

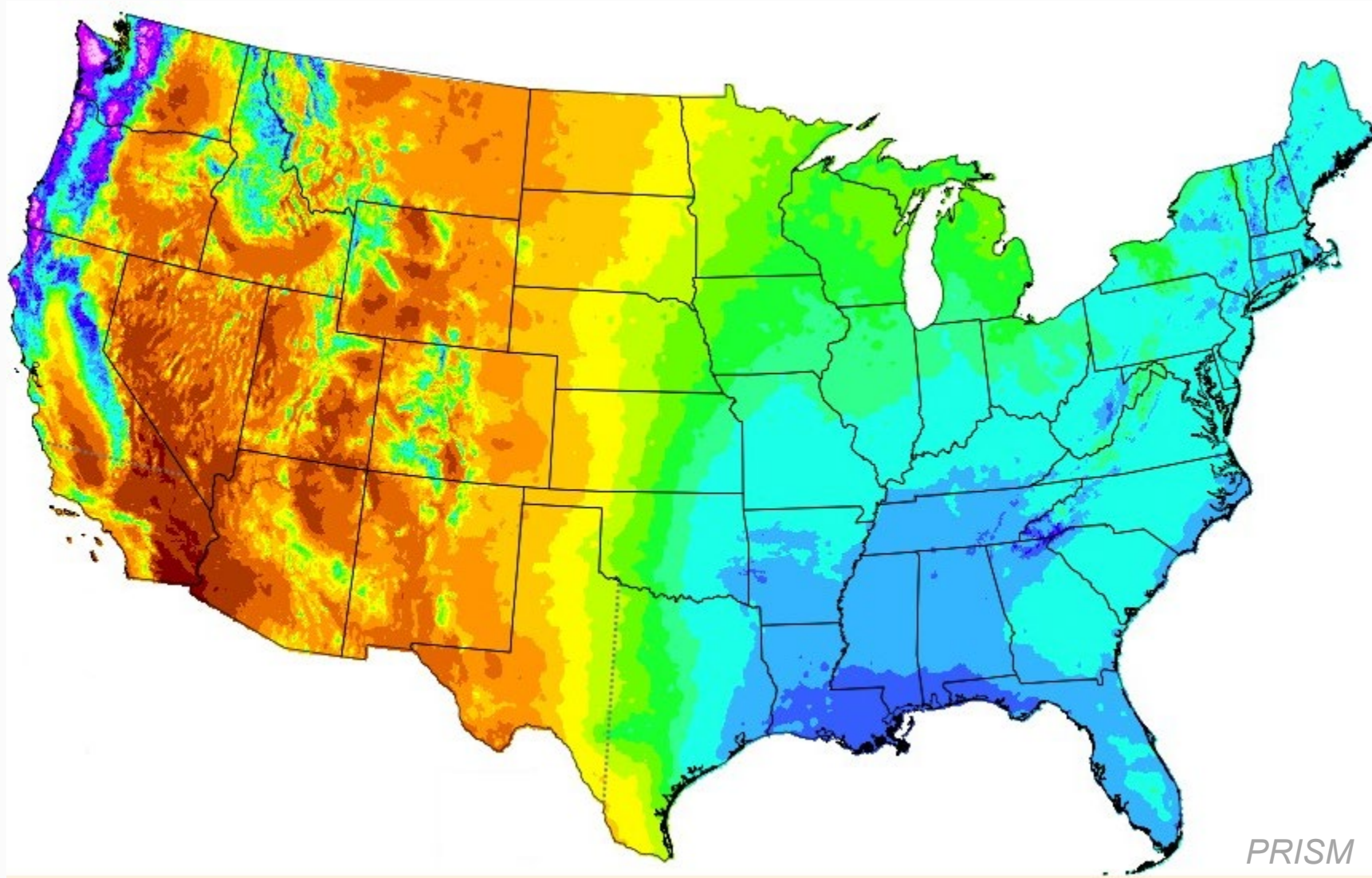


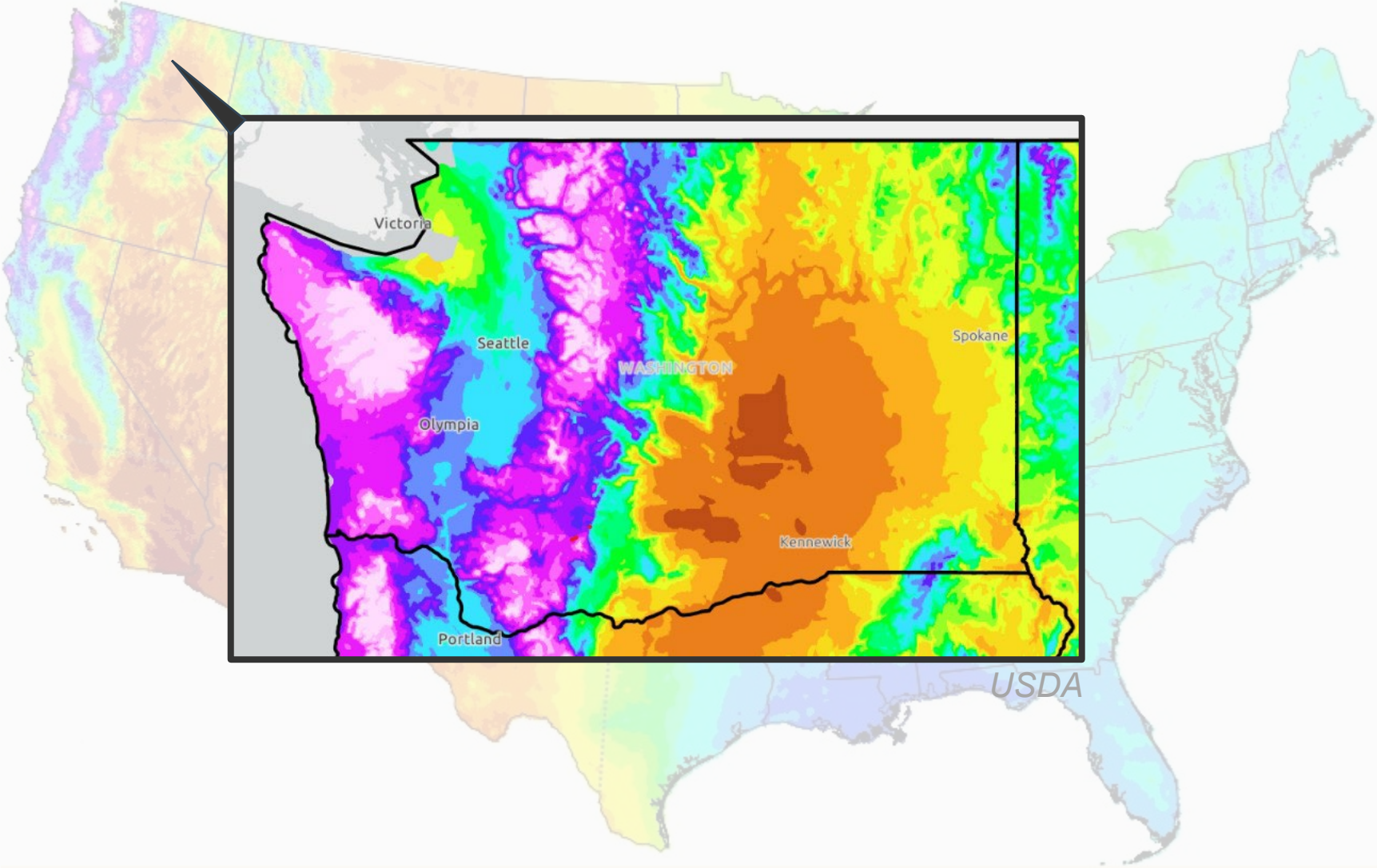
DEPARTMENT OF
ECOLOGY
State of Washington

Evaluating bacteria storm samples in the assessment

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Contact Recreation Criteria

○ Freshwater

- E. coli (fecal coliform through 2020)
 - 90 day averaging period
 - Geometric mean – **100** CFU per 100 mL
 - Minimum 3 samples
 - <10% exceeding **320** CFU per 100 mL

○ Marine

- Enterococci (fecal coliform through 2020)
 - 90 day averaging period
 - Geometric mean – **30** CFU per 100 mL
 - Minimum 3 samples
 - <10% exceeding **110** CFU per 100 mL



Shellfish Harvesting Criteria

○ Marine

- Fecal coliform
 - 12 month averaging period
 - Geometric mean – **14** CFU per 100 mL
 - Minimum 5 samples
 - <10% exceeding **43** CFU per 100 mL



Evaluating bacteria for the assessment

- Daily value = largest daily mean from a single location
- Daily values grouped - rolling 3 months (recreation)
 - 12 months (shellfish)
- Daily values evaluated against 10% criteria
 - Cat 5 = >10% exceed, with at least 2 samples exceeding
- Grouped values used to calculate geometric mean
 - Cat 5 = Exceedance in averaging period

“Ecology will remove monitoring data from the evaluation when the intention of the monitoring is to target high bacteria levels.”

Identifying targeted high level sampling

- Study description

“source identification”

“source assessment”

“source tracking”

“pollution identification
and correction”

Identifying targeted high level sampling

- Study description
- Regional staff review



Identifying targeted high level sampling

- Study description
- Regional staff review
- Result comment field in EIM datasets

Parameter	Location ID	Collection Date	Calculated Value	Result Comment
Fecal coliform	Mont-Mouth	1/5/2021 12:00	14	Base Flow
Fecal coliform	Mont-Mouth	1/31/2021 22:30	47	Storm Event
Fecal coliform	Mont-Mouth	2/15/2021 12:30	330	Storm Event
Fecal coliform	Mont-Mouth	4/1/2021 12:00	29	Base Flow
Fecal coliform	Tylers-Mid	1/5/2021 1 13:00	156	Base Flow
Fecal coliform	Tylers-Mid	1/31/2021 21:30	620	Storm Event
Fecal coliform	Tylers-Mid	2/15/2021 13:30	280	Storm Event
Fecal coliform	Tylers-Mid	4/1/2021 13:00	96	Base Flow

Identifying targeted high level sampling

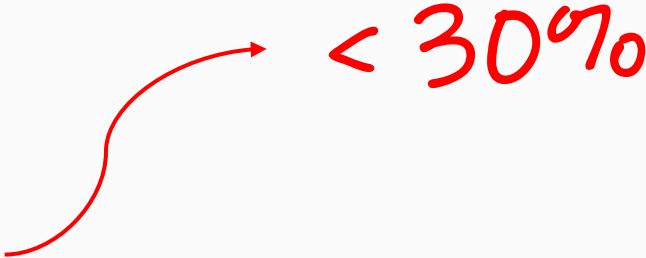
- Study description
- Regional staff review
- Result comment field in EIM datasets
- Review of high count datasets

Assessment Unit	Sampling Year	Data Source	Location ID	Study ID	Calculated Value
48122F4J1_01_01	2011	EIM	CGR020	CC-LISP	7000
17020006000099_001_001	2012	WQ Portal	SKOKDATA_WQ X-SWQM-8	SWQM	9120
17110019005203_001_001	2019	EIM	CCD15	G0500025	9500
17110019005393_001_001	2007	EIM	34SFPR33.8	JICA0000	9800
17110019013353_001_001	2018	WQ Portal	NOOKSACK_W QX-SW19	Drayton_Harbor _WQ	10000
17010216009414_002_002	2011	WQ Portal	WSDA_WQX- DD5	NEP_2019_WS DA	12050
17110002000725_001_001	2014	EIM	COLynnwood_ SC2	Lynnwood_TM DL	13260
17110020000286_002_002	2015	EIM	28-COU-0.01	BEDI0022	18200
48122F4J1_01_01	2014	EIM	COM_FC4	MonroeWQ	20000
17080002000314_001_001	2014	WQ Portal	SQUAXIN-CLA1	SFEW	21200

Challenges to identify targeted sampling

- There is A LOT OF DATA
- We do not review every study!
- Precipitation data generally not reported

< 30%



	Fecal coliform	E. Coli	Enterococci
EIM	337,051	24,814	68,098
WQ Portal	75,085	58,243	14,634
Total	412,136	83,057	82,732

Pros

- Excludes some studies ONLY targeting high levels
- Appropriately applies our WQS
- Our approach is more protective of WQ

Cons

- Wet weather sampling is representative of ambient conditions in many areas
- May be underestimating ambient conditions if data is removed
- Some non-storm sampling may be unnecessarily excluded
- Not all storm sampling identified

Potential improvements

“Ecology will remove monitoring data from the evaluation when the intention of the monitoring is to target high bacteria levels.”

- Better define “monitoring to target high bacteria levels” and what is done with this data
 - At what point does the sample become a storm sample?
 - Rainfall in 24/48 hrs
 - Different between Western/Eastern WA, potentially ecoregions
 - Are all storm samples removed from ambient monitoring?



Thank you

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