CONTAMINANTS OF CONCERN IN THE COLUMBIA RIVER BASIN

May 20, 2020

Columbia River Basin
Restoration Program
Working Group Meeting

BACKGROUND

At the May 2019 Columbia River Toxics Reduction Working Group (Working Group) meeting, individuals recognized the need for an updated list of key contaminants of concern (CoC). A subgroup was formed to develop a CoC list and supplemental materials with information on priority toxic pollutants in the Columbia River Basin based on consideration factors and existing data.

Intended Audience: The primary audience for the updated CoC framework is the Columbia River Basin Restoration Working Group and other entities working to assess, reduce, and/or clean up toxics in the watershed.

Intended Use: The primary intended use for the CoC framework is to guide collaboration and implementation of toxics monitoring and reduction efforts across the Columbia River Basin.

Name	Affiliation
Dianne Barton	CRITFC
Catherine Corbett	LCEP
Alix Danielsen	Hood R. Watershed Group
Scott Hauser	USRTF
Andy James	University of Washington
Darrin Kron	Montana DEQ
Jessica Lundin	NOAA
Katie Markowski	Montana DEQ
Kevin Masterson	Oregon DEQ
James Mc Ateer	QA/QC Solutions, LLC
Dave McBride	Washington Dept. of Health
Jim Medlen	Washington Ecology

Name	Affiliation
Jennifer Morace	USGS
Elena Nilson	USGS
Karl Rains	Washington Ecology
Laura Shira	Yakama Nation
Nat Scholtz	NOAA
Peter Brumm	US EPA Region 8
David Gruen	US EPA Region 10
Lon Kissinger	US EPA Region 10
Burt Shephard	US EPA Region 10
Mary Lou Soscia	US EPA Region 10
Michelle Wilcox	US EPA Region 10
Ashley Zanolli	US EPA Region 10

THANKS TO THE COLUMBIA RIVER CONTAMINANTS OF CONCERN SUBGROUP

NEXT STEPS

- Draft COC Framework presented to Working Group – October 10, 2019
- Feedback from Willamette River Toxics Reduction Partnership – January 29, 2019
- Final subgroup call – March 4, 2020
- Present framework at Columbia River Basin Restoration Act Working Group Meeting – May 20, 2020
- Publish to the EPA Columbia River Website – Fall 2020


2007-2009
Prioritization
2020
Prioritization
Increased
Collaboration

BENEFITS OF UPDATING THE COC LIST

- Help prioritize monitoring, outreach, or clean-up projects
- Align with state priority lists
- Communicate to management/the public
- Guide collaboration with partners on the ground
- Connect to TMDL implementation efforts
- Identify current data gaps/needs

COC FRAMEWORK INCLUDES:

1. Introduction to orient users and clarify scope, intended uses, background, etc.

2. Updated COC List to facilitate action by on-the-ground practitioners and reflect current knowledge in the Basin

3. Consideration Factors to support the COC Framework as a living document

4. Best Management Practice (BMP) Resources with publicly available guides

5. Supplemental background data spreadsheet

2020 CONSIDERATION FACTORS

1. Is it listed as a potential pollutant of concern in Clean Water Act rules or state laws/rules?

(See "Evidence of the Problem" column in accompanying Excel spreadsheet)

- Is it listed on the 303 (d) list in any state within the Basin?
- Does a TMDL exist for this contaminant?
- Is a toxics reduction/management action plan being developed?
- Have concentrations of concern (e.g., above numeric benchmarks, screening levels or criteria) been detected in the Columbia River Basin?
- Is emerging science identifying this contaminant as a "new" concern?

2. Is it an ecological threat, a human health threat, or both?

(See "Biological Effects" column in accompanying Excel spreadsheet)

- Are there fish advisories associated with this contaminant?
- Is there evidence of this contaminant in fish and wildlife?
- Is it identified as persistent, bioaccumulative and toxic?
- Is the contaminant a suspected or known carcinogen?
- Is the contaminant identified as a suspected or known endocrine disrupter?
- Are noncancer effects associated with this contaminant?

3. Is there an implementation plan/reduction strategy in place?

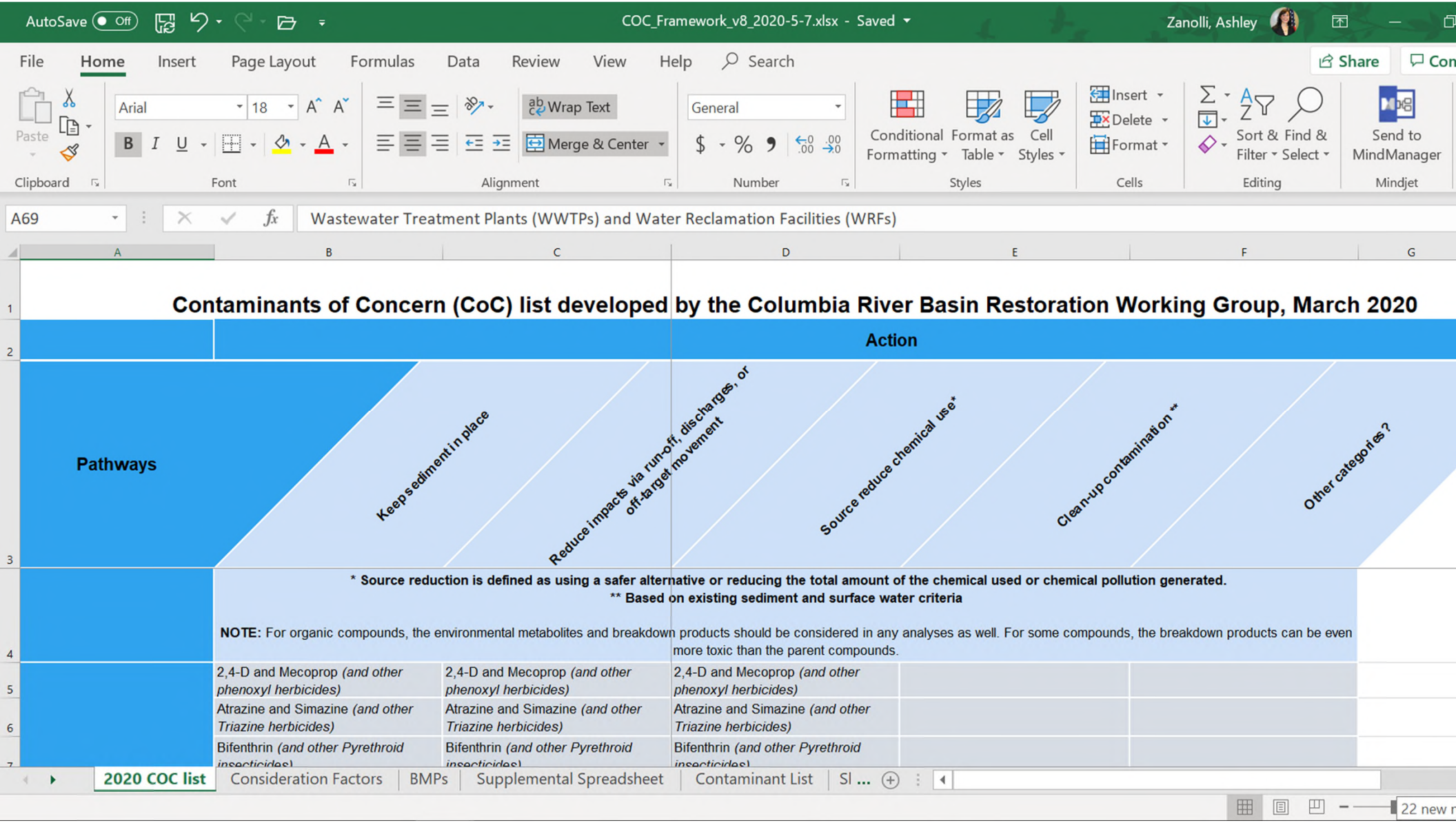
(See "Reduction Strategies" column in accompanying Excel spreadsheet)

- Does a TMDL exist for this contaminant?
- Is there a Pesticide Stewardship Program in place to address it?
- Has the contaminant been addressed through specific rules or other actions under EPA's Toxic Substances Control Act (TSCA)?
- Is this contaminant included in EPA's National Strategic Plan for the Columbia River?
- Are there other implementation/reduction strategies taking place for this contaminant?

Pathways	Actions				
	Keep Sediment in Place	Reduce Runoff/Discharges	Source Reductions	Clean-up Contamination	Other?
Agriculture	DDT				
Forestry		Glyphosate			
Mining			Cyanide		
Urban/Stormwater				PAHs	
Wastewater Treatment Plants			PFAS		
Industrial Use		PCBs			
Air Deposition	Mercury				

Note: the above graphic for example purposes only.

UPDATED FRAMEWORK STRUCTURE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A69
Wastewater Treatment Plants (WWTPs) and Water Reclamation Facilities (WRFs)
Contaminants of Concern (CoC) list developed by the Columbia River Basin Restoration Working Group, March 2020
Action
Pathways
Keep sediment in place
Reduce impacts via run-off, discharges, or off-target movement
Source reduce chemical use*
Clean-up contamination **
Other categories?
* Source reduction is defined as using a safer alternative or reducing the total amount of the chemical used or chemical pollution generated.
** Based on existing sediment and surface water criteria
NOTE: For organic compounds, the environmental metabolites and breakdown products should be considered in any analyses as well. For some compounds, the breakdown products can be even more toxic than the parent compounds.
2,4-D and Mecoprop (and other phenoxyl herbicides)
Atrazine and Simazine (and other Triazine herbicides)
Bifenthrin (and other Pyrethroid insecticides)
2020 COC list
Consideration Factors
BMPs
Supplemental Spreadsheet
Contaminant List
Sl ...

UPDATED COC LIST (EXCEL)

Contaminants of Concern (CoC) list developed by the Columbia River Basin Restoration Working Group, March 2020

	Action					
Pathways	Keep sediment in place	Reduce impacts via run-off, discharges, or off-target movement	Source reduce chemical use*	Clean-up contamination **	Other categories?	
Agriculture	DDT *(and other legacy organochlorine pesticides, e.g. Dieldrin and Chlordane)*	DDT *(and other legacy organochlorine pesticides, e.g. Dieldrin and Chlordane)*	DDT *(and other legacy organochlorine pesticides, e.g. Dieldrin and Chlordane)*			
	Dichlobenil *(herbicide)*	Dichlobenil *(herbicide)*	Dichlobenil *(herbicide)*			
	Diuron (herbicide)	Diuron (herbicide)	Diuron (herbicide)			
	Glyphosate	Glyphosate	Glyphosate			
	Imidacloprid *(and other Neonicitinoid insecticides)*	Imidacloprid *(and other Neonicitinoid insecticides)*	Imidacloprid (and other Neonicitinoid insecticides)			

2020 COC list | Consideration Factors | BMPs | Supplemental Spreadsheet | Contaminant List | Sl ...

SUPPLEMENTAL BACKGROUND DATA

Contaminant Name

Evidence of the Problem

Biological Effects

Reduction Strategies

Methods and Criteria

Sampling Media

Rationale (for media)

Media with detects in Columbia River or tributaries

Notes on spatial patterns

References for Columbia River Basin detections

Other notes

Seasonal considerations

Seasonal recommendation

Potential sources

Approaches for reduction

Data gaps

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A3 Contaminant Name

Prioritization of Toxics in the Columbia River (work in progress based on existing data; updated March 2020)

Contaminant Name	Evidence of the Problem	Biological Effects	Reduction Strategies	Methods and Criteria	Sampling Media	Rationale (for media)	Media with detects in Columbia River or tributaries	Notes on spatial patterns	References for Columbi
Bifenthrin *(and other Pyrethroid insecticides)*	• extent unknown • emerging problem, use may be increasing	• potential to bioaccumulate (persistent in sediments) • effects on olfaction • endocrine disruptors • highly toxic to aquatic invertebrates and fish.	• OR Pesticide Stewardship Partnership Program • Clean Rivers Coalition initiative & municipal stormwater programs	• methods exist, not widely available • some regulatory criteria exist	1. sediment 2. water	sediment assists with source identification, hydrophobic	sediment, water	Detected in tributary sediments in urban and rural areas in areas throughout Oregon	
Chlorpyrifos, malathion and diazinon *(and other organphophate insecticides)*	• ID/OR/WA 303(d) listings • widespread in agricultural basins • evidence in water	• noncancer effects • sublethal effects on fish	• EPA Strategic Plan for Columbia • ODEQ Pesticide Stewardship Partnership	• methods exist • regulatory criteria exist	1. passive sampling 2. water	expect presence in dissolved and colloidal phase criteria based on water concentrations	water	Detections in tributaries not mainstem, dependent on peak runoff and application from contributing tributaries	Willamette, CCPT, and Yakima NA
Current use pesticides (carbamates, triazines, phenoxy herbicides, fipronils, fungicides, neonicitinoids, ...)	• widespread in agricultural basins • emerging problem, use may be increasing • evidence in fish and wildlife and water and/or sediment for some	• effects on olfaction (carbamates) • endocrine disruptors, reproducive toxicants (triazine herbicides) • some with high toxicity to aquatic invertebrates in short-term exposures	• OR Pesticide Stewardship Partnership Program • Clean Rivers Coalition initiative & municipal stormwater programs	• methods exist for water • methods exist for sediments, not widely available (some don't accumulate in sediments) • regulatory criteria exist	1. water and passive sampling	expect presence in dissolved and colloidal phase criteria based on water concentrations	water	Data from tribs plus mainstem below Bonneville found in 85-90% Willamette samples--lower conc. and fewer detects in mainstem below mouth of Willamette	Bi-State, USGS 1994, USGS 2006, NAWQAs for water
DDT*(and other legacy organochlorine pesticides, e.g. Dieldrin, and contaminant degradates)*	• widespread • 303(d) listed in OR and WA • WA fish consumption advisories for Lake Chelan, Yakima and Okanogan Rivers • evidence in water and sediment • exceeds regulatory criteria • evidence in fish and wildlife	• PBT • endocrine disruptor • probable carcinogen	• WA TMDLs in Yakima, Okanogan, Walla Walla and in Snake Rivers, Lake Chelan watersheds • OR TMDLs in Columbia Slough and Johnson Creek • EPA Strategic Plan for Columbia • EPA National PBT Action Plan	• methods exist • regulatory criteria exist	1.passive sampling and fish 2. sediment 3. water	hydrophobic bioaccumulative	SPMD fish tissue sediment water	based on SPMDs, Yakima is major agricultural source, Willamette R., Johnson Cr., Wenatchee R, and Snake R are moderate sources Columbia Slough, Willamette R and Multnomah Ch. are sources affecting mainstem	USGS 1999, Ecology 2005, and LC CRITFC, EMAP, LCREP 2007, NOA CCPT, and Willamette NAWQAs for EMAP, LCREP 2007, Bi-State, Yaki NAWQAs, various COE reports for
Dioxins/furans	• widespread • 303(d) list in OR, WA, ID • exceeds regulatory criteria • evidence in fish and wildlife • OR & WA fish consumption advisories	• PBT • endocrine disruptors • probable carcinogens	• TMDL for Columbia River Basin • TMDL in Columbia Slough	• methods exist • regulatory criteria exist • analytical costs relatively high	1. passive sampling, fish, and sediment	sediment assists with hot spot/source identification	SPMD fish tissue bed sediment	SPMD conc. highest in Portland/Vancouver tribs (Willamette R. and Johnson Cr) plus Yakima R.	USGS 1999, Ecology 2005 for SPM Bi-State and Willamette NAWQA for CRITFC,Bi-State, and Willamette N
Estrogenic compounds (Bisphenol A, AHTN						analytical methods available for water and sediments (some			

2020 COC list | Consideration Factors | BMPs | Supplemental Spreadsheet | Contaminant List | Sl ...

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TOXICS REDUCTION RESOURCES ON BEST MANAGEMENT PRACTICES (BMP) AND SAFER ALTERNATIVES

Safer Alternatives Resources

- Washington Dept of Ecology:
  - Quick Chemical Assessment Tool (QCAT)
  - Washington's Alternative Assessment Guide
- EPA Safer Choice
- UMass Lowell Cleaner Solutions Database for industrial cleaning
- Chemical Hazards and Alternatives Toolbox

BMP Resources

- OSU Pesticide Risk Tool
- UMass Lowell
  - Toxics Use Reduction Institute
  - P2 Options Assessment Tool
  - USDA Western IPM Center

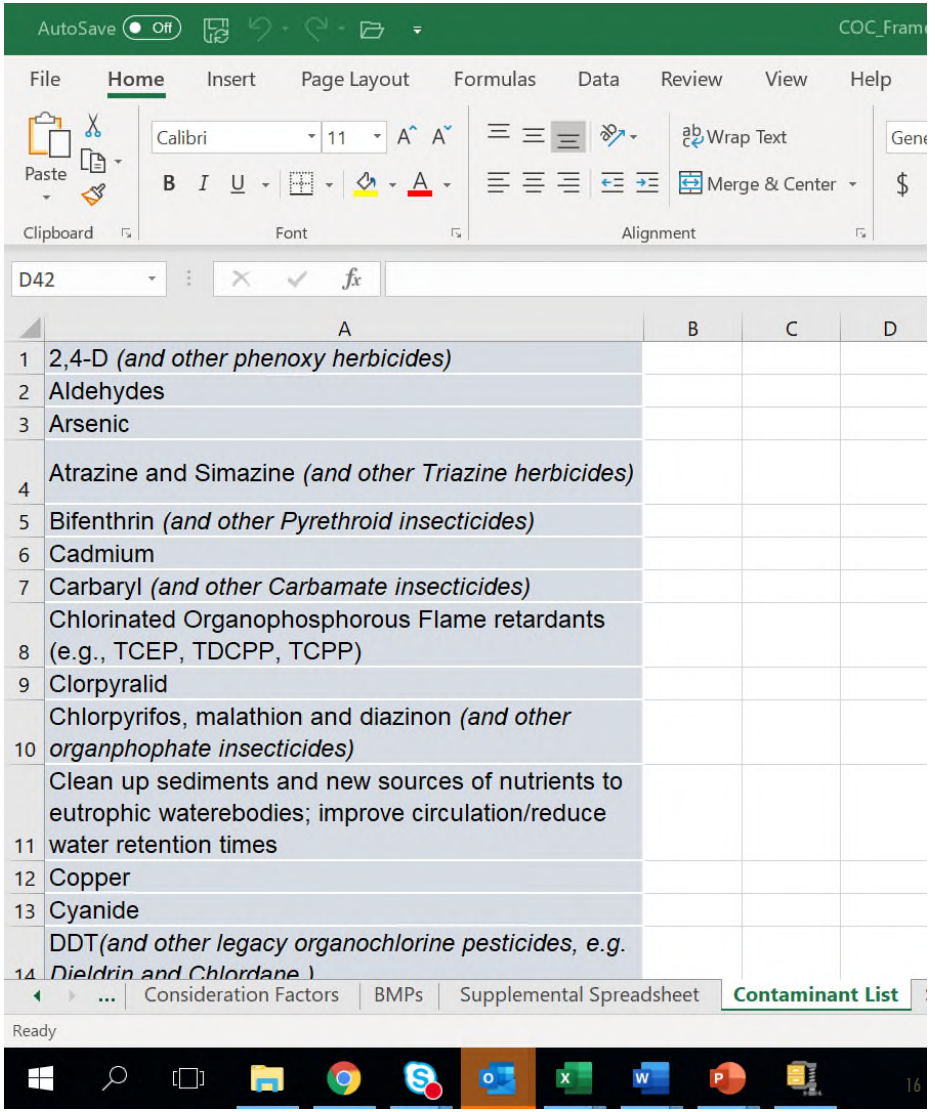
Other Resources

- U of Hertfordshire Pesticide Properties Database
- OSU Minimum Pesticides List
- Greenscreen List Translator

Toxics Reduction Resources on Best Management Practices and Safer Alternatives		
Resource	**Location**	**Notes**
Washington Department of Ecology Quick Chemical Assessment Tool (QCAT)	https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Preventing-hazardous-waste-pollution/Safer-alternatives/Quick-tool-for-assessing-chemicals	
Washington's Alternative Assessment Guide	https://fortress.wa.gov/ecy/publications/SummaryPages/1504002.html	
EPA Safer Choice	https://www.epa.gov/saferchoice	
Pesticide Risk Tool (OSU)	https://test.pesticiderisk.org/	
Chemical Hazards and Alternatives Toolbox (ChemHat)	http://chemhat.org/en	
UMASS Lowell Toxics Use Reduction Institute	https://www.turi.org/	
Cleaner Solutions Database (alternatives to industrial and janitorial cleaners)	https://www.turi.org/Our_Work/Cleaning_Laboratory/Laboratory_Testing/CleanerSolutions_Database	
Pollution Prevention Options Assessment System (P2OASys)	https://www.turi.org/Our_Work/Research/Alternatives_Assessment/Tools_and_Methods/P2OASys_Tool_to_Compare_Materials	
Pesticide Properties DataBase (University of Hertfordshire)	https://sitem.herts.ac.uk/aeru/ppdb/en/atoz.htm	
Selection of Pesticides to Reduce Human and Environmental Risks: Global Guidleline and Minimum Pesticides List	https://doi.org/10.1016/S2542-5196(19)30266-9	Feb 2020 publication, co-authored by two OSU faculty

BMP RESOURCE GUIDE

ALPHABETICAL CONTAMINANT LIST



	A
1	2,4-D *(and other phenoxy herbicides)*
2	Aldehydes
3	Arsenic
4	Atrazine and Simazine *(and other Triazine herbicides)*
5	Bifenthrin *(and other Pyrethroid insecticides)*
6	Cadmium
7	Carbaryl *(and other Carbamate insecticides)*
8	Chlorinated Organophosphorous Flame retardants (e.g., TCEP, TDCPP, TCPP)
9	Clorpyralid
10	Chlorpyrifos, malathion and diazinon *(and other organphophate insecticides)*
11	Clean up sediments and new sources of nutrients to eutrophic waterebodies; improve circulation/reduce water retention times
12	Copper
13	Cyanide
14	DDT*(and other legacy organochlorine pesticides, e.g. Dieldrin and Chlordane)*

FEEDBACK & DISCUSSION

WHAT DO YOU LIKE ABOUT THE FRAMEWORK?

WOULD YOU USE THE LIST?
IF SO, HOW?

THANKS FOR YOUR TIME AND ENGAGEMENT!

We want to hear from you:

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David Gruen, COC Subgroup Support, ORISE Fellow, gruen.david@epa.gov

EXTRA SLIDES

Additional background and screenshots of COC Framework excel file

2007 PRIORITIZATION FACTORS

1. Is it recognized as an existing problem?

(See "Evidence of the Problem" column in accompanying Excel spreadsheet)

- Is it listed on the 303 (d) list?
- Does a TMDL exist for this contaminant?
- Is a Persistent, Bioaccumulative and Toxic Chemical Action Plan being developed?
- Have concentrations of concern been detected in the Columbia River Basin?
- Is emerging science identifying this contaminant as a "new" concern?

2. Is it an ecological threat, a human health threat, or both?

(See "Biological Effects" column in accompanying Excel spreadsheet)

- Are there fish advisories associated with this contaminant?
- Is there evidence of this contaminant in fish and wildlife?
- Is it identified as persistent, bioaccumulative and toxic?
- Is the contaminant a suspected or known carcinogen?
- Is the contaminant identified as a suspected or known endocrine disrupter?
- Are noncancer effects associated with this contaminant?

3. Is there an implementation plan/reduction strategy in place?

(See "Reduction Strategies" column in accompanying Excel spreadsheet)

- Does a TMDL exist for this contaminant?
- Is a Persistent, Bioaccumulative and Toxic Chemical Action Plan being developed for it?
- Is there a Pesticide Stewardship Program developed to address it?
- Has the contaminant been addressed under EPA's Toxic Substances Control Act (TSCA)?
- Is this contaminant included in EPA's National Strategic Plan for the Columbia River?
- Are there other implementation/reduction strategies taking place for this contaminant?

Tier I (highest priority)	Tier II	Tier III
• DDT (and metabolites) • PCBs • Mercury (including methylmercury) • PBDEs	• PAHs • Arsenic • Dioxins/furans • Lead • Organophospate Insecticides (azinphos methyl, chlorpyrifos, diazinon) • Copper • Estrogenic compounds (Bisphenol A, AHTN, natural and synthetic estrogens, Nonylphenol)	• Organochlorines (including alpha BHC, aldrin, dieldrin, chlordane) • Trace elements • Current use pesticides (including carbamates, triazine herbicides, fipronil) • Pharmaceuticals and Personal Care Products • Other wastewater compounds (plasticizers, detergents, surfactants) • Hormones • Synthetic pyrethroids • Phthalates

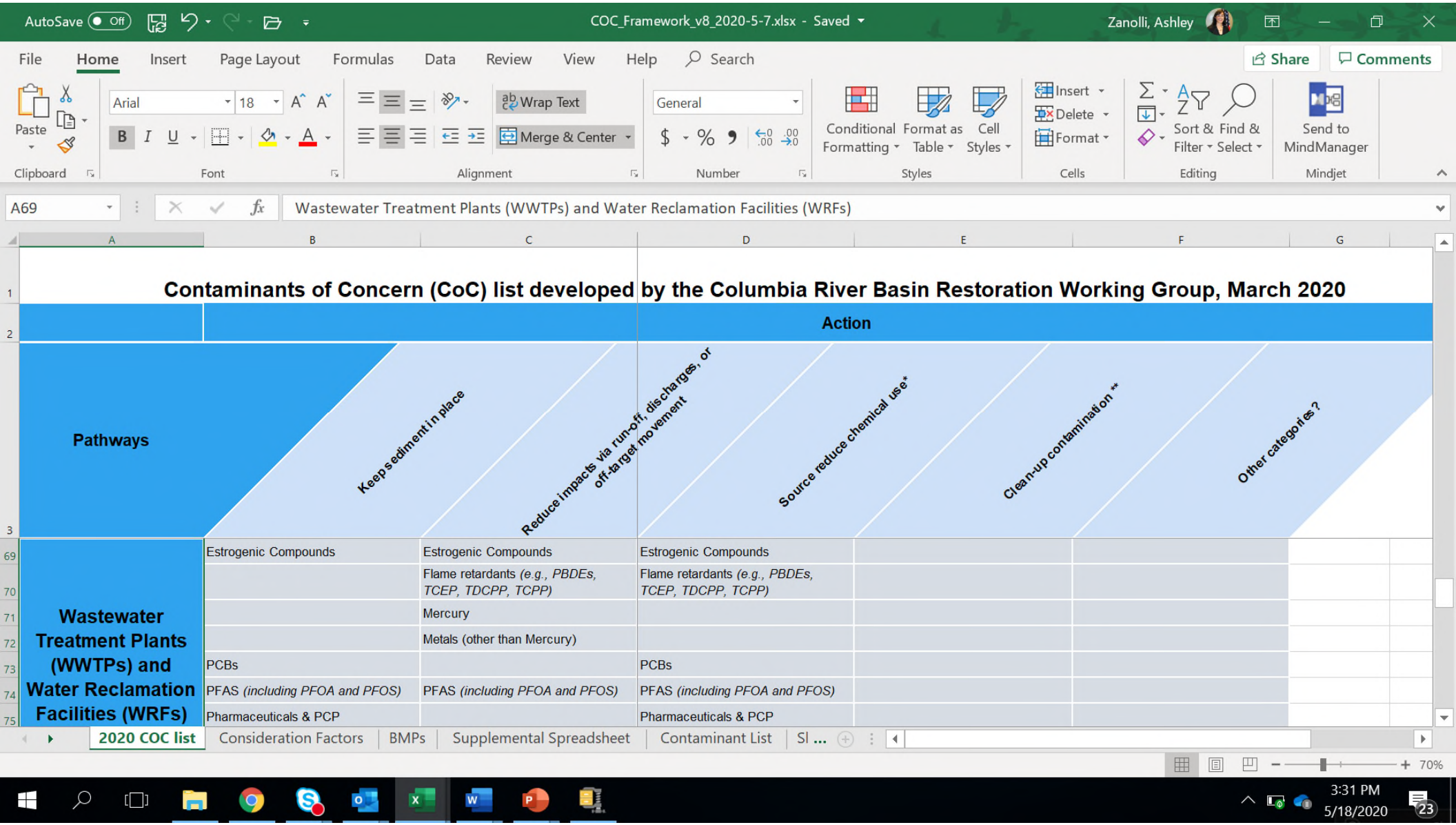
2007 PRIORITIZATION OF TOXICS

Goal:

Identify highest priority toxics for the Columbia River Toxics Reduction Working Group.

The 2009 State of the River Report summarized existing information on the Tier I pollutants.

Source: https://www.epa.gov/columbiariver/prioritization-toxics-columbia-river#documents



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A69 Wastewater Treatment Plants (WWTPs) and Water Reclamation Facilities (WRFs)

Contaminants of Concern (CoC) list developed by the Columbia River Basin Restoration Working Group, March 2020

	Pathways	Action: Keep sediment in place	Action: Reduce impacts via run-off, discharges, or off-target movement	Action: Source reduce chemical use*	Action: Clean-up contamination**	Action: Other categories?
69	Wastewater Treatment Plants (WWTPs) and Water Reclamation Facilities (WRFs)	Estrogenic Compounds	Estrogenic Compounds	Estrogenic Compounds		
70			Flame retardants *(e.g., PBDEs, TCEP, TDCPP, TCPP)*	Flame retardants *(e.g., PBDEs, TCEP, TDCPP, TCPP)*		
71			Mercury			
72			Metals (other than Mercury)			
73		PCBs		PCBs		
74		PFAS *(including PFOA and PFOS)*	PFAS *(including PFOA and PFOS)*	PFAS *(including PFOA and PFOS)*		
75		Pharmaceuticals & PCP		Pharmaceuticals & PCP		

2020 COC list | Consideration Factors | BMPs | Supplemental Spreadsheet | Contaminant List | Sl ...

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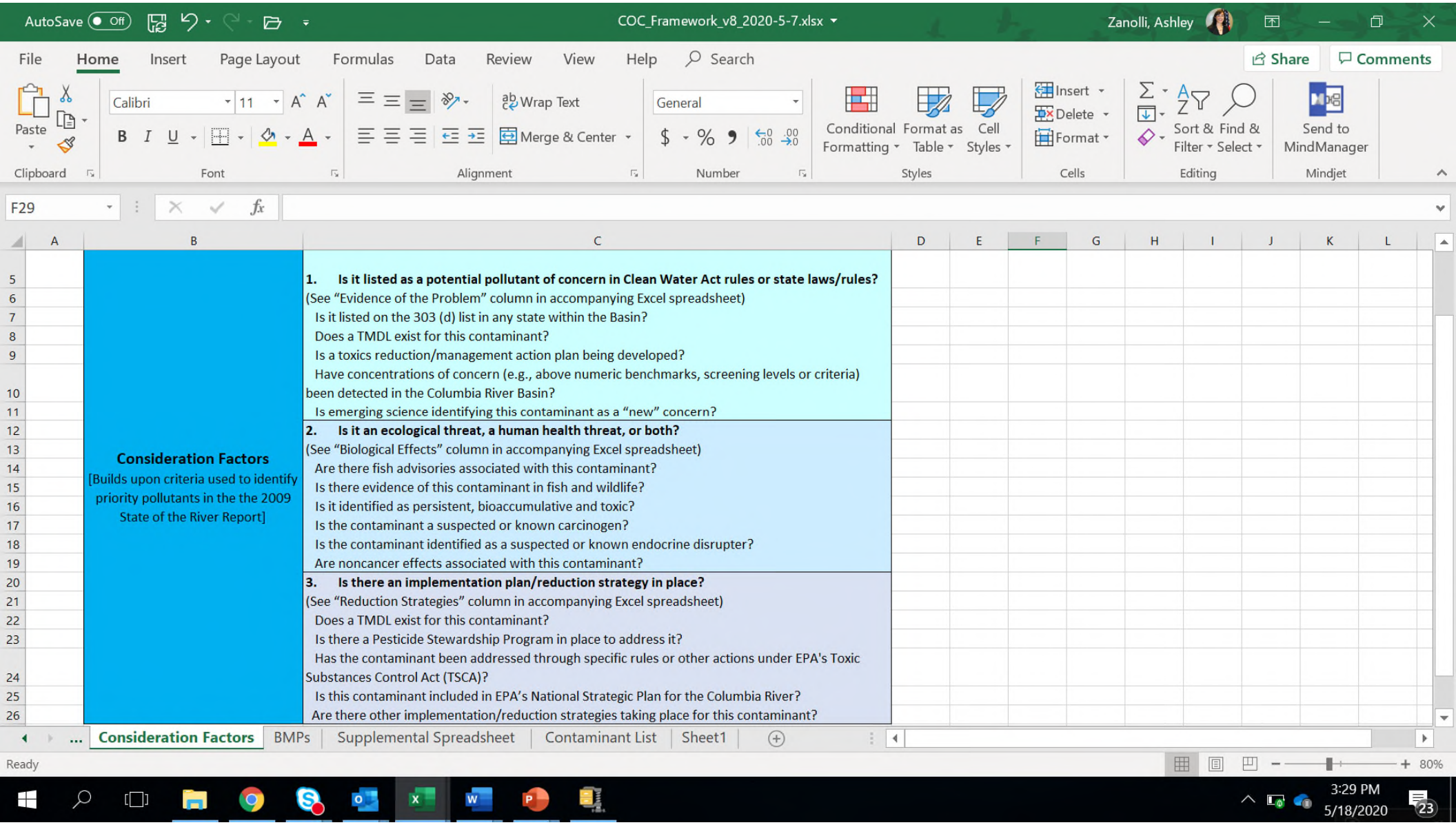
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F29
Consideration Factors
[Builds upon criteria used to identify priority pollutants in the the 2009 State of the River Report]
1. Is it listed as a potential pollutant of concern in Clean Water Act rules or state laws/rules?
(See "Evidence of the Problem" column in accompanying Excel spreadsheet)
Is it listed on the 303 (d) list in any state within the Basin?
Does a TMDL exist for this contaminant?
Is a toxics reduction/management action plan being developed?
Have concentrations of concern (e.g., above numeric benchmarks, screening levels or criteria) been detected in the Columbia River Basin?
Is emerging science identifying this contaminant as a "new" concern?
2. Is it an ecological threat, a human health threat, or both?
(See "Biological Effects" column in accompanying Excel spreadsheet)
Are there fish advisories associated with this contaminant?
Is there evidence of this contaminant in fish and wildlife?
Is it identified as persistent, bioaccumulative and toxic?
Is the contaminant a suspected or known carcinogen?
Is the contaminant identified as a suspected or known endocrine disrupter?
Are noncancer effects associated with this contaminant?
3. Is there an implementation plan/reduction strategy in place?
(See "Reduction Strategies" column in accompanying Excel spreadsheet)
Does a TMDL exist for this contaminant?
Is there a Pesticide Stewardship Program in place to address it?
Has the contaminant been addressed through specific rules or other actions under EPA's Toxic Substances Control Act (TSCA)?
Is this contaminant included in EPA's National Strategic Plan for the Columbia River?
Are there other implementation/reduction strategies taking place for this contaminant?
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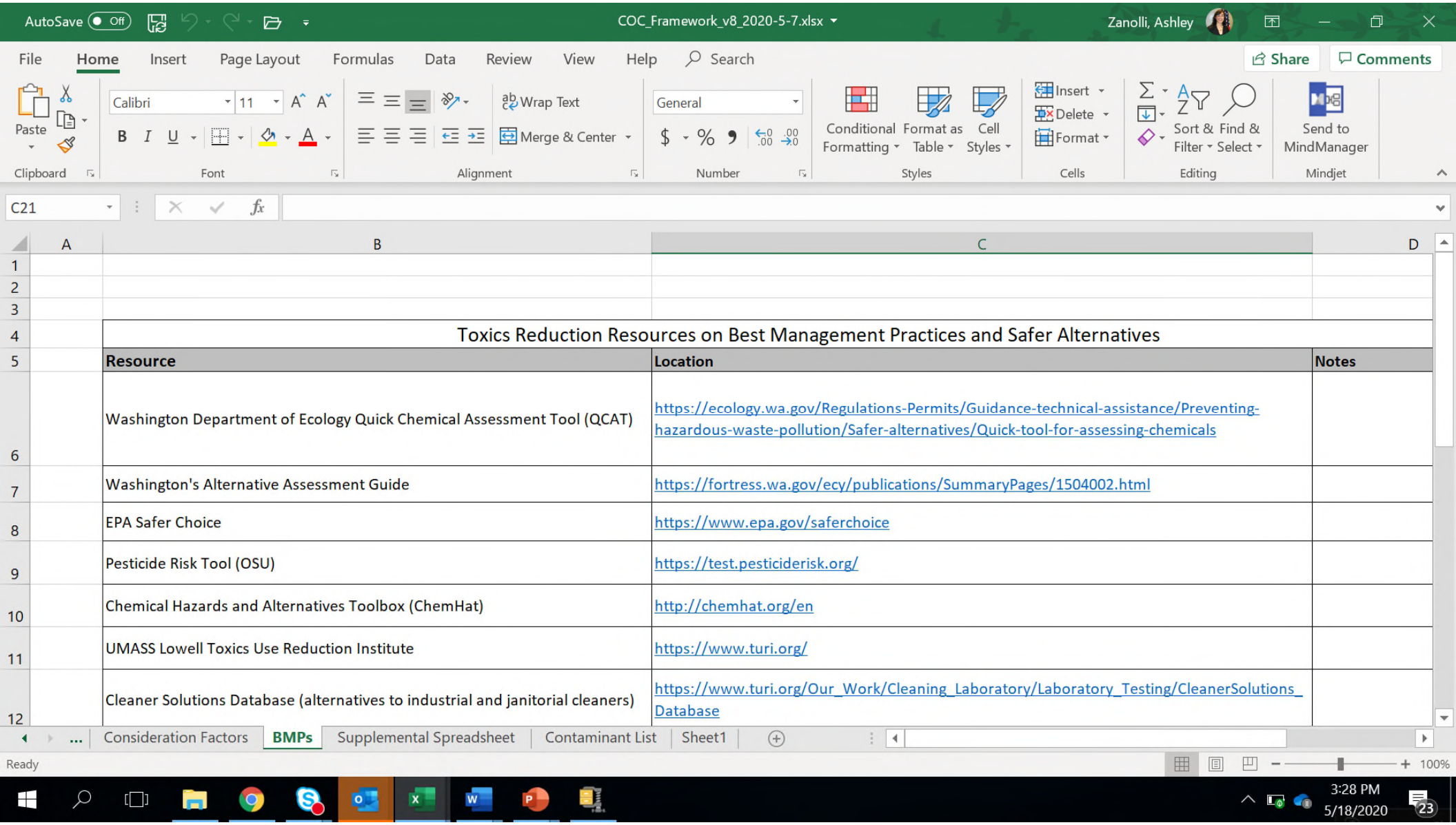

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Toxics Reduction Resources on Best Management Practices and Safer Alternatives

Resource	Location	Notes
Washington Department of Ecology Quick Chemical Assessment Tool (QCAT)	https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Preventing-hazardous-waste-pollution/Safer-alternatives/Quick-tool-for-assessing-chemicals	
Washington's Alternative Assessment Guide	https://fortress.wa.gov/ecy/publications/SummaryPages/1504002.html	
EPA Safer Choice	https://www.epa.gov/saferchoice	
Pesticide Risk Tool (OSU)	https://test.pesticiderisk.org/	
Chemical Hazards and Alternatives Toolbox (ChemHat)	http://chemhat.org/en	
UMASS Lowell Toxics Use Reduction Institute	https://www.turi.org/	
Cleaner Solutions Database (alternatives to industrial and janitorial cleaners)	https://www.turi.org/Our_Work/Cleaning_Laboratory/Laboratory_Testing/CleanerSolutions_Database	

Consideration Factors | BMPs | Supplemental Spreadsheet | Contaminant List | Sheet1

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A3 Contaminant Name

Prioritization of Toxics in the Columbia River (work in progress based on existing data; updated March 2020)

Contaminant Name	Evidence of the Problem	Biological Effects	Reduction Strategies	Methods and Criteria	Sampling Media	Rationale (for media)	Media with detects in Columbia River or tributaries	Notes on spatial patterns	References for Columbi
Bifenthrin *(and other Pyrethroid insecticides)*	• extent unknown • emerging problem, use may be increasing	• potential to bioaccumulate (persistent in sediments) • effects on olfaction • endocrine disruptors • highly toxic to aquatic invertebrates and fish.	• OR Pesticide Stewardship Partnership Program • Clean Rivers Coalition initiative & municipal stormwater programs	• methods exist, not widely available • some regulatory criteria exist	1. sediment 2. water	sediment assists with source identification, hydrophobic	sediment, water	Detected in tributary sediments in urban and rural areas in areas throughout Oregon	
Chlorpyrifos, malathion and diazinon *(and other organphophate insecticides)*	• ID/OR/WA 303(d) listings • widespread in agricultural basins • evidence in water	• noncancer effects • sublethal effects on fish	• EPA Strategic Plan for Columbia • ODEQ Pesticide Stewardship Partnership	• methods exist • regulatory criteria exist	1. passive sampling 2. water	expect presence in dissolved and colloidal phase criteria based on water concentrations	water	Detections in tributaries not mainstem, dependent on peak runoff and application from contributing tributaries	Willamette, CCPT, and Yakima NA
Current use pesticides (carbamates, triazines, phenoxy herbicides, fipronils, fungicides, neonicitinoids, ...)	• widespread in agricultural basins • emerging problem, use may be increasing • evidence in fish and wildlife and water and/or sediment for some	• effects on olfaction (carbamates) • endocrine disruptors, reproducive toxicants (triazine herbicides) • some with high toxicity to aquatic invertebrates in short-term exposures	• OR Pesticide Stewardship Partnership Program • Clean Rivers Coalition initiative & municipal stormwater programs	• methods exist for water • methods exist for sediments, not widely available (some don't accumulate in sediments) • regulatory criteria exist	1. water and passive sampling	expect presence in dissolved and colloidal phase criteria based on water concentrations	water	Data from tribs plus mainstem below Bonneville found in 85-90% Willamette samples--lower conc. and fewer detects in mainstem below mouth of Willamette	Bi-State, USGS 1994, USGS 2006, NAWQAs for water
DDT*(and other legacy organochlorine pesticides, e.g. Dieldrin, and contaminant degradates)*	• widespread • 303(d) listed in OR and WA • WA fish consumption advisories for Lake Chelan, Yakima and Okanogan Rivers • evidence in water and sediment • exceeds regulatory criteria • evidence in fish and wildlife	• PBT • endocrine disruptor • probable carcinogen	• WA TMDLs in Yakima, Okanogan, Walla Walla and in Snake Rivers, Lake Chelan watersheds • OR TMDLs in Columbia Slough and Johnson Creek • EPA Strategic Plan for Columbia • EPA National PBT Action Plan	• methods exist • regulatory criteria exist	1.passive sampling and fish 2. sediment 3. water	hydrophobic bioaccumulative	SPMD fish tissue sediment water	based on SPMDs, Yakima is major agricultural source, Willamette R., Johnson Cr., Wenatchee R, and Snake R are moderate sources Columbia Slough, Willamette R and Multnomah Ch. are sources affecting mainstem	USGS 1999, Ecology 2005, and LC CRITFC, EMAP, LCREP 2007, NOA CCPT, and Willamette NAWQAs for EMAP, LCREP 2007, Bi-State, Yaki NAWQAs, various COE reports for
Dioxins/furans	• widespread • 303(d) list in OR, WA, ID • exceeds regulatory criteria • evidence in fish and wildlife • OR & WA fish consumption advisories	• PBT • endocrine disruptors • probable carcinogens	• TMDL for Columbia River Basin • TMDL in Columbia Slough	• methods exist • regulatory criteria exist • analytical costs relatively high	1. passive sampling, fish, and sediment	sediment assists with hot spot/source identification	SPMD fish tissue bed sediment	SPMD conc. highest in Portland/Vancouver tribs (Willamette R. and Johnson Cr) plus Yakima R.	USGS 1999, Ecology 2005 for SPM Bi-State and Willamette NAWQA for CRITFC,Bi-State, and Willamette N
Estrogenic compounds (Bisphenol A, AHTN						analytical methods available for water and sediments (some			

2020 COC list | Consideration Factors | BMPs | Supplemental Spreadsheet | Contaminant List | Sl ...

Ready Count: 16 60%

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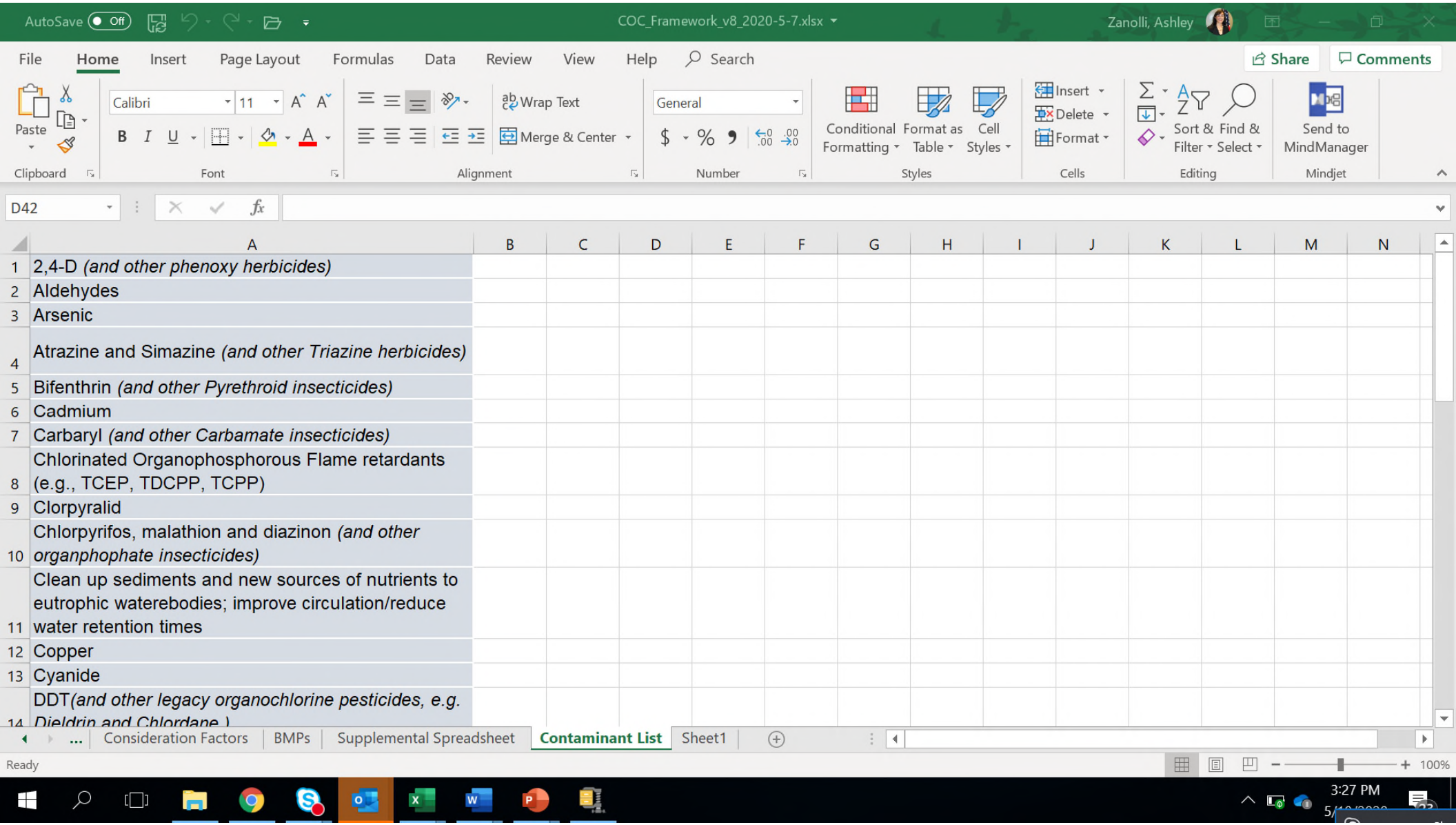
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D42
A
2,4-D (and other phenoxy herbicides)
Aldehydes
Arsenic
Atrazine and Simazine (and other Triazine herbicides)
Bifenthrin (and other Pyrethroid insecticides)
Cadmium
Carbaryl (and other Carbamate insecticides)
Chlorinated Organophosphorous Flame retardants (e.g., TCEP, TDCPP, TCPP)
Clorpyralid
Chlorpyrifos, malathion and diazinon (and other organphophate insecticides)
Clean up sediments and new sources of nutrients to eutrophic waterebodies; improve circulation/reduce water retention times
Copper
Cyanide
DDT(and other legacy organochlorine pesticides, e.g. Dieldrin and Chlordane)
Consideration Factors
BMPs
Supplemental Spreadsheet
Contaminant List
Sheet1
Ready
100%
3:27 PM