



State of Oregon Department of Environmental Quality 2018/2020 Integrated Report Tools

Water Quality Assessments
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This document outlines how to use Integrated Report tools to identify where impairments occur in watershed assessment units and uses both the 2018/2020 interactive map tool and the 2018/2020 Assessment Database.

The 2018/2020 Integrated Report was approved by the U.S. Environmental Protection Agency on Nov. 12, 2020. The federal Clean Water Act requires Oregon to report on the quality of its surface waters every two years. Although not a written report, the Integrated Report is a reporting of the status of water quality in Oregon and a list of waters considered to be impaired. See the [Water Quality Assessment page](#) for more information.

The Integrated Report can be accessed in four ways:

- An [interactive story map](#) provides an overview of the water quality assessment process and displays results in terms of supporting beneficial uses.
- An [interactive web map application](#) displays the report by overall status of an assessment unit. For example, if an assessment unit is classified as impaired, one or more assessed pollutants do not meet the interpretation of water quality standards outlined in the methodology. The application also provides all applicable water quality standards and TMDL information. [Instructions for the web map application](#).
- An [online searchable database](#) that provides categorical assessment conclusions for all assessed parameters.
- An ArcGIS 10.5 [assessment geodatabase](#) spatially displays information from the report. This database also includes a layer that spatially displays DEQ's [water quality standards](#).
- Raw data used in the report can also be accessed through DEQ's [Ambient Water Quality Monitoring Portal](#).

How to use the interactive web map

Step 1.

Go to the 2018/2020 Integrated Report web page (Figure 1).
<https://www.oregon.gov/deq/wq/Pages/epaApprovedIR.aspx>

EPA Approved Integrated Report

Water Quality Home
Water Quality Index
Is It Safe To Swim On The Willamette River In Portland?
Willamette River Report Card
Harmful Algal Blooms
Harmful Algal Blooms: Drinking Water Cyanotoxin Monitoring
Water Quality Assessment
Water Quality Assessment Program
► **EPA Approved Integrated Report**
Proposed Integrated Report
Assessment Methodology Updates
Call For Data
Archived Integrated Reports
Assessing Oregon's Basins
Watershed Approach Framework

Current action

The 2018/2020 Integrated Report was approved by the U.S. Environmental Protection Agency on Nov. 12, 2020 and is now current and in effect. The federal Clean Water Act requires Oregon to report on the quality of its surface waters every two years. Although not a written report, the Integrated Report is a reporting of the status of water quality in Oregon and a list of waters considered to be impaired. See the [Water Quality Assessment page](#) for more information.

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- An [online searchable database](#) that provides categorical assessment conclusions for all assessed parameters.
- An ArcGIS 10.5 [Assessment Geodatabase](#) spatially displays information from Oregon's 2018/2020 Integrated Report. This database also includes a layer that spatially displays DEQ's [Water Quality Standards](#).
- Raw data used in Oregon's 2018/2020 Integrated Report can also be accessed through DEQ's [Ambient Water Quality Monitoring Portal](#).

Contact

For more information on the Integrated Report please contact:
Becky Anthony ☎, 503-378-5319

[Interactive Story Map](#)
[Interactive Web Map](#)
[Assessment Database](#)
[Assessment Geodatabase](#)
[AWQMS](#)

✉ Sign up for Water Quality Assessment Reporting and 303(d) GovDelivery topic to stay up to date on public processes and data calls

Figure 1. Screenshot of DEQ 2018/2020 Integrated Report web page

Step 2.

Click on the Interactive Web Map button and open the application using Google Chrome. Locate the waterbody/waterbodies of interest. To locate, use the Search function at the top right corner of the map (Figure 2 below).

Search by the last six digits of an Assessment Unit ID (if known):

OR_WS_170900030609_02_104297 or by waterbody name. For example, search for **Frazier Creek**. Watershed assessment units can be identified by the WS at the beginning of the AU ID.

AU ID: OR_WS_170900030609_02_104297

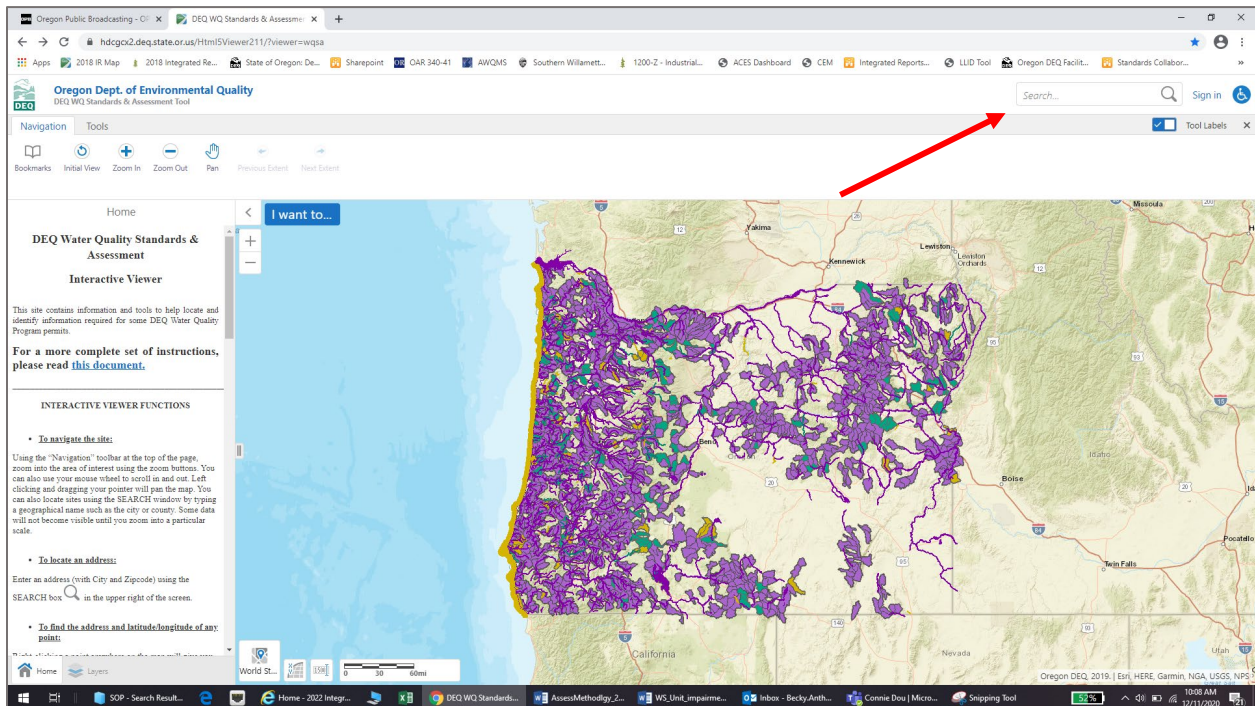


Figure 2. Screenshot of Interactive Map search function

Step 3.

The search box will search through the layers present in the web map. Note that the search function may take time to populate the search results. Each layer that contains the search result will show up on the left sidebar.

Major river or stream segment results that are Strahler stream order 5 or higher, will be in the **2018/2020 Status Rivers/Streams & Coastline layer** and will look like those circled in green in Figure 3 below.

In the case of smaller streams, the streams will likely be grouped into a watershed unit. Click on the > to the right of the **2018/2020 Watershed Assessment Status** search results (see red arrow in Figure 3).

In this example, Frazier Creek is < 5th order stream, and is grouped into a watershed unit, AU ID: OR_WS_170900030609_02_104297.

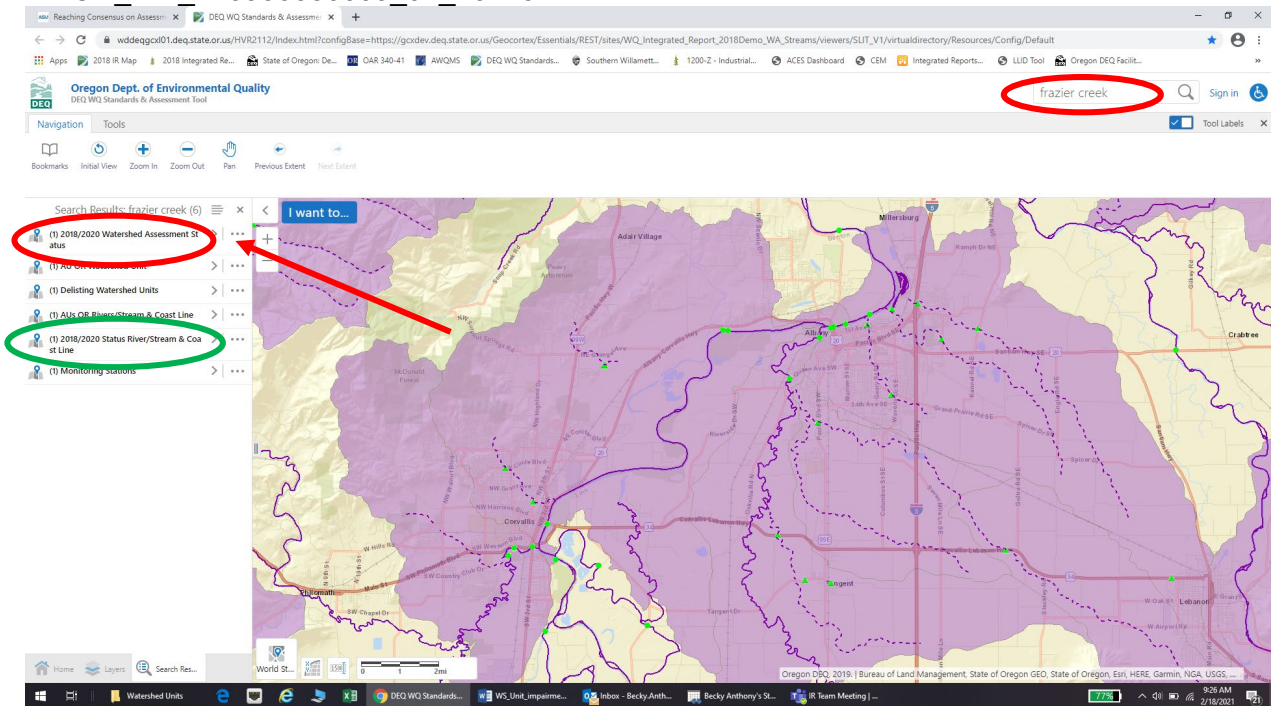


Figure 3. Screenshot of interactive map search results. Green circles highlight major streams/river status while red circles and arrows highlight watershed unit status.

Step 4.

Zoom into the example watershed by clicking on the > to the right of the watershed assessment unit name (Figure 4 below). The watershed unit will be highlighted and is represented by the colored polygons and dashed lines. Solid lines are river and stream units and are assessed independently of the watershed units.

Monitoring locations used for assessment of the watershed unit are identified as green triangles (red arrows, Figure 4), while monitoring stations on larger river/stream segments are identified by the green circles (purple arrows, Figure 4).

Waterbodies identified as impaired within the watershed units will be represented as dashed purple lines on the map.

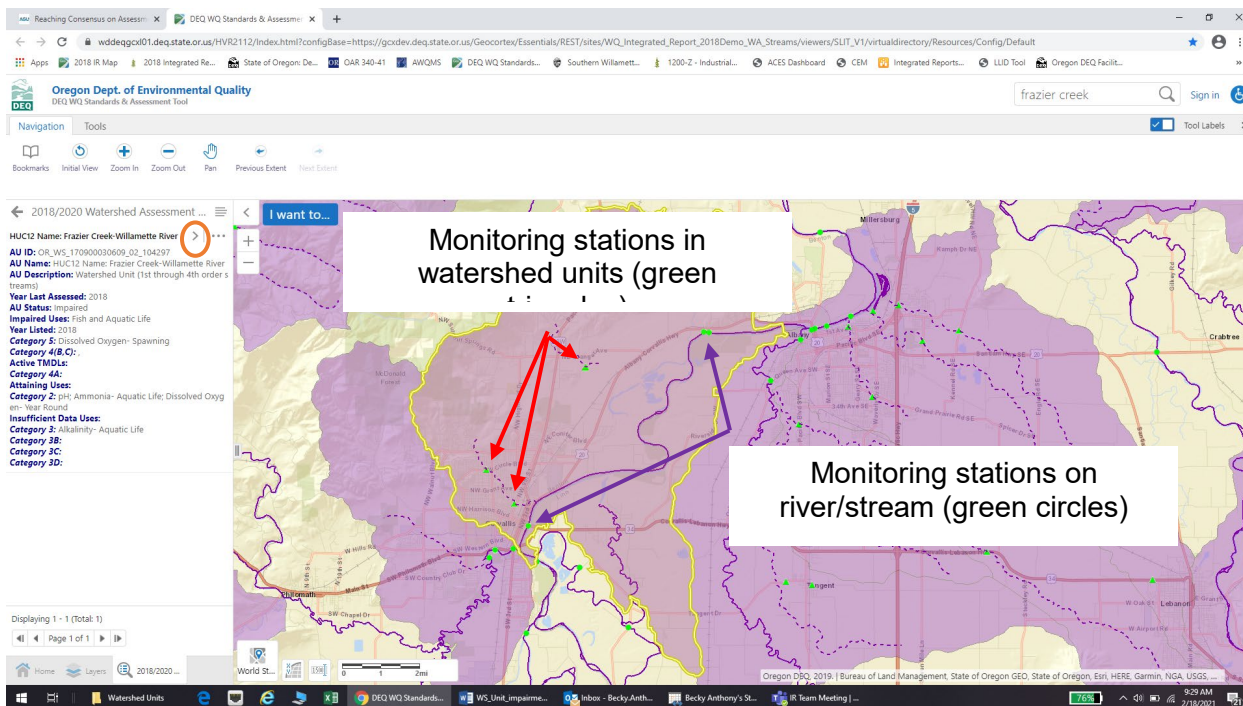


Figure 4. Screenshot of watershed unit and monitoring locations

Step 5.

To identify which waterbody is impaired and for what parameter, click on the dashed line, and a pop-up box will display the information (Figure 5 below).

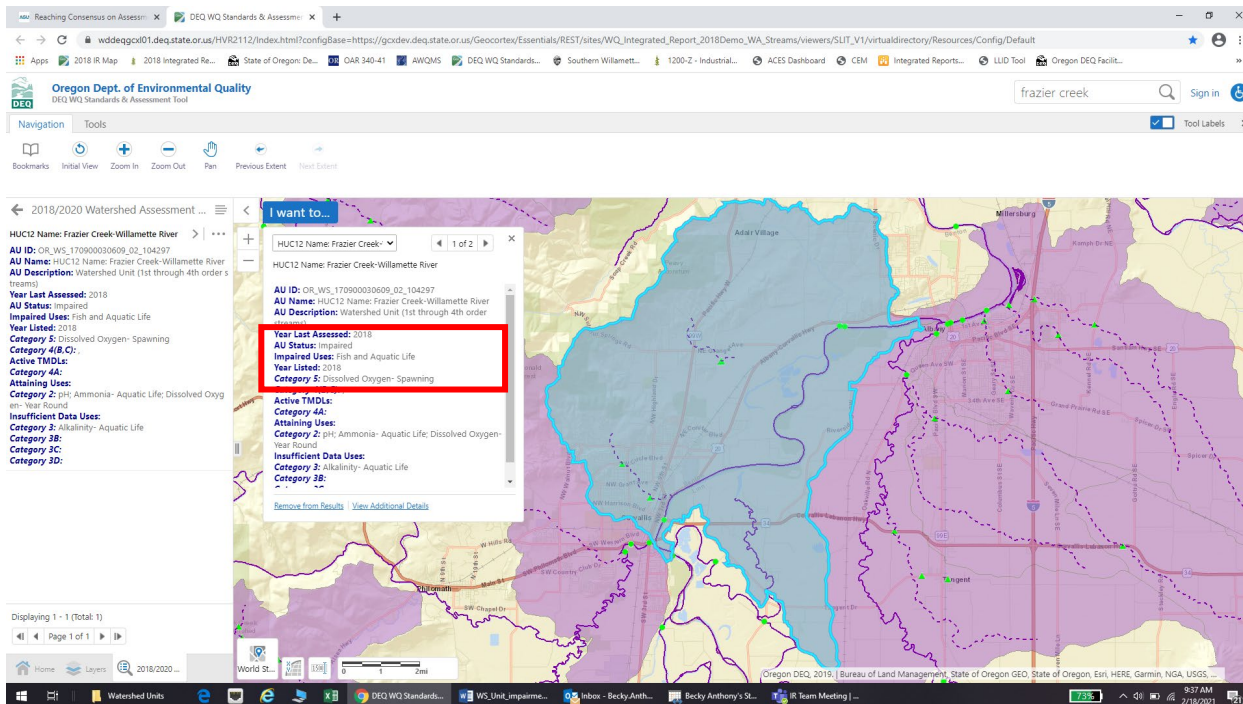


Figure 5. Pop-up box display of watershed unit impairment information.

Step 6.

Determine if the waterbody of interest is an impaired waterbody. Click on the *layers tab* at the bottom left side of the screen, and click on the *Hydrography* layer (see Figure 6). In this case, if looking for whether or not impairments exist on Jackson Creek (see green arrow on Figure 6); it is not considered impaired because the line is not purple. Solid dark purple lines represent impaired river or stream assessment units (Strahler Stream Order ≥ 5). Dashed purple lines represent waterbodies (Strahler Stream Order ≤ 4) that have been identified as impaired within a watershed assessment unit. Rivers or streams that are not colored purple have not been assessed as impaired.

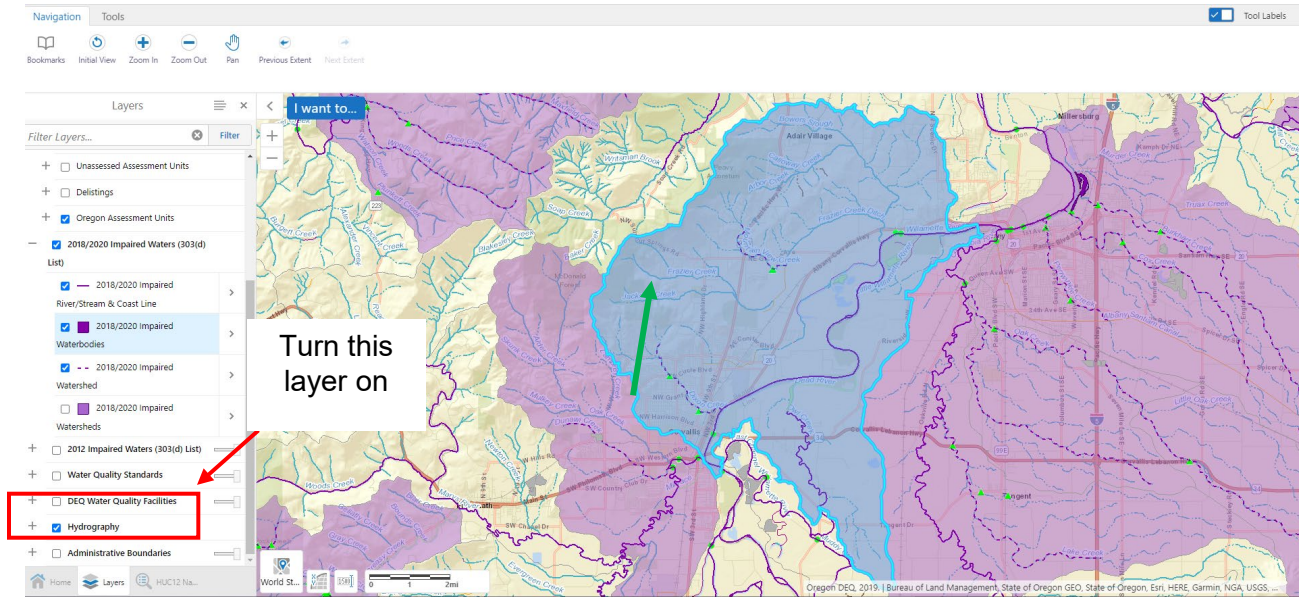


Figure 6. Screen shot of hydrography layers

Looking for data at particular monitoring stations

Step 7.

There are multiple ways to view the monitoring locations that were used in the report. One option is to click on each individual triangle. A pop-up box will display the monitoring location information (Figure 7 below).

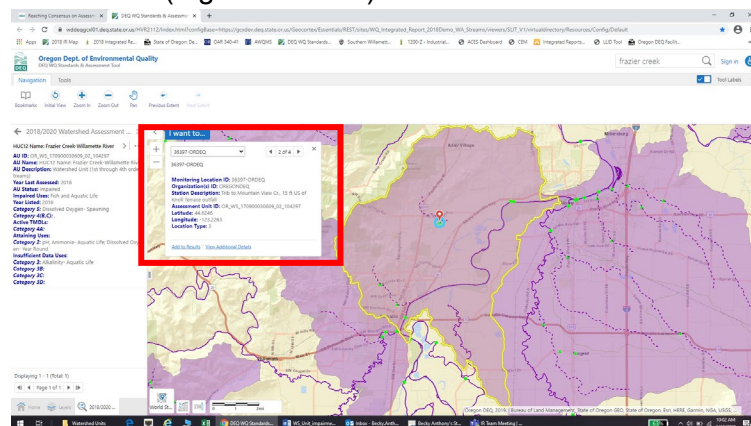


Figure 7. Screen shot of monitoring location pop-ups

Another option is to return to Search results by clicking on the ← (back arrow) in left top corner of the Search results box and select Monitoring stations (Figures 8 and 9).

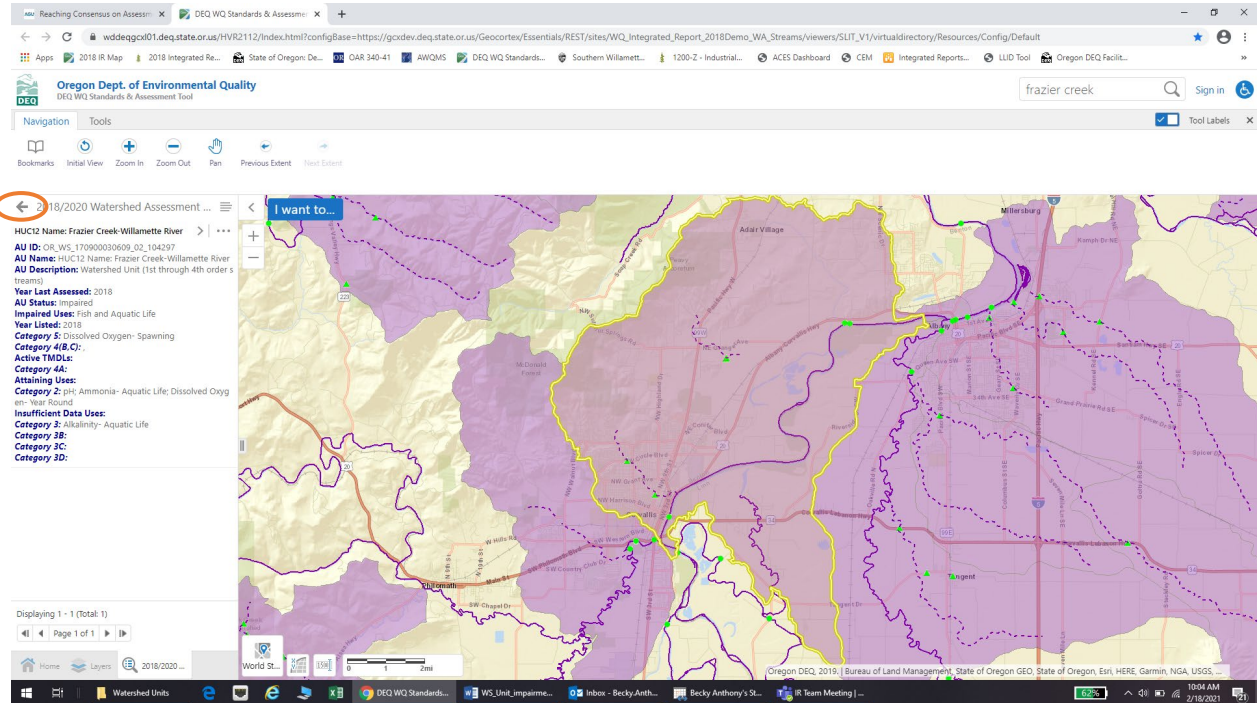


Figure 8. Return to Search Results and select “Monitoring Stations”

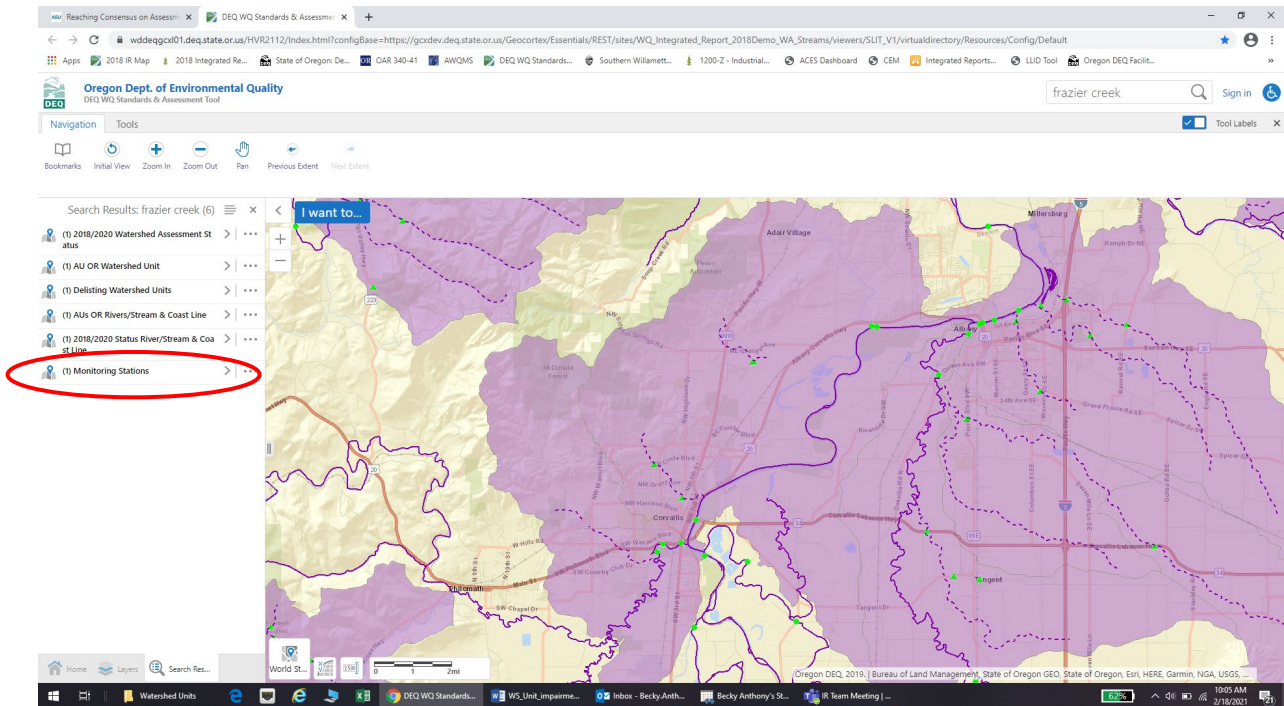


Figure 9. Monitoring station results

A final option is to open a new tab (leaving the map tab open) and use the *Assessment Database*. Step-by-step instructions on how to do this are shown in Figures 10 through 13.

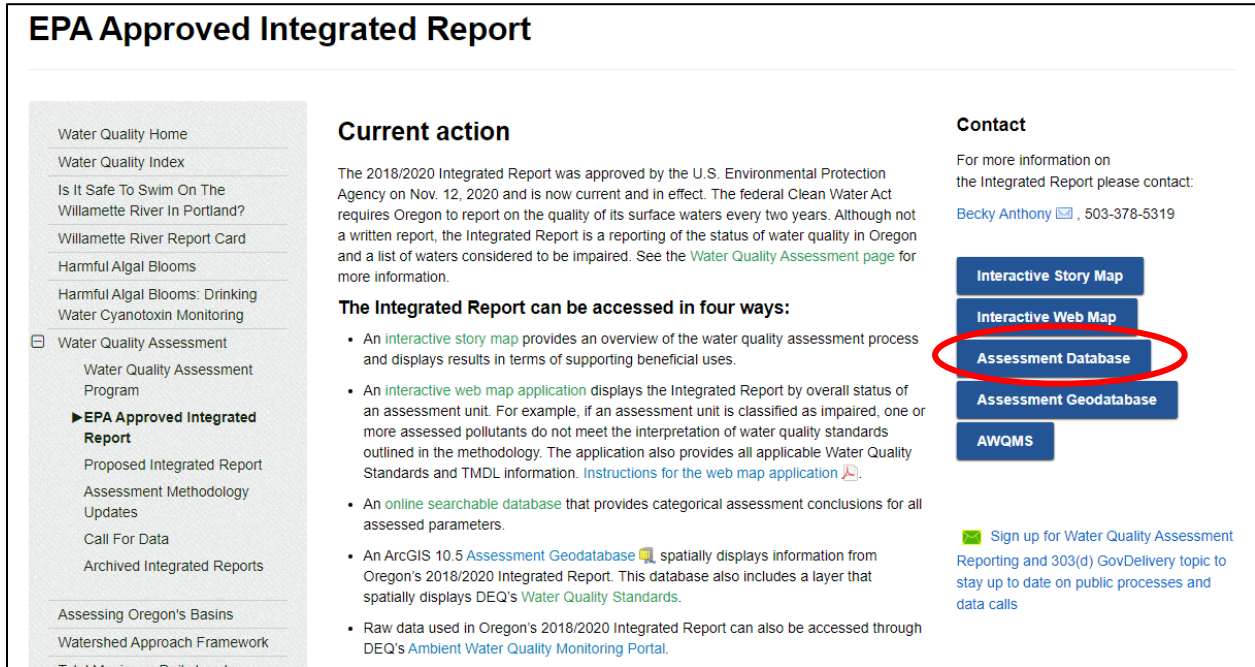


Figure 10. Screenshot of IR webpage and link to Assessment Database

Enter either the AU_ID or the AU name. AU_ID is the most reliable method.

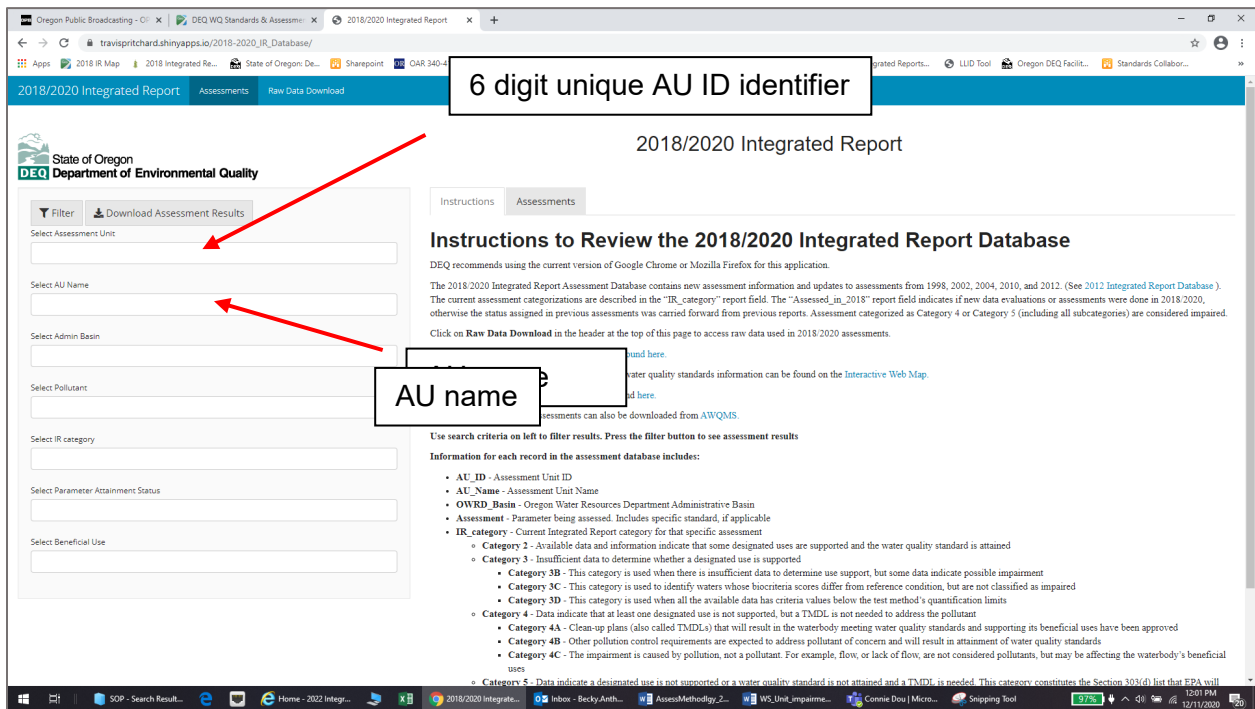


Figure 11. Option 3 - Screenshot of Assessment Database dashboard

Press "Filter" button

2018/2020 Integrated Report

Instructions Assessments

Instructions to Review the 2018/2020 Integrated Report Database

DEQ recommends using the current version of Google Chrome or Mozilla Firefox for this application.

The 2018/2020 Integrated Report Assessment Database contains new assessment information and updates to assessments from 1998, 2002, 2004, 2010, and 2012. (See 2012 Integrated Report Database.) The current assessment categorizations are described in the "IR_category" report field. The "Assessed_in_2018" report field indicates if new data evaluations or assessments were done in 2018/2020, otherwise the status assigned in previous assessments was carried forward from previous reports. Assessment categorized as Category 4 or Category 5 (including all subcategories) are considered impaired.

Click on **Raw Data Download** in the header at the top of this page to access raw data used in 2018/2020 assessments.

The 2018/2020 Assessment Methodology can be found here.

A more complete mapping and dataset, including water quality standards information can be found on the [Interactive Web Map](#).

The DEQ 2018/2020 IR webpage page can be found here.

Water quality data used in assessments can also be downloaded from [AWQMS](#).

Use search criteria on left to filter results. Press the filter button to see assessment results

Information for each record in the assessment database includes:

- AU_ID - Assessment Unit ID
- AU_Name - Assessment Unit Name
- OWRD_Basin - Oregon Water Resources Department Administrative Basin
- Assessment - Parameter being assessed. Includes specific standard, if applicable
- IR_category - Current Integrated Report category for that specific assessment
 - Category 2 - Available data and information indicate that some designated uses are supported and the water quality standard is attained
 - Category 3 - Insufficient data to determine whether a designated use is supported
 - Category 3B - This category is used when there is insufficient data to determine use support, but some data indicate possible impairment
 - Category 3C - This category is used to identify waters whose biocriteria scores differ from reference conditions, but are not classified as impaired
 - Category 3D - This category is used when all the available data has criteria values below the test method's quantification limits
 - Category 4 - Data indicate that at least one designated use is not supported, but a TMDL is not used to address the pollutant
 - Category 4A - Clean-up plans (also called TMDLs) that will result in the waterbody meeting water quality standards and supporting its beneficial uses have been approved
 - Category 4B - Other pollution control requirements are expected to address pollutant of concern and will result in attainment of water quality standards
 - Category 4C - The impairment is caused by pollution, not a pollutant. For example, flow, or lack of flow, are not considered pollutants, but may be affecting the waterbody's beneficial uses
 - Category 5 - Data indicate a designated use is not supported or a water quality standard is not attained and a TMDL is needed. This category constitutes the Section 303(d) list that EPA will

Figure 12. Screenshot of how to download assessment unit results

Monitoring locations used to assess watershed

AU_ID	AU_Name	AU_Description	OWRD_Basin	Assessment	IR_category	Monitoring_locations	Rationale	Year_listed	Assessed_in_2018
OR_WS_170900030609_02_104297	HUC12 Name: Frazier Creek-Willamette River	Watershed Unit (1st through 4th order streams)	Willamette	Alkalinity-Aquatic Life Criteria	Category 3	36397-ORDEQ; 36400-ORDEQ			YES
OR_WS_170900030609_02_104297	HUC12 Name: Frazier Creek-Willamette River	Watershed Unit (1st through 4th order streams)	Willamette	Ammonia-Aquatic Life Criteria	Category 2	36397-ORDEQ; 36400-ORDEQ			YES
OR_WS_170900030609_02_104297	HUC12 Name: Frazier Creek-Willamette River	Watershed Unit (1st through 4th order streams)	Willamette	Dissolved Oxygen-Spawning	Category 5	35080-ORDEQ; 36397-ORDEQ; 36400-ORDEQ; 36876-ORDEQ	3 of 7 samples < 11 mg/L and 95% sat	2018	YES
OR_WS_170900030609_02_104297	HUC12 Name: Frazier Creek-Willamette River	Watershed Unit (1st through 4th order streams)	Willamette	Dissolved Oxygen-Year Round	Category 2	35080-ORDEQ; 36397-ORDEQ; 36400-ORDEQ; 36876-ORDEQ			YES
OR_WS_170900030609_02_104297	HUC12 Name: Frazier Creek-Willamette River	Watershed Unit (1st through 4th order streams)	Willamette	pH	Category 2	35080-ORDEQ; 36397-ORDEQ; 36400-ORDEQ; 36876-ORDEQ			YES

Showing 1 to 5 of 5 entries

Figure 13. Screenshot of assessment unit results

Step 8.

From the monitoring locations determined in the previous step, the next step is to identify which waterbodies the monitoring locations are on by (1) clicking on each monitoring location (refer to Figure 5); (2) searching the interactive map by AU ID and clicking on the monitoring station results; or (3) by downloading the raw data from the assessment database.

To download the raw data from the assessment database open the database in a separate window (this step may have already been done). Click on the *Raw Data Download* button (Figure 14).

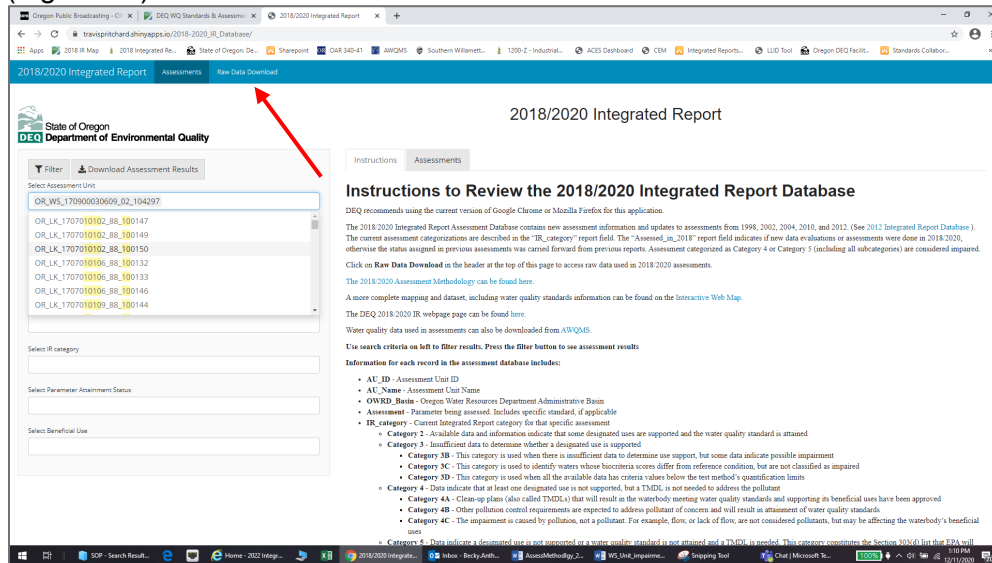


Figure 14. Screenshot of Assessment Database dashboard for raw data download

Enter the Assessment Unit ID and click “Download Assessment Data by Unit” (Figure 15). A zip file for that assessment unit will download with all of the data used in the 2018/2020 assessment (Figure 16). In this example, we are interested in what stations were assessed for dissolved oxygen, since that is the parameter that was identified as impaired.

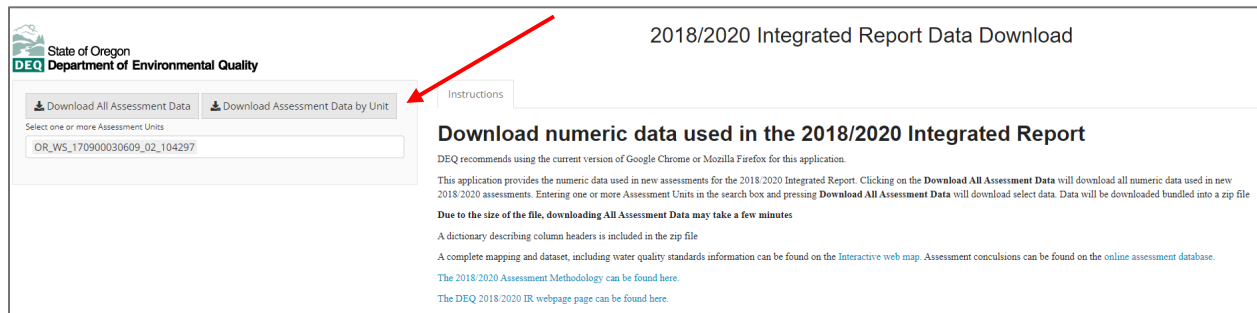


Figure 15. Screenshot of Assessment Database data download dashboard

Name	Type	Compressed size	Password ...	Size	Ratio	Date modified
Aquatic_Life_Toxics.xlsx	Microsoft Excel Worksheet	12 KB	No	17 KB	27%	12/11/2020 9:24 PM
Aquatic_Weeds.xlsx	Microsoft Excel Worksheet	6 KB	No	7 KB	17%	12/11/2020 9:24 PM
Bacteria.xlsx	Microsoft Excel Worksheet	8 KB	No	11 KB	25%	12/11/2020 9:24 PM
Biocriteria.xlsx	Microsoft Excel Worksheet	6 KB	No	7 KB	16%	12/11/2020 9:24 PM
Chlorophyll.xlsx	Microsoft Excel Worksheet	6 KB	No	7 KB	16%	12/11/2020 9:24 PM
DO.xlsx	Microsoft Excel Worksheet	14 KB	No	17 KB	22%	12/11/2020 9:24 PM
HAQ.xlsx	Microsoft Excel Worksheet	6 KB	No	7 KB	17%	12/11/2020 9:24 PM
Human_Health_Toxics.xlsx	Microsoft Excel Worksheet	7 KB	No	9 KB	21%	12/11/2020 9:24 PM
IR_Data_Dictionary.xlsx	Microsoft Excel Worksheet	98 KB	No	180 KB	46%	12/11/2020 9:24 PM
pH.xlsx	Microsoft Excel Worksheet	9 KB	No	10 KB	13%	12/11/2020 9:24 PM
Temperature.xlsx	Microsoft Excel Worksheet	6 KB	No	7 KB	15%	12/11/2020 9:24 PM
Turbidity.xlsx	Microsoft Excel Worksheet	6 KB	No	7 KB	17%	12/11/2020 9:24 PM

Figure 16. Example zip file download

Step 9.

After opening the dissolved oxygen file, click on the “DO_spawn_instantaneous” tab since this impairment is for spawning dissolved oxygen. The four stations used in the assessment are identified by the red rectangles in Figure 17.

Organizat	MLocID	StationDes	MonLocTy	HUC12_NaE
WRK_(NO 35080-OR)		Dixon Creek at NW 9th St, Corvallis (Willamette)	River/Stre	Fraizer Cre
WRK_(NO 35080-OR)		Dixon Creek at NW 9th St, Corvallis (Willamette)	River/Stre	Fraizer Cre
OREGOND 36397-OR		Trib to Mountain View Cr., 15 ft US of Knoll Terrace outfall	Canal Trar	Fraizer Cre
OREGOND 36400-OR		Mountain View Cr., 10 ft US of tributary	River/Stre	Fraizer Cre
WRK_(NO 36876-OR)		Dixon Creek at NW Circle Blvd	River/Stre	Fraizer Cre
WRK_(NO 36876-OR)		Dixon Creek at NW Circle Blvd	River/Stre	Fraizer Cre
WRK_(NO 36876-OR)		Dixon Creek at NW Circle Blvd	River/Stre	Fraizer Cre

Figure 17. Screenshot of DO_spawn_Instantaneous spreadsheet

Scroll to the farthest column (AW) to identify if the result is a criteria excursion. If the value in the “Excursion” column is “1”, then that result was an excursion of criteria (Figure 18).

Organizat	MLocID	StationDes	Excursion
WRK_(NO 35080-OR)		Dixon Creek at NW 9th St, Corvallis (Willamette)	1
WRK_(NO 35080-OR)		Dixon Creek at NW 9th St, Corvallis (Willamette)	0
OREGOND 36397-OR		Trib to Mountain View Cr., 15 ft US of Knoll Terrace outfall	1
OREGOND 36400-OR		Mountain View Cr., 10 ft US of tributary	0
WRK_(NO 36876-OR)		Dixon Creek at NW Circle Blvd	0
WRK_(NO 36876-OR)		Dixon Creek at NW Circle Blvd	0
WRK_(NO 36876-OR)		Dixon Creek at NW Circle Blvd	1

Figure 18. Screenshot of DO criteria excursions

Methodologies for determining how many excursions of the criteria represent an impaired waterbody can be found in the [Methodology for Oregon’s 2018 Water Quality Report and List of Water Quality Limited Waters](#). Pollutant specific assessment methodologies are organized by parameter.

Alternative formats

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@deq.state.or.us.