



# IMPACTS OF PROPOSED WATER QUALITY STANDARDS ON ENVIRONMENTAL CLEANUP PROJECTS

Kris Hendrickson, P.E.  
Principal Environmental Engineer  
November 17, 2014

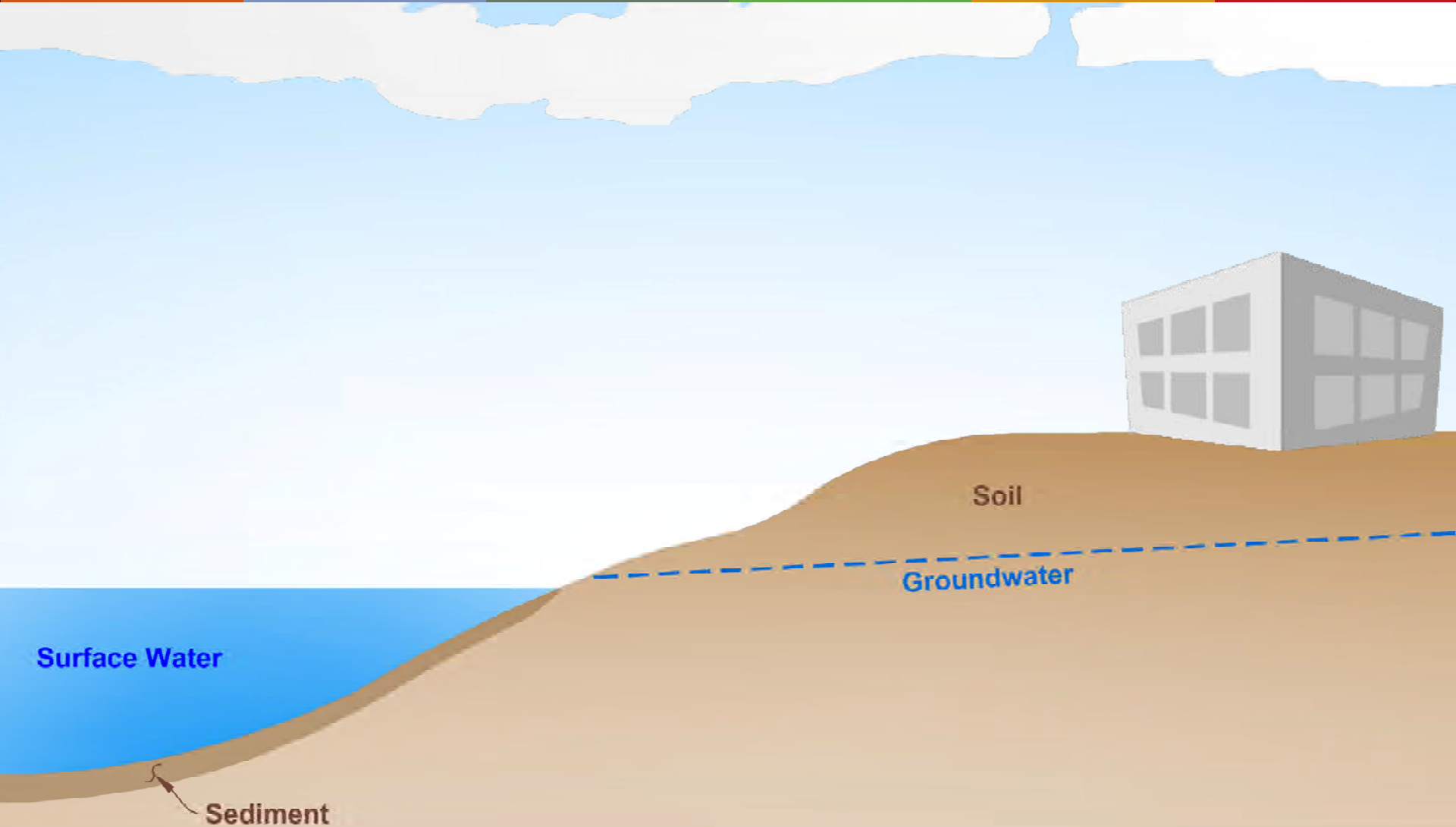
## INTRODUCTION

- Water Quality Standards (WQS) proposed revisions
- Potential effect on sediment cleanups
- Potential effect on uplands cleanups
- Summary

## WQS PROPOSED REVISIONS

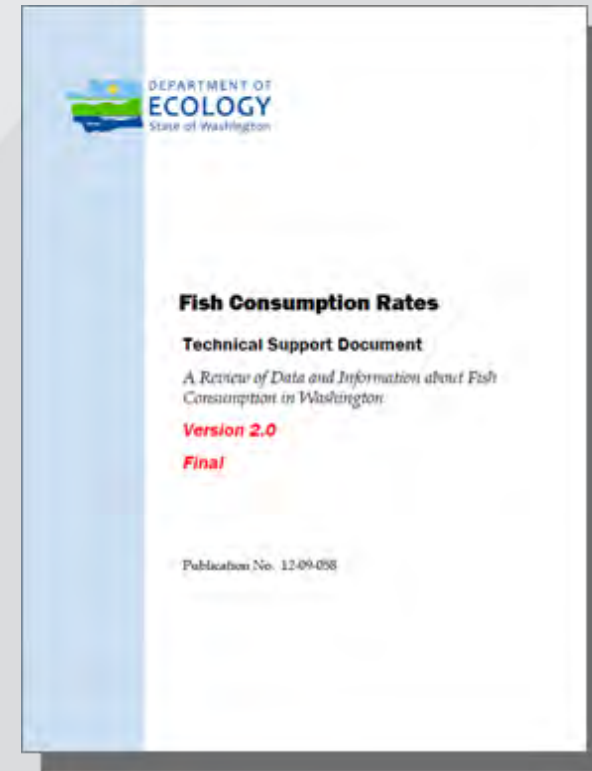
- Fish consumption rate – 175 g/day
- Allowable risk
  - Carcinogenic risk of  $10^{-5}$ \*
  - Non-carcinogenic hazard quotient of 1.0\*
- Water quality criteria
  - Human health criteria for 96 chemicals

# CONCEPTUAL SITE MODEL



# POTENTIAL EFFECT ON SEDIMENT CLEANUPS

- Fish Consumption Rate (FCR) under SMS
  - FCR not specified in Sediment Management Standards (SMS)
  - Default Reasonable Maximum Exposure based on tribal consumption, site-specific FCR to be established in consultation with tribes





## EFFECT ON SEDIMENT CLEANUPS

- Fish Consumption Rate (FCR) under SMS
  - Ecology will provide guidance on making site-specific FCR determinations
  - Cleanup level determination includes consideration of PQLs and background

# EFFECT ON SEDIMENT CLEANUPS

## Fish Consumption Rates

Population	50th Percentile	90th Percentile	95th Percentile
<b>4 Tribes Affiliated with Columbia River Inter-Tribal Fish Commission</b>	36	114	171
<b>Tulalip Tribes</b>	30	139	237
<b>Squaxin Island Tribe</b>	30	139	189
<b>Suquamish Tribe</b>	58	397	767
<b>Asian &amp; Pacific Islanders (EPA Reanalysis)</b>	6.5	26	59

FCR for Adults, All Fish, Local & Regional Sources in grams/day, from Fish Consumption Rates Technical Support Document, Version 2.0, Ecology



## EFFECT ON SEDIMENT CLEANUPS

- Allowable risk under SMS
  - Single chemical
    - Carcinogenic risk of  $10^{-6}$  to  $10^{-5}$
    - Non-carcinogenic hazard quotient of 1
  - Total site risk
    - Carcinogenic risk  $10^{-5}$
    - Non-carcinogenic hazard index of 1

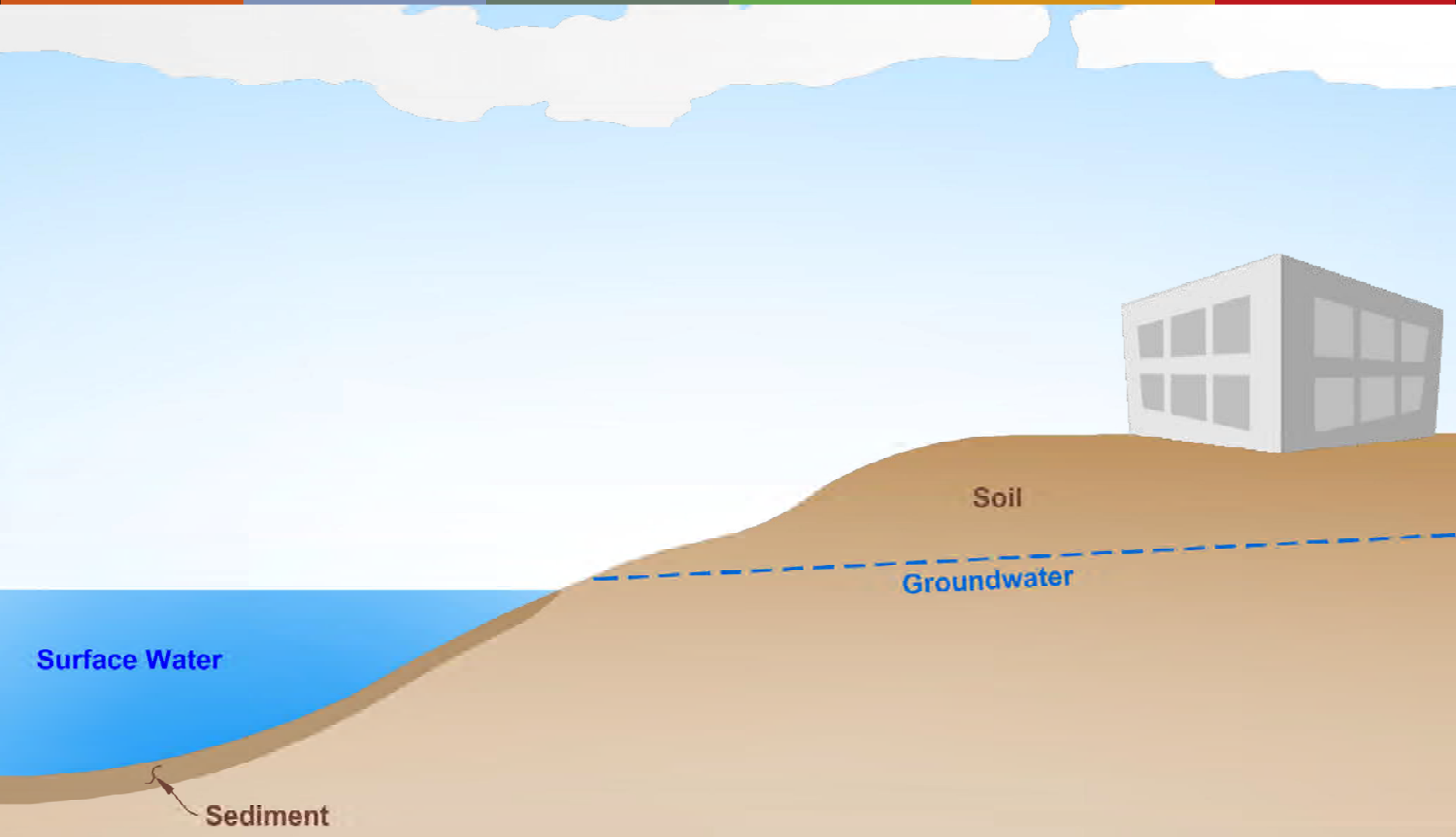


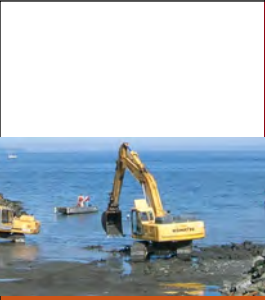


## EFFECT ON SEDIMENT CLEANUPS

- Water quality criteria
  - Sediment cleanup levels protective of surface water quality
  - Cross media impact from sediment to surface water does not typically drive cleanup levels

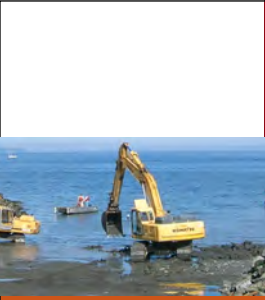
# CONCEPTUAL SITE MODEL





## EFFECT ON UPLANDS CLEANUPS

- Fish consumption rate in MTCA – 54 g/day
  - Used to calculate surface water cleanup levels if no adequately protective ARAR
  - Not affected by WQS FCR
  - Ecology can require more stringent cleanup levels to protect human health and the environment



## EFFECT ON UPLANDS CLEANUPS

- Allowable risk under MTCA
  - Single chemical
    - Carcinogenic risk of  $10^{-6}$  to  $10^{-5}$
    - Non-carcinogenic hazard quotient of 1
  - Total site risk
    - Carcinogenic risk  $10^{-5}$
    - Non-carcinogenic hazard index of 1



## EFFECT ON UPLANDS CLEANUPS

- Water quality criteria
  - ARAR for surface water cleanup levels
  - May affect groundwater and soil cleanup levels at sites near surface water
  - Cleanup level determination includes consideration of PQLs and background



# MTCA MARINE SURFACE WATER ARARs

## Applicable or Relevant and Appropriate Requirements

Chemical	Aquatic Life Chronic 173-201A WAC	Human Health CWA (NRWQC)	Human Health NTR	Human Health Proposed 173- 201A WAC
Arsenic	36	0.14	0.14	10
Benzo(a)pyrene		0.018	0.031	0.021
PCBs (total)	0.03	0.000064	0.00017	0.00017
Toluene		15,000	200,000	8,600
Trichloroethene		30	81	34
Zinc	81	26,000		2,900

## SUMMARY

- Will proposed WQS revisions affect sediment cleanups?
  - Probably not
    - Site-specific determination of FCR
- Will proposed WQS revisions affect uplands cleanups?
  - Yes but not significant at most sites
    - Proposed criteria for most common chemicals are not lower than other ARARs