/16/2001-10/18/2001	Complete in LASAR	Needs to be reloaded
Coquille Watershed Association	6/11/02-6/11/03	Complete in LASAR	
Coquille Watershed Association	6/5/2003-10/29/2003	Complete in LASAR	
Coquille Watershed Association	2004	Being Processed	
Coquille Watershed Association	7/19-9/18/06	Being Processed	Needs to be loaded
Coquille Watershed Association	6/6-8/15/06	Being Processed	Needs to be loaded
Hood River Watershed Group	5/18/1999-12/2/1999	Complete in LASAR	
Hood River Watershed Group	6/22/2001-11/6/2001	Complete in LASAR	
Hood River Watershed Group	5/31/2002-10/28/2002	Being Processed	Needs to be reloaded

Sampling Organization	Date Range	Status	Comments:
Hood River Watershed Group	Summer 2005	Being Processed	Needs to be loaded
Hood River Watershed Group	9/06-11/06	Being Processed	Needs to be loaded
Illinois Valley Watershed Council	06/01/98	Not processed	
Illinois Valley Watershed Council	6/20/1999-10/14/1999	Complete in LASAR	
Illinois Valley Watershed Council	6/9/2000-9/29/2000	Complete in LASAR	
Illinois Valley Watershed Council	6/14/2001-10/11/2001	Complete in LASAR	
Little Butte Creek Watershed Council/Upper Rogue	06/01/98	Not processed	
Little Butte Creek Watershed Council/Upper Rogue	5/27/2005-10/20/2005	Complete in LASAR	Insufficient QC data
Little Butte Creek Watershed Council/Upper Rogue	1/16/2005-1/16/2005	Complete in LASAR	Needs to be reloaded
Long Tom Watershed Council	6/27/2000-11/19/2000	Complete in LASAR	
Long Tom Watershed Council	5/25/2004-1/25/2005	Complete in LASAR	
Lost Creek Watershed Group	6/12/1999-11/14/1999	Complete in LASAR	
Lost Creek Watershed Group	6/01/2000-1/08/2001	Complete in LASAR	
Lost Creek Watershed Group	6/20/2001-10/26/2001	Complete in LASAR	
Lower Columbia Watershed Council	8/13/1998-10/19/1998	Complete in LASAR	
Lower Columbia Watershed Council	07/01/99	Not processed	Insufficient site location info and no QC data
Lower Columbia Watershed Council	06/01/01	Not processed	Insufficient site location info and no QC data

Sampling Organization	Date Range	Status	Comments:
McKenzie Watershed Council	1999	Not processed	
Middle Rogue Watershed Council	2002	Complete in LASAR	Insufficient site location info and no QC data
Lower Nehalem Watershed Council	2000	Complete in LASAR	
Upper Nehalem Watershed Council	1998	Complete in LASAR	
Upper Nehalem Watershed Council	1999	Complete in LASAR	
Upper Nehalem Watershed Council	2000	Complete in LASAR	
Upper Nehalem Watershed Council	2001	Complete in LASAR	
Upper Nehalem Watershed Council	2002	Complete in LASAR	
Upper Nehalem Watershed Council	2003	Complete in LASAR	
Nestucca-Neskowin Watershed Council	05/01/99	Not processed	
Nestucca-Neskowin Watershed Council	06/01/00	Complete in LASAR	Insufficient QC data
Nestucca-Neskowin Watershed Council	05/01/01	Complete in LASAR	
Nestucca-Neskowin Watershed Council	06/24/05	Complete in LASAR	
North Fork John Day Watershed Council	06/01/99	Complete in LASAR	
North Fork John Day Watershed Council	05/01/00	Complete in LASAR	
North Santiam Watershed Council	06/01/00	Complete in LASAR	
North Santiam Watershed Council	06/01/01	Complete in LASAR	Needs to be reloaded

Sampling Organization	Date Range	Status	Comments:
Pudding River Watershed Council	2002	Complete in LASAR	Needs to be reloaded
Pudding River Watershed Council	2003	Complete in LASAR	
Pudding River Watershed Council	2004	Complete in LASAR	
Pudding River Watershed Council	2005	Complete in LASAR	
Salmon-Drift Creek Group	2001	Complete in LASAR	
Salmon-Drift Creek Group	2002	Complete in LASAR	Needs to be reloaded
Salmon-Drift Creek Group	2003	Complete in LASAR	
Salmon-Drift Creek Group	winter 2003-2004	Being Processed	
Salmon-Drift Creek Group	2004	Complete in LASAR	
Scapoose Bay Watershed Council	07/01/98	Complete in LASAR	
Scapoose Bay Watershed Council	1999	Complete in LASAR	
Scapoose Bay Watershed Council	05/01/00	Complete in LASAR	
Skipanon Watershed Council	1999	Not processed	
South Coast Watershed Council	07/01/98	Complete in LASAR	Insufficient site location info and no QC data
South Coast Watershed Council	06/01/99	Complete in LASAR	Needs to be reloaded
South Coast Watershed Council	06/01/00	Complete in LASAR	Needs to be reloaded
South Coast Watershed Council	06/01/03	Complete in LASAR	Needs to be reloaded
South Santiam Watershed Council	06/01/99	Not processed	Haven't started yet.

Sampling Organization	Date Range	Status	Comments:
South Santiam Watershed Council	06/01/00	Complete in LASAR	
South Santiam Watershed Council	2003	Complete in LASAR	
South Santiam Watershed Council	2004	Complete in LASAR	
Tenmile Lakes basin Partnership	2000	Not processed	Only QC information, no data
Tenmile Lakes basin Partnership	2001	Not processed	Haven't started yet.
Tenmile Lakes basin Partnership	2002	Not processed	Haven't started yet.
Tenmile Lakes basin Partnership	2003	Not processed	Haven't started yet.
Tenmile Lakes basin Partnership	2004	Not processed	Haven't started yet.
Tillamook Watershed Council	05/01/99	Not processed	Haven't started yet.
Tillamook Watershed Council	06/01/00	Complete in LASAR	Insufficient site location info and no QC data
Tillamook Watershed Council	6/2006-09/2006	Being Processed	Need to collect more info about QC data from council
Umpqua SWCD	06/01/01	Complete in LASAR	
Upper Deschutes Watershed Council	2002	Complete in LASAR	
Upper Deschutes Watershed Council	2003	Complete in LASAR	
WallaWalla Watershed Council	1999	Not processed	Insufficient QC data
WallaWalla Watershed Council	2000	Complete in LASAR	
WallaWalla Watershed Council	2001	Complete in LASAR	
WallaWalla Watershed Council	2002	Complete in LASAR	

Sampling Organization	Date Range	Status	Comments:
WallaWalla Watershed Council	2003-2004 WINTER	Not processed	
WallaWalla Watershed Council	2003	Complete in LASAR	
WallaWalla Watershed Council	2004	Not processed	
Wasco SWCD	05/01/99	Complete in LASAR	Insufficient QC data
Wasco SWCD	05/01/00	Complete in LASAR	
Wasco SWCD	2001	Complete in LASAR	
Wasco SWCD	2002	Complete in LASAR	
Wasco SWCD	2003	Complete in LASAR	
Wasco SWCD	2004	Complete in LASAR	
Wasco SWCD	2005	Complete in LASAR	
Williamson Watershed Council	05/01/98	Not processed	
Williamson Watershed Council	06/01/99	Complete in LASAR	Only one logger, no QC data
Williamson Watershed Council	05/01/00	Complete in LASAR	
Williamson Watershed Council	05/01/01	Complete in LASAR	
Yachats Watershed Council	06/01/00	Complete in LASAR	
Yachats Watershed Council	2005	Not processed	
Yachats Watershed Council	2001	Being Processed	
Yamhill Basin Council	07/01/99	Complete in LASAR	

Sampling Organization	Date Range	Status	Comments:
Yamhill Basin Council	06/01/00	Complete in LASAR	
Yamhill Basin Council	06/01/01	Not processed	Need data
Yamhill Basin Council	2002	Complete in LASAR	
Yamhill Basin Council	2003	Complete in LASAR	
Yamhill Basin Council	2004	Complete in LASAR	
Yaquina Watershed Council	2001	Being Processed	
Yaquina Watershed Council	2002	Complete in LASAR	Needs to be reloaded
Yaquina Watershed Council	2003	Complete in LASAR	Needs to be reloaded
Yaquina Watershed Council	2004	Complete in LASAR	
Yaquina Watershed Council	2005	Complete in LASAR	

Appendix C- Oregon DEQ Volunteer Program grab water quality data sets by partner organization.

Sampling Organization	Year	Data Status	Comments	Parameters:
Applegate Watershed Council	summer 1998	Complete in LASAR		temp, pH, DO, conductivity, turbidity
Applegate Watershed Council	summer 1999	Complete in LASAR		temp, pH, DO, conductivity, turbidity
Applegate Watershed Council	6/2000-9/2000	Being Processed	final stage	temp, pH, DO, conductivity, turbidity, nitrates and phosphates
Applegate Watershed Council	6/2001-9/2001	Being Processed	final stage	temp, pH, DO, conductivity, turbidity, nitrates, phosphates and alkalinity
Applegate Watershed Council	6/2002-8/2002	Being Processed	final stage	temp, pH, DO, conductivity, turbidity, nitrates and phosphates
Applegate Watershed Council	6/2003-10/2003	Being Processed	final stage	temp, pH, DO, conductivity, turbidity, nitrates
Applegate Watershed Council	6/2004-10/2004	Being Processed	final stage	temp, pH, DO, conductivity, turbidity, nitrates
Beaver Creek Watershed Council	6/2006-11/2006	Being Processed	final Stage	temp, pH, DO, conductivity, turbidity, E. coli
Baker SWCD	1999-2000	Complete in LASAR		temp, pH, DO, conductivity, turbidity
Clackamas River Watershed Council	11/1998 - 3/1999	Being Processed	Insufficient site information	Turbidity
Coquille Watershed Association	06/2006-12/2006	Being Processed	final stage	temperature, DO, E. coli

Sampling Organization	Year	Data Status	Comments	Parameters:
Glenn & Gibson Watershed Council	8/1998-12/2000	Complete in LASAR		temp, pH, DO, conductivity, turbidity, percent saturation oxygen
Hood River Watershed Group	6/2005-10/2005	Being Processed	final stage	temp, pH, DO, conductivity, turbidity and TSS
Hood River Watershed Group	4/2006-11/2006	Being Processed	final stage	temp, pH, DO, conductivity, turbidity and TSS
Illinois	6/1998 - 10/1999	Complete in LASAR		temp, pH, DO, conductivity, turbidity
Illinois	7/2000 - 10/2000	Being Processed	mid stage	temperature, pH, DO, conductivity, turbidity
Little Butte/Upper Rogue	6/1998 - 7/1999	Complete in LASAR		temp, pH, DO, conductivity, turbidity, Ammonia as N, Dissolved Nitrite, Field Alkalinity as Calcium Carbonate, Nitrate, E. coli.
Little Butte/Upper Rogue	9/1998 - 1/2000	Complete in LASAR		temp, pH, DO, conductivity, turbidity, salinity, E coli
Little Butte/Upper Rogue	1/2000 - 12/2000	Complete in LASAR		temp, pH, DO, conductivity, turbidity, salinity
Little Butte/Upper Rogue	10/2000-12/2001	Complete in LASAR		temp, pH, DO, conductivity, turbidity, salinity
Little Butte/Upper Rogue	1/2002-10/2002	Complete in LASAR		temp, pH, DO, conductivity, turbidity
Little River (Umpqua)	6/1999 - 8/2002	Complete in LASAR		temp, pH, DO, conductivity, turbidity
Long Tom	9/1999 - 6/2001	Complete in LASAR		temp, pH, DO, conductivity, turbidity, E. coli

Sampling Organization	Year	Data Status	Comments	Parameters:
Long Tom	7/2001-7/2003	Complete in LASAR		temp, pH, DO, conductivity, turbidity, E. coli, Dissolved Orthophosphate as P, Nitrate/nitrite as , Total phosphorus, total suspended solids,
Lost Creek	6/1999-12/1999	Complete in LASAR		temp, pH, DO, conductivity, turbidity
Lost Creek	5/2000-12/2000	Complete in LASAR		temp, pH, DO, conductivity, turbidity
Lost Creek	7/2001-11/2001	Being Processed	final stage	temperature, pH, DO, conductivity, turbidity
Lower Columbia	8/1998-10/1998	Complete in LASAR		temp, pH, DO, conductivity, turbidity
Lower Columbia	7/1999-10/1999	Not Processed	Insufficient site information	
Lower Columbia	1/2000-12/2000	Not Processed	Insufficient site information	
Lower Columbia	2001	Not Processed	Insufficient site information	
Luckiamute	2005	Being Processed	final stage	temperature, DO, turbidity, E. coli and DO saturation
Marys	1999-2000	Not Processed	no data	
Mohawk	2001	Being Processed	mid stage	temperature, pH, DO, conductivity, turbidity, and E. coli
Mohawk	9/1998-12/1998	Complete in LASAR		temp, pH, DO, conductivity, turbidity

Sampling Organization	Year	Data Status	Comments	Parameters:
Mohawk	2000	Complete in LASAR		temp, pH, DO, conductivity, turbidity
Mohawk	2005	Being Processed	mid stage	temperature, pH, DO, conductivity, turbidity, E. coli, nitrate, ammonia, phosphate, and BOD
Mohawk	2003	Being Processed	mid stage	temperature, pH, DO, conductivity, turbidity, E. coli, nitrate, ammonia, and phosphate
Lower Nehalem	1997-1999	Being Processed	mid stage	pH, DO, conductivity, turbidity, and E. coli
Lower Nehalem	1/15/2000to1 2/19/00	Complete in LASAR		temp, pH, DO, conductivity, turbidity, E. coli, salinity, percent Saturation Oxygen
Lower Nehalem	1/13/2001to1 2/21/01	Complete in LASAR		temp, pH, DO, conductivity, turbidity, E. coli, salinity, percent Saturation Oxygen
Nehalem	11/28/2001to 4/17/01	Not Processed	data in Access	turbidity
Nestucca-Neskowin	7/1/1999to3/1 /01	Complete in LASAR		E. coli, salinity, turbidity
Nestucca-Neskowin	8/1/2002to1/1 /03	Complete in LASAR		E. coli, salinity, turbidity, conductivity, temperature
Nestucca-Neskowin	2/2003- 8/2003	Being Processed	beginning stage	E. coli, salinity, turbidity, conductivity, temperature
North Fork John Day	7/1/1999to3/1 /00	Complete in LASAR		temperature, E. coli
North Santiam	12/1/1999to1/ 1/01	Complete in LASAR		temperature, pH, DO, conductivity, turbidity, and E. coli

Sampling Organization	Year	Data Status	Comments	Parameters:
Pudding	2002 - 2005	Being Processed	final stage	temperature, pH, DO, conductivity, turbidity, and E. coli
RVCOG	2002	Being Processed	final stage	temperature, pH, DO, conductivity, turbidity, E. coli, ammonia, TSS, phosphate
RVCOG	2003	Being Processed	final stage	temperature, pH, DO, conductivity, turbidity, E. coli, TSS, phosphate
RVCOG	2005	Being Processed	beginning stage	temperature, pH, DO, conductivity, turbidity, E. coli, TSS, phosphate, salinity
Salmon Drift Creek Watershed Council	6/2003-6/2004	Being Processed	beginning stage	temperature, pH, DO, conductivity, turbidity, and E. coli
SiskiyouProject	2003	Being Processed	final stage	E. coli
SiskiyouProject	2005	Not Processed	word file.	Turbidity
Siuslaw	2003-2004	Being Processed	mid stage	temperature, pH, DO, turbidity, E. coli, salinity, and Enterococcus
Skipanon	1999	Not Processed	Insufficient information	
South Coast	5/2005-9/2005	Complete in LASAR		temperature, pH, DO, conductivity, turbidity, E. coli, salinity
South Santiam	1998	Being Processed	mid stage	temperature, pH, DO, turbidity, E. coli, salinity, nitrate, phosphate

Sampling Organization	Year	Data Status	Comments	Parameters:
Tillamook city	2003-2005	Complete in LASAR		E. coli
Tillamook Kilchis	2003-2005	Being Processed		E. coli
Tillamook Miami	2003-2005	Being Processed		E. coli
Tillamook Tilamook R	2003-2004	Being Processed		E. coli
Tillamook Wilson/Trask	2003-2005	Complete in LASAR		E. coli
Tillamook Wilson	yr2000	Complete in LASAR		E. coli
Tillamook Kilchis	1999to2000	Complete in LASAR		E. coli
Tillamook Miami	1999to2000	Complete in LASAR		E. coli
Tillamook Tilamook R	1999to2000	Complete in LASAR		E. coli
Tillamook Trask	1999to2000	Complete in LASAR		E. coli
Tillamook Wilson	yr1999	Complete in LASAR		E. coli
Tillamook Wilson	1997to1998	Complete in LASAR		E. coli
Tillamook Kilchis	2001to2002	Complete in LASAR		E. coli
Tillamook Tilamook R	2001to2002	Complete in LASAR		E. coli
Tillamook Trask	2001to2002	Complete in LASAR		E. coli

Sampling Organization	Year	Data Status	Comments	Parameters:
Tillamook Wilson	2001to2002	Complete in LASAR		E. coli
Tillamook Miami	2001to2002	Complete in LASAR		E. coli
Umpqua	7/2000-9/2000	Complete in LASAR		temperature, pH, DO, conductivity, turbidity, and E. coli
Umpqua	Winter Data	Complete in LASAR		E.coli, turbidity
Umpqua (Calapooya)	2004	Complete in LASAR		temperature, pH, DO, turbidity, and E. coli
Umpqua (Myrtle Cr)	2004	Being Processed	mid stage	temperature, DO, turbidity, conductivity
Umpqua SWCD	6/2001-9/2001	Complete in LASAR		temperature, pH, DO, conductivity, turbidity
Willamette Riverkeeper	2005	Being Processed	final stage	temperature, pH, DO, conductivity, turbidity and E. coli
Willamette Riverkeeper	2001-2005	Being Processed	final stage	temperature, pH, DO, conductivity, turbidity and E. coli
Willamette Riverkeeper	1/2006-11/2006	Being Processed	final stage	temperature, pH, DO, conductivity, turbidity and E. coli
Yachats	6/2000-10/2000	Complete in LASAR		temperature, pH, DO, conductivity, turbidity and E. coli
Yachats	6/2001-10/2001	Complete in LASAR		temperature, pH, DO, conductivity, turbidity, E. coli, percent saturation
Yamhill Watershed Council	2003	Being Processed	final stage	temperature, pH, DO, conductivity, turbidity and E. coli

Sampling Organization	Year	Data Status	Comments	Parameters:
Yamhill Watershed Council	2004	Being Processed	final stage	E. coli
Yamhill Watershed Council	2005	Being Processed	final stage	temperature, DO, conductivity, turbidity and E. coli