

Annual State of Drinking Water Quality Report

2009 Reporting

Briefing to Operating Board
June 2010

Presentation Overview

- Regulatory Status
- Source Raw Water Quality
- Source Treatment (Cedar & Tolt Supplies)
- Distribution System Water Quality
- Water Quality Capital Improvements
- Key issues for 2010 and Beyond

Regulatory Status

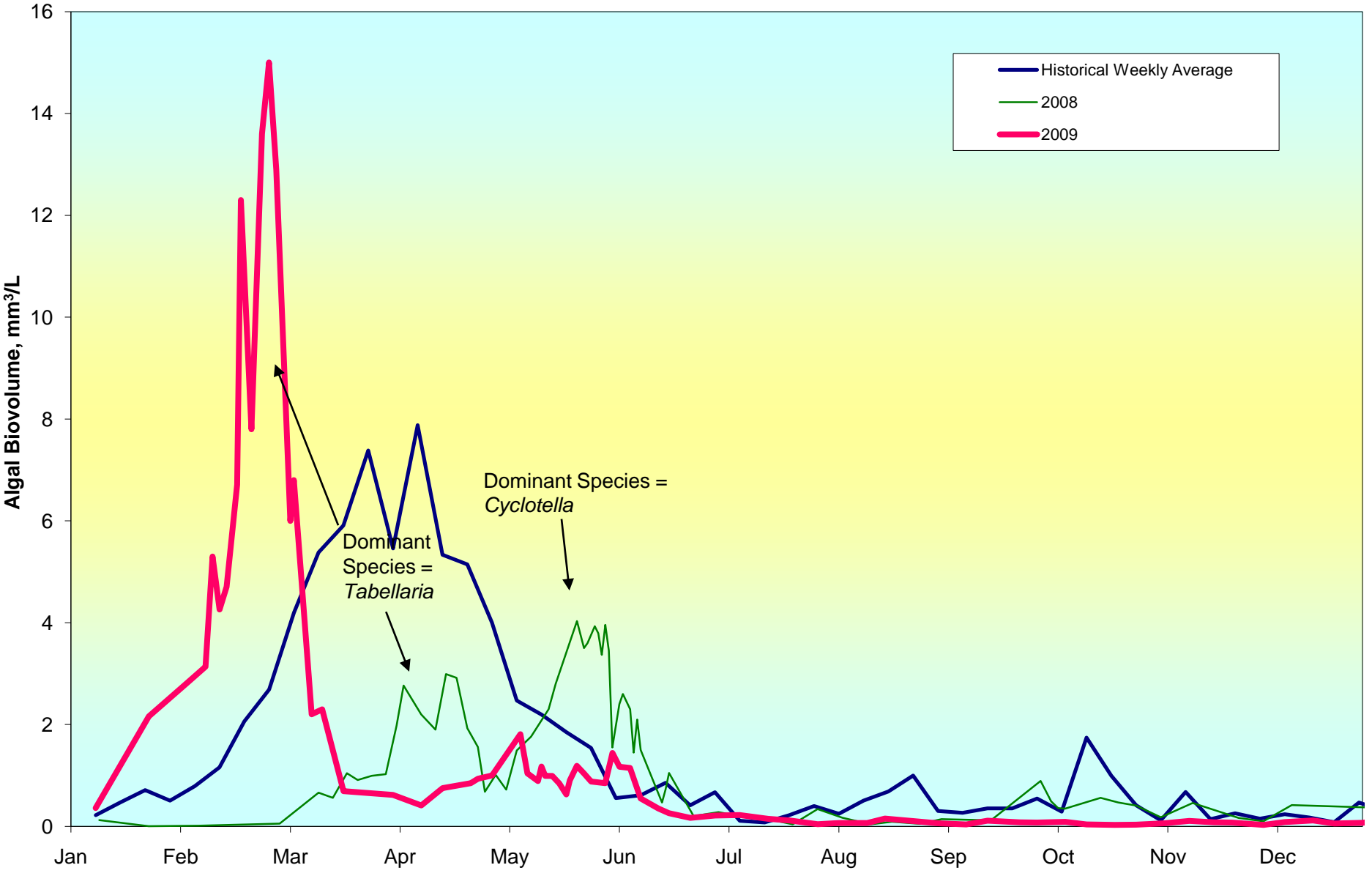
- In 2009, we remained in compliance with water quality regulations, including:
 - Source Water Quality Monitoring
 - Surface Water Treatment Rules
 - Lead and Copper Rule
 - Disinfection By-Product Rule
 - Total Coliform Rule
- Completed required DOH inspections:
 - Cedar watershed and treatment facility inspection (annual)
 - Tolt Treatment Facility sanitary survey (every 3 years)

Source Water Quality

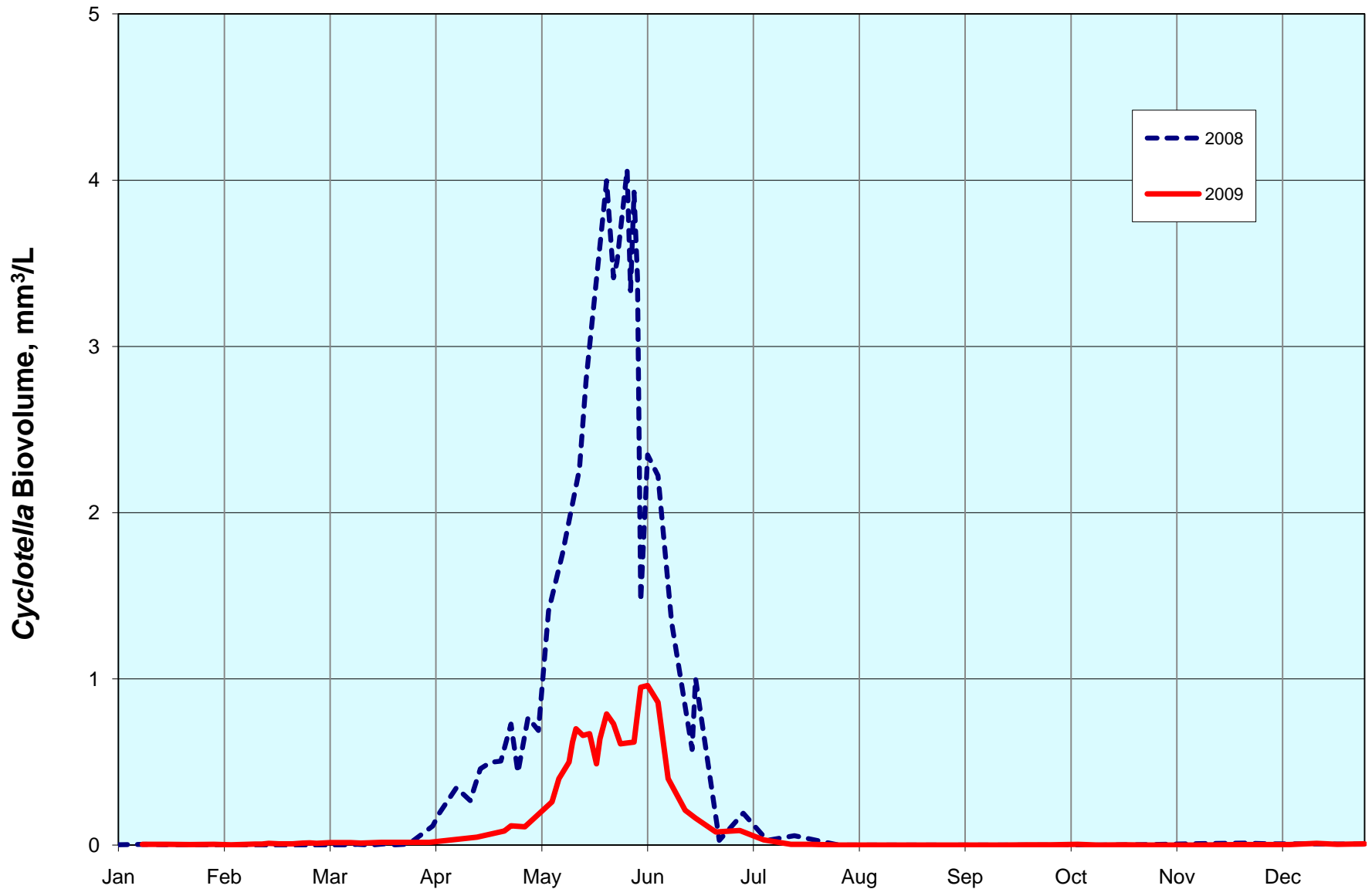
- Tolt Reservoir
 - Raw water coliform levels were high in September and October 2009 – no impacts downstream.
- Chester Morse Lake
- Lake Youngs
 - Large *Tabellaria* bloom occurred in February 2009.
 - *Cyclotella* bloomed in May 2009 at much lower levels than 2008.



Lake Youngs Total Algal Biovolume Historical Weekly Average (1991 to 2007) versus 2008 and 2009



Lake Youngs *Cyclotella* Biovolume 2008 versus 2009



Source Treatment - Tolt

- Tolt Treatment Facility is performing very well.
- All regulatory requirements were met in 2009.
- Service Agreement performance targets - % time met:
 - Turbidity (CFE): 99.93%
 - Turbidity (IFE): 100.00%
 - Ozone (Crypto): 99.98%
 - Chlorine residual: 99.79%
 - Fluoride: 99.96%
 - pH: 98.64%

Tolt TF: Events and Issues

- Failure of domestic water pumping system (drives chlorination) shut down plant (April 2009)
- A slight off taste/odor detected in Spring 2009, but could not confirm source

Source Treatment -Cedar

- Cedar Treatment Facility is performing very well.
- No regulatory violations in 2009.
- Service Agreement performance targets - % time met:
 - Chlorine residual: 99.98%
 - pH: 99.99%
 - Disinfection: 100.00%

Cedar TF: Events and Issues

- Algae screening improvements installed on side streams
- Very little impact from algae in 2009



Cedar TF: Events and Issues

- UV inlet valve leakage
 - Small amount of water, but compliance by time
 - All valve seats replaced
 - Work ongoing with DOH and Service Agreement issues
- Other issues
 - Minor taste & odor in spring
 - Failure of UV inlet valve #13 – Oct
 - UV lamp break – July



Distribution WQ – Lead & Copper Rule

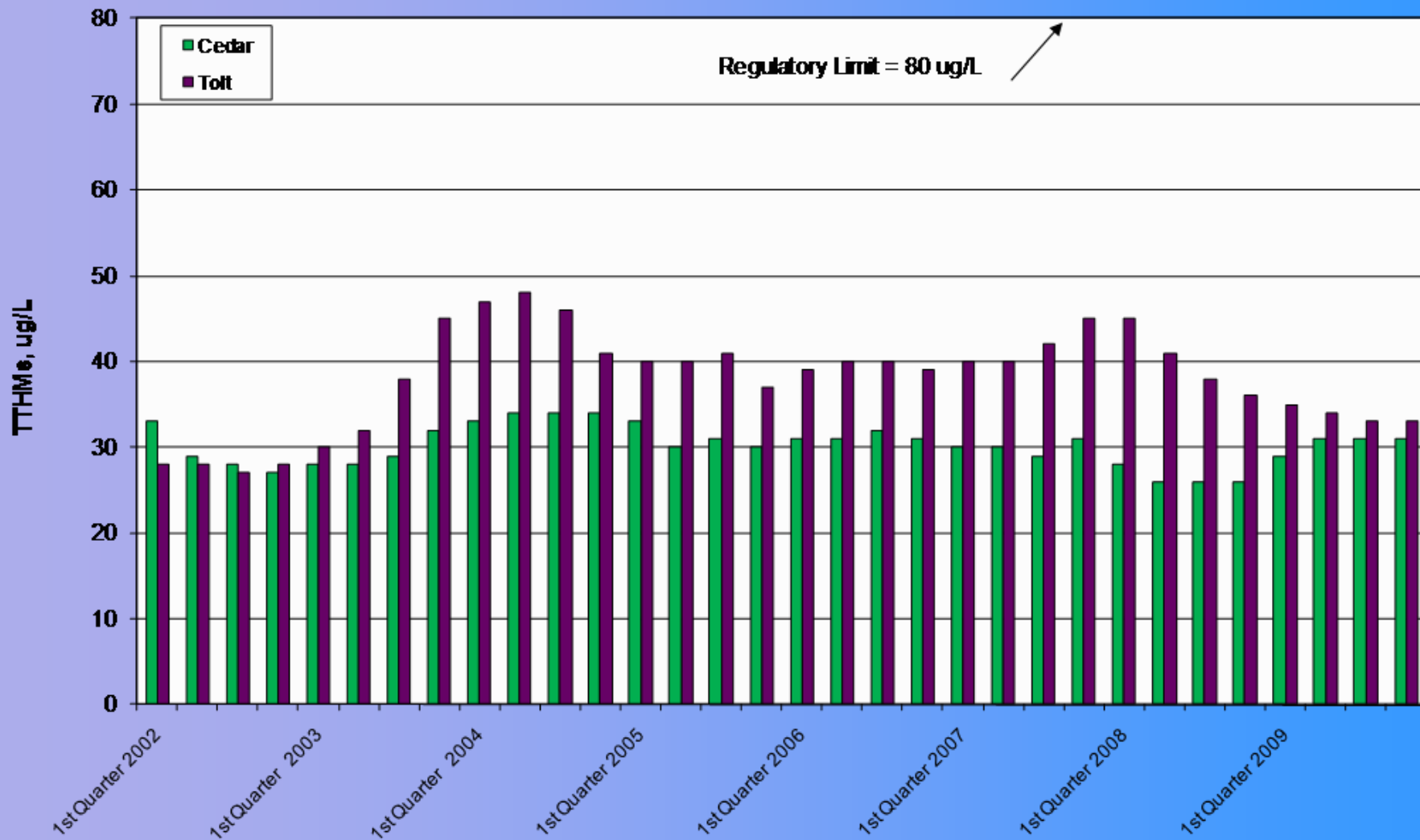
- All regional water systems remained in compliance with the Lead and Copper Rule in 2009.
- Cedar wholesale customers collected samples in 2009
 - 90th percentile lead level of 6.3 ppb, well below the lead action level of 15 ppb.
- Tolt wholesale customers and SPU were not required to sample in 2009.
 - Seattle will sample in 2010.
 - Tolt wholesale customers will sample in 2011.

Distribution WQ - Disinfection Byproducts

- Only Stage 1 DBP Rule sampling occurred in 2009.
- Stage 2 sampling will begin in 2012.
- All wholesale customers met the THM and HAA regulatory limits.

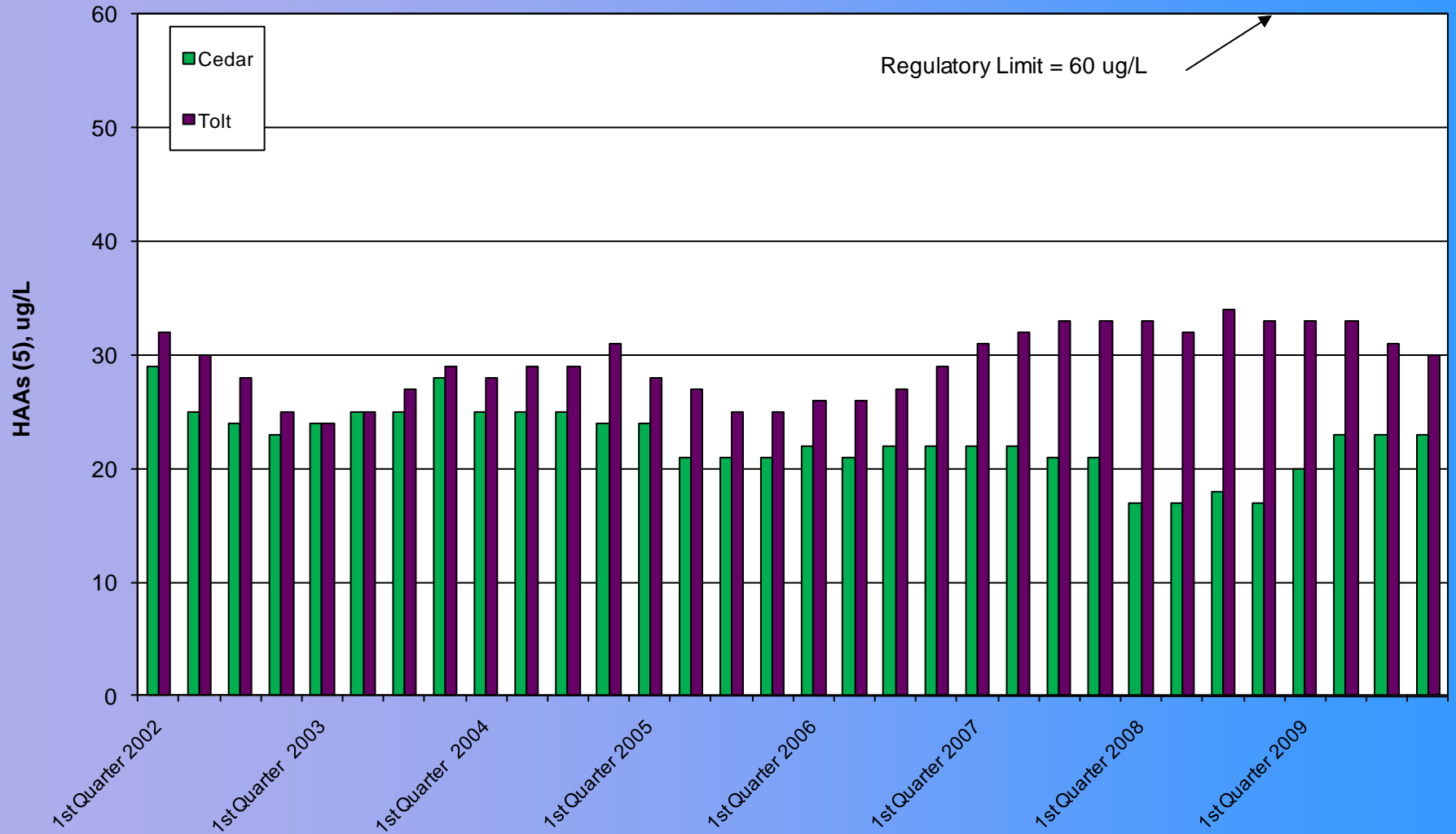
THM Results

Seattle Public Utilities Direct Service Area Distribution System Running Annual Average Total Trihalomethane Levels - Cedar versus Tolt



HAA Results

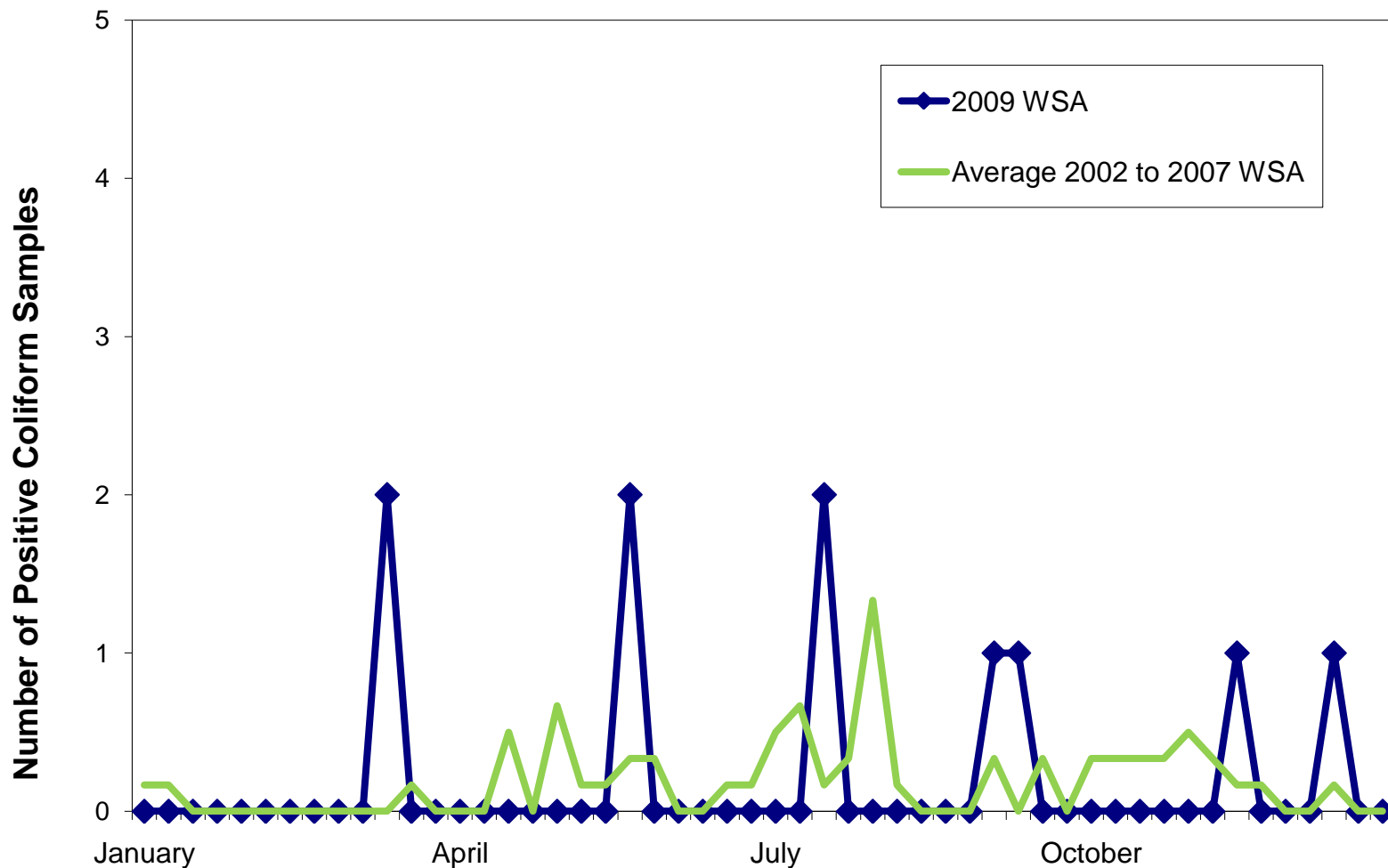
Seattle Public Utilities Direct Service Area Distribution System Running Annual Average Haloacetic Acid Levels - Cedar versus Tolt



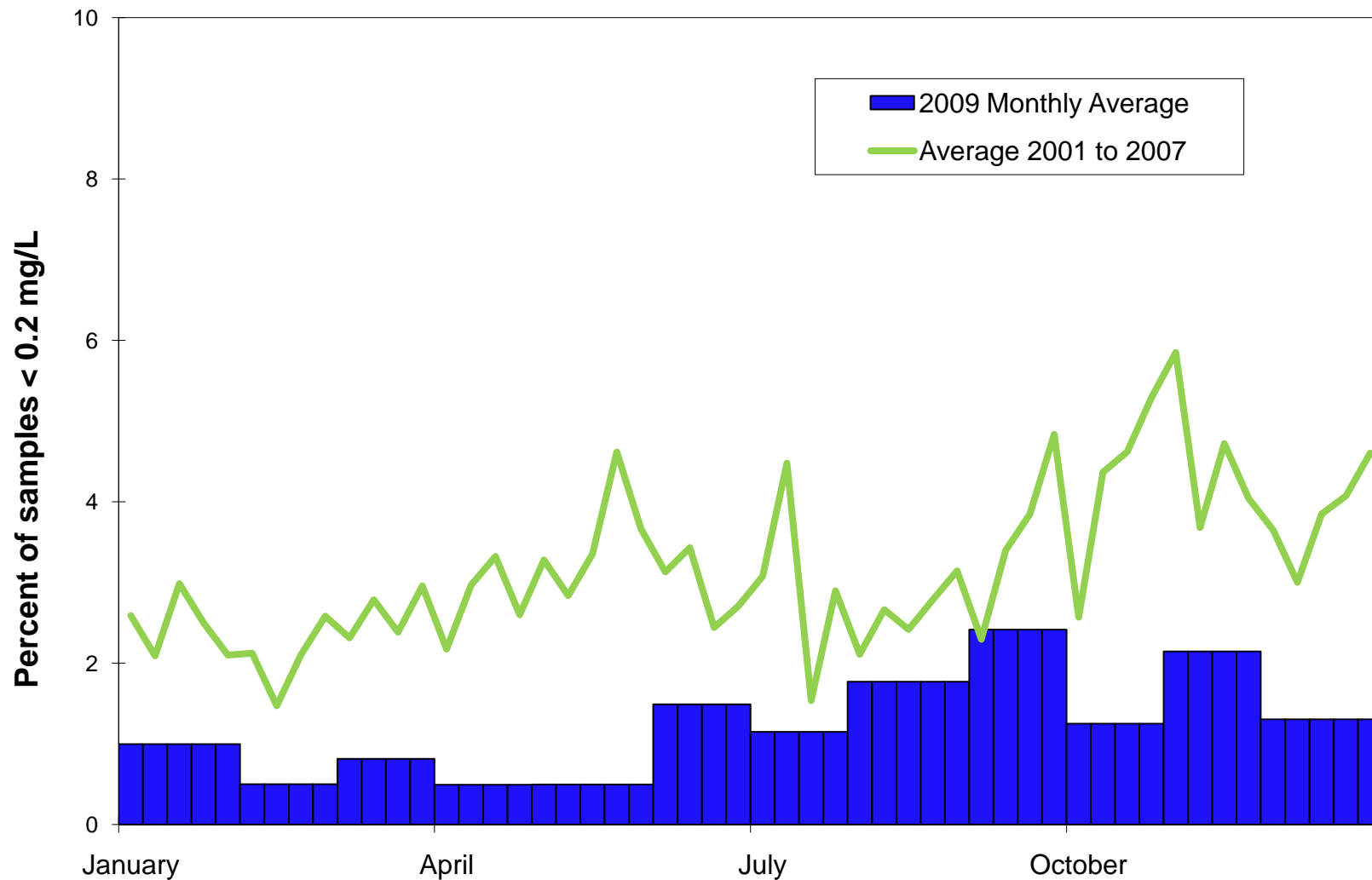
Distribution WQ - Total Coliform Rule (TCR)

- All regional systems remained in compliance with the TCR in 2009.
- There were 10 positive coliform samples out of 7038 samples in the wholesale service areas.
- In March, two wholesale customers each had one positive E. Coli sample on the same day.
 - Repeat samples were all good.
 - In follow up, we had a regional communications workshop.

Wholesale Service Area Coliform Positives in Distribution System (weekly)



Wholesale Service Area Low Chlorine Samples in Distribution (< 0.2 mg/L)



Water Quality Capital Improvement

Maple Leaf Reservoir Construction

- Began in spring 2009
- On target for completion in Spring 2012.
- East cell of the reservoir is approx. 12% complete.
- Excavation for the west cell is underway.



Water Quality Capital Improvement

West Seattle Reservoir Construction

- Began in June 2008
- Returning to service June or July 2010.



Key Issues for 2010 & Beyond

- Capital Improvements
 - Maple Leaf Reservoir and West Seattle Reservoir Covering
 - Security improvements at Cedar and Tolt TFs (2010/2011)
 - Possible fluoridation relocation from Landsburg to Lake Youngs
 - Possible change from gas chlorine to hypochlorite at Landsburg
- Cedar TF – UV Inlet Valve Leakage

Key Issues for 2010 & Beyond

- Cedar Water Quality Work Plan:
 - Refine lake bypass operations
 - Evaluate relocating fluoridation to downstream of Lake Youngs
 - Concept plan & preliminary cost estimate completed by CH2M Hill
 - Project is roughly \$3M capital, \$100K annual O&M
 - Business case being prepared
 - Improve surveillance and management of invasive species
 - Evaluate existing Lake Youngs water quality model for use in lake management decisions
 - Install continuous WQ & weather monitoring station in the lake (summer 2010)
 - Develop phosphorous budget for Lake Youngs (implement 2010)

Key Issues for 2010 & Beyond

- Ground Water Rule (effective Dec 2009)
 - Source monitoring (E Coli) or chlorination for viruses
- Revised Total Coliform Rule
 - 5% limit on total coliform remains, but without violation/public notice requirement.
 - Proposed rule expected in 2010. Effective date expected in 2012.
 - EPA researching other distribution WQ issues separately.

A scenic landscape featuring a large, calm lake in the foreground, reflecting the surrounding environment. The lake is bordered by a dense forest of dark evergreen trees. In the background, a range of mountains with patches of snow or light-colored rock rises against a bright blue sky filled with wispy white clouds. The overall atmosphere is serene and natural.

Questions?