

# COLUMBIA RIVER BASIN RESTORATION PROGRAM: TOXICS REFERENCE LIST & TOXIC IMPAIRED WATERBODIES ON 303(D) LISTS

Columbia River Basin Restoration Program  
Working Group Meeting  
May 20, 2020  
David Gruen, ORISE Participant, EPA Region 10

# TOXICS REFERENCE LIST

**Origin:** individual feedback from May 2019 Working Group Meeting

**Intent:** resource for Columbia River Basin Restoration Program Working Group

Collection of 220 toxics-related water quality documents

- Peer-reviewed science
- Federal, tribal, and state government reports/publications

Available on EPA's Columbia River Website:

<https://www.epa.gov/columbiariver/columbia-river-basin-toxic-contaminants-reference-list>

PREVIEW: SELECTED  
REPORTS/PUBLICATIONS



Available online at [www.sciencedirect.com](http://www.sciencedirect.com)



Science of the Total Environment 366 (2006) 549–578

Science of the  
Total Environment  
An International Journal for Scientific Research  
into the Environment and its Relationship with Development

[www.elsevier.com/locate/scitotenv](http://www.elsevier.com/locate/scitotenv)

issue and Water  
12



## Environmental contaminants and biomarker responses in fish from the Columbia River and its tributaries: Spatial and temporal trends

Science of the Total Environment 484 (2014) 344–352

Jo Ellen Hinck<sup>a,\*</sup>, Christopher J. Schmit  
Timothy M. Bartish<sup>d</sup>, Patrick  
Gail M. Dethloff<sup>f</sup>



Contents lists available at ScienceDirect

Science of the Total Environment

journal homepage: [www.elsevier.com/locate/scitotenv](http://www.elsevier.com/locate/scitotenv)



### Statewide Aquatic Tissue Toxic Assessment Report

August 2017

Contaminants of legacy and emerging concern in largescale suckers (*Catostomus macrocheilus*) and the foodweb in the lower Columbia River, Oregon and Washington, USA<sup>☆</sup>



Elena Nilsen<sup>a,\*</sup>, Steven Zaugg<sup>b,3</sup>, David Alvarez<sup>c</sup>, Jennifer Morace<sup>a</sup>, Ian Waite<sup>a</sup>, Timothy Counihan<sup>d</sup>, Jill Hardiman<sup>a</sup>, Leticia Torres<sup>e,1</sup>, Reynaldo Patiño<sup>f,1</sup>, Matthew Mesa<sup>d</sup>, Robert Grove<sup>b,2</sup>

Environmental Policy

Contents lists available

Environmental

journal homepage: [www.elsevier.com/locate/envpol](http://www.elsevier.com/locate/envpol)



Reconnaissance of contaminants in larval Pacific lamprey (*Entosphenus tridentatus*) tissues and habitats in the Columbia River Basin, Oregon and Washington, USA



Elena B. Nilsen<sup>a,\*</sup>, Whitney B. Hapke<sup>a</sup>, Brian McIlraith<sup>b</sup>, Dennis Markovchick<sup>c</sup>

<sup>a</sup> USGS, USA  
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Retardants,  
pounds, and  
odecane  
of  
Rivers and Lakes

# TOXIC REFERENCE LIST — CONTINUED

**Goal:** to be as comprehensive as possible – BUT it is a big basin & list is dynamic

Don't see a file/report? Have we made an error? **Let us know!**

Email: [Gruen.David@epa.gov](mailto:Gruen.David@epa.gov) or [Soscia.MaryLou@epa.gov](mailto:Soscia.MaryLou@epa.gov)

EPA will strive to update the document periodically (last update: April 2020)

# QUESTIONS ON THE TOXICS REFERENCE LIST?



# TOXIC-IMPAIRED WATERBODIES ON 303(D) LISTS IN THE COLUMBIA R. BASIN

The report:

- 1) identifies the more than 50 toxic contaminants that are on 303(d) lists of impaired waters in the Columbia River Basin
- 2) summarizes the location of impaired waters for ten toxic contaminants
- 3) provides links to EPA-approved TMDLs and implementation plans.

Impaired waterbodies can serve as a starting point for prioritizing restoration/management actions

The absence of waterbodies on the 303(d) lists may help identify potential data gaps to inform future monitoring

# TOXICS-IMPAIRED WATERBODIES ON 303(D) LISTS IN THE COLUMBIA R. BASIN

The ten contaminants featured in the report:

<b>Metals/Inorganics</b>	<b>Pesticides</b>	<b>Persistent Organic Pollutants</b>
<ul style="list-style-type: none"><li>- Arsenic</li><li>- Copper</li><li>- Lead</li><li>- Mercury</li><li>- Selenium</li></ul>	<ul style="list-style-type: none"><li>- Aldrin/Dieldrin</li><li>- Chlorpyrifos</li><li>- DDT (&amp; breakdown products)</li></ul>	<ul style="list-style-type: none"><li>- PCBs</li><li>- PAHs</li></ul>

# WHAT IS THE 303(d) LIST?

- Consists of waters that:
  - Do not meet water quality standards even after the implementation of technology-based limitations or other pollution control requirements, often referred to as “impaired waters.”
  - Are not expected to attain water quality standards in the next listing cycle (2 years), referred to as “threatened waters.”

Applicable Regulations: 40 CFR 130.7



# HOW ARE WATERS PLACED ON A 303(d) LIST?

## Monitoring

- Collect and evaluate monitoring data to determine condition of the waterbody.
- Assemble all readily available data and information.

## Assessment

- Use assessment methodologies and procedures, consistent with their WQS, to determine whether waters are impaired.

## Listing

- Develop a list of those impaired waters every two years with public participation and submit to EPA.

# HOW IS THE 303(d) LIST SUBMITTED TO EPA?

**303(d) list\*** (impaired/threatened waters)

**305(b) report** (overall health of waters)

**+** **314 report** (health of lakes/reservoirs)

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**= Integrated Report (IR)**

- The 303(d) list and 305(b) report are both due April 1<sup>st</sup> of every even-numbered year. EPA has recommended an Integrated Report since the 2002 reporting cycle.
- \*Requires EPA approval

# DATA SOURCES — STATE INTEGRATED REPORTS

State	Assessment Cycle	Document Status	Date of EPA Approval	Data Source
Idaho	2016	Final	June 2019	<a href="https://opengisdata-idahodeq.opendata.arcgis.com/datasets/idaho-deq-2016-final-%C2%A7305b-%C2%A7303d-integrated-report-rivers-streams-lakes-reservoirs">https://opengisdata-idahodeq.opendata.arcgis.com/datasets/idaho-deq-2016-final-%C2%A7305b-%C2%A7303d-integrated-report-rivers-streams-lakes-reservoirs</a>
Montana	2018	Final	February 2019	<a href="https://svc.mt.gov/deq/dst/#/app/cwaic">https://svc.mt.gov/deq/dst/#/app/cwaic</a>
Oregon	2018/2020	Submitted to EPA for approval	N/A	<a href="https://www.oregon.gov/deq/wq/Pages/2018-Integrated-Report.aspx">https://www.oregon.gov/deq/wq/Pages/2018-Integrated-Report.aspx</a>
Washington	2012	Final	July 2016	<a href="http://geo.wa.gov/datasets/waecy::waecy-water-quality-assessment-305b-report-current">http://geo.wa.gov/datasets/waecy::waecy-water-quality-assessment-305b-report-current</a>

# ASSESSMENT OF WATERBODY CONDITIONS

## Category 1:

All designated uses are supported

## Category 2:

Some designated uses are supported, insufficient data for other designated uses

## Category 3:

Insufficient data for ALL designated uses

## Category 4:

4: Impaired – Total Maximum Daily Load (TMDL) not needed  
4a: Impaired – TMDL completed & approved by EPA  
4b: Impaired – Other pollution control in place  
4c: Impaired – Impairment caused by pollution, not a pollutant

## Category 5:

5: Impaired – Not supporting one or more designated uses (or waterbody is threatened) and requires a TMDL

## CWA 303(D) LIST: IMPAIRED WATERBODIES

### Category 4:

4a: Impaired – TMDL completed & approved by EPA

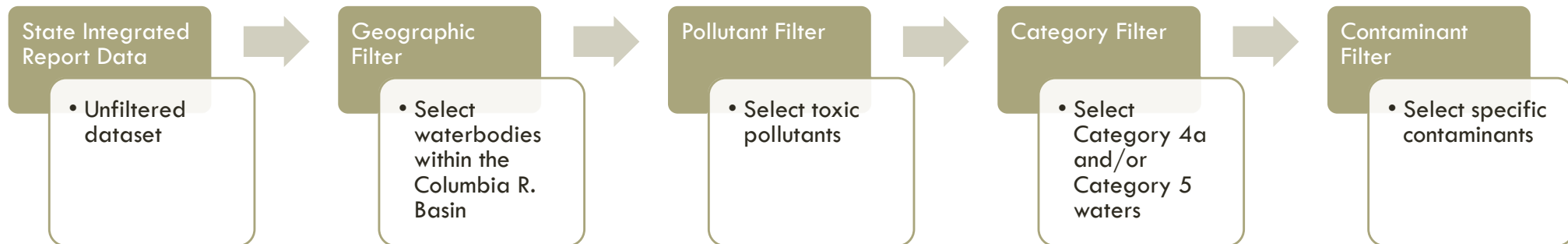
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### Category 5:

5: Impaired – Not supporting one or more designated uses (or waterbody is threatened) and requires a TMDL

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# PROCESS OVERVIEW



# CAUTION!

Direct comparisons between the states can be difficult

- States have different water quality standards and different methodologies for determining the size of impaired reaches
- A greater number of impairments may not necessarily translate into a larger overall area of impaired water

The absence of waterbodies identified as impaired for a pollutant is not inherently indicative of better water quality

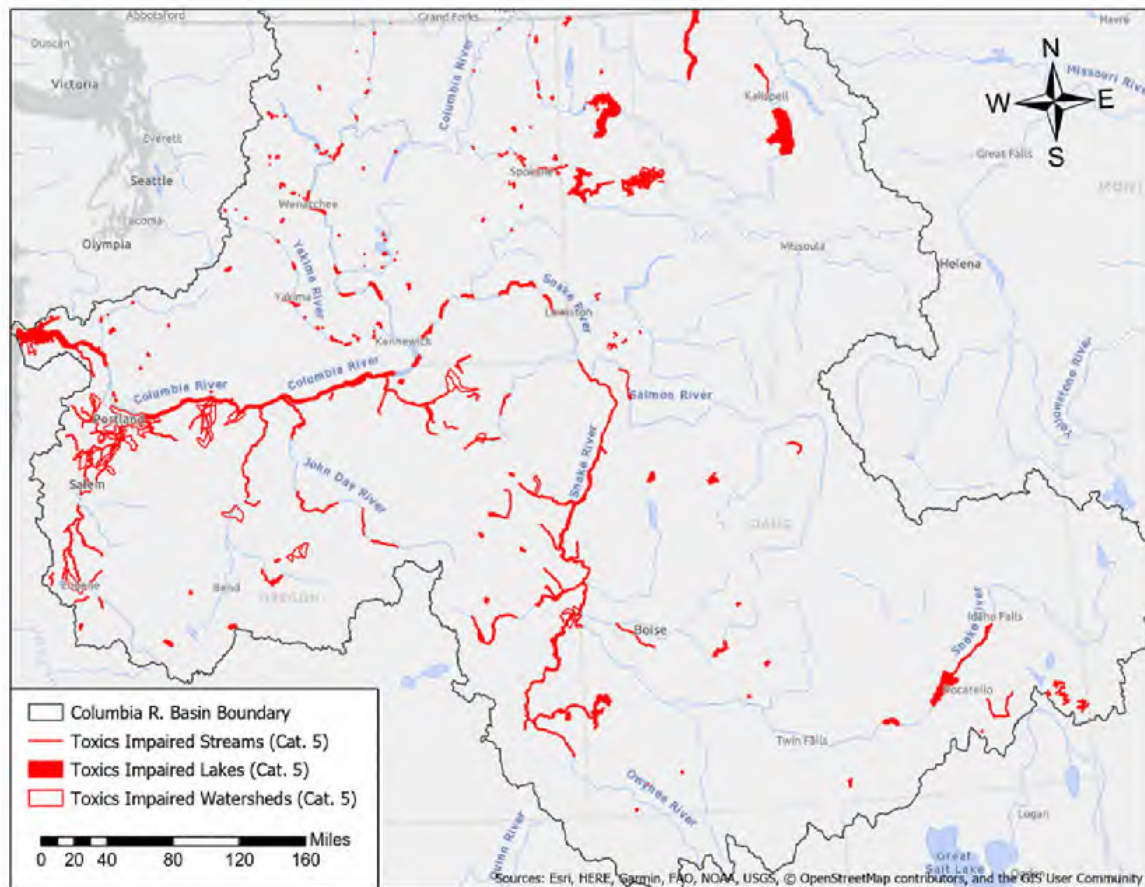
- May be due to lack of monitoring and assessment data available to the state

# CATEGORY 5 TOXICS-IMPAIRED WATERS

Map displays all toxics-impaired category 5 waters in the Basin

Map is for reference purposes only.  
The map should not be used for legal purposes

Note: Impaired waterbody segments have been slightly enlarged to improve their visibility



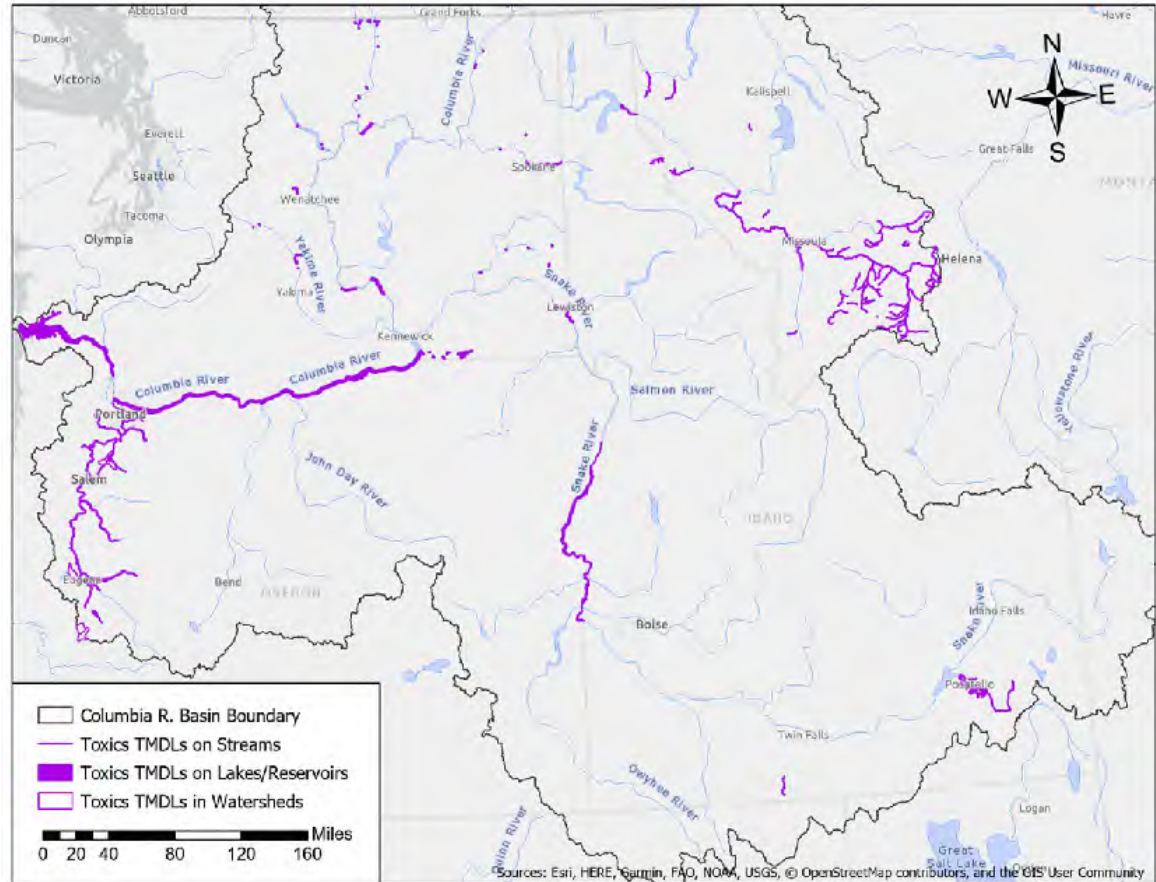


# CATEGORY 4A TOXICS-IMPAIRED WATERS

Map displays all toxics-impaired category 4a waters (TMDLs) in the Basin

Map is for reference purposes only. The map should not be used for legal purposes

Note: Impaired waterbody segments have been slightly enlarged to improve their visibility

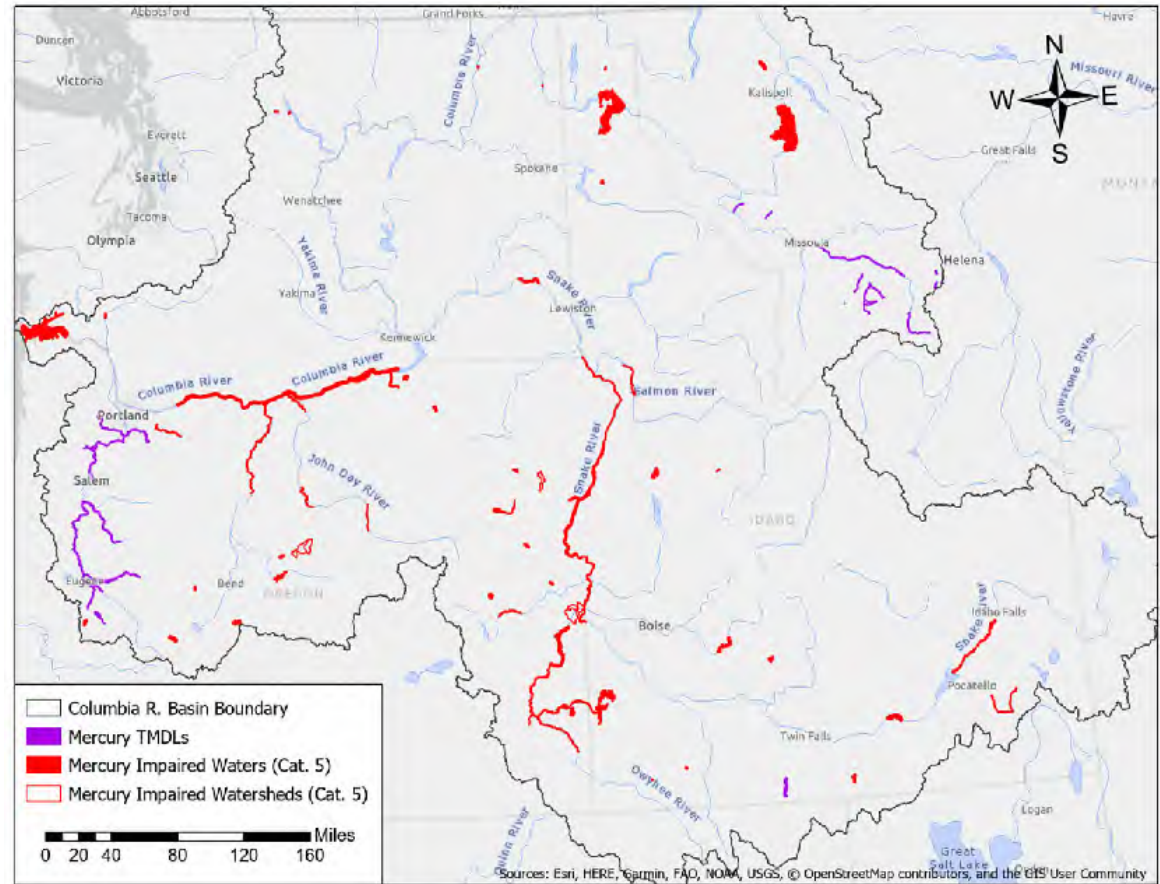


# MERCURY IMPAIRED WATERS

Map is for reference purposes only. The map should not be used for legal purposes.

Note: Impaired waterbody segments have been slightly enlarged to improve their visibility

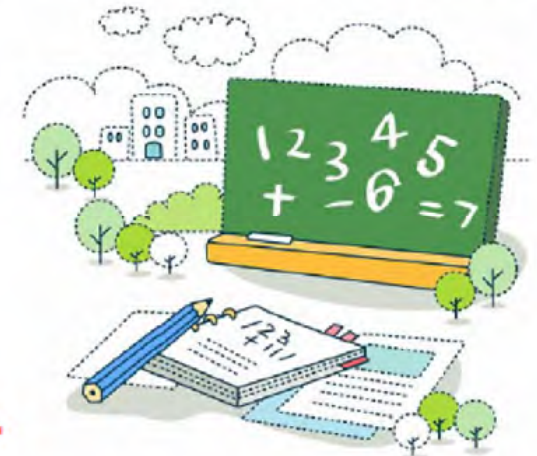
State	Location of impaired waters without a TMDL (Category 5)	Location of EPA-approved TMDLs (Category 4a)
<b>Idaho</b>	Mainstem Snake River; Owyhee, Boise, Payette, Bruneau, Coeur d'Alene, Kootenai, Salmon, Goose, and Upper Snake River watersheds	Upper Snake River watershed
<b>Montana</b>	Flathead River watershed	Clark Fork – Drummond, Clark Fork – Silver Bow Creek, Flint Creek, Little Blackfoot, Ninemile, and Rock Creek
<b>Oregon</b>	Mainstem Columbia and Snake Rivers; Owyhee, Malheur, Powder, John Day, Deschutes, Sandy, and Willamette River watersheds	Willamette River watershed
<b>Washington</b>	Mainstem Columbia and Snake Rivers; Lake Chelan, Pend Oreille, and Cowlitz River watersheds	None



# WHAT IS A TMDL?

- **Total Maximum Daily Load**
- A calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources.

The TMDL provides  
the math and the path  
for waterbody restoration.



Upper Clark Fork River Tributaries  
Sediment, Metals, and Temperature TMDLs  
and Framework for Water Quality Restoration

# EPA-APPROVED TMDLS

31 TMDL documents that address one or more toxic pollutants in the Basin:

- Idaho (5)
- Montana (13)
- Oregon (4)
- Washington (9)
- Basin-wide (1) [Dioxin TMDL, developed by EPA in 1991]

Note: The count above sums to 32 because the Snake River – Hells Canyon TMDL for pesticides was jointly issued by Oregon and Idaho and is included in the total for both states.



March 4, 2010



# IMPLEMENTATION PLANS

States are responsible for implementing TMDLs

Implementation plans AKA “Water Quality Improvement Plans” or “Watershed Restoration Plans” identify potential management measures that might be feasible for addressing the main pollutant loading sources

Implementation plans are not required under the CWA. EPA is not required to and does not approve TMDL implementation plans.

# THE END – QUESTIONS?

The report is available on EPA's website:

<https://www.epa.gov/columbiariver/toxic-impaired-waterbodies-303d-lists-columbia-river-basin>

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