

17: Crafting Reports

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LESSON OBJECTIVES

1. Describe the purpose of using R Markdown as a communication and workflow tool
2. Incorporate Markdown syntax into documents
3. Communicate the process and findings of an analysis session in the style of a report

BASIC R MARKDOWN DOCUMENT STRUCTURE

1. **YAML Header** surrounded by `---` on top and bottom
 - YAML templates include options for html, pdf, word, markdown, and interactive
 - More information on formatting the YAML header can be found in the cheat sheet
2. **R Code Chunks** surrounded by `"on top and bottom + Create using Cmd/Ctrl+Alt+I"`
 - Can be named `{r name}` to facilitate navigation and autoreferencing
 - Chunk options allow for flexibility when the code runs and when the document is knitted
3. **Text** with formatting options for readability in knitted document

A handy cheat sheet for R markdown can be found [here](#). Another one can be found [here](#).

WHY R MARKDOWN?

- Code output and text/notes are all together in one document
- Knit to useful formats (pdf, html, docx)
- Legible code + output
- GIT friendly-version control!
- Reproducible
- Updating capabilities
- Focus on output and conclusions, not the code(flexible formatting)
- Simple syntax (ex. table of contents functionality) and autoreferencing figures and tables->need to do this on project

The above does not show up in final PDF/html because it's inside less than signs

For bullet points, use a dash or a plus (put a space after the symbol) - Bullet point + Bullet point * Asterisk (also can be used for Bolds and Italics)

TEXT EDITING CHALLENGE

Create a table below that details the example datasets we have been using in class. The first column should contain the name of the dataset and the second column should include some relevant information about the dataset.

To increase the width of the cells, add more horizontal dashes

Dataset Name	Information
ECOTOX	Contains information on Neonicotinoids (insecticide) and their effects on organism mortality
NTER-Lake	Contains data from temperate lakes in Northwestern Wisconsin

R CHUNK EDITING CHALLENGE

Installing packages

Create an R chunk below that installs the package `knitr`. Instead of commenting out the code, customize the chunk options such that the code is not evaluated (i.e., not run).

```
install.packages(knitr)
```

Setup

Create an R chunk below called “setup” that checks your working directory, loads the packages `tidyverse` and `knitr`, and sets a ggplot theme.

```
getwd()
```

```
## [1] "/Users/gabrielagarcia/Desktop/Environmental Data Analytics/Environmental_Data_Analytics/Lessons"
```

```
require(tidyverse)
```

```
require(knitr)
```

```
theme_get
```

```
## function ()
```

```
## {
```

```
##     ggplot_global$theme_current
```

```
## }
```

```
## <bytecode: 0x7ff581569c00>
```

```
## <environment: namespace:ggplot2>
```

Load the NTL-LTER_Lake_Nutrients_Raw dataset, display the head of the dataset, and set the date column to a date format.

```
setwd("~/Desktop/Environmental Data Analytics/Environmental_Data_Analytics/Data/Raw")
```

```
Nutrients<-read.csv('NTL-LTER_Lake_Nutrients_Raw.csv')
```

```
head(Nutrients)
```

```
Nutrients$Date<-as.Date(Nutrients$sampldate, format="%m/%d/%y")
```

Customize the chunk options such that the code is run but is not displayed in the final document.

Data Exploration, Wrangling, and Visualization

Create an R chunk below to create a processed dataset do the following operations:

```
NutrientsClean<-select(Nutrients, -c(lakeid, depth_id, comments))
```

```
NutrientsCleanFiltered<-filter(Nutrients, depth==0)
```

- Include all columns except lakeid, depth_id, and comments
- Include only surface samples (depth = 0 m)

Create a second R chunk to create a summary dataset with the mean, minimum, maximum, and standard deviation of total nitrogen concentrations for each lake. Create a second summary dataset that is identical except that it evaluates total phosphorus. Customize the chunk options such that the code is run but not displayed in the final document.

```
na.omit(NutrientsCleanFiltered)
NutrientsCleanSummaryNitrogen<-NutrientsCleanFiltered%>%
  group_by(lakename, Date)%>%
  summarize(MeanNitrogen=mean(tn_ug),
            MinNitrogen=min(tn_ug),
            MaxNitrogen=max(tn_ug),
            SDNitrogen=sd(tn_ug))
```

```
NutrientsCleanSummaryPhosphorus<-NutrientsCleanFiltered%>%
  group_by(lakename, Date)%>%
  summarize(MeanPhosphorus=mean(tp_ug),
            MinPhosphorus=min(tp_ug),
            MaxPhosphorus=max(tp_ug),
            SDPhosphorus=sd(tp_ug))
```

Create a third R chunk that uses the function `kable` in the `knitr` package to display two tables: one for the summary dataframe for total N and one for the summary dataframe of total P. Use the `caption = " "` code within that function to title your tables. Customize the chunk options such that the final table is displayed but not the code used to generate the table.

lakename	Date	MeanNitrogen	MinNitrogen	MaxNitrogen	SDNitrogen
Central Long Lake	1993-05-21	343.020	343.020	343.020	NA
Central Long Lake	1993-06-04	375.485	375.485	375.485	NA
Central Long Lake	1993-06-18	438.363	438.363	438.363	NA
Central Long Lake	1993-07-02	666.215	666.215	666.215	NA
Central Long Lake	1993-07-16	485.782	485.782	485.782	NA
Central Long Lake	1993-07-30	436.463	436.463	436.463	NA
Central Long Lake	1993-08-13	421.757	421.757	421.757	NA
Central Long Lake	1993-08-27	403.883	403.883	403.883	NA
Central Long Lake	1993-09-03	432.545	432.545	432.545	NA
Central Long Lake	1994-05-27	386.644	386.644	386.644	NA
Central Long Lake	1994-06-10	589.607	589.607	589.607	NA
Central Long Lake	1994-06-24	661.369	661.369	661.369	NA
Central Long Lake	1994-07-08	735.967	735.967	735.967	NA
Central Long Lake	1994-07-22	799.292	799.292	799.292	NA
Central Long Lake	1994-08-05	891.035	891.035	891.035	NA
Central Long Lake	1994-08-19	802.309	802.309	802.309	NA
Central Long Lake	1994-09-02	953.063	953.063	953.063	NA
Central Long Lake	1995-05-26	499.399	499.399	499.399	NA
Central Long Lake	1995-06-02	581.928	581.928	581.928	NA
Central Long Lake	1995-06-09	862.231	862.231	862.231	NA
Central Long Lake	1995-06-16	687.194	687.194	687.194	NA
Central Long Lake	1995-06-23	751.147	751.147	751.147	NA

lakename	Date	MeanNitrogen	MinNitrogen	MaxNitrogen	SDNitrogen
Central Long Lake	1995-06-30	952.280	952.280	952.280	NA
Central Long Lake	1995-07-07	938.918	938.918	938.918	NA
Central Long Lake	1995-07-14	700.279	700.279	700.279	NA
Central Long Lake	1995-07-21	901.954	901.954	901.954	NA
Central Long Lake	1995-07-28	874.442	874.442	874.442	NA
Central Long Lake	1995-08-04	868.624	868.624	868.624	NA
Central Long Lake	1995-08-11	787.525	787.525	787.525	NA
Central Long Lake	1995-08-18	806.390	806.390	806.390	NA
Central Long Lake	1995-08-25	915.738	915.738	915.738	NA
Central Long Lake	1995-09-01	NA	NA	NA	NA
Crampton Lake	1999-06-11	358.360	358.360	358.360	NA
Crampton Lake	1999-07-15	376.304	376.304	376.304	NA
Crampton Lake	1999-08-20	353.380	353.380	353.380	NA
East Long Lake	1991-05-22	375.000	375.000	375.000	NA
East Long Lake	1991-05-29	684.000	684.000	684.000	NA
East Long Lake	1991-06-05	579.000	579.000	579.000	NA
East Long Lake	1991-06-12	470.000	470.000	470.000	NA
East Long Lake	1991-06-19	480.000	480.000	480.000	NA
East Long Lake	1991-06-26	514.000	514.000	514.000	NA
East Long Lake	1991-07-03	538.000	538.000	538.000	NA
East Long Lake	1991-07-10	405.000	405.000	405.000	NA
East Long Lake	1991-07-17	599.000	599.000	599.000	NA
East Long Lake	1991-07-24	523.000	523.000	523.000	NA
East Long Lake	1991-07-31	580.000	580.000	580.000	NA
East Long Lake	1991-08-07	440.000	440.000	440.000	NA
East Long Lake	1991-08-14	442.000	442.000	442.000	NA
East Long Lake	1991-08-21	518.000	518.000	518.000	NA
East Long Lake	1991-08-28	489.000	489.000	489.000	NA
East Long Lake	1991-09-04	478.000	478.000	478.000	NA
East Long Lake	1992-05-18	689.440	689.440	689.440	NA
East Long Lake	1992-05-25	615.760	615.760	615.760	NA
East Long Lake	1992-06-01	351.950	351.950	351.950	NA
East Long Lake	1992-06-08	490.530	490.530	490.530	NA
East Long Lake	1992-06-15	583.780	583.780	583.780	NA
East Long Lake	1992-06-22	735.410	735.410	735.410	NA
East Long Lake	1992-06-29	534.260	534.260	534.260	NA
East Long Lake	1992-07-06	523.370	523.370	523.370	NA
East Long Lake	1992-07-13	681.940	681.940	681.940	NA
East Long Lake	1992-07-20	657.690	657.690	657.690	NA
East Long Lake	1992-07-27	330.300	330.300	330.300	NA
East Long Lake	1992-08-03	380.620	380.620	380.620	NA
East Long Lake	1992-08-10	602.690	602.690	602.690	NA
East Long Lake	1992-08-17	399.070	399.070	399.070	NA
East Long Lake	1992-08-24	299.310	299.310	299.310	NA
East Long Lake	1992-08-31	661.830	661.830	661.830	NA
East Long Lake	1992-09-07	459.200	459.200	459.200	NA
East Long Lake	1993-05-17	616.026	616.026	616.026	NA
East Long Lake	1993-05-24	632.725	632.725	632.725	NA
East Long Lake	1993-05-31	725.934	725.934	725.934	NA
East Long Lake	1993-06-07	803.730	803.730	803.730	NA
East Long Lake	1993-06-14	666.732	666.732	666.732	NA
East Long Lake	1993-06-21	633.050	633.050	633.050	NA

lakename	Date	MeanNitrogen	MinNitrogen	MaxNitrogen	SDNitrogen
East Long Lake	1993-06-28	681.915	681.915	681.915	NA
East Long Lake	1993-07-05	639.126	639.126	639.126	NA
East Long Lake	1993-07-12	673.619	673.619	673.619	NA
East Long Lake	1993-07-19	762.198	762.198	762.198	NA
East Long Lake	1993-07-26	762.998	762.998	762.998	NA
East Long Lake	1993-08-02	895.540	895.540	895.540	NA
East Long Lake	1993-08-09	819.938	819.938	819.938	NA
East Long Lake	1993-08-16	753.194	753.194	753.194	NA
East Long Lake	1993-08-23	549.719	549.719	549.719	NA
East Long Lake	1993-08-30	621.891	621.891	621.891	NA
East Long Lake	1993-09-06	915.298	915.298	915.298	NA
East Long Lake	1994-05-17	651.300	651.300	651.300	NA
East Long Lake	1994-05-23	611.282	611.282	611.282	NA
East Long Lake	1994-05-30	521.864	521.864	521.864	NA
East Long Lake	1994-06-06	734.455	734.455	734.455	NA
East Long Lake	1994-06-13	645.865	645.865	645.865	NA
East Long Lake	1994-06-20	618.325	618.325	618.325	NA
East Long Lake	1994-06-27	676.400	676.400	676.400	NA
East Long Lake	1994-07-04	955.131	955.131	955.131	NA
East Long Lake	1994-07-11	907.700	907.700	907.700	NA
East Long Lake	1994-07-18	880.044	880.044	880.044	NA
East Long Lake	1994-07-25	815.852	815.852	815.852	NA
East Long Lake	1994-08-01	876.195	876.195	876.195	NA
East Long Lake	1994-08-08	977.386	977.386	977.386	NA
East Long Lake	1994-08-15	1080.365	1080.365	1080.365	NA
East Long Lake	1994-08-22	1056.517	1056.517	1056.517	NA
East Long Lake	1994-08-29	907.374	907.374	907.374	NA
East Long Lake	1994-09-05	1133.331	1133.331	1133.331	NA
East Long Lake	1995-05-22	813.526	813.526	813.526	NA
East Long Lake	1995-05-29	626.509	626.509	626.509	NA
East Long Lake	1995-06-05	702.759	702.759	702.759	NA
East Long Lake	1995-06-12	830.202	830.202	830.202	NA
East Long Lake	1995-06-19	807.050	807.050	807.050	NA
East Long Lake	1995-06-26	1111.126	1111.126	1111.126	NA
East Long Lake	1995-07-03	1251.423	1251.423	1251.423	NA
East Long Lake	1995-07-10	1031.503	1031.503	1031.503	NA
East Long Lake	1995-07-17	1119.408	1119.408	1119.408	NA
East Long Lake	1995-07-24	1041.733	1041.733	1041.733	NA
East Long Lake	1995-07-31	1138.167	1138.167	1138.167	NA
East Long Lake	1995-08-07	1044.002	1044.002	1044.002	NA
East Long Lake	1995-08-14	1126.703	1126.703	1126.703	NA
East Long Lake	1995-08-21	1287.391	1287.391	1287.391	NA
East Long Lake	1995-08-28	1506.281	1506.281	1506.281	NA
East Long Lake	1995-09-04	NA	NA	NA	NA
East Long Lake	1996-05-30	628.811	628.811	628.811	NA
East Long Lake	1996-06-06	1084.141	1084.141	1084.141	NA
East Long Lake	1996-06-13	NA	NA	NA	NA
East Long Lake	1996-06-20	NA	NA	NA	NA
East Long Lake	1996-06-27	2608.956	2608.956	2608.956	NA
East Long Lake	1996-07-04	NA	NA	NA	NA
East Long Lake	1996-07-11	NA	NA	NA	NA
East Long Lake	1996-07-18	NA	NA	NA	NA

lakename	Date	MeanNitrogen	MinNitrogen	MaxNitrogen	SDNitrogen
East Long Lake	1996-07-25	3316.892	3316.892	3316.892	NA
East Long Lake	1996-08-01	NA	NA	NA	NA
East Long Lake	1996-08-08	NA	NA	NA	NA
East Long Lake	1996-08-15	NA	NA	NA	NA
East Long Lake	1996-08-22	NA	NA	NA	NA
East Long Lake	1996-08-29	NA	NA	NA	NA
East Long Lake	1996-09-03	NA	NA	NA	NA
East Long Lake	1997-05-29	933.840	933.840	933.840	NA
East Long Lake	1997-06-05	NA	NA	NA	NA
East Long Lake	1997-06-12	NA	NA	NA	NA
East Long Lake	1997-06-19	NA	NA	NA	NA
East Long Lake	1997-06-26	1258.329	1258.329	1258.329	NA
East Long Lake	1997-07-03	NA	NA	NA	NA
East Long Lake	1997-07-10	NA	NA	NA	NA
East Long Lake	1997-07-17	NA	NA	NA	NA
East Long Lake	1997-07-24	1670.165	1670.165	1670.165	NA
East Long Lake	1997-07-31	NA	NA	NA	NA
East Long Lake	1997-08-07	NA	NA	NA	NA
East Long Lake	1997-08-14	NA	NA	NA	NA
East Long Lake	1997-08-21	1404.285	1404.285	1404.285	NA
East Long Lake	1997-08-28	NA	NA	NA	NA
East Long Lake	1997-09-04	NA	NA	NA	NA
East Long Lake	1998-05-28	872.845	872.845	872.845	NA
East Long Lake	1998-06-04	NA	NA	NA	NA
East Long Lake	1998-06-11	NA	NA	NA	NA
East Long Lake	1998-06-18	NA	NA	NA	NA
East Long Lake	1998-06-25	781.559	781.559	781.559	NA
East Long Lake	1998-07-02	NA	NA	NA	NA
East Long Lake	1998-07-09	NA	NA	NA	NA
East Long Lake	1998-07-16	NA	NA	NA	NA
East Long Lake	1998-07-23	811.618	811.618	811.618	NA
East Long Lake	1998-07-30	NA	NA	NA	NA
East Long Lake	1998-08-06	NA	NA	NA	NA
East Long Lake	1998-08-13	NA	NA	NA	NA
East Long Lake	1998-08-20	NA	NA	NA	NA
East Long Lake	1998-08-27	630.354	630.354	630.354	NA
East Long Lake	1998-09-01	NA	NA	NA	NA
East Long Lake	1999-05-26	731.042	731.042	731.042	NA
East Long Lake	1999-06-23	893.427	893.427	893.427	NA
East Long Lake	1999-07-21	788.066	788.066	788.066	NA
East Long Lake	1999-08-18	843.096	843.096	843.096	NA
Hummingbird Lake	1999-05-25	779.053	779.053	779.053	NA
Hummingbird Lake	1999-06-22	967.986	967.986	967.986	NA
Hummingbird Lake	1999-07-20	1221.960	1221.960	1221.960	NA
Hummingbird Lake	1999-08-17	1177.679	1177.679	1177.679	NA
Paul Lake	1991-05-20	538.000	538.000	538.000	NA
Paul Lake	1991-05-27	483.000	483.000	483.000	NA
Paul Lake	1991-06-03	512.000	512.000	512.000	NA
Paul Lake	1991-06-10	421.000	421.000	421.000	NA
Paul Lake	1991-06-17	474.000	474.000	474.000	NA
Paul Lake	1991-06-24	400.000	400.000	400.000	NA
Paul Lake	1991-07-01	506.000	506.000	506.000	NA

lakename	Date	MeanNitrogen	MinNitrogen	MaxNitrogen	SDNitrogen
Paul Lake	1991-07-08	341.000	341.000	341.000	NA
Paul Lake	1991-07-15	436.000	436.000	436.000	NA
Paul Lake	1991-07-22	431.000	431.000	431.000	NA
Paul Lake	1991-07-29	442.000	442.000	442.000	NA
Paul Lake	1991-08-05	380.000	380.000	380.000	NA
Paul Lake	1991-08-12	383.000	383.000	383.000	NA
Paul Lake	1991-08-19	415.000	415.000	415.000	NA
Paul Lake	1991-08-26	345.000	345.000	345.000	NA
Paul Lake	1991-09-02	477.000	477.000	477.000	NA
Paul Lake	1992-05-20	279.620	279.620	279.620	NA
Paul Lake	1992-05-27	301.320	301.320	301.320	NA
Paul Lake	1992-06-03	267.190	267.190	267.190	NA
Paul Lake	1992-06-10	299.610	299.610	299.610	NA
Paul Lake	1992-06-17	595.990	595.990	595.990	NA
Paul Lake	1992-06-24	182.910	182.910	182.910	NA
Paul Lake	1992-07-01	495.680	495.680	495.680	NA
Paul Lake	1992-07-08	191.370	191.370	191.370	NA
Paul Lake	1992-07-15	335.590	335.590	335.590	NA
Paul Lake	1992-07-22	442.310	442.310	442.310	NA
Paul Lake	1992-07-29	329.920	329.920	329.920	NA
Paul Lake	1992-08-05	495.360	495.360	495.360	NA
Paul Lake	1992-08-12	312.890	312.890	312.890	NA
Paul Lake	1992-08-19	490.260	490.260	490.260	NA
Paul Lake	1992-08-26	448.990	448.990	448.990	NA
Paul Lake	1992-09-03	164.080	164.080	164.080	NA
Paul Lake	1992-09-10	204.310	204.310	204.310	NA
Paul Lake	1993-05-20	248.665	248.665	248.665	NA
Paul Lake	1993-05-27	258.300	258.300	258.300	NA
Paul Lake	1993-06-03	45.670	45.670	45.670	NA
Paul Lake	1993-06-10	117.556	117.556	117.556	NA
Paul Lake	1993-06-17	149.364	149.364	149.364	NA
Paul Lake	1993-06-24	342.826	342.826	342.826	NA
Paul Lake	1993-07-01	395.482	395.482	395.482	NA
Paul Lake	1993-07-08	351.827	351.827	351.827	NA
Paul Lake	1993-07-15	298.448	298.448	298.448	NA
Paul Lake	1993-07-22	345.660	345.660	345.660	NA
Paul Lake	1993-07-29	281.421	281.421	281.421	NA
Paul Lake	1993-08-05	298.507	298.507	298.507	NA
Paul Lake	1993-08-12	187.672	187.672	187.672	NA
Paul Lake	1993-08-19	171.015	171.015	171.015	NA
Paul Lake	1993-08-26	163.148	163.148	163.148	NA
Paul Lake	1993-08-31	277.235	277.235	277.235	NA
Paul Lake	1993-09-07	223.799	223.799	223.799	NA
Paul Lake	1994-05-17	342.109	342.109	342.109	NA
Paul Lake	1994-05-26	417.345	417.345	417.345	NA
Paul Lake	1994-06-02	373.899	373.899	373.899	NA
Paul Lake	1994-06-09	437.168	437.168	437.168	NA
Paul Lake	1994-06-16	423.307	423.307	423.307	NA
Paul Lake	1994-06-23	422.934	422.934	422.934	NA
Paul Lake	1994-06-30	439.984	439.984	439.984	NA
Paul Lake	1994-07-07	412.669	412.669	412.669	NA
Paul Lake	1994-07-14	402.942	402.942	402.942	NA

lakename	Date	MeanNitrogen	MinNitrogen	MaxNitrogen	SDNitrogen
Paul Lake	1994-07-21	387.608	387.608	387.608	NA
Paul Lake	1994-07-28	375.783	375.783	375.783	NA
Paul Lake	1994-08-04	499.251	499.251	499.251	NA
Paul Lake	1994-08-11	498.227	498.227	498.227	NA
Paul Lake	1994-08-18	408.059	408.059	408.059	NA
Paul Lake	1994-08-25	424.318	424.318	424.318	NA
Paul Lake	1994-09-01	437.397	437.397	437.397	NA
Paul Lake	1994-09-06	557.812	557.812	557.812	NA
Paul Lake	1995-05-25	291.780	291.780	291.780	NA
Paul Lake	1995-06-01	342.140	342.140	342.140	NA
Paul Lake	1995-06-08	307.812	307.812	307.812	NA
Paul Lake	1995-06-15	338.845	338.845	338.845	NA
Paul Lake	1995-06-22	324.447	324.447	324.447	NA
Paul Lake	1995-06-29	422.260	422.260	422.260	NA
Paul Lake	1995-07-06	335.737	335.737	335.737	NA
Paul Lake	1995-07-13	379.554	379.554	379.554	NA
Paul Lake	1995-07-20	306.801	306.801	306.801	NA
Paul Lake	1995-07-27	325.446	325.446	325.446	NA
Paul Lake	1995-08-03	419.592	419.592	419.592	NA
Paul Lake	1995-08-10	431.447	431.447	431.447	NA
Paul Lake	1995-08-17	331.686	331.686	331.686	NA
Paul Lake	1995-08-24	381.551	381.551	381.551	NA
Paul Lake	1995-08-31	NA	NA	NA	NA
Paul Lake	1995-09-05	NA	NA	NA	NA
Paul Lake	1996-05-27	244.870	244.870	244.870	NA
Paul Lake	1996-06-03	368.195	368.195	368.195	NA
Paul Lake	1996-06-10	261.827	261.827	261.827	NA
Paul Lake	1996-06-17	NA	NA	NA	NA
Paul Lake	1996-06-24	391.882	391.882	391.882	NA
Paul Lake	1996-07-01	NA	NA	NA	NA
Paul Lake	1996-07-08	NA	NA	NA	NA
Paul Lake	1996-07-15	NA	NA	NA	NA
Paul Lake	1996-07-22	351.499	351.499	351.499	NA
Paul Lake	1996-07-29	NA	NA	NA	NA
Paul Lake	1996-08-05	NA	NA	NA	NA
Paul Lake	1996-08-12	NA	NA	NA	NA
Paul Lake	1996-08-19	219.406	219.406	219.406	NA
Paul Lake	1996-08-26	NA	NA	NA	NA
Paul Lake	1996-09-02	NA	NA	NA	NA
Paul Lake	1997-05-26	412.409	412.409	412.409	NA
Paul Lake	1997-06-02	NA	NA	NA	NA
Paul Lake	1997-06-09	NA	NA	NA	NA
Paul Lake	1997-06-16	NA	NA	NA	NA
Paul Lake	1997-06-23	477.193	477.193	477.193	NA
Paul Lake	1997-06-30	NA	NA	NA	NA
Paul Lake	1997-07-07	NA	NA	NA	NA
Paul Lake	1997-07-14	NA	NA	NA	NA
Paul Lake	1997-07-21	374.651	374.651	374.651	NA
Paul Lake	1997-07-28	NA	NA	NA	NA
Paul Lake	1997-08-04	NA	NA	NA	NA
Paul Lake	1997-08-11	NA	NA	NA	NA
Paul Lake	1997-08-18	360.280	360.280	360.280	NA

lakename	Date	MeanNitrogen	MinNitrogen	MaxNitrogen	SDNitrogen
Paul Lake	1997-08-25	NA	NA	NA	NA
Paul Lake	1997-09-01	NA	NA	NA	NA
Paul Lake	1998-05-25	473.371	473.371	473.371	NA
Paul Lake	1998-06-01	NA	NA	NA	NA
Paul Lake	1998-06-08	NA	NA	NA	NA
Paul Lake	1998-06-15	NA	NA	NA	NA
Paul Lake	1998-06-22	628.625	628.625	628.625	NA
Paul Lake	1998-06-29	NA	NA	NA	NA
Paul Lake	1998-07-06	NA	NA	NA	NA
Paul Lake	1998-07-13	NA	NA	NA	NA
Paul Lake	1998-07-20	338.512	338.512	338.512	NA
Paul Lake	1998-07-27	NA	NA	NA	NA
Paul Lake	1998-08-03	NA	NA	NA	NA
Paul Lake	1998-08-10	NA	NA	NA	NA
Paul Lake	1998-08-17	NA	NA	NA	NA
Paul Lake	1998-08-24	576.302	576.302	576.302	NA
Paul Lake	1998-08-29	NA	NA	NA	NA
Paul Lake	1999-05-24	340.252	340.252	340.252	NA
Paul Lake	1999-06-21	393.202	393.202	393.202	NA
Paul Lake	1999-07-19	355.795	355.795	355.795	NA
Paul Lake	1999-08-16	395.547	395.547	395.547	NA
Peter Lake	1991-05-20	352.000	352.000	352.000	NA
Peter Lake	1991-05-28	342.000	342.000	342.000	NA
Peter Lake	1991-06-04	573.000	573.000	573.000	NA
Peter Lake	1991-06-11	296.000	296.000	296.000	NA
Peter Lake	1991-06-18	321.000	321.000	321.000	NA
Peter Lake	1991-06-25	292.000	292.000	292.000	NA
Peter Lake	1991-07-02	346.000	346.000	346.000	NA
Peter Lake	1991-07-09	266.000	266.000	266.000	NA
Peter Lake	1991-07-16	490.000	490.000	490.000	NA
Peter Lake	1991-07-23	364.000	364.000	364.000	NA
Peter Lake	1991-07-30	368.000	368.000	368.000	NA
Peter Lake	1991-08-06	288.000	288.000	288.000	NA
Peter Lake	1991-08-13	317.000	317.000	317.000	NA
Peter Lake	1991-08-20	280.000	280.000	280.000	NA
Peter Lake	1991-08-27	275.000	275.000	275.000	NA
Peter Lake	1991-09-03	345.000	345.000	345.000	NA
Peter Lake	1992-05-20	347.150	347.150	347.150	NA
Peter Lake	1992-05-27	272.000	272.000	272.000	NA
Peter Lake	1992-06-03	644.280	644.280	644.280	NA
Peter Lake	1992-06-10	258.240	258.240	258.240	NA
Peter Lake	1992-06-17	581.510	581.510	581.510	NA
Peter Lake	1992-06-24	219.720	219.720	219.720	NA
Peter Lake	1992-07-01	469.420	469.420	469.420	NA
Peter Lake	1992-07-08	329.070	329.070	329.070	NA
Peter Lake	1992-07-15	131.830	131.830	131.830	NA
Peter Lake	1992-07-22	292.630	292.630	292.630	NA
Peter Lake	1992-07-29	282.850	282.850	282.850	NA
Peter Lake	1992-08-05	376.940	376.940	376.940	NA
Peter Lake	1992-08-12	201.770	201.770	201.770	NA
Peter Lake	1992-08-19	301.570	301.570	301.570	NA
Peter Lake	1992-08-26	366.500	366.500	366.500	NA

lakename	Date	MeanNitrogen	MinNitrogen	MaxNitrogen	SDNitrogen
Peter Lake	1992-09-02	434.180	434.180	434.180	NA
Peter Lake	1992-09-09	417.190	417.190	417.190	NA
Peter Lake	1993-05-19	373.081	373.081	373.081	NA
Peter Lake	1993-05-26	312.593	312.593	312.593	NA
Peter Lake	1993-06-02	414.602	414.602	414.602	NA
Peter Lake	1993-06-09	514.523	514.523	514.523	NA
Peter Lake	1993-06-16	616.316	616.316	616.316	NA
Peter Lake	1993-06-23	605.458	605.458	605.458	NA
Peter Lake	1993-06-30	418.173	418.173	418.173	NA
Peter Lake	1993-07-07	490.470	490.470	490.470	NA
Peter Lake	1993-07-14	707.771	707.771	707.771	NA
Peter Lake	1993-07-21	395.310	395.310	395.310	NA
Peter Lake	1993-07-28	352.001	352.001	352.001	NA
Peter Lake	1993-08-04	641.684	641.684	641.684	NA
Peter Lake	1993-08-11	517.016	517.016	517.016	NA
Peter Lake	1993-08-18	513.473	513.473	513.473	NA
Peter Lake	1993-08-25	465.333	465.333	465.333	NA
Peter Lake	1993-08-31	448.049	448.049	448.049	NA
Peter Lake	1993-09-07	420.378	420.378	420.378	NA
Peter Lake	1994-05-17	354.859	354.859	354.859	NA
Peter Lake	1994-05-25	460.791	460.791	460.791	NA
Peter Lake	1994-06-01	379.781	379.781	379.781	NA
Peter Lake	1994-06-08	509.244	509.244	509.244	NA
Peter Lake	1994-06-15	477.839	477.839	477.839	NA
Peter Lake	1994-06-22	480.660	480.660	480.660	NA
Peter Lake	1994-06-29	609.005	609.005	609.005	NA
Peter Lake	1994-07-06	571.092	571.092	571.092	NA
Peter Lake	1994-07-13	746.728	746.728	746.728	NA
Peter Lake	1994-07-20	699.476	699.476	699.476	NA
Peter Lake	1994-07-27	779.086	779.086	779.086	NA
Peter Lake	1994-08-03	814.424	814.424	814.424	NA
Peter Lake	1994-08-10	833.706	833.706	833.706	NA
Peter Lake	1994-08-17	807.511	807.511	807.511	NA
Peter Lake	1994-08-24	653.576	653.576	653.576	NA
Peter Lake	1994-08-31	747.822	747.822	747.822	NA
Peter Lake	1994-09-06	680.558	680.558	680.558	NA
Peter Lake	1995-05-24	436.333	436.333	436.333	NA
Peter Lake	1995-05-31	444.782	444.782	444.782	NA
Peter Lake	1995-06-07	388.163	388.163	388.163	NA
Peter Lake	1995-06-14	478.125	478.125	478.125	NA
Peter Lake	1995-06-21	486.462	486.462	486.462	NA
Peter Lake	1995-06-28	535.325	535.325	535.325	NA
Peter Lake	1995-07-05	576.806	576.806	576.806	NA
Peter Lake	1995-07-12	582.801	582.801	582.801	NA
Peter Lake	1995-07-19	590.792	590.792	590.792	NA
Peter Lake	1995-07-26	688.018	688.018	688.018	NA
Peter Lake	1995-08-02	688.511	688.511	688.511	NA
Peter Lake	1995-08-09	686.848	686.848	686.848	NA
Peter Lake	1995-08-16	754.679	754.679	754.679	NA
Peter Lake	1995-08-23	692.486	692.486	692.486	NA
Peter Lake	1995-08-30	NA	NA	NA	NA
Peter Lake	1995-09-05	NA	NA	NA	NA

lakename	Date	MeanNitrogen	MinNitrogen	MaxNitrogen	SDNitrogen
Peter Lake	1996-05-28	312.133	312.133	312.133	NA
Peter Lake	1996-06-04	868.105	868.105	868.105	NA
Peter Lake	1996-06-11	NA	NA	NA	NA
Peter Lake	1996-06-18	NA	NA	NA	NA
Peter Lake	1996-06-25	1962.902	1962.902	1962.902	NA
Peter Lake	1996-07-02	NA	NA	NA	NA
Peter Lake	1996-07-09	NA	NA	NA	NA
Peter Lake	1996-07-16	NA	NA	NA	NA
Peter Lake	1996-07-23	2048.151	2048.151	2048.151	NA
Peter Lake	1996-07-30	NA	NA	NA	NA
Peter Lake	1996-08-06	NA	NA	NA	NA
Peter Lake	1996-08-13	NA	NA	NA	NA
Peter Lake	1996-08-20	1924.631	1924.631	1924.631	NA
Peter Lake	1996-08-27	NA	NA	NA	NA
Peter Lake	1996-09-02	NA	NA	NA	NA
Peter Lake	1997-05-27	508.968	508.968	508.968	NA
Peter Lake	1997-06-03	NA	NA	NA	NA
Peter Lake	1997-06-10	NA	NA	NA	NA
Peter Lake	1997-06-17	NA	NA	NA	NA
Peter Lake	1997-06-24	917.878	917.878	917.878	NA
Peter Lake	1997-07-01	NA	NA	NA	NA
Peter Lake	1997-07-08	NA	NA	NA	NA
Peter Lake	1997-07-15	NA	NA	NA	NA
Peter Lake	1997-07-22	1162.929	1162.929	1162.929	NA
Peter Lake	1997-07-29	NA	NA	NA	NA
Peter Lake	1997-08-05	NA	NA	NA	NA
Peter Lake	1997-08-12	NA	NA	NA	NA
Peter Lake	1997-08-19	1251.840	1251.840	1251.840	NA
Peter Lake	1997-08-26	NA	NA	NA	NA
Peter Lake	1997-09-02	NA	NA	NA	NA
Peter Lake	1998-05-26	593.138	593.138	593.138	NA
Peter Lake	1998-06-02	NA	NA	NA	NA
Peter Lake	1998-06-09	NA	NA	NA	NA
Peter Lake	1998-06-16	NA	NA	NA	NA
Peter Lake	1998-06-23	587.544	587.544	587.544	NA
Peter Lake	1998-06-30	NA	NA	NA	NA
Peter Lake	1998-07-07	NA	NA	NA	NA
Peter Lake	1998-07-14	NA	NA	NA	NA
Peter Lake	1998-07-21	537.964	537.964	537.964	NA
Peter Lake	1998-07-28	NA	NA	NA	NA
Peter Lake	1998-08-04	NA	NA	NA	NA
Peter Lake	1998-08-11	NA	NA	NA	NA
Peter Lake	1998-08-18	NA	NA	NA	NA
Peter Lake	1998-08-25	488.017	488.017	488.017	NA
Peter Lake	1998-08-30	NA	NA	NA	NA
Peter Lake	1999-05-24	560.862	560.862	560.862	NA
Peter Lake	1999-06-21	538.694	538.694	538.694	NA
Peter Lake	1999-07-19	594.585	594.585	594.585	NA
Peter Lake	1999-08-16	588.069	588.069	588.069	NA
Tuesday Lake	1993-05-28	NA	NA	NA	NA
Tuesday Lake	1993-06-11	237.363	237.363	237.363	NA
Tuesday Lake	1993-06-25	384.514	384.514	384.514	NA

lakename	Date	MeanNitrogen	MinNitrogen	MaxNitrogen	SDNitrogen
Tuesday Lake	1993-07-09	392.735	392.735	392.735	NA
Tuesday Lake	1993-07-23	NA	NA	NA	NA
Tuesday Lake	1993-08-06	357.603	357.603	357.603	NA
Tuesday Lake	1993-08-20	258.744	258.744	258.744	NA
Tuesday Lake	1993-09-03	407.098	407.098	407.098	NA
Tuesday Lake	1994-06-03	451.899	451.899	451.899	NA
Tuesday Lake	1994-06-17	442.174	442.174	442.174	NA
Tuesday Lake	1994-07-01	544.695	544.695	544.695	NA
Tuesday Lake	1994-07-15	450.242	450.242	450.242	NA
Tuesday Lake	1994-07-29	464.449	464.449	464.449	NA
Tuesday Lake	1994-08-12	474.994	474.994	474.994	NA
Tuesday Lake	1994-08-26	434.383	434.383	434.383	NA
Tuesday Lake	1994-09-02	474.832	474.832	474.832	NA
Tuesday Lake	1995-05-26	449.965	449.965	449.965	NA
Tuesday Lake	1995-06-09	394.677	394.677	394.677	NA
Tuesday Lake	1995-06-23	489.366	489.366	489.366	NA
Tuesday Lake	1995-07-07	454.326	454.326	454.326	NA
Tuesday Lake	1995-07-21	376.436	376.436	376.436	NA
Tuesday Lake	1995-08-04	284.274	284.274	284.274	NA
Tuesday Lake	1995-08-18	366.530	366.530	366.530	NA
Tuesday Lake	1996-05-31	378.652	378.652	378.652	NA
Tuesday Lake	1996-06-28	423.608	423.608	423.608	NA
Tuesday Lake	1996-07-26	383.007	383.007	383.007	NA
Tuesday Lake	1996-08-23	297.256	297.256	297.256	NA
Tuesday Lake	1997-05-30	371.745	371.745	371.745	NA
Tuesday Lake	1997-06-13	382.810	382.810	382.810	NA
Tuesday Lake	1997-06-20	486.615	486.615	486.615	NA
Tuesday Lake	1997-06-27	431.008	431.008	431.008	NA
Tuesday Lake	1997-07-04	356.471	356.471	356.471	NA
Tuesday Lake	1997-07-11	347.032	347.032	347.032	NA
Tuesday Lake	1997-07-18	440.929	440.929	440.929	NA
Tuesday Lake	1997-07-25	386.870	386.870	386.870	NA
Tuesday Lake	1997-08-01	388.404	388.404	388.404	NA
Tuesday Lake	1997-08-08	427.968	427.968	427.968	NA
Tuesday Lake	1997-08-15	344.876	344.876	344.876	NA
Tuesday Lake	1997-08-22	420.112	420.112	420.112	NA
Tuesday Lake	1997-08-29	329.958	329.958	329.958	NA
Tuesday Lake	1998-05-29	533.887	533.887	533.887	NA
Tuesday Lake	1998-06-25	461.542	461.542	461.542	NA
Tuesday Lake	1998-07-24	417.893	417.893	417.893	NA
Tuesday Lake	1998-08-27	328.410	328.410	328.410	NA
Tuesday Lake	1999-05-25	371.565	371.565	371.565	NA
Tuesday Lake	1999-06-22	482.668	482.668	482.668	NA
Tuesday Lake	1999-07-20	554.418	554.418	554.418	NA
Tuesday Lake	1999-08-17	532.824	532.824	532.824	NA
West Long Lake	1991-05-22	471.000	471.000	471.000	NA
West Long Lake	1991-05-30	512.000	512.000	512.000	NA
West Long Lake	1991-06-06	490.000	490.000	490.000	NA
West Long Lake	1991-06-13	497.000	497.000	497.000	NA
West Long Lake	1991-06-20	454.000	454.000	454.000	NA
West Long Lake	1991-06-27	523.000	523.000	523.000	NA
West Long Lake	1991-07-04	489.000	489.000	489.000	NA

lakename	Date	MeanNitrogen	MinNitrogen	MaxNitrogen	SDNitrogen
West Long Lake	1991-07-11	430.000	430.000	430.000	NA
West Long Lake	1991-07-18	542.000	542.000	542.000	NA
West Long Lake	1991-07-25	530.000	530.000	530.000	NA
West Long Lake	1991-08-01	457.000	457.000	457.000	NA
West Long Lake	1991-08-08	472.000	472.000	472.000	NA
West Long Lake	1991-08-15	498.000	498.000	498.000	NA
West Long Lake	1991-08-22	459.000	459.000	459.000	NA
West Long Lake	1991-08-29	521.000	521.000	521.000	NA
West Long Lake	1991-09-05	440.000	440.000	440.000	NA
West Long Lake	1992-05-19	670.480	670.480	670.480	NA
West Long Lake	1992-05-26	522.530	522.530	522.530	NA
West Long Lake	1992-06-02	369.740	369.740	369.740	NA
West Long Lake	1992-06-09	325.030	325.030	325.030	NA
West Long Lake	1992-06-16	404.240	404.240	404.240	NA
West Long Lake	1992-06-23	303.170	303.170	303.170	NA
West Long Lake	1992-06-30	512.640	512.640	512.640	NA
West Long Lake	1992-07-07	517.300	517.300	517.300	NA
West Long Lake	1992-07-14	393.320	393.320	393.320	NA
West Long Lake	1992-07-21	479.310	479.310	479.310	NA
West Long Lake	1992-07-28	306.070	306.070	306.070	NA
West Long Lake	1992-08-04	358.820	358.820	358.820	NA
West Long Lake	1992-08-11	399.320	399.320	399.320	NA
West Long Lake	1992-08-18	382.080	382.080	382.080	NA
West Long Lake	1992-08-25	512.320	512.320	512.320	NA
West Long Lake	1992-09-01	430.940	430.940	430.940	NA
West Long Lake	1992-09-08	541.250	541.250	541.250	NA
West Long Lake	1993-05-18	465.680	465.680	465.680	NA
West Long Lake	1993-05-25	381.199	381.199	381.199	NA
West Long Lake	1993-06-01	531.890	531.890	531.890	NA
West Long Lake	1993-06-08	532.514	532.514	532.514	NA
West Long Lake	1993-06-15	1252.000	1252.000	1252.000	NA
West Long Lake	1993-06-22	610.439	610.439	610.439	NA
West Long Lake	1993-06-29	523.234	523.234	523.234	NA
West Long Lake	1993-07-06	650.100	650.100	650.100	NA
West Long Lake	1993-07-13	498.170	498.170	498.170	NA
West Long Lake	1993-07-20	605.288	605.288	605.288	NA
West Long Lake	1993-07-27	695.265	695.265	695.265	NA
West Long Lake	1993-08-03	781.871	781.871	781.871	NA
West Long Lake	1993-08-10	775.410	775.410	775.410	NA
West Long Lake	1993-08-17	938.649	938.649	938.649	NA
West Long Lake	1993-08-24	826.533	826.533	826.533	NA
West Long Lake	1993-08-30	959.000	959.000	959.000	NA
West Long Lake	1993-09-06	1066.000	1066.000	1066.000	NA
West Long Lake	1994-05-17	525.264	525.264	525.264	NA
West Long Lake	1994-05-24	547.468	547.468	547.468	NA
West Long Lake	1994-05-31	424.086	424.086	424.086	NA
West Long Lake	1994-06-07	516.421	516.421	516.421	NA
West Long Lake	1994-06-14	617.945	617.945	617.945	NA
West Long Lake	1994-06-21	639.792	639.792	639.792	NA
West Long Lake	1994-06-28	851.832	851.832	851.832	NA
West Long Lake	1994-07-05	988.470	988.470	988.470	NA
West Long Lake	1994-07-12	957.919	957.919	957.919	NA

lakename	Date	MeanNitrogen	MinNitrogen	MaxNitrogen	SDNitrogen
West Long Lake	1994-07-19	1161.230	1161.230	1161.230	NA
West Long Lake	1994-07-26	991.104	991.104	991.104	NA
West Long Lake	1994-08-02	1250.195	1250.195	1250.195	NA
West Long Lake	1994-08-09	1342.330	1342.330	1342.330	NA
West Long Lake	1994-08-16	NA	NA	NA	NA
West Long Lake	1994-08-23	NA	NA	NA	NA
West Long Lake	1994-08-30	1277.132	1277.132	1277.132	NA
West Long Lake	1994-09-05	1500.000	1500.000	1500.000	NA
West Long Lake	1995-05-23	862.127	862.127	862.127	NA
West Long Lake	1995-05-30	757.715	757.715	757.715	NA
West Long Lake	1995-06-06	718.560	718.560	718.560	NA
West Long Lake	1995-06-13	763.148	763.148	763.148	NA
West Long Lake	1995-06-20	717.850	717.850	717.850	NA
West Long Lake	1995-06-27	713.944	713.944	713.944	NA
West Long Lake	1995-07-04	806.222	806.222	806.222	NA
West Long Lake	1995-07-11	672.858	672.858	672.858	NA
West Long Lake	1995-07-18	722.114	722.114	722.114	NA
West Long Lake	1995-07-25	845.591	845.591	845.591	NA
West Long Lake	1995-08-01	741.087	741.087	741.087	NA
West Long Lake	1995-08-08	692.521	692.521	692.521	NA
West Long Lake	1995-08-15	762.382	762.382	762.382	NA
West Long Lake	1995-08-22	732.909	732.909	732.909	NA
West Long Lake	1995-08-29	780.457	780.457	780.457	NA
West Long Lake	1995-09-04	NA	NA	NA	NA
West Long Lake	1996-05-29	494.511	494.511	494.511	NA
West Long Lake	1996-06-05	970.638	970.638	970.638	NA
West Long Lake	1996-06-12	NA	NA	NA	NA
West Long Lake	1996-06-19	NA	NA	NA	NA
West Long Lake	1996-06-26	2061.226	2061.226	2061.226	NA
West Long Lake	1996-07-03	NA	NA	NA	NA
West Long Lake	1996-07-10	NA	NA	NA	NA
West Long Lake	1996-07-17	NA	NA	NA	NA
West Long Lake	1996-07-24	2870.302	2870.302	2870.302	NA
West Long Lake	1996-07-31	NA	NA	NA	NA
West Long Lake	1996-08-07	NA	NA	NA	NA
West Long Lake	1996-08-14	NA	NA	NA	NA
West Long Lake	1996-08-21	2950.343	2950.343	2950.343	NA
West Long Lake	1996-08-28	NA	NA	NA	NA
West Long Lake	1996-09-03	NA	NA	NA	NA
West Long Lake	1997-05-28	629.512	629.512	629.512	NA
West Long Lake	1997-06-04	NA	NA	NA	NA
West Long Lake	1997-06-11	NA	NA	NA	NA
West Long Lake	1997-06-18	NA	NA	NA	NA
West Long Lake	1997-06-25	1147.122	1147.122	1147.122	NA
West Long Lake	1997-07-02	NA	NA	NA	NA
West Long Lake	1997-07-09	NA	NA	NA	NA
West Long Lake	1997-07-16	NA	NA	NA	NA
West Long Lake	1997-07-23	1464.382	1464.382	1464.382	NA
West Long Lake	1997-07-30	NA	NA	NA	NA
West Long Lake	1997-08-06	NA	NA	NA	NA
West Long Lake	1997-08-13	NA	NA	NA	NA
West Long Lake	1997-08-20	1402.538	1402.538	1402.538	NA

lakename	Date	MeanNitrogen	MinNitrogen	MaxNitrogen	SDNitrogen
West Long Lake	1997-08-27	NA	NA	NA	NA
West Long Lake	1997-09-03	NA	NA	NA	NA
West Long Lake	1998-05-27	747.818	747.818	747.818	NA
West Long Lake	1998-06-03	NA	NA	NA	NA
West Long Lake	1998-06-10	NA	NA	NA	NA
West Long Lake	1998-06-17	NA	NA	NA	NA
West Long Lake	1998-06-24	756.505	756.505	756.505	NA
West Long Lake	1998-07-01	NA	NA	NA	NA
West Long Lake	1998-07-08	NA	NA	NA	NA
West Long Lake	1998-07-15	NA	NA	NA	NA
West Long Lake	1998-07-22	690.243	690.243	690.243	NA
West Long Lake	1998-07-29	NA	NA	NA	NA
West Long Lake	1998-08-05	NA	NA	NA	NA
West Long Lake	1998-08-12	NA	NA	NA	NA
West Long Lake	1998-08-19	NA	NA	NA	NA
West Long Lake	1998-08-26	747.487	747.487	747.487	NA
West Long Lake	1998-08-31	NA	NA	NA	NA
West Long Lake	1999-05-26	469.071	469.071	469.071	NA
West Long Lake	1999-06-23	620.146	620.146	620.146	NA
West Long Lake	1999-07-21	640.932	640.932	640.932	NA
West Long Lake	1999-08-18	693.544	693.544	693.544	NA

lakename	Date	MeanPhosphorus	MinPhosphorus	MaxPhosphorus	SDPhosphorus
Central Long Lake	1993-05-21	9.194	9.194	9.194	NA
Central Long Lake	1993-06-04	18.740	18.740	18.740	NA
Central Long Lake	1993-06-18	29.226	29.226	29.226	NA
Central Long Lake	1993-07-02	19.041	19.041	19.041	NA
Central Long Lake	1993-07-16	17.608	17.608	17.608	NA
Central Long Lake	1993-07-30	16.281	16.281	16.281	NA
Central Long Lake	1993-08-13	21.588	21.588	21.588	NA
Central Long Lake	1993-08-27	17.789	17.789	17.789	NA
Central Long Lake	1993-09-03	23.765	23.765	23.765	NA
Central Long Lake	1994-05-27	8.190	8.190	8.190	NA
Central Long Lake	1994-06-10	10.323	10.323	10.323	NA
Central Long Lake	1994-06-24	18.113	18.113	18.113	NA
Central Long Lake	1994-07-08	17.972	17.972	17.972	NA
Central Long Lake	1994-07-22	20.430	20.430	20.430	NA
Central Long Lake	1994-08-05	21.078	21.078	21.078	NA
Central Long Lake	1994-08-19	20.449	20.449	20.449	NA
Central Long Lake	1994-09-02	15.166	15.166	15.166	NA
Central Long Lake	1995-05-26	11.795	11.795	11.795	NA
Central Long Lake	1995-06-02	21.683	21.683	21.683	NA
Central Long Lake	1995-06-09	34.955	34.955	34.955	NA
Central Long Lake	1995-06-16	18.282	18.282	18.282	NA
Central Long Lake	1995-06-23	23.409	23.409	23.409	NA
Central Long Lake	1995-06-30	30.368	30.368	30.368	NA
Central Long Lake	1995-07-07	27.468	27.468	27.468	NA
Central Long Lake	1995-07-14	22.854	22.854	22.854	NA
Central Long Lake	1995-07-21	23.619	23.619	23.619	NA
Central Long Lake	1995-07-28	26.624	26.624	26.624	NA
Central Long Lake	1995-08-04	37.270	37.270	37.270	NA

lakename	Date	MeanPhosphorus	MinPhosphorus	MaxPhosphorus	SDPhosphorus
Central Long Lake	1995-08-11	23.997	23.997	23.997	NA
Central Long Lake	1995-08-18	22.613	22.613	22.613	NA
Central Long Lake	1995-08-25	26.249	26.249	26.249	NA
Central Long Lake	1995-09-01	34.894	34.894	34.894	NA
Crampton Lake	1999-06-11	12.123	12.123	12.123	NA
Crampton Lake	1999-07-15	5.803	5.803	5.803	NA
Crampton Lake	1999-08-20	15.555	15.555	15.555	NA
East Long Lake	1991-05-22	15.000	15.000	15.000	NA
East Long Lake	1991-05-29	15.000	15.000	15.000	NA
East Long Lake	1991-06-05	10.000	10.000	10.000	NA
East Long Lake	1991-06-12	16.000	16.000	16.000	NA
East Long Lake	1991-06-19	19.000	19.000	19.000	NA
East Long Lake	1991-06-26	17.000	17.000	17.000	NA
East Long Lake	1991-07-03	14.000	14.000	14.000	NA
East Long Lake	1991-07-10	15.000	15.000	15.000	NA
East Long Lake	1991-07-17	10.000	10.000	10.000	NA
East Long Lake	1991-07-24	13.000	13.000	13.000	NA
East Long Lake	1991-07-31	8.000	8.000	8.000	NA
East Long Lake	1991-08-07	15.000	15.000	15.000	NA
East Long Lake	1991-08-14	15.000	15.000	15.000	NA
East Long Lake	1991-08-21	10.000	10.000	10.000	NA
East Long Lake	1991-08-28	13.000	13.000	13.000	NA
East Long Lake	1991-09-04	9.000	9.000	9.000	NA
East Long Lake	1992-05-18	30.570	30.570	30.570	NA
East Long Lake	1992-05-25	14.300	14.300	14.300	NA
East Long Lake	1992-06-01	9.790	9.790	9.790	NA
East Long Lake	1992-06-08	20.710	20.710	20.710	NA
East Long Lake	1992-06-15	13.220	13.220	13.220	NA
East Long Lake	1992-06-22	19.400	19.400	19.400	NA
East Long Lake	1992-06-29	9.560	9.560	9.560	NA
East Long Lake	1992-07-06	17.790	17.790	17.790	NA
East Long Lake	1992-07-13	21.050	21.050	21.050	NA
East Long Lake	1992-07-20	17.190	17.190	17.190	NA
East Long Lake	1992-07-27	9.730	9.730	9.730	NA
East Long Lake	1992-08-03	9.270	9.270	9.270	NA
East Long Lake	1992-08-10	11.500	11.500	11.500	NA
East Long Lake	1992-08-17	9.350	9.350	9.350	NA
East Long Lake	1992-08-24	12.360	12.360	12.360	NA
East Long Lake	1992-08-31	8.550	8.550	8.550	NA
East Long Lake	1992-09-07	7.160	7.160	7.160	NA
East Long Lake	1993-05-17	17.773	17.773	17.773	NA
East Long Lake	1993-05-24	28.271	28.271	28.271	NA
East Long Lake	1993-05-31	28.717	28.717	28.717	NA
East Long Lake	1993-06-07	46.746	46.746	46.746	NA
East Long Lake	1993-06-14	18.376	18.376	18.376	NA
East Long Lake	1993-06-21	25.381	25.381	25.381	NA
East Long Lake	1993-06-28	30.810	30.810	30.810	NA
East Long Lake	1993-07-05	40.998	40.998	40.998	NA
East Long Lake	1993-07-12	32.354	32.354	32.354	NA
East Long Lake	1993-07-19	35.170	35.170	35.170	NA
East Long Lake	1993-07-26	29.006	29.006	29.006	NA
East Long Lake	1993-08-02	23.416	23.416	23.416	NA

lakename	Date	MeanPhosphorus	MinPhosphorus	MaxPhosphorus	SDPhosphorus
East Long Lake	1993-08-09	23.238	23.238	23.238	NA
East Long Lake	1993-08-16	29.176	29.176	29.176	NA
East Long Lake	1993-08-23	20.929	20.929	20.929	NA
East Long Lake	1993-08-30	30.197	30.197	30.197	NA
East Long Lake	1993-09-06	24.736	24.736	24.736	NA
East Long Lake	1994-05-17	9.089	9.089	9.089	NA
East Long Lake	1994-05-23	19.669	19.669	19.669	NA
East Long Lake	1994-05-30	21.013	21.013	21.013	NA
East Long Lake	1994-06-06	26.585	26.585	26.585	NA
East Long Lake	1994-06-13	13.854	13.854	13.854	NA
East Long Lake	1994-06-20	20.885	20.885	20.885	NA
East Long Lake	1994-06-27	19.004	19.004	19.004	NA
East Long Lake	1994-07-04	NA	NA	NA	NA
East Long Lake	1994-07-11	24.693	24.693	24.693	NA
East Long Lake	1994-07-18	21.491	21.491	21.491	NA
East Long Lake	1994-07-25	15.436	15.436	15.436	NA
East Long Lake	1994-08-01	20.045	20.045	20.045	NA
East Long Lake	1994-08-08	20.450	20.450	20.450	NA
East Long Lake	1994-08-15	33.942	33.942	33.942	NA
East Long Lake	1994-08-22	24.365	24.365	24.365	NA
East Long Lake	1994-08-29	20.554	20.554	20.554	NA
East Long Lake	1994-09-05	22.520	22.520	22.520	NA
East Long Lake	1995-05-22	45.570	45.570	45.570	NA
East Long Lake	1995-05-29	30.214	30.214	30.214	NA
East Long Lake	1995-06-05	34.045	34.045	34.045	NA
East Long Lake	1995-06-12	35.475	35.475	35.475	NA
East Long Lake	1995-06-19	27.335	27.335	27.335	NA
East Long Lake	1995-06-26	49.522	49.522	49.522	NA
East Long Lake	1995-07-03	69.952	69.952	69.952	NA
East Long Lake	1995-07-10	41.847	41.847	41.847	NA
East Long Lake	1995-07-17	25.909	25.909	25.909	NA
East Long Lake	1995-07-24	28.385	28.385	28.385	NA
East Long Lake	1995-07-31	36.684	36.684	36.684	NA
East Long Lake	1995-08-07	34.133	34.133	34.133	NA
East Long Lake	1995-08-14	28.921	28.921	28.921	NA
East Long Lake	1995-08-21	32.482	32.482	32.482	NA
East Long Lake	1995-08-28	30.807	30.807	30.807	NA
East Long Lake	1995-09-04	37.015	37.015	37.015	NA
East Long Lake	1996-05-30	29.426	29.426	29.426	NA
East Long Lake	1996-06-06	46.255	46.255	46.255	NA
East Long Lake	1996-06-13	66.839	66.839	66.839	NA
East Long Lake	1996-06-20	86.407	86.407	86.407	NA
East Long Lake	1996-06-27	101.050	101.050	101.050	NA
East Long Lake	1996-07-04	89.644	89.644	89.644	NA
East Long Lake	1996-07-11	115.866	115.866	115.866	NA
East Long Lake	1996-07-18	130.516	130.516	130.516	NA
East Long Lake	1996-07-25	119.932	119.932	119.932	NA
East Long Lake	1996-08-01	105.077	105.077	105.077	NA
East Long Lake	1996-08-08	108.363	108.363	108.363	NA
East Long Lake	1996-08-15	136.671	136.671	136.671	NA
East Long Lake	1996-08-22	122.745	122.745	122.745	NA
East Long Lake	1996-08-29	104.150	104.150	104.150	NA

lakename	Date	MeanPhosphorus	MinPhosphorus	MaxPhosphorus	SDPhosphorus
East Long Lake	1996-09-03	104.991	104.991	104.991	NA
East Long Lake	1997-05-29	47.033	47.033	47.033	NA
East Long Lake	1997-06-05	76.746	76.746	76.746	NA
East Long Lake	1997-06-12	43.851	43.851	43.851	NA
East Long Lake	1997-06-19	91.183	91.183	91.183	NA
East Long Lake	1997-06-26	65.415	65.415	65.415	NA
East Long Lake	1997-07-03	80.529	80.529	80.529	NA
East Long Lake	1997-07-10	68.382	68.382	68.382	NA
East Long Lake	1997-07-17	61.000	61.000	61.000	NA
East Long Lake	1997-07-24	77.373	77.373	77.373	NA
East Long Lake	1997-07-31	73.037	73.037	73.037	NA
East Long Lake	1997-08-07	69.286	69.286	69.286	NA
East Long Lake	1997-08-14	97.174	97.174	97.174	NA
East Long Lake	1997-08-21	62.844	62.844	62.844	NA
East Long Lake	1997-08-28	58.423	58.423	58.423	NA
East Long Lake	1997-09-04	63.538	63.538	63.538	NA
East Long Lake	1998-05-28	44.352	44.352	44.352	NA
East Long Lake	1998-06-04	47.497	47.497	47.497	NA
East Long Lake	1998-06-11	50.406	50.406	50.406	NA
East Long Lake	1998-06-18	40.030	40.030	40.030	NA
East Long Lake	1998-06-25	65.364	65.364	65.364	NA
East Long Lake	1998-07-02	42.897	42.897	42.897	NA
East Long Lake	1998-07-09	49.951	49.951	49.951	NA
East Long Lake	1998-07-16	39.679	39.679	39.679	NA
East Long Lake	1998-07-23	35.111	35.111	35.111	NA
East Long Lake	1998-07-30	35.368	35.368	35.368	NA
East Long Lake	1998-08-06	34.215	34.215	34.215	NA
East Long Lake	1998-08-13	25.765	25.765	25.765	NA
East Long Lake	1998-08-20	30.634	30.634	30.634	NA
East Long Lake	1998-08-27	22.892	22.892	22.892	NA
East Long Lake	1998-09-01	27.848	27.848	27.848	NA
East Long Lake	1999-05-26	32.279	32.279	32.279	NA
East Long Lake	1999-06-23	55.793	55.793	55.793	NA
East Long Lake	1999-07-21	50.132	50.132	50.132	NA
East Long Lake	1999-08-18	33.656	33.656	33.656	NA
Hummingbird Lake	1999-05-25	34.033	34.033	34.033	NA
Hummingbird Lake	1999-06-22	42.119	42.119	42.119	NA
Hummingbird Lake	1999-07-20	32.765	32.765	32.765	NA
Hummingbird Lake	1999-08-17	35.960	35.960	35.960	NA
Paul Lake	1991-05-20	25.000	25.000	25.000	NA
Paul Lake	1991-05-27	8.000	8.000	8.000	NA
Paul Lake	1991-06-03	17.000	17.000	17.000	NA
Paul Lake	1991-06-10	11.000	11.000	11.000	NA
Paul Lake	1991-06-17	8.000	8.000	8.000	NA
Paul Lake	1991-06-24	9.000	9.000	9.000	NA
Paul Lake	1991-07-01	9.000	9.000	9.000	NA
Paul Lake	1991-07-08	11.000	11.000	11.000	NA
Paul Lake	1991-07-15	9.000	9.000	9.000	NA
Paul Lake	1991-07-22	6.000	6.000	6.000	NA
Paul Lake	1991-07-29	9.000	9.000	9.000	NA
Paul Lake	1991-08-05	11.000	11.000	11.000	NA
Paul Lake	1991-08-12	7.000	7.000	7.000	NA

lakename	Date	MeanPhosphorus	MinPhosphorus	MaxPhosphorus	SDPhosphorus
Paul Lake	1991-08-19	8.000	8.000	8.000	NA
Paul Lake	1991-08-26	8.000	8.000	8.000	NA
Paul Lake	1991-09-02	7.000	7.000	7.000	NA
Paul Lake	1992-05-20	9.660	9.660	9.660	NA
Paul Lake	1992-05-27	22.620	22.620	22.620	NA
Paul Lake	1992-06-03	13.740	13.740	13.740	NA
Paul Lake	1992-06-10	7.390	7.390	7.390	NA
Paul Lake	1992-06-17	0.110	0.110	0.110	NA
Paul Lake	1992-06-24	8.780	8.780	8.780	NA
Paul Lake	1992-07-01	7.670	7.670	7.670	NA
Paul Lake	1992-07-08	36.070	36.070	36.070	NA
Paul Lake	1992-07-15	8.740	8.740	8.740	NA
Paul Lake	1992-07-22	19.650	19.650	19.650	NA
Paul Lake	1992-07-29	8.860	8.860	8.860	NA
Paul Lake	1992-08-05	11.210	11.210	11.210	NA
Paul Lake	1992-08-12	10.050	10.050	10.050	NA
Paul Lake	1992-08-19	9.610	9.610	9.610	NA
Paul Lake	1992-08-26	10.890	10.890	10.890	NA
Paul Lake	1992-09-03	10.080	10.080	10.080	NA
Paul Lake	1992-09-10	19.370	19.370	19.370	NA
Paul Lake	1993-05-20	10.697	10.697	10.697	NA
Paul Lake	1993-05-27	7.001	7.001	7.001	NA
Paul Lake	1993-06-03	7.443	7.443	7.443	NA
Paul Lake	1993-06-10	5.361	5.361	5.361	NA
Paul Lake	1993-06-17	11.380	11.380	11.380	NA
Paul Lake	1993-06-24	12.604	12.604	12.604	NA
Paul Lake	1993-07-01	9.072	9.072	9.072	NA
Paul Lake	1993-07-08	11.953	11.953	11.953	NA
Paul Lake	1993-07-15	11.073	11.073	11.073	NA
Paul Lake	1993-07-22	8.689	8.689	8.689	NA
Paul Lake	1993-07-29	7.108	7.108	7.108	NA
Paul Lake	1993-08-05	9.888	9.888	9.888	NA
Paul Lake	1993-08-12	11.542	11.542	11.542	NA
Paul Lake	1993-08-19	10.257	10.257	10.257	NA
Paul Lake	1993-08-26	7.732	7.732	7.732	NA
Paul Lake	1993-08-31	11.321	11.321	11.321	NA
Paul Lake	1993-09-07	11.671	11.671	11.671	NA
Paul Lake	1994-05-17	13.080	13.080	13.080	NA
Paul Lake	1994-05-26	17.090	17.090	17.090	NA
Paul Lake	1994-06-02	16.410	16.410	16.410	NA
Paul Lake	1994-06-09	16.697	16.697	16.697	NA
Paul Lake	1994-06-16	13.946	13.946	13.946	NA
Paul Lake	1994-06-23	10.605	10.605	10.605	NA
Paul Lake	1994-06-30	15.738	15.738	15.738	NA
Paul Lake	1994-07-07	21.763	21.763	21.763	NA
Paul Lake	1994-07-14	4.501	4.501	4.501	NA
Paul Lake	1994-07-21	11.473	11.473	11.473	NA
Paul Lake	1994-07-28	7.527	7.527	7.527	NA
Paul Lake	1994-08-04	9.512	9.512	9.512	NA
Paul Lake	1994-08-11	7.430	7.430	7.430	NA
Paul Lake	1994-08-18	10.515	10.515	10.515	NA
Paul Lake	1994-08-25	8.694	8.694	8.694	NA

lakename	Date	MeanPhosphorus	MinPhosphorus	MaxPhosphorus	SDPhosphorus
Paul Lake	1994-09-01	10.192	10.192	10.192	NA
Paul Lake	1994-09-06	16.281	16.281	16.281	NA
Paul Lake	1995-05-25	7.287	7.287	7.287	NA
Paul Lake	1995-06-01	14.365	14.365	14.365	NA
Paul Lake	1995-06-08	1.222	1.222	1.222	NA
Paul Lake	1995-06-15	6.448	6.448	6.448	NA
Paul Lake	1995-06-22	5.567	5.567	5.567	NA
Paul Lake	1995-06-29	10.353	10.353	10.353	NA
Paul Lake	1995-07-06	10.420	10.420	10.420	NA
Paul Lake	1995-07-13	10.444	10.444	10.444	NA
Paul Lake	1995-07-20	8.151	8.151	8.151	NA
Paul Lake	1995-07-27	10.728	10.728	10.728	NA
Paul Lake	1995-08-03	10.973	10.973	10.973	NA
Paul Lake	1995-08-10	10.538	10.538	10.538	NA
Paul Lake	1995-08-17	8.368	8.368	8.368	NA
Paul Lake	1995-08-24	9.231	9.231	9.231	NA
Paul Lake	1995-08-31	8.045	8.045	8.045	NA
Paul Lake	1995-09-05	8.944	8.944	8.944	NA
Paul Lake	1996-05-27	13.689	13.689	13.689	NA
Paul Lake	1996-06-03	NA	NA	NA	NA
Paul Lake	1996-06-10	10.359	10.359	10.359	NA
Paul Lake	1996-06-17	13.373	13.373	13.373	NA
Paul Lake	1996-06-24	7.583	7.583	7.583	NA
Paul Lake	1996-07-01	9.239	9.239	9.239	NA
Paul Lake	1996-07-08	7.753	7.753	7.753	NA
Paul Lake	1996-07-15	7.652	7.652	7.652	NA
Paul Lake	1996-07-22	7.967	7.967	7.967	NA
Paul Lake	1996-07-29	9.931	9.931	9.931	NA
Paul Lake	1996-08-05	9.398	9.398	9.398	NA
Paul Lake	1996-08-12	5.879	5.879	5.879	NA
Paul Lake	1996-08-19	9.933	9.933	9.933	NA
Paul Lake	1996-08-26	9.706	9.706	9.706	NA
Paul Lake	1996-09-02	6.592	6.592	6.592	NA
Paul Lake	1997-05-26	13.570	13.570	13.570	NA
Paul Lake	1997-06-02	6.907	6.907	6.907	NA
Paul Lake	1997-06-09	6.312	6.312	6.312	NA
Paul Lake	1997-06-16	17.557	17.557	17.557	NA
Paul Lake	1997-06-23	9.206	9.206	9.206	NA
Paul Lake	1997-06-30	8.489	8.489	8.489	NA
Paul Lake	1997-07-07	7.778	7.778	7.778	NA
Paul Lake	1997-07-14	9.190	9.190	9.190	NA
Paul Lake	1997-07-21	9.420	9.420	9.420	NA
Paul Lake	1997-07-28	12.789	12.789	12.789	NA
Paul Lake	1997-08-04	8.044	8.044	8.044	NA
Paul Lake	1997-08-11	8.240	8.240	8.240	NA
Paul Lake	1997-08-18	13.873	13.873	13.873	NA
Paul Lake	1997-08-25	13.697	13.697	13.697	NA
Paul Lake	1997-09-01	7.419	7.419	7.419	NA
Paul Lake	1998-05-25	7.743	7.743	7.743	NA
Paul Lake	1998-06-01	13.105	13.105	13.105	NA
Paul Lake	1998-06-08	10.723	10.723	10.723	NA
Paul Lake	1998-06-15	4.986	4.986	4.986	NA

lakename	Date	MeanPhosphorus	MinPhosphorus	MaxPhosphorus	SDPhosphorus
Paul Lake	1998-06-22	5.564	5.564	5.564	NA
Paul Lake	1998-06-29	11.781	11.781	11.781	NA
Paul Lake	1998-07-06	17.292	17.292	17.292	NA
Paul Lake	1998-07-13	3.430	3.430	3.430	NA
Paul Lake	1998-07-20	2.305	2.305	2.305	NA
Paul Lake	1998-07-27	8.548	8.548	8.548	NA
Paul Lake	1998-08-03	9.115	9.115	9.115	NA
Paul Lake	1998-08-10	10.133	10.133	10.133	NA
Paul Lake	1998-08-17	6.466	6.466	6.466	NA
Paul Lake	1998-08-24	8.005	8.005	8.005	NA
Paul Lake	1998-08-29	9.155	9.155	9.155	NA
Paul Lake	1999-05-24	8.806	8.806	8.806	NA
Paul Lake	1999-06-21	15.827	15.827	15.827	NA
Paul Lake	1999-07-19	5.253	5.253	5.253	NA
Paul Lake	1999-08-16	11.063	11.063	11.063	NA
Peter Lake	1991-05-20	11.000	11.000	11.000	NA
Peter Lake	1991-05-28	23.000	23.000	23.000	NA
Peter Lake	1991-06-04	5.000	5.000	5.000	NA
Peter Lake	1991-06-11	9.000	9.000	9.000	NA
Peter Lake	1991-06-18	8.000	8.000	8.000	NA
Peter Lake	1991-06-25	4.000	4.000	4.000	NA
Peter Lake	1991-07-02	10.000	10.000	10.000	NA
Peter Lake	1991-07-09	5.000	5.000	5.000	NA
Peter Lake	1991-07-16	9.000	9.000	9.000	NA
Peter Lake	1991-07-23	7.000	7.000	7.000	NA
Peter Lake	1991-07-30	22.000	22.000	22.000	NA
Peter Lake	1991-08-06	10.000	10.000	10.000	NA
Peter Lake	1991-08-13	12.000	12.000	12.000	NA
Peter Lake	1991-08-20	12.000	12.000	12.000	NA
Peter Lake	1991-08-27	11.000	11.000	11.000	NA
Peter Lake	1991-09-03	6.000	6.000	6.000	NA
Peter Lake	1992-05-20	12.320	12.320	12.320	NA
Peter Lake	1992-05-27	5.650	5.650	5.650	NA
Peter Lake	1992-06-03	14.980	14.980	14.980	NA
Peter Lake	1992-06-10	8.300	8.300	8.300	NA
Peter Lake	1992-06-17	3.540	3.540	3.540	NA
Peter Lake	1992-06-24	0.000	0.000	0.000	NA
Peter Lake	1992-07-01	8.130	8.130	8.130	NA
Peter Lake	1992-07-08	13.680	13.680	13.680	NA
Peter Lake	1992-07-15	6.700	6.700	6.700	NA
Peter Lake	1992-07-22	11.230	11.230	11.230	NA
Peter Lake	1992-07-29	8.300	8.300	8.300	NA
Peter Lake	1992-08-05	7.520	7.520	7.520	NA
Peter Lake	1992-08-12	9.340	9.340	9.340	NA
Peter Lake	1992-08-19	9.040	9.040	9.040	NA
Peter Lake	1992-08-26	6.190	6.190	6.190	NA
Peter Lake	1992-09-02	9.310	9.310	9.310	NA
Peter Lake	1992-09-09	9.270	9.270	9.270	NA
Peter Lake	1993-05-19	18.534	18.534	18.534	NA
Peter Lake	1993-05-26	16.814	16.814	16.814	NA
Peter Lake	1993-06-02	24.580	24.580	24.580	NA
Peter Lake	1993-06-09	32.909	32.909	32.909	NA

lakename	Date	MeanPhosphorus	MinPhosphorus	MaxPhosphorus	SDPhosphorus
Peter Lake	1993-06-16	51.881	51.881	51.881	NA
Peter Lake	1993-06-23	41.970	41.970	41.970	NA
Peter Lake	1993-06-30	25.141	25.141	25.141	NA
Peter Lake	1993-07-07	30.955	30.955	30.955	NA
Peter Lake	1993-07-14	30.733	30.733	30.733	NA
Peter Lake	1993-07-21	23.143	23.143	23.143	NA
Peter Lake	1993-07-28	27.056	27.056	27.056	NA
Peter Lake	1993-08-04	21.373	21.373	21.373	NA
Peter Lake	1993-08-11	25.603	25.603	25.603	NA
Peter Lake	1993-08-18	21.112	21.112	21.112	NA
Peter Lake	1993-08-25	18.787	18.787	18.787	NA
Peter Lake	1993-08-31	18.417	18.417	18.417	NA
Peter Lake	1993-09-07	20.819	20.819	20.819	NA
Peter Lake	1994-05-17	10.887	10.887	10.887	NA
Peter Lake	1994-05-25	14.504	14.504	14.504	NA
Peter Lake	1994-06-01	12.581	12.581	12.581	NA
Peter Lake	1994-06-08	16.359	16.359	16.359	NA
Peter Lake	1994-06-15	15.346	15.346	15.346	NA
Peter Lake	1994-06-22	19.304	19.304	19.304	NA
Peter Lake	1994-06-29	24.788	24.788	24.788	NA
Peter Lake	1994-07-06	24.207	24.207	24.207	NA
Peter Lake	1994-07-13	19.149	19.149	19.149	NA
Peter Lake	1994-07-20	23.381	23.381	23.381	NA
Peter Lake	1994-07-27	21.692	21.692	21.692	NA
Peter Lake	1994-08-03	24.463	24.463	24.463	NA
Peter Lake	1994-08-10	36.581	36.581	36.581	NA
Peter Lake	1994-08-17	16.842	16.842	16.842	NA
Peter Lake	1994-08-24	22.552	22.552	22.552	NA
Peter Lake	1994-08-31	14.551	14.551	14.551	NA
Peter Lake	1994-09-06	16.281	16.281	16.281	NA
Peter Lake	1995-05-24	18.922	18.922	18.922	NA
Peter Lake	1995-05-31	15.279	15.279	15.279	NA
Peter Lake	1995-06-07	10.974	10.974	10.974	NA
Peter Lake	1995-06-14	13.505	13.505	13.505	NA
Peter Lake	1995-06-21	12.958	12.958	12.958	NA
Peter Lake	1995-06-28	14.590	14.590	14.590	NA
Peter Lake	1995-07-05	19.982	19.982	19.982	NA
Peter Lake	1995-07-12	19.157	19.157	19.157	NA
Peter Lake	1995-07-19	19.617	19.617	19.617	NA
Peter Lake	1995-07-26	21.664	21.664	21.664	NA
Peter Lake	1995-08-02	23.225	23.225	23.225	NA
Peter Lake	1995-08-09	24.684	24.684	24.684	NA
Peter Lake	1995-08-16	22.252	22.252	22.252	NA
Peter Lake	1995-08-23	21.661	21.661	21.661	NA
Peter Lake	1995-08-30	28.433	28.433	28.433	NA
Peter Lake	1995-09-05	26.632	26.632	26.632	NA
Peter Lake	1996-05-28	15.573	15.573	15.573	NA
Peter Lake	1996-06-04	38.610	38.610	38.610	NA
Peter Lake	1996-06-11	52.123	52.123	52.123	NA
Peter Lake	1996-06-18	53.388	53.388	53.388	NA
Peter Lake	1996-06-25	49.435	49.435	49.435	NA
Peter Lake	1996-07-02	50.549	50.549	50.549	NA

lakename	Date	MeanPhosphorus	MinPhosphorus	MaxPhosphorus	SDPhosphorus
Peter Lake	1996-07-09	66.893	66.893	66.893	NA
Peter Lake	1996-07-16	66.447	66.447	66.447	NA
Peter Lake	1996-07-23	64.383	64.383	64.383	NA
Peter Lake	1996-07-30	55.868	55.868	55.868	NA
Peter Lake	1996-08-06	49.757	49.757	49.757	NA
Peter Lake	1996-08-13	27.554	27.554	27.554	NA
Peter Lake	1996-08-20	36.845	36.845	36.845	NA
Peter Lake	1996-08-27	48.694	48.694	48.694	NA
Peter Lake	1996-09-02	41.145	41.145	41.145	NA
Peter Lake	1997-05-27	13.334	13.334	13.334	NA
Peter Lake	1997-06-03	18.852	18.852	18.852	NA
Peter Lake	1997-06-10	20.360	20.360	20.360	NA
Peter Lake	1997-06-17	19.537	19.537	19.537	NA
Peter Lake	1997-06-24	21.881	21.881	21.881	NA
Peter Lake	1997-07-01	33.111	33.111	33.111	NA
Peter Lake	1997-07-08	21.273	21.273	21.273	NA
Peter Lake	1997-07-15	22.090	22.090	22.090	NA
Peter Lake	1997-07-22	25.869	25.869	25.869	NA
Peter Lake	1997-07-29	36.883	36.883	36.883	NA
Peter Lake	1997-08-05	31.659	31.659	31.659	NA
Peter Lake	1997-08-12	37.292	37.292	37.292	NA
Peter Lake	1997-08-19	41.426	41.426	41.426	NA
Peter Lake	1997-08-26	46.774	46.774	46.774	NA
Peter Lake	1997-09-02	52.615	52.615	52.615	NA
Peter Lake	1998-05-26	8.475	8.475	8.475	NA
Peter Lake	1998-06-02	15.814	15.814	15.814	NA
Peter Lake	1998-06-09	9.734	9.734	9.734	NA
Peter Lake	1998-06-16	7.306	7.306	7.306	NA
Peter Lake	1998-06-23	8.086	8.086	8.086	NA
Peter Lake	1998-06-30	14.877	14.877	14.877	NA
Peter Lake	1998-07-07	15.550	15.550	15.550	NA
Peter Lake	1998-07-14	21.708	21.708	21.708	NA
Peter Lake	1998-07-21	8.593	8.593	8.593	NA
Peter Lake	1998-07-28	15.872	15.872	15.872	NA
Peter Lake	1998-08-04	14.176	14.176	14.176	NA
Peter Lake	1998-08-11	14.073	14.073	14.073	NA
Peter Lake	1998-08-18	14.728	14.728	14.728	NA
Peter Lake	1998-08-25	13.222	13.222	13.222	NA
Peter Lake	1998-08-30	20.759	20.759	20.759	NA
Peter Lake	1999-05-24	11.140	11.140	11.140	NA
Peter Lake	1999-06-21	16.863	16.863	16.863	NA
Peter Lake	1999-07-19	8.732	8.732	8.732	NA
Peter Lake	1999-08-16	11.917	11.917	11.917	NA
Tuesday Lake	1993-05-28	12.342	12.342	12.342	NA
Tuesday Lake	1993-06-11	15.231	15.231	15.231	NA
Tuesday Lake	1993-06-25	12.121	12.121	12.121	NA
Tuesday Lake	1993-07-09	9.852	9.852	9.852	NA
Tuesday Lake	1993-07-23	10.609	10.609	10.609	NA
Tuesday Lake	1993-08-06	10.958	10.958	10.958	NA
Tuesday Lake	1993-08-20	9.723	9.723	9.723	NA
Tuesday Lake	1993-09-03	10.545	10.545	10.545	NA
Tuesday Lake	1994-06-03	NA	NA	NA	NA

lakename	Date	MeanPhosphorus	MinPhosphorus	MaxPhosphorus	SDPhosphorus
Tuesday Lake	1994-06-17	14.954	14.954	14.954	NA
Tuesday Lake	1994-07-01	15.675	15.675	15.675	NA
Tuesday Lake	1994-07-15	14.502	14.502	14.502	NA
Tuesday Lake	1994-07-29	15.546	15.546	15.546	NA
Tuesday Lake	1994-08-12	14.492	14.492	14.492	NA
Tuesday Lake	1994-08-26	18.663	18.663	18.663	NA
Tuesday Lake	1994-09-02	9.990	9.990	9.990	NA
Tuesday Lake	1995-05-26	14.176	14.176	14.176	NA
Tuesday Lake	1995-06-09	8.502	8.502	8.502	NA
Tuesday Lake	1995-06-23	12.644	12.644	12.644	NA
Tuesday Lake	1995-07-07	10.158	10.158	10.158	NA
Tuesday Lake	1995-07-21	NA	NA	NA	NA
Tuesday Lake	1995-08-04	7.071	7.071	7.071	NA
Tuesday Lake	1995-08-18	8.690	8.690	8.690	NA
Tuesday Lake	1996-05-31	12.798	12.798	12.798	NA
Tuesday Lake	1996-06-28	12.711	12.711	12.711	NA
Tuesday Lake	1996-07-26	14.016	14.016	14.016	NA
Tuesday Lake	1996-08-23	13.335	13.335	13.335	NA
Tuesday Lake	1997-05-30	11.435	11.435	11.435	NA
Tuesday Lake	1997-06-13	5.340	5.340	5.340	NA
Tuesday Lake	1997-06-20	12.616	12.616	12.616	NA
Tuesday Lake	1997-06-27	8.193	8.193	8.193	NA
Tuesday Lake	1997-07-04	12.457	12.457	12.457	NA
Tuesday Lake	1997-07-11	10.287	10.287	10.287	NA
Tuesday Lake	1997-07-18	11.164	11.164	11.164	NA
Tuesday Lake	1997-07-25	16.382	16.382	16.382	NA
Tuesday Lake	1997-08-01	6.895	6.895	6.895	NA
Tuesday Lake	1997-08-08	4.413	4.413	4.413	NA
Tuesday Lake	1997-08-15	11.387	11.387	11.387	NA
Tuesday Lake	1997-08-22	12.795	12.795	12.795	NA
Tuesday Lake	1997-08-29	9.151	9.151	9.151	NA
Tuesday Lake	1998-05-29	6.325	6.325	6.325	NA
Tuesday Lake	1998-06-25	6.786	6.786	6.786	NA
Tuesday Lake	1998-07-24	10.471	10.471	10.471	NA
Tuesday Lake	1998-08-27	13.539	13.539	13.539	NA
Tuesday Lake	1999-05-25	12.081	12.081	12.081	NA
Tuesday Lake	1999-06-22	13.365	13.365	13.365	NA
Tuesday Lake	1999-07-20	7.834	7.834	7.834	NA
Tuesday Lake	1999-08-17	11.017	11.017	11.017	NA
West Long Lake	1991-05-22	12.000	12.000	12.000	NA
West Long Lake	1991-05-30	10.000	10.000	10.000	NA
West Long Lake	1991-06-06	4.000	4.000	4.000	NA
West Long Lake	1991-06-13	20.000	20.000	20.000	NA
West Long Lake	1991-06-20	16.000	16.000	16.000	NA
West Long Lake	1991-06-27	11.000	11.000	11.000	NA
West Long Lake	1991-07-04	16.000	16.000	16.000	NA
West Long Lake	1991-07-11	20.000	20.000	20.000	NA
West Long Lake	1991-07-18	6.000	6.000	6.000	NA
West Long Lake	1991-07-25	13.000	13.000	13.000	NA
West Long Lake	1991-08-01	14.000	14.000	14.000	NA
West Long Lake	1991-08-08	14.000	14.000	14.000	NA
West Long Lake	1991-08-15	10.000	10.000	10.000	NA

lakename	Date	MeanPhosphorus	MinPhosphorus	MaxPhosphorus	SDPhosphorus
West Long Lake	1991-08-22	8.000	8.000	8.000	NA
West Long Lake	1991-08-29	10.000	10.000	10.000	NA
West Long Lake	1991-09-05	7.000	7.000	7.000	NA
West Long Lake	1992-05-19	17.660	17.660	17.660	NA
West Long Lake	1992-05-26	7.740	7.740	7.740	NA
West Long Lake	1992-06-02	4.630	4.630	4.630	NA
West Long Lake	1992-06-09	2.690	2.690	2.690	NA
West Long Lake	1992-06-16	4.870	4.870	4.870	NA
West Long Lake	1992-06-23	3.080	3.080	3.080	NA
West Long Lake	1992-06-30	8.130	8.130	8.130	NA
West Long Lake	1992-07-07	13.230	13.230	13.230	NA
West Long Lake	1992-07-14	5.230	5.230	5.230	NA
West Long Lake	1992-07-21	7.920	7.920	7.920	NA
West Long Lake	1992-07-28	6.080	6.080	6.080	NA
West Long Lake	1992-08-04	NA	NA	NA	NA
West Long Lake	1992-08-11	6.140	6.140	6.140	NA
West Long Lake	1992-08-18	13.150	13.150	13.150	NA
West Long Lake	1992-08-25	11.020	11.020	11.020	NA
West Long Lake	1992-09-01	6.520	6.520	6.520	NA
West Long Lake	1992-09-08	8.510	8.510	8.510	NA
West Long Lake	1993-05-18	11.783	11.783	11.783	NA
West Long Lake	1993-05-25	8.381	8.381	8.381	NA
West Long Lake	1993-06-01	15.964	15.964	15.964	NA
West Long Lake	1993-06-08	16.697	16.697	16.697	NA
West Long Lake	1993-06-15	63.243	63.243	63.243	NA
West Long Lake	1993-06-22	19.421	19.421	19.421	NA
West Long Lake	1993-06-29	32.300	32.300	32.300	NA
West Long Lake	1993-07-06	19.323	19.323	19.323	NA
West Long Lake	1993-07-13	27.204	27.204	27.204	NA
West Long Lake	1993-07-20	18.349	18.349	18.349	NA
West Long Lake	1993-07-27	34.115	34.115	34.115	NA
West Long Lake	1993-08-03	32.812	32.812	32.812	NA
West Long Lake	1993-08-10	15.545	15.545	15.545	NA
West Long Lake	1993-08-17	29.394	29.394	29.394	NA
West Long Lake	1993-08-24	21.007	21.007	21.007	NA
West Long Lake	1993-08-30	31.951	31.951	31.951	NA
West Long Lake	1993-09-06	31.752	31.752	31.752	NA
West Long Lake	1994-05-17	22.991	22.991	22.991	NA
West Long Lake	1994-05-24	NA	NA	NA	NA
West Long Lake	1994-05-31	13.914	13.914	13.914	NA
West Long Lake	1994-06-07	11.258	11.258	11.258	NA
West Long Lake	1994-06-14	12.450	12.450	12.450	NA
West Long Lake	1994-06-21	18.934	18.934	18.934	NA
West Long Lake	1994-06-28	22.825	22.825	22.825	NA
West Long Lake	1994-07-05	27.763	27.763	27.763	NA
West Long Lake	1994-07-12	16.830	16.830	16.830	NA
West Long Lake	1994-07-19	20.220	20.220	20.220	NA
West Long Lake	1994-07-26	20.540	20.540	20.540	NA
West Long Lake	1994-08-02	23.625	23.625	23.625	NA
West Long Lake	1994-08-09	21.268	21.268	21.268	NA
West Long Lake	1994-08-16	35.982	35.982	35.982	NA
West Long Lake	1994-08-23	18.786	18.786	18.786	NA

lakename	Date	MeanPhosphorus	MinPhosphorus	MaxPhosphorus	SDPhosphorus
West Long Lake	1994-08-30	NA	NA	NA	NA
West Long Lake	1994-09-05	22.294	22.294	22.294	NA
West Long Lake	1995-05-23	18.976	18.976	18.976	NA
West Long Lake	1995-05-30	14.673	14.673	14.673	NA
West Long Lake	1995-06-06	15.944	15.944	15.944	NA
West Long Lake	1995-06-13	13.194	13.194	13.194	NA
West Long Lake	1995-06-20	18.920	18.920	18.920	NA
West Long Lake	1995-06-27	17.658	17.658	17.658	NA
West Long Lake	1995-07-04	16.558	16.558	16.558	NA
West Long Lake	1995-07-11	14.220	14.220	14.220	NA
West Long Lake	1995-07-18	16.584	16.584	16.584	NA
West Long Lake	1995-07-25	20.624	20.624	20.624	NA
West Long Lake	1995-08-01	18.731	18.731	18.731	NA
West Long Lake	1995-08-08	16.522	16.522	16.522	NA
West Long Lake	1995-08-15	16.605	16.605	16.605	NA
West Long Lake	1995-08-22	12.522	12.522	12.522	NA
West Long Lake	1995-08-29	13.760	13.760	13.760	NA
West Long Lake	1995-09-04	17.608	17.608	17.608	NA
West Long Lake	1996-05-29	19.222	19.222	19.222	NA
West Long Lake	1996-06-05	21.089	21.089	21.089	NA
West Long Lake	1996-06-12	19.119	19.119	19.119	NA
West Long Lake	1996-06-19	39.107	39.107	39.107	NA
West Long Lake	1996-06-26	34.826	34.826	34.826	NA
West Long Lake	1996-07-03	36.013	36.013	36.013	NA
West Long Lake	1996-07-10	44.433	44.433	44.433	NA
West Long Lake	1996-07-17	54.960	54.960	54.960	NA
West Long Lake	1996-07-24	53.424	53.424	53.424	NA
West Long Lake	1996-07-31	56.984	56.984	56.984	NA
West Long Lake	1996-08-07	55.530	55.530	55.530	NA
West Long Lake	1996-08-14	49.652	49.652	49.652	NA
West Long Lake	1996-08-21	38.886	38.886	38.886	NA
West Long Lake	1996-08-28	52.952	52.952	52.952	NA
West Long Lake	1996-09-03	39.718	39.718	39.718	NA
West Long Lake	1997-05-28	23.013	23.013	23.013	NA
West Long Lake	1997-06-04	20.724	20.724	20.724	NA
West Long Lake	1997-06-11	18.766	18.766	18.766	NA
West Long Lake	1997-06-18	35.429	35.429	35.429	NA
West Long Lake	1997-06-25	31.750	31.750	31.750	NA
West Long Lake	1997-07-02	48.016	48.016	48.016	NA
West Long Lake	1997-07-09	28.998	28.998	28.998	NA
West Long Lake	1997-07-16	31.782	31.782	31.782	NA
West Long Lake	1997-07-23	32.467	32.467	32.467	NA
West Long Lake	1997-07-30	32.578	32.578	32.578	NA
West Long Lake	1997-08-06	28.139	28.139	28.139	NA
West Long Lake	1997-08-13	31.350	31.350	31.350	NA
West Long Lake	1997-08-20	42.245	42.245	42.245	NA
West Long Lake	1997-08-27	34.253	34.253	34.253	NA
West Long Lake	1997-09-03	46.656	46.656	46.656	NA
West Long Lake	1998-05-27	18.595	18.595	18.595	NA
West Long Lake	1998-06-03	26.811	26.811	26.811	NA
West Long Lake	1998-06-10	28.498	28.498	28.498	NA
West Long Lake	1998-06-17	13.049	13.049	13.049	NA

lakename	Date	MeanPhosphorus	MinPhosphorus	MaxPhosphorus	SDPhosphorus
West Long Lake	1998-06-24	23.982	23.982	23.982	NA
West Long Lake	1998-07-01	27.991	27.991	27.991	NA
West Long Lake	1998-07-08	21.932	21.932	21.932	NA
West Long Lake	1998-07-15	30.289	30.289	30.289	NA
West Long Lake	1998-07-22	30.083	30.083	30.083	NA
West Long Lake	1998-07-29	26.613	26.613	26.613	NA
West Long Lake	1998-08-05	22.600	22.600	22.600	NA
West Long Lake	1998-08-12	22.640	22.640	22.640	NA
West Long Lake	1998-08-19	23.534	23.534	23.534	NA
West Long Lake	1998-08-26	23.595	23.595	23.595	NA
West Long Lake	1998-08-31	25.968	25.968	25.968	NA
West Long Lake	1999-05-26	13.949	13.949	13.949	NA
West Long Lake	1999-06-23	19.159	19.159	19.159	NA
West Long Lake	1999-07-21	31.538	31.538	31.538	NA
West Long Lake	1999-08-18	29.834	29.834	29.834	NA

Create a fourth and fifth R chunk that generates two plots (one in each chunk): one for total N over time with different colors for each lake, and one with the same setup but for total P. Decide which geom option will be appropriate for your purpose, and select a color palette that is visually pleasing and accessible. Customize the chunk options such that the final figures are displayed but not the code used to generate the figures. In addition, customize the chunk options such that the figures are aligned on the left side of the page. Lastly, add a fig.cap chunk option to add a caption (title) to your plot that will display underneath the figure.

Other options

What are the chunk options that will suppress the display of errors, warnings, and messages in the final document?

ANSWER:

Communicating results

Write a paragraph describing your findings from the R coding challenge above. This should be geared toward an educated audience but one that is not necessarily familiar with the dataset. Then insert a horizontal rule below the paragraph. Below the horizontal rule, write another paragraph describing the next steps you might take in analyzing this dataset. What questions might you be able to answer, and what analyses would you conduct to answer those questions?

OTHER R MARKDOWN CUSTOMIZATION OPTIONS

We have covered the basics in class today, but R Markdown offers many customization options. A word of caution: customizing templates will often require more interaction with LaTeX and installations on your computer, so be ready to troubleshoot issues.

Customization options for pdf output include:

- Table of contents
- Number sections
- Control default size of figures
- Citations
- Template (more info here)

pdf_document:
toc: true
number_sections: true
fig_height: 3
fig_width: 4
citation_package: natbib
template: