

# Ulao Creek at Hwy 60

## Road Salt Monitoring Data Summary

### February 2011–December 2012

**Volunteer:** Phil Strobel (2011) and Jim Gennrich and Jim Engstrom (2012)



Photo from Jim Beecher

#### Specific conductance summary:

- 28 measurements taken
- Minimum: 250  $\mu\text{S}/\text{cm}$  on 6/9/2012
- Maximum: 6600  $\mu\text{S}/\text{cm}$  on 2/13/2011
- Mean: 1712  $\mu\text{S}/\text{cm}$

#### Chloride (Cl<sup>-</sup>) summary:

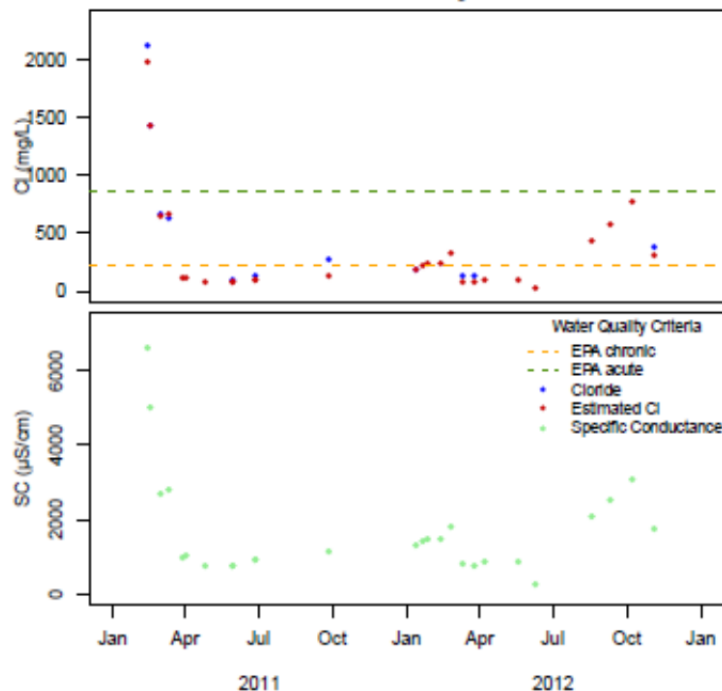
- 11 samples collected
- Minimum: 90.7 mg/L on 5/30/2011
- Maximum: 2120 mg/L on 2/13/2011
- Mean: 558 mg/L

#### EPA Acute and Chronic Exceedences for Chloride<sup>1</sup>:

The EPA acute chloride standard of 860 mg/L was exceeded twice in 2011<sup>2</sup> but not at all in 2012. In addition, the EPA chronic chloride standard of 230 mg/L was exceeded three times in 2011<sup>2</sup> at this site, plus an additional eight times in 2012:

- 238 mg/L on 2/12/2012 (calculated)<sup>3</sup>
- 245 mg/L on 1/27/2012 (calculated)
- 322 mg/L on 2/25/2012 (calculated)
- 325 mg/L on 12/10/2012 (calculated)
- 374 mg/L on 11/4/2012 (measured)
- 432 mg/L on 8/18/2012 (calculated)
- 569 mg/L on 9/10/2012 (calculated)
- 776 mg/L on 10/7/2012 (calculated)

#### Results Over Time<sup>3</sup>:



<sup>1</sup> Acute standard: The one-hour average should not exceed 860 mg/L more than once every three years. Chronic standard: The four day average should not exceed 230 mg/L more than once every three years. Source: EPA. 1988. Ambient Water Quality Criteria for Chloride. EPA 440/6-88-001.

<sup>2</sup> <http://watermonitoring.uwex.edu/level3/UrbanRoadSaltReports.html>

<sup>3</sup> Calculated chloride: When  $\text{SC} > 1540 \mu\text{S}/\text{cm}$  was  $\text{Cl} = 0.3441 * \text{SC} - 291$ ,  $\text{adjR}^2 = 0.98$ ; when  $\text{SC}$  was  $\leq 1540 \mu\text{S}/\text{cm}$  was  $\text{Cl} = 1.044 * (\text{exp}(0.001609 * \text{SC} + 3.046))$ ,  $\text{adjR}^2 = 0.65$ . Equations based on data from both Madison and Milwaukee.