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Summary statistics for the data collected during the 2008 Portland Harbor/Presumpscot River Nitrogen Monitoring Project.

Surface water samples were collected weekly at four sites from May through October, 2008. Water temperature, salinity, dissolved oxygen, and pH were measured by YSI data sonde. A secchi disk was used to measure water clarity. Chlorophyll and phaeophytin were measured through extraction in acetone. Filtered water samples were collected and sent to the University of Maine School of Marine Science for analysis of phosphate, silicate, nitrite + nitrate, and ammonium. Unfiltered water samples were collected and sent to the Chesapeake Bay Laboratory for analysis of total nitrogen. Sampling was conducted on an outgoing tide.

The four sites included one at the mouth of the Presumpscot River (PRV), one at the Southern Maine Community College Pier (SMC), one at Knightville Landing (KVL), and one at the mouth of Anthoine Creek (ANT). See Figure 1 for locations. There were 24 sampling events at each site resulting in the collection of 288 water samples and a total of 1,152 measurements.

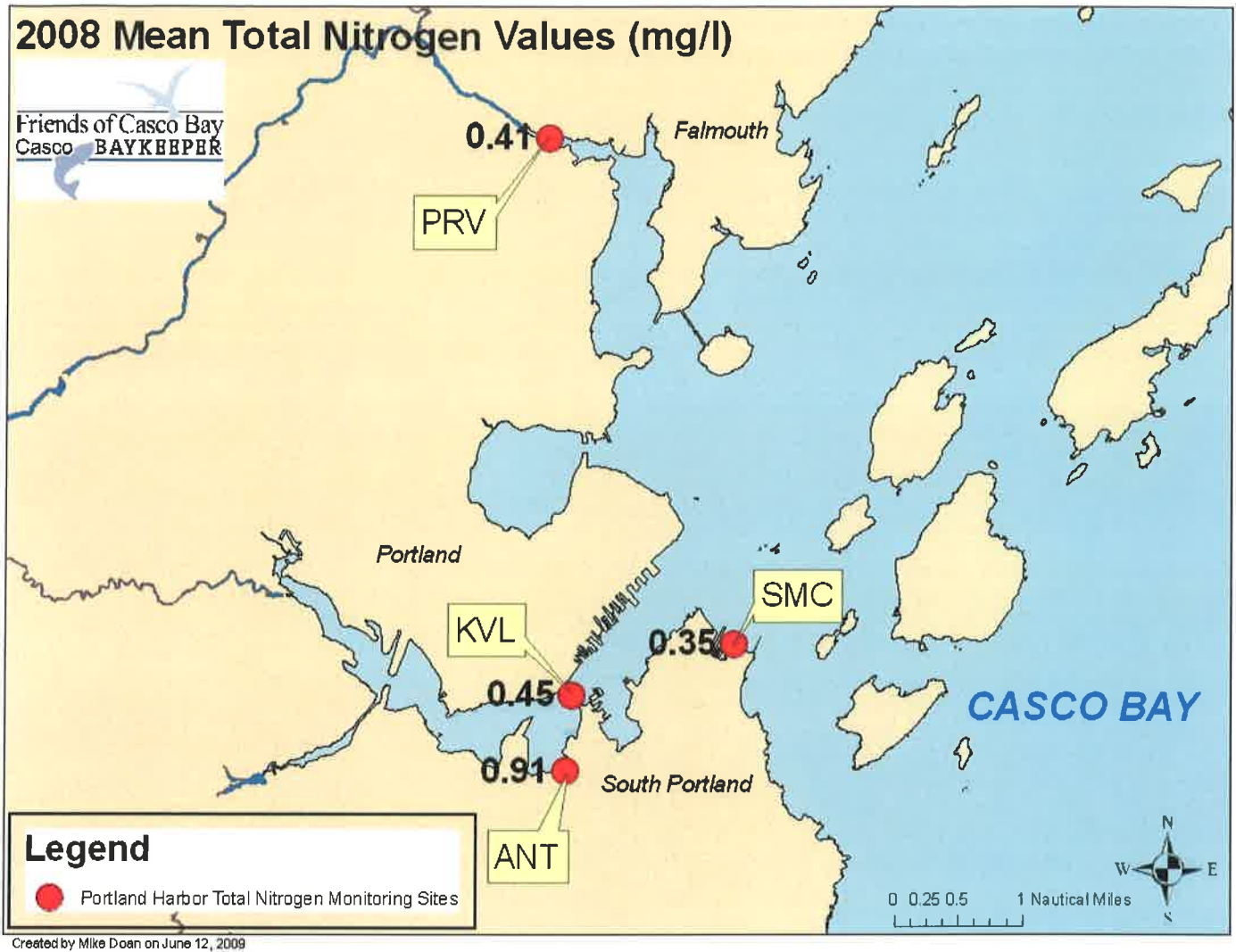
Table 1. Overall Summary Statistics for standard water quality parameters

| | Temp C | Sal ppt | DO mg/l | pH | Secchi Depth m | Chl a ug/l | Phae ug/l |
|-------------|-------------------------|--------------------------|--------------------------|-----------|---------------------------------|-----------------------------|----------------------------|
| Mean | 17.37 | 16.92 | 9.64 | 7.76 | 2.02 | 0.99 | 1.04 |
| Max | 25.93 | 30.79 | 12.26 | 8.75 | 4.20 | 5.08 | 5.52 |
| Min | 8.57 | 0.03 | 6.51 | 6.91 | 0.70 | 0.00 | 0.00 |
| sd | 4.27 | 12.07 | 1.21 | 0.37 | 0.71 | 0.95 | 0.98 |

Table 2. Overall Summary Statistics for Nitrogen

| | TN mg/l | PO4 uM | Si(OH)4 uM | NH4 uM | NO3+NO2 uM | DIN uM | DIN mg/l |
|-------------|--------------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|---------------------------|
| Mean | 0.54 | 0.70 | 15.89 | 8.60 | 10.11 | 18.70 | 0.26 |
| Max | 1.37 | 9.89 | 43.00 | 55.85 | 68.03 | 82.72 | 1.16 |
| Min | 0.23 | 0.01 | 2.56 | 1.04 | 0.22 | 3.13 | 0.04 |
| sd | 0.29 | 1.27 | 9.40 | 8.06 | 13.32 | 18.24 | 0.26 |

Figure 1, using data from Table 3.



Total Nitrogen

Mean values for total nitrogen are included in Figure 1. Tables 3 and 4 summarize the total nitrogen results by site and month, respectively. The Anthoine Creek site (ANT) had significantly higher total nitrogen concentrations than the other three sites. Anthoine Creek drains into Pleasantdale Cove, which has been covered by green macroalgae in recent years, an indicator of excess nitrogen. The Presumpscot River site (PRV) had concentrations within the range of other northeast rivers. The Southern Maine Community College Pier site (SMC) had total nitrogen concentrations slightly elevated from offshore sites (data not included) but lowest of the four sites in this project. Figure 2 shows the overall monthly mean for total nitrogen and Figure 3 shows the monthly means for total nitrogen broken out by site.

**Table 3. Total Nitrogen summary statistics by site
TN (mg/l)**

| | <u>ANT</u> | <u>KVL</u> | <u>PRV</u> | <u>SMC</u> |
|---------------|------------|------------|------------|------------|
| Max | 1.37 | 1.13 | 0.70 | 0.62 |
| Median | 0.92 | 0.38 | 0.40 | 0.32 |
| Min | 0.37 | 0.23 | 0.30 | 0.24 |
| Mean | 0.91 | 0.45 | 0.41 | 0.35 |

**Table 4. Total Nitrogen summary statistics by month
TN (mg/l)**

| | <u>May</u> | <u>June</u> | <u>July</u> | <u>August</u> | <u>September</u> | <u>October</u> |
|---------------|------------|-------------|-------------|---------------|------------------|----------------|
| Max | 1.13 | 1.04 | 0.97 | 1.22 | 0.96 | 1.37 |
| Median | 0.37 | 0.40 | 0.53 | 0.40 | 0.40 | 0.43 |
| Min | 0.23 | 0.24 | 0.29 | 0.31 | 0.26 | 0.31 |
| Mean | 0.51 | 0.48 | 0.55 | 0.60 | 0.50 | 0.60 |

Figure 2.

2008 Mean Total Nitrogen

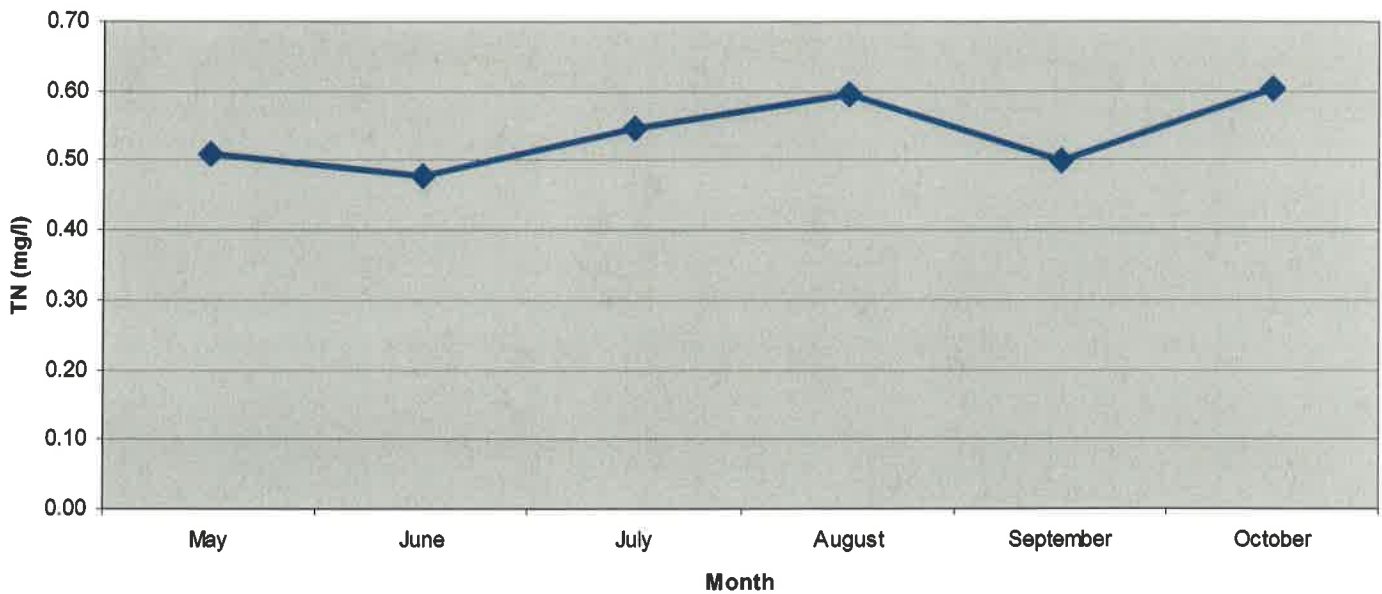
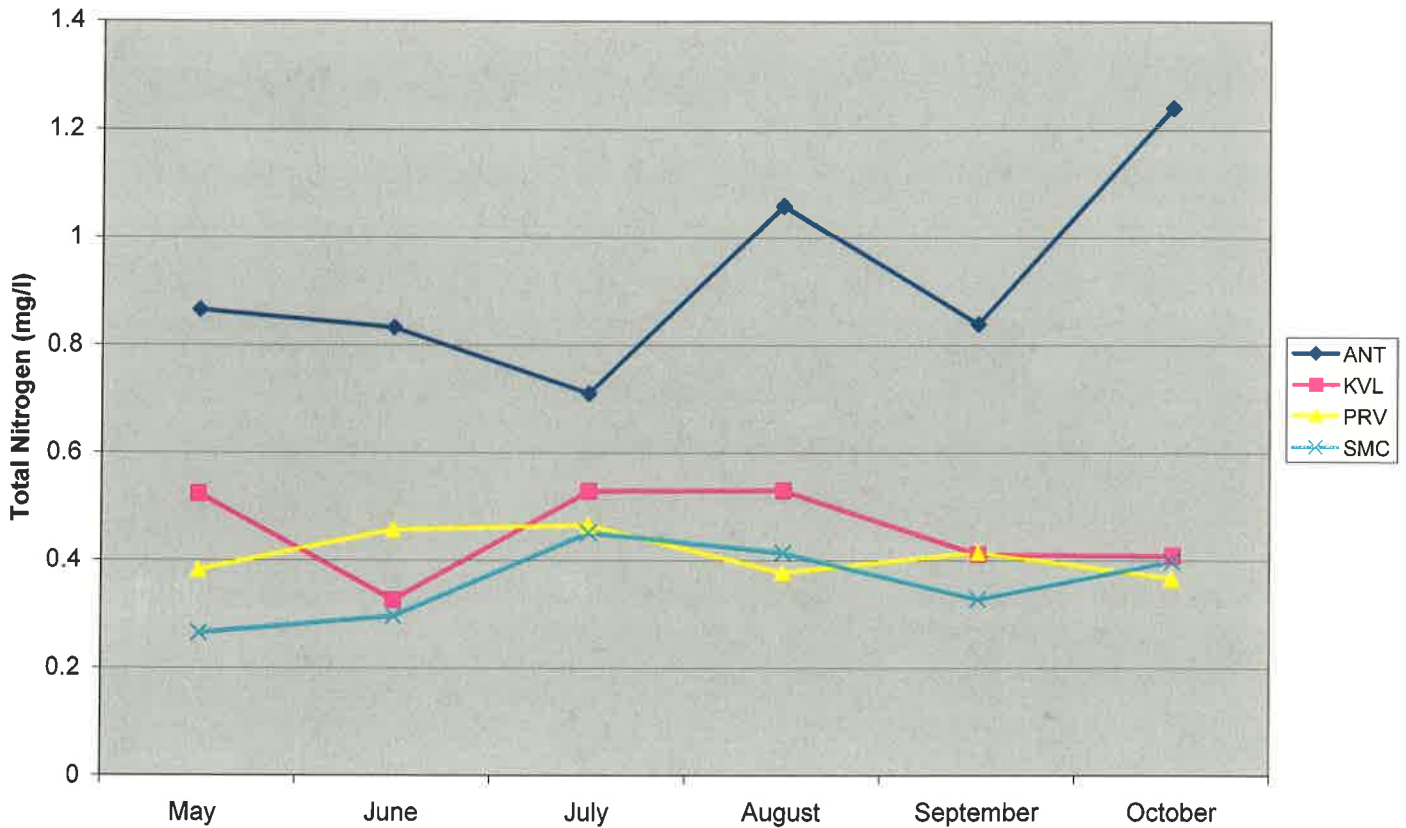


Figure 3.

Total Nitrogen Monthly Means by Site



Dissolved Inorganic Nitrogen

The summary statistics for dissolved inorganic nitrogen are presented in Tables 5 and 6. Once again, the Anthoine Creek site (ANT) had concentrations significantly higher than the other sites, while values at SMC were the lowest of the four sites. The largest component of the dissolved inorganic nitrogen pool at KVL and SMC was ammonium, while at ANT and PRV it was nitrate+nitrite. ANT and PRV both have lower salinities and greater fresh water influence than KVL and SMC. The relatively high ammonium concentrations at KVL might be explained by the proximity to a sewage treatment plant outfall. Figure 4 shows the mean dissolved inorganic nitrogen concentrations by month. Figure 5 compares the spatial trends of mean total nitrogen to mean dissolved inorganic nitrogen. There is a strong correlation between the two parameters.

**Table 5. Dissolved Inorganic Nitrogen summary statistics by site
DIN (uM)**

| | <u>ANT</u> | <u>KVL</u> | <u>PRV</u> | <u>SMC</u> |
|---------------|------------|------------|------------|------------|
| Max | 82.72 | 59.90 | 22.55 | 11.81 |
| Median | 45.44 | 9.25 | 11.42 | 6.09 |
| Min | 11.37 | 5.09 | 5.56 | 3.13 |
| Mean | 43.92 | 12.29 | 11.97 | 6.61 |

**Table 6. Dissolved Inorganic Nitrogen summary statistics by month
DIN (uM)**

| | <u>May</u> | <u>June</u> | <u>July</u> | <u>August</u> | <u>September</u> | <u>October</u> |
|---------------|------------|-------------|-------------|---------------|------------------|----------------|
| Max | 59.90 | 70.56 | 49.62 | 61.72 | 51.55 | 82.72 |
| Median | 10.18 | 11.91 | 11.29 | 10.87 | 7.35 | 8.99 |
| Min | 4.18 | 3.81 | 3.13 | 5.09 | 3.15 | 5.69 |
| Mean | 20.16 | 19.15 | 15.51 | 19.62 | 16.67 | 22.94 |

Figure 4.

2008 Mean Dissolved Inorganic Nitrogen

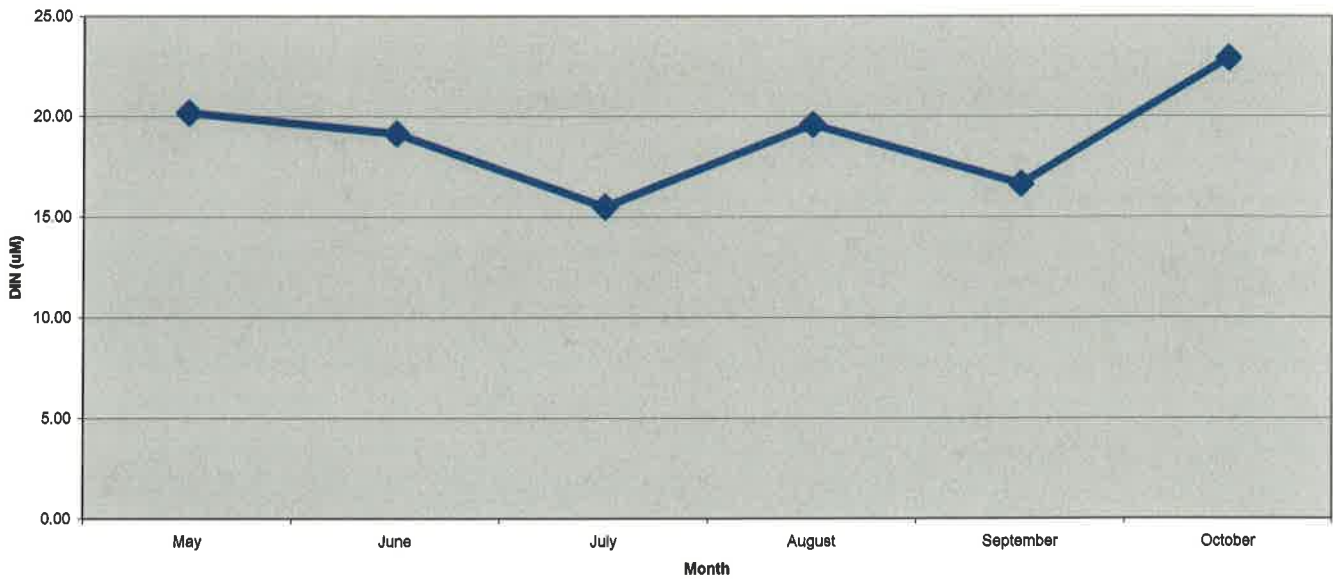
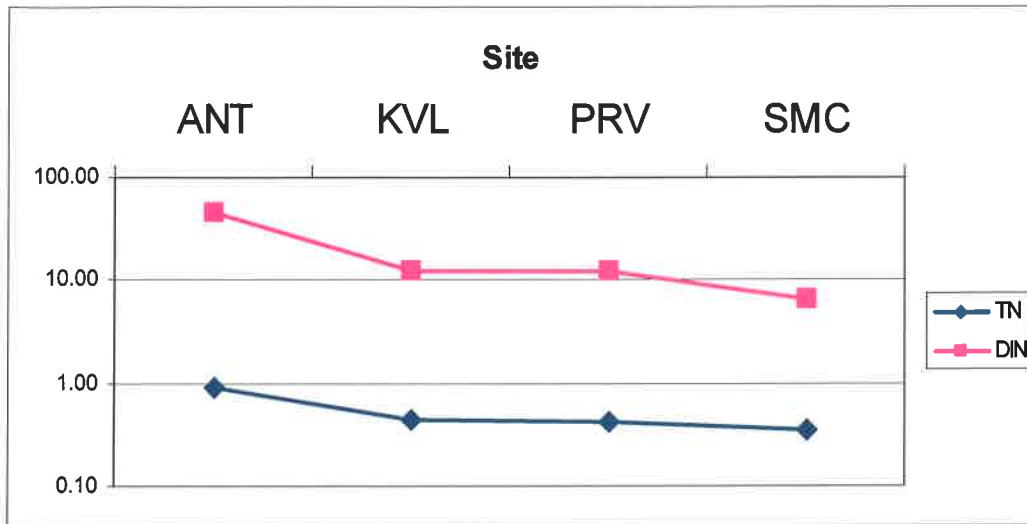


Figure 5.



Chlorophyll

The summary statistics for chlorophyll are presented in Tables 7 and 8. Overall, chlorophyll values were low and did not correlate well to either total nitrogen or dissolved inorganic nitrogen. SMC had both the highest mean and maximum values, even though that site generally had the lowest dissolved inorganic and total nitrogen concentrations.

Table 7. Chlorophyll Summary Statistics by Site
Chl (ug/l)

| | <u>ANT</u> | <u>KVL</u> | <u>PRV</u> | <u>SMC</u> |
|---------------|------------|------------|------------|------------|
| Max | 1.69 | 3.38 | 1.69 | 5.08 |
| Median | 0.85 | 0.85 | 0.85 | 1.27 |
| Min | 0.00 | 0.00 | 0.00 | 0.00 |
| Mean | 0.57 | 0.96 | 0.75 | 1.70 |

Table 8. Chlorophyll Summary Statistics by Month
Chl (ug/l)

| | <u>May</u> | <u>June</u> | <u>July</u> | <u>August</u> | <u>September</u> | <u>October</u> |
|---------------|------------|-------------|-------------|---------------|------------------|----------------|
| Max | 3.38 | 0.85 | 3.38 | 5.08 | 3.72 | 1.69 |
| Median | 0.85 | 0.00 | 0.85 | 0.85 | 0.85 | 0.85 |
| Min | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Mean | 1.11 | 0.37 | 1.05 | 1.32 | 1.25 | 0.78 |

| Site | Date | Month | Year | Sample Depth (m) | Water Depth (m) | Temp C | Sal ppt | DO mg/l |
|------|----------|-----------|------|---------------------|--------------------|-----------|------------|------------|
| ANT | 05/06/08 | May | 2008 | surface | 0.4 | 10.5 | 5.1 | 9.5 |
| ANT | 05/15/08 | May | 2008 | surface | 0.2 | 15.0 | 15.0 | 10.6 |
| ANT | 05/21/08 | May | 2008 | surface | 0.3 | 14.0 | 13.4 | 9.7 |
| ANT | 05/28/08 | May | 2008 | surface | 0.3 | 19.5 | 11.0 | 11.8 |
| ANT | 06/04/08 | June | 2008 | surface | 0.3 | 15.7 | 5.9 | 8.7 |
| ANT | 06/10/08 | June | 2008 | surface | 0.2 | 25.9 | 18.7 | 6.5 |
| ANT | 06/18/08 | June | 2008 | surface | 0.3 | 16.4 | 29.7 | 9.7 |
| ANT | 06/25/08 | June | 2008 | surface | 0.2 | 25.4 | 9.0 | 7.9 |
| ANT | 07/03/08 | July | 2008 | surface | 0.3 | 22.6 | 16.5 | |
| ANT | 07/09/08 | July | 2008 | surface | 0.3 | 24.8 | 17.1 | 8.7 |
| ANT | 07/17/08 | July | 2008 | surface | 0.2 | 23.9 | 19.4 | 9.3 |
| ANT | 07/22/08 | July | 2008 | surface | 0.2 | 24.1 | 14.8 | 7.6 |
| ANT | 07/31/08 | July | 2008 | surface | 0.1 | 22.2 | 26.0 | 8.5 |
| ANT | 08/05/08 | August | 2008 | surface | 0.2 | 21.4 | 6.2 | 9.1 |
| ANT | 08/15/08 | August | 2008 | surface | 0.8 | 22.4 | 13.4 | 8.5 |
| ANT | 08/19/08 | August | 2008 | surface | 0.3 | 20.0 | 8.3 | 7.4 |
| ANT | 08/26/08 | August | 2008 | surface | 0.1 | 24.4 | 5.5 | 8.7 |
| ANT | 09/04/08 | September | 2008 | surface | 0.2 | 20.4 | 20.0 | 7.6 |
| ANT | 09/11/08 | September | 2008 | surface | 0.4 | 18.9 | 4.6 | 9.8 |
| ANT | 09/17/08 | September | 2008 | surface | 0.2 | 14.9 | 10.8 | 8.8 |
| ANT | 09/23/08 | September | 2008 | surface | 0.2 | 14.9 | 15.1 | 8.6 |
| ANT | 10/02/08 | October | 2008 | surface | 0.3 | 15.8 | 2.4 | 8.8 |
| ANT | 10/08/08 | October | 2008 | surface | 0.2 | 16.4 | 4.4 | 10.4 |
| ANT | 10/17/08 | October | 2008 | surface | 0.4 | 11.7 | 15.8 | 9.6 |
| KVL | 05/06/08 | May | 2008 | surface | 1.0 | 10.0 | 23.3 | 10.6 |
| KVL | 05/15/08 | May | 2008 | surface | 1.0 | 13.9 | 26.1 | 10.5 |
| KVL | 05/21/08 | May | 2008 | surface | 7.6 | 8.6 | 29.7 | 10.6 |
| KVL | 05/28/08 | May | 2008 | surface | 2.8 | 12.6 | 28.7 | 11.8 |
| KVL | 06/04/08 | June | 2008 | surface | 6.1 | 12.2 | 30.0 | 9.8 |
| KVL | 06/10/08 | June | 2008 | surface | 7.1 | 14.0 | 30.0 | 10.7 |
| KVL | 06/18/08 | June | 2008 | surface | 7.9 | 14.4 | 29.8 | 10.9 |
| KVL | 06/25/08 | June | 2008 | surface | 7.1 | 15.9 | 29.4 | 8.8 |
| KVL | 07/03/08 | July | 2008 | surface | 4.9 | 17.6 | 28.8 | |
| KVL | 07/09/08 | July | 2008 | surface | 4.9 | 19.1 | 29.8 | 10.5 |
| KVL | 07/17/08 | July | 2008 | surface | 5.7 | 18.4 | 28.4 | 9.5 |
| KVL | 07/22/08 | July | 2008 | surface | 6.8 | 16.8 | 28.4 | 8.5 |
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| KVL | 08/05/08 | August | 2008 | surface | 5.5 | 18.3 | 27.0 | 8.3 |
| KVL | 08/15/08 | August | 2008 | surface | 6.8 | 20.6 | 23.1 | 8.7 |
| KVL | 08/19/08 | August | 2008 | surface | 5.7 | 16.9 | 26.7 | 8.2 |
| KVL | 08/26/08 | August | 2008 | surface | 6.4 | 18.0 | 27.5 | 10.1 |
| KVL | 09/04/08 | September | 2008 | surface | 6.1 | 16.2 | 30.8 | 10.0 |
| KVL | 09/11/08 | September | 2008 | surface | 5.1 | 17.4 | 25.7 | 8.3 |
| KVL | 09/17/08 | September | 2008 | surface | 6.4 | 15.3 | 27.6 | 8.9 |
| KVL | 09/23/08 | September | 2008 | surface | 4.9 | 15.1 | 27.6 | 9.4 |
| KVL | 10/02/08 | October | 2008 | surface | 5.2 | 14.8 | 25.3 | 7.9 |
| KVL | 10/08/08 | October | 2008 | surface | 5.1 | 13.8 | 26.9 | 9.6 |
| KVL | 10/17/08 | October | 2008 | surface | 6.4 | 12.2 | 29.6 | 9.3 |
| PRV | 05/06/08 | May | 2008 | surface | 1.2 | 8.9 | 0.1 | 12.3 |
| PRV | 05/15/08 | May | 2008 | surface | 0.4 | 12.7 | 0.1 | 11.7 |

| | | | | | | | | |
|-----|----------|-----------|------|---------|-----|------|------|------|
| PRV | 05/21/08 | May | 2008 | surface | 5.2 | 13.1 | 0.0 | 11.9 |
| PRV | 05/28/08 | May | 2008 | surface | 2.2 | 16.8 | 0.1 | 11.8 |
| PRV | 06/04/08 | June | 2008 | surface | 1.1 | 17.2 | 1.0 | 9.9 |
| PRV | 06/10/08 | June | 2008 | surface | 3.2 | 21.7 | 0.1 | 9.4 |
| PRV | 06/18/08 | June | 2008 | surface | 4.0 | 19.5 | 0.1 | 10.0 |
| PRV | 06/25/08 | June | 2008 | surface | 4.2 | 21.0 | 0.1 | 10.1 |
| PRV | 07/03/08 | July | 2008 | surface | 1.5 | 23.9 | 0.0 | |
| PRV | 07/09/08 | July | 2008 | surface | 2.5 | 25.1 | 0.5 | 9.5 |
| PRV | 07/17/08 | July | 2008 | surface | 2.9 | 25.5 | 0.1 | 8.5 |
| PRV | 07/22/08 | July | 2008 | surface | 4.1 | 23.9 | 0.0 | 8.6 |
| PRV | 07/31/08 | July | 2008 | surface | 4.2 | 24.6 | 0.1 | 8.7 |
| PRV | 08/05/08 | August | 2008 | surface | 4.1 | 22.8 | 0.0 | 9.5 |
| PRV | 08/15/08 | August | 2008 | surface | 3.0 | 21.8 | 0.0 | 9.6 |
| PRV | 08/19/08 | August | 2008 | surface | 4.8 | 22.7 | 0.0 | 9.0 |
| PRV | 08/26/08 | August | 2008 | surface | 4.1 | 22.5 | 0.1 | 9.3 |
| PRV | 09/04/08 | September | 2008 | surface | 3.6 | 22.2 | 0.1 | 9.9 |
| PRV | 09/11/08 | September | 2008 | surface | 4.1 | 19.8 | 0.0 | 10.3 |
| PRV | 09/17/08 | September | 2008 | surface | 3.4 | 19.4 | 0.0 | 10.6 |
| PRV | 09/23/08 | September | 2008 | surface | 3.3 | 17.3 | 0.1 | 10.1 |
| PRV | 10/02/08 | October | 2008 | surface | 3.9 | 16.8 | 0.0 | 10.1 |
| PRV | 10/08/08 | October | 2008 | surface | 2.9 | 14.5 | 0.0 | 11.7 |
| PRV | 10/17/08 | October | 2008 | surface | 3.4 | 14.4 | 0.0 | 11.0 |
| SMC | 05/06/08 | May | 2008 | surface | 1.8 | 9.2 | 19.8 | 11.0 |
| SMC | 05/15/08 | May | 2008 | surface | 1.6 | 9.8 | 27.4 | 11.2 |
| SMC | 05/21/08 | May | 2008 | surface | 3.9 | 9.7 | 29.0 | 11.2 |
| SMC | 05/28/08 | May | 2008 | surface | 2.2 | 11.9 | 28.5 | 11.8 |
| SMC | 06/04/08 | June | 2008 | surface | 2.0 | 12.6 | 29.4 | 9.8 |
| SMC | 06/10/08 | June | 2008 | surface | 4.2 | 14.4 | 29.3 | 10.9 |
| SMC | 06/18/08 | June | 2008 | surface | 4.0 | 14.7 | 29.6 | 11.9 |
| SMC | 06/25/08 | June | 2008 | surface | 3.8 | 17.0 | 28.9 | 10.0 |
| SMC | 07/03/08 | July | 2008 | surface | 2.1 | 17.2 | 28.5 | |
| SMC | 07/09/08 | July | 2008 | surface | 1.6 | 17.7 | 29.1 | 11.8 |
| SMC | 07/17/08 | July | 2008 | surface | 2.0 | 17.5 | 28.6 | 10.1 |
| SMC | 07/22/08 | July | 2008 | surface | 4.1 | 17.8 | 27.4 | 8.1 |
| SMC | 07/31/08 | July | 2008 | surface | 4.1 | 18.8 | 28.3 | 8.7 |
| SMC | 08/05/08 | August | 2008 | surface | 3.1 | 19.5 | 24.4 | 8.8 |
| SMC | 08/15/08 | August | 2008 | surface | 2.9 | 19.3 | 22.5 | 9.9 |
| SMC | 08/19/08 | August | 2008 | surface | 3.3 | 17.5 | 23.8 | 8.2 |
| SMC | 08/26/08 | August | 2008 | surface | 3.1 | 17.4 | 27.3 | 10.8 |
| SMC | 09/04/08 | September | 2008 | surface | 3.6 | 17.2 | 30.3 | 10.1 |
| SMC | 09/11/08 | September | 2008 | surface | 3.8 | 17.2 | 25.8 | 9.1 |
| SMC | 09/17/08 | September | 2008 | surface | 3.8 | 15.9 | 25.6 | 8.2 |
| SMC | 09/23/08 | September | 2008 | surface | 2.0 | 15.0 | 26.1 | 9.7 |
| SMC | 10/02/08 | October | 2008 | surface | 3.9 | 14.9 | 22.5 | 7.9 |
| SMC | 10/08/08 | October | 2008 | surface | 2.1 | 13.7 | 23.3 | 9.8 |
| SMC | 10/17/08 | October | 2008 | surface | 4.0 | 12.2 | 28.5 | 9.4 |

| Secchi Depth (m) | pH | Chl a ug/l | Phae ug/l | TN mg/l | NO3+NO2 uM | Si(OH)4 uM | NH4 uM | PO4 uM |
|---------------------|-----|---------------|--------------|------------|---------------|---------------|-----------|-----------|
| bsv | 6.9 | 0.0 | 1.5 | 1.0 | 49.1 | 21.4 | 6.5 | 0.4 |
| bsv | 7.8 | 0.8 | 0.6 | 0.8 | 26.1 | 34.8 | 4.7 | 0.3 |
| bsv | 7.2 | 0.0 | 1.0 | 0.9 | 41.1 | 34.0 | 6.0 | 0.3 |
| bsv | 7.3 | 0.8 | 1.1 | 0.8 | 30.2 | 30.1 | 6.7 | 0.2 |
| bsv | 7.4 | 0.0 | 2.5 | 1.0 | 18.8 | 20.3 | 18.7 | 0.3 |
| bsv | 7.2 | 0.0 | 1.5 | 1.0 | 31.3 | 26.0 | 39.3 | 0.3 |
| bsv | 7.3 | 0.0 | 1.5 | 0.4 | 0.6 | 10.3 | 13.1 | 0.6 |
| bsv | 7.2 | 0.0 | 2.0 | 0.9 | 28.7 | 17.6 | 23.4 | 0.5 |
| bsv | 8.1 | 0.0 | 2.0 | 1.0 | 27.9 | 32.7 | 21.7 | 0.3 |
| bsv | 7.1 | 0.0 | 2.5 | 0.8 | 24.0 | 26.0 | 19.8 | 0.5 |
| bsv | 8.0 | 0.0 | 1.5 | 0.5 | 8.9 | 29.4 | 5.2 | 0.0 |
| bsv | 7.2 | 1.7 | 1.3 | 0.5 | 22.2 | 23.8 | 17.4 | 0.3 |
| bsv | 7.6 | 0.0 | 2.0 | 0.0 | 7.1 | 43.0 | 4.3 | 0.4 |
| bsv | 7.1 | 0.8 | 3.1 | 1.2 | 41.9 | 19.5 | 19.8 | 0.1 |
| bsv | 7.8 | 0.8 | 2.6 | 0.9 | 23.7 | 20.7 | 13.2 | 0.4 |
| bsv | 7.6 | 1.7 | 1.3 | 1.1 | 37.2 | 24.3 | 18.6 | 0.0 |
| bsv | 7.6 | 0.8 | 1.6 | 1.0 | 16.4 | 18.0 | 17.9 | 0.2 |
| bsv | 7.7 | 0.8 | 1.6 | 0.8 | 9.9 | 31.3 | 11.3 | 0.0 |
| bsv | 7.5 | 0.9 | 1.8 | 0.8 | 34.2 | 22.6 | 15.5 | 0.7 |
| bsv | 7.6 | 0.8 | 0.6 | 1.0 | 34.1 | 29.9 | 17.5 | 0.4 |
| bsv | 7.4 | 0.8 | 0.6 | 0.8 | 27.6 | 24.8 | 14.0 | 0.1 |
| bsv | 7.1 | 0.8 | 1.6 | 1.4 | 68.0 | 41.9 | 14.7 | 1.5 |
| bsv | 7.6 | 0.0 | 2.0 | 1.3 | 41.5 | 37.6 | 17.2 | 1.4 |
| bsv | 7.2 | 1.7 | 1.8 | 1.0 | 35.6 | 27.3 | 21.6 | 0.2 |
| bsv | 7.3 | 1.7 | 0.3 | 0.3 | 3.3 | 20.1 | 3.4 | 0.4 |
| bsv | 7.9 | 1.7 | 4.7 | 0.4 | 3.0 | 13.6 | 6.5 | 0.6 |
| 4.2 | 7.9 | 0.0 | 1.0 | 0.2 | 3.7 | 7.0 | 2.8 | 0.1 |
| 6.5 | 7.9 | 0.8 | 0.6 | 1.1 | 4.1 | 10.3 | 55.9 | 9.9 |
| 2.1 | 7.5 | 0.8 | 1.1 | 0.4 | 3.3 | 6.9 | 6.7 | 0.5 |
| 3.1 | 7.8 | 0.0 | 1.0 | 0.3 | 0.2 | 5.6 | 8.9 | 0.1 |
| 2.5 | 7.9 | 0.8 | 0.6 | 0.3 | 0.7 | 6.7 | 9.5 | 0.3 |
| 2.7 | 7.7 | 0.0 | 2.0 | 0.4 | 0.6 | 7.8 | 7.8 | 0.3 |
| 2.4 | 7.7 | 0.8 | 1.6 | 0.5 | 2.1 | 11.7 | 20.8 | 4.5 |
| 2.4 | 7.7 | 0.8 | 1.6 | 0.5 | 0.3 | 9.1 | 7.6 | 1.4 |
| 2.8 | 8.0 | 0.8 | 1.1 | 0.0 | 0.5 | 8.4 | 9.5 | 3.4 |
| 2.4 | 8.0 | 1.7 | 0.3 | 0.1 | 0.6 | 12.1 | 5.9 | 0.4 |
| 2.3 | 7.8 | 0.8 | 0.6 | 0.0 | 1.2 | 15.6 | 8.8 | 5.0 |
| 1.9 | 7.8 | 0.8 | 1.6 | 0.4 | 2.6 | 19.1 | 7.4 | 0.9 |
| 2.4 | 7.9 | 0.8 | 1.6 | 1.0 | 3.5 | 30.4 | 17.7 | 3.0 |
| 2.2 | 7.8 | 1.7 | 1.3 | 0.3 | 3.8 | 15.2 | 6.5 | 0.2 |
| 2.2 | 8.0 | 0.8 | 1.6 | 0.4 | 1.8 | 10.0 | 3.3 | 1.1 |
| 2.4 | 8.0 | 3.4 | 1.6 | 0.3 | 2.2 | 5.7 | 4.1 | 0.1 |
| 2.4 | 7.9 | 0.9 | 0.7 | 0.7 | 8.7 | 13.9 | 11.6 | 2.1 |
| 2.7 | 7.9 | 1.7 | 0.2 | 0.3 | 1.9 | 16.0 | 4.6 | 0.9 |
| 2.7 | 7.6 | 0.8 | 0.1 | 0.3 | 3.7 | 14.5 | 4.1 | 0.8 |
| 2.1 | 7.5 | 0.0 | 2.0 | 0.4 | 2.2 | 24.1 | 6.3 | 0.2 |
| 3.1 | 7.6 | 0.0 | 1.0 | 0.5 | 7.5 | 22.2 | 7.2 | 2.7 |
| 2.3 | 7.6 | 0.8 | 1.1 | 0.3 | 2.3 | 9.9 | 4.6 | 0.4 |
| bsv | 8.4 | 1.7 | 0.3 | 0.3 | 8.7 | 9.7 | 1.2 | 0.0 |
| bsv | 8.6 | 1.7 | 0.2 | 0.4 | 9.3 | 8.1 | 1.2 | 0.1 |

| | | | | | | | | |
|-----|-----|-----|-----|-----|------|------|------|-----|
| 2.8 | 8.8 | 0.8 | 0.6 | 0.3 | 10.6 | 15.3 | 1.9 | 0.4 |
| 3.5 | 8.6 | 1.7 | 0.3 | 0.5 | 12.7 | 30.0 | 5.5 | 1.2 |
| 0.8 | 8.4 | 0.8 | 1.1 | 0.4 | 10.4 | 7.7 | 4.5 | 0.6 |
| 1.8 | 8.3 | 0.8 | 0.1 | 0.5 | 12.1 | 11.5 | 10.5 | 0.7 |
| 1.5 | 8.5 | 0.0 | 1.5 | 0.5 | 16.1 | 7.7 | 5.6 | 0.7 |
| 1.1 | 8.6 | 0.0 | 1.5 | 0.5 | 9.0 | 12.9 | 5.2 | 0.5 |
| 0.7 | 8.0 | 1.7 | 0.8 | 0.4 | 9.7 | 6.8 | 3.6 | 0.4 |
| 1.4 | 7.3 | 0.8 | 1.6 | 0.5 | 7.5 | 8.1 | 5.2 | 0.5 |
| 0.8 | 7.4 | 0.8 | 0.6 | 0.4 | 5.7 | 4.4 | 3.8 | 0.5 |
| 1.7 | 7.5 | 0.8 | 0.6 | 0.7 | 6.2 | 10.5 | 6.2 | 0.5 |
| 0.8 | 7.5 | 0.8 | 0.1 | 0.4 | 5.5 | 10.2 | 7.0 | 0.5 |
| 1.7 | 7.2 | 0.0 | 1.5 | 0.5 | 6.1 | 10.1 | 7.7 | 0.2 |
| 1.0 | 7.8 | 0.0 | 1.5 | 0.4 | 3.9 | 8.1 | 2.8 | 0.4 |
| 1.2 | 7.6 | 0.0 | 1.5 | 0.3 | 4.2 | 21.3 | 3.2 | 0.3 |
| 1.0 | 7.7 | 0.8 | 0.1 | 0.4 | 3.6 | 7.0 | 6.9 | 0.2 |
| 2.2 | 8.0 | 0.8 | 0.1 | 0.6 | 14.8 | 10.1 | 4.4 | 0.2 |
| 1.2 | 8.4 | 0.9 | 0.7 | 0.4 | 4.4 | 32.2 | 3.0 | 0.0 |
| 1.9 | 7.8 | 0.8 | 0.6 | 0.3 | 2.5 | 17.3 | 3.1 | 0.2 |
| 2.1 | 7.5 | 0.0 | 1.0 | 0.4 | 3.6 | 8.3 | 3.7 | 0.2 |
| 1.4 | 7.5 | 0.0 | 1.5 | 0.4 | 2.4 | 20.8 | 4.2 | 0.3 |
| 2.1 | 7.5 | 0.8 | 0.1 | 0.4 | 4.5 | 11.9 | 3.6 | 0.0 |
| 0.8 | 7.7 | 0.8 | 0.1 | 0.4 | 7.1 | 9.7 | 3.2 | 0.4 |
| bsv | 7.9 | 0.8 | 0.6 | 0.3 | 3.6 | 23.1 | 2.1 | 0.3 |
| bsv | 8.0 | 1.7 | 0.7 | 0.3 | 2.5 | 11.5 | 1.8 | 0.1 |
| 3.5 | 7.9 | 0.0 | 0.5 | 0.2 | 3.2 | 7.6 | 1.0 | 0.0 |
| 2.8 | 8.1 | 3.4 | 1.4 | 0.3 | 2.4 | 2.6 | 1.7 | 0.4 |
| bsv | 7.6 | 0.8 | 0.1 | 0.3 | 1.8 | 3.4 | 2.1 | 0.0 |
| 1.9 | 7.8 | 0.8 | 0.4 | 0.2 | 0.4 | 6.4 | 5.3 | 0.0 |
| 2.2 | 7.7 | 0.8 | 0.1 | 0.3 | 0.6 | 5.5 | 4.5 | 0.1 |
| 2.2 | 7.7 | 0.0 | 1.5 | 0.4 | 0.6 | 7.1 | 6.7 | 0.5 |
| 1.4 | 8.0 | 3.4 | 5.5 | 0.6 | 0.6 | 7.9 | 7.0 | 1.1 |
| bsv | 7.9 | 2.5 | 0.9 | 0.3 | 0.6 | 5.5 | 2.5 | 0.7 |
| bsv | 8.2 | 1.7 | 0.3 | 0.0 | 0.3 | 7.8 | 4.7 | 0.8 |
| 2.6 | 8.1 | 0.8 | 1.1 | 0.0 | 1.0 | 12.8 | 6.3 | 0.4 |
| 2.6 | 7.9 | 0.8 | 0.6 | 0.0 | 0.8 | 8.9 | 10.5 | 0.0 |
| 1.6 | 7.9 | 0.8 | 1.1 | 0.5 | 2.4 | 19.0 | 9.4 | 0.5 |
| 2.0 | 8.1 | 3.4 | 0.6 | 0.4 | 1.7 | 22.5 | 5.4 | 1.1 |
| 2.1 | 7.9 | 2.5 | 0.1 | 0.4 | 2.1 | 11.9 | 9.2 | 1.0 |
| 2.1 | 8.2 | 5.1 | 0.9 | 0.4 | 1.8 | 4.7 | 8.2 | 0.3 |
| 2.7 | 8.1 | 1.7 | 1.3 | 0.3 | 0.7 | 3.6 | 2.5 | 0.3 |
| 2.0 | 8.0 | 3.7 | 0.6 | 0.4 | 1.9 | 12.6 | 5.5 | 0.6 |
| 2.4 | 8.1 | 0.8 | 0.6 | 0.3 | 1.0 | 10.4 | 4.6 | 0.0 |
| bsv | 7.8 | 0.8 | 0.6 | 0.3 | 3.8 | 14.3 | 2.7 | 0.4 |
| 1.9 | 7.6 | 1.7 | 0.7 | 0.4 | 2.1 | 20.2 | 7.4 | 0.2 |
| bsv | 7.8 | 0.8 | 0.4 | 0.4 | 2.0 | 18.9 | 4.5 | 0.2 |
| 2.5 | 7.7 | 1.7 | 0.2 | 0.3 | 2.6 | 14.5 | 3.1 | 0.6 |

| DIN uM | DIN mg/l | <u>NH4/DIN</u> | <u>DIN/PO4</u> | <u>DIN/TN</u> |
|-----------|-------------|----------------|----------------|---------------|
| 55.6 | 0.8 | 0.1 | 150.3 | 0.8 |
| 30.9 | 0.4 | 0.2 | 110.2 | 0.5 |
| 47.1 | 0.7 | 0.1 | 162.4 | 0.8 |
| 37.0 | 0.5 | 0.2 | 176.0 | 0.6 |
| 37.5 | 0.5 | 0.5 | 129.2 | 0.5 |
| 70.6 | 1.0 | 0.6 | 252.0 | 0.9 |
| 13.6 | 0.2 | 1.0 | 22.3 | 0.5 |
| 52.1 | 0.7 | 0.4 | 104.2 | 0.8 |
| 49.6 | 0.7 | 0.4 | 160.1 | 0.7 |
| 43.8 | 0.6 | 0.5 | 91.2 | 0.7 |
| 14.1 | 0.2 | 0.4 | 470.0 | 0.4 |
| 39.7 | 0.6 | 0.4 | 158.6 | 1.0 |
| 11.4 | 0.2 | 0.4 | 27.7 | 3.7 |
| 61.7 | 0.9 | 0.3 | 617.2 | 0.7 |
| 36.9 | 0.5 | 0.4 | 99.7 | 0.6 |
| 55.8 | 0.8 | 0.3 | 2790.5 | 0.7 |
| 34.3 | 0.5 | 0.5 | 190.7 | 0.5 |
| 21.2 | 0.3 | 0.5 | 1359.0 | 0.4 |
| 49.6 | 0.7 | 0.3 | 73.0 | 0.9 |
| 51.6 | 0.7 | 0.3 | 139.3 | 0.8 |
| 41.6 | 0.6 | 0.3 | 694.0 | 0.7 |
| 82.7 | 1.2 | 0.2 | 53.7 | 0.8 |
| 58.7 | 0.8 | 0.3 | 43.5 | 0.6 |
| 57.2 | 0.8 | 0.4 | 318.0 | 0.8 |
| 6.7 | 0.1 | 0.5 | 16.0 | 0.3 |
| 9.4 | 0.1 | 0.7 | 15.2 | 0.3 |
| 6.5 | 0.1 | 0.4 | 65.3 | 0.4 |
| 59.9 | 0.8 | 0.9 | 6.1 | 0.7 |
| 9.9 | 0.1 | 0.7 | 19.4 | 0.4 |
| 9.1 | 0.1 | 1.0 | 82.6 | 0.5 |
| 10.2 | 0.1 | 0.9 | 37.7 | 0.5 |
| 8.4 | 0.1 | 0.9 | 25.4 | 0.3 |
| 22.8 | 0.3 | 0.9 | 5.1 | 0.6 |
| 7.9 | 0.1 | 1.0 | 5.9 | 0.2 |
| 10.0 | 0.1 | 1.0 | 2.9 | 3.0 |
| 6.5 | 0.1 | 0.9 | 16.0 | 1.2 |
| 10.0 | 0.1 | 0.9 | 2.0 | 3.7 |
| 10.1 | 0.1 | 0.7 | 11.2 | 0.4 |
| 21.2 | 0.3 | 0.8 | 7.0 | 0.3 |
| 10.3 | 0.1 | 0.6 | 44.8 | 0.4 |
| 5.1 | 0.1 | 0.6 | 4.7 | 0.2 |
| 6.3 | 0.1 | 0.7 | 48.3 | 0.3 |
| 20.3 | 0.3 | 0.6 | 9.8 | 0.4 |
| 6.5 | 0.1 | 0.7 | 7.0 | 0.3 |
| 7.8 | 0.1 | 0.5 | 10.4 | 0.4 |
| 8.5 | 0.1 | 0.7 | 38.8 | 0.3 |
| 14.7 | 0.2 | 0.5 | 5.4 | 0.4 |
| 6.9 | 0.1 | 0.7 | 16.1 | 0.3 |
| 9.9 | 0.1 | 0.1 | 993.0 | 0.4 |
| 10.4 | 0.1 | 0.1 | 80.3 | 0.4 |

| | | | | |
|------|-----|-----|--------|-----|
| 12.5 | 0.2 | 0.2 | 31.3 | 0.5 |
| 18.2 | 0.3 | 0.3 | 15.1 | 0.5 |
| 14.9 | 0.2 | 0.3 | 23.7 | 0.5 |
| 22.6 | 0.3 | 0.5 | 31.8 | 0.7 |
| 21.7 | 0.3 | 0.3 | 30.5 | 0.6 |
| 14.2 | 0.2 | 0.4 | 26.3 | 0.4 |
| 13.3 | 0.2 | 0.3 | 38.0 | 0.5 |
| 12.7 | 0.2 | 0.4 | 23.9 | 0.4 |
| 9.5 | 0.1 | 0.4 | 20.7 | 0.3 |
| 12.4 | 0.2 | 0.5 | 24.8 | 0.2 |
| 12.5 | 0.2 | 0.6 | 27.1 | 0.5 |
| 13.8 | 0.2 | 0.6 | 81.0 | 0.4 |
| 6.7 | 0.1 | 0.4 | 16.3 | 0.3 |
| 7.4 | 0.1 | 0.4 | 27.4 | 0.3 |
| 10.5 | 0.1 | 0.7 | 45.4 | 0.4 |
| 19.2 | 0.3 | 0.2 | 91.3 | 0.5 |
| 7.4 | 0.1 | 0.4 | 662.2 | 0.2 |
| 5.6 | 0.1 | 0.6 | 34.8 | 0.3 |
| 7.3 | 0.1 | 0.5 | 38.2 | 0.3 |
| 6.5 | 0.1 | 0.6 | 19.1 | 0.3 |
| 8.2 | 0.1 | 0.4 | 204.3 | 0.3 |
| 10.3 | 0.1 | 0.3 | 29.3 | 0.4 |
| 5.7 | 0.1 | 0.4 | 17.8 | 0.3 |
| 4.3 | 0.1 | 0.4 | 54.3 | 0.2 |
| 4.3 | 0.1 | 0.2 | 425.0 | 0.2 |
| 4.2 | 0.1 | 0.4 | 11.9 | 0.2 |
| 3.8 | 0.1 | 0.5 | 293.1 | 0.2 |
| 5.7 | 0.1 | 0.9 | 469.4 | 0.3 |
| 5.1 | 0.1 | 0.9 | 46.5 | 0.3 |
| 7.2 | 0.1 | 0.9 | 15.0 | 0.2 |
| 7.5 | 0.1 | 0.9 | 6.7 | 0.2 |
| 3.1 | 0.0 | 0.8 | 4.6 | 0.2 |
| 5.0 | 0.1 | 0.9 | 6.1 | 1.8 |
| 7.3 | 0.1 | 0.9 | 18.2 | 2.4 |
| 11.2 | 0.2 | 0.9 | 1029.4 | 4.0 |
| 11.8 | 0.2 | 0.8 | 25.1 | 0.3 |
| 7.1 | 0.1 | 0.8 | 6.5 | 0.3 |
| 11.3 | 0.2 | 0.8 | 11.8 | 0.4 |
| 10.0 | 0.1 | 0.8 | 32.4 | 0.4 |
| 3.2 | 0.0 | 0.8 | 9.5 | 0.1 |
| 7.4 | 0.1 | 0.7 | 11.7 | 0.2 |
| 5.6 | 0.1 | 0.8 | 513.9 | 0.3 |
| 6.5 | 0.1 | 0.4 | 17.5 | 0.3 |
| 9.4 | 0.1 | 0.8 | 55.5 | 0.3 |
| 6.5 | 0.1 | 0.7 | 27.0 | 0.2 |
| 5.7 | 0.1 | 0.5 | 9.3 | 0.2 |