

# **Finding the State and Regional Story in the National Lakes Assessment Data**

**John Kiddon & Henry Walker**  
USEPA Atlantic Ecology Division, Narragansett RI

**North American Lake Management Society  
Seventh National Monitoring Conference  
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**“Mr. Osborne, may I be excused? My brain is full.”**

**Gary Larson, The Far Side**





# Outline

**Review an Excel Tool for exploring  
NLA data at the state & regional scale**

**Highlight pros & cons of the approach  
and consider alternate strategies**

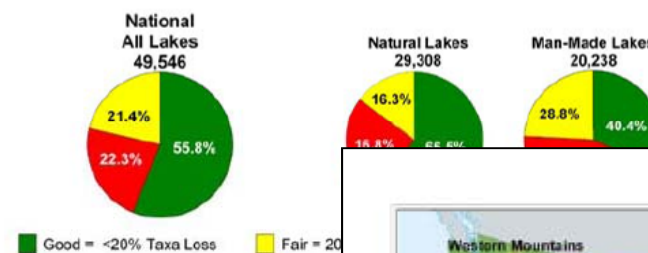
**Solicit opinions & feedback**

# National Lakes Survey 2007

## Assessment of nation and nine ecoregions



### Taxa Loss



### Lakeshore Habitat

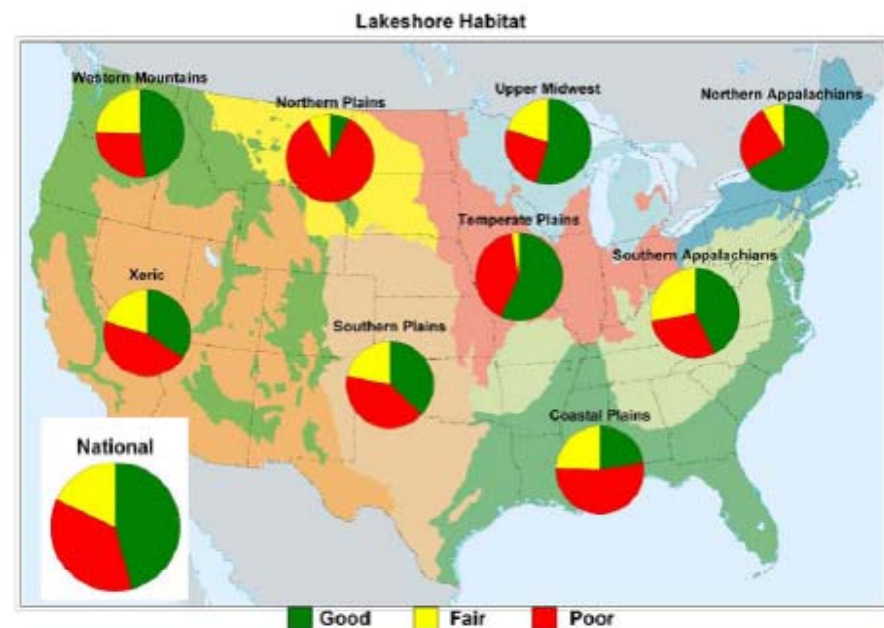
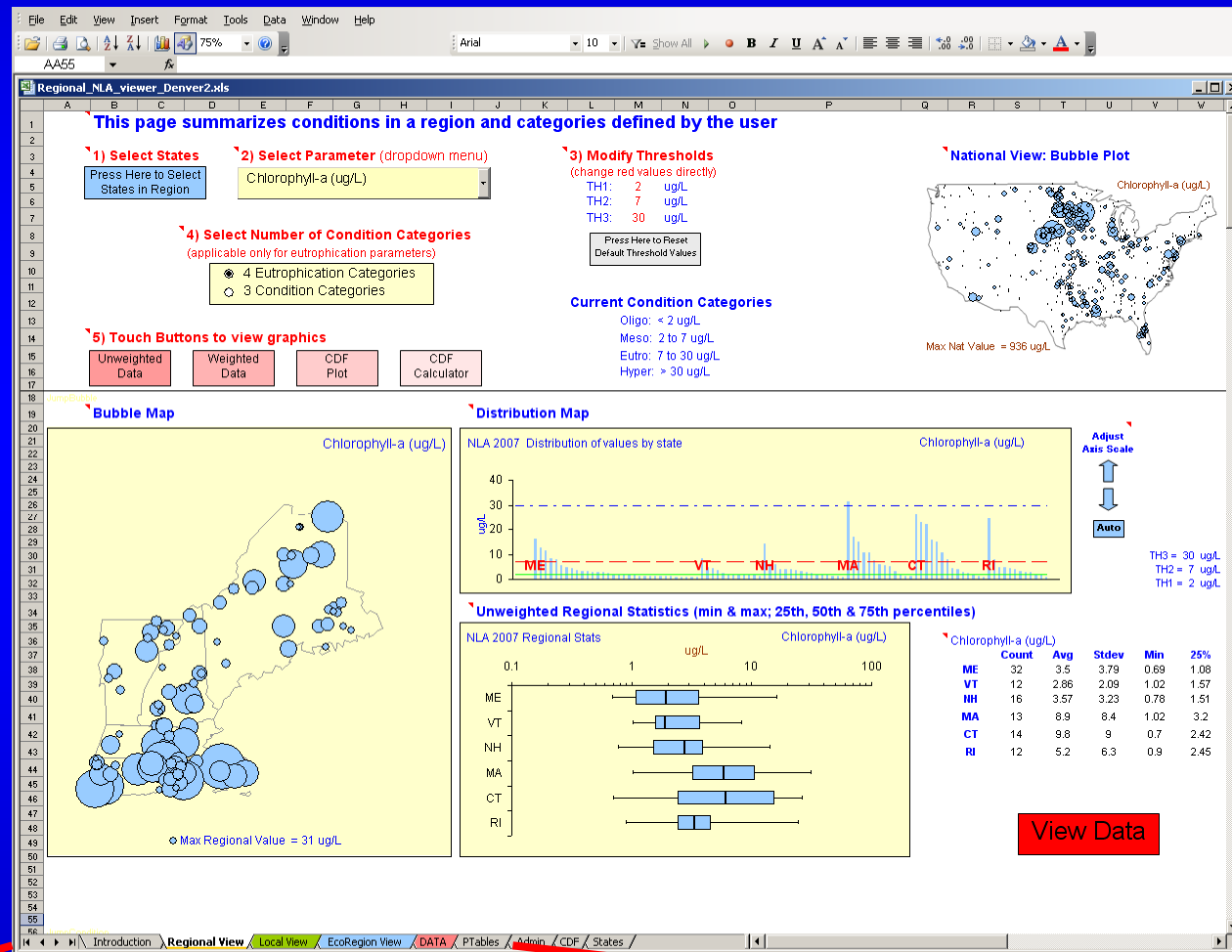


Figure ES-1. Biological condition of lakeshore habitat

# NLA Data Viewer

Different views provided on separate pages





# Data Page:

## spreadsheet format

### 43 water qual & habitat parameters

### ecoregion & cluster ids; weights

Microsoft Excel - Regional\_NLA\_viewer3.xls

File Edit View Insert Format Tools Data Window Help

Type a question for help

AM38 6.12

	A	B	C	D	E	F	G	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
	SITE_ID	DATE_COL	SITE_TYPE	VISIT_NO	EPAREG	EPAREG2	STATE	CHLA	SECCHI	TOC	DOC	COND	ANC	TURB	COLOR	NH4N_PPM
1	NLA06608-0001	7/13/2007 0.00	PROB_Lake	1	Reg8	Reg8	MT	0.24	6.4	0.37	0.63	96.28	924.3	0.474	6	0.01
2	NLA06608-0002	6/14/2007 0.00	PROB_Lake	1	Reg4	Reg4	SC	3.84	0.55	15.9	14.02	44.8	104.48	3.55	71	0.019
3	NLA06608-0003	8/29/2007 0.00	PROB_Lake	1	Reg6	Reg6	TX	16.96	0.71	6.75	6	1089	4746.01	7.67	18	0.005
4	NLA06608-0004	7/19/2007 0.00	PROB_Lake	1	Reg9	Reg9	CO	4.6	1.8	9.09	8	301.3	858.42	3.81	13	0.024
5	NLA06608-0005	7/19/2007 0.00	PROB_Lake	1	Reg10	Reg10	ID	12.05		1.79	1.45	52.62	420.91	0.475	7	0.005
6	NLA06608-0006	7/17/2007 0.00	PROB_Lake	1	Reg1	Reg1	CT	4.08	3.21	3.49	3.16	74.74	291.48	0.901	2	0.016
7	NLA06608-0007	7/24/2007 0.00	PROB_Lake	1	Reg5	Reg5	VI	2.432	3.15	6.99	6.68	26.85	96.04	1.05	10	0.013
8	NLA06608-0008	7/12/2007 0.00	PROB_Lake	1	Reg7	Reg7	IA	30.24	0.79	8.68	7.6	238.1	1933.62	8.62	10	0.024
9	NLA06608-0009	7/17/2007 0.00	PROB_Lake	1	Reg5	Reg5	NE	4.384	4.48	4.96	4.94	658.1	2089.95	3.05	4	0.017
10	NLA06608-0012	6/13/2007 0.00	PROB_Lake	1	Reg6	Reg6	OK	4.3	0.31	8.71	8.01	215.5	1769.64	50.3	40	0.078
11	NLA06608-0013	9/4/2007 0.00	PROB_Lake	1	Reg2	Reg2	NJ	16.027	0.65	6.12	4.79	47.52	14.87	4.21	19	0.01
12	NLA06608-0014	9/6/2007 0.00	PROB_Lake	1	Reg9	Reg9	ND	8.748	0.85	43.8	41.27	87.22	2900.68	7.1	29	0.036
13	NLA06608-0015	7/19/2007 0.00	PROB_Lake	1	Reg6	Reg6	NM	20	0.37	3.78	3.78	743.6	2596.42	32.7	5	0.005
14	NLA06608-0016	6/27/2007 0.00	PROB_Lake	1	Reg7	Reg7	NE	13	0.54	4.88	4.89	1880	3256.44	16.5	5	0.081
15	NLA06608-0019	6/19/2007 0.00	PROB_Lake	1	Reg8	Reg8	ND	4.032	0.35	47.22	44.99	3327	8136.31	45.5	57	1.709
16	NLA06608-0020	6/19/2007 0.00	PROB_Lake	1	Reg5	Reg5	IL	20.24	0.69	5.41	5.03	214.1	1757.12	4.55	17	0.016
17	NLA06608-0021	7/27/2007 0.00	PROB_Lake	1	Reg2	Reg2	NY	2.292	7.1	2.74	2.92	368.8	2238.28	0.574	4	0.012
18	NLA06608-0023	6/19/2007 0.00	PROB_Lake	1	Reg6	Reg6	TX	2.776	0.95	4.06	3.88	175.7	1461.71	3.79	7	0.005
19	NLA06608-0024	7/19/2007 0.00	PROB_Lake	1	Reg6	Reg6	TX	44.151	0.9	8.94	8.2	1014	592.55	5.68	26	0.026
20	NLA06608-0025	6/19/2007 0.00	PROB_Lake	1	Reg4	Reg4	NC	1.304	3.55	3.5	3.43	84.96	669.69	1.56	15	0.012
21	NLA06608-0026	7/12/2007 0.00	PROB_Lake	1	Reg9	Reg9	DC	103.12	0.27	7.06	1.12	111.7	694.06	0.61	12	0.016
22	NLA06608-0031	6/13/2007 0.00	PROB_Lake	1	Reg5	Reg5	OH	5.264	0.98	4.17	3.83	357.1	2761.05	8.82	9	0.011
23	NLA06608-0033	7/17/2007 0.00	PROB_Lake	1	Reg10	Reg10	VA	8.52	0.7	12.04	10.11	109.5	1040.1	12.2	61	0.049
24	NLA06608-0036	7/12/2007 0.00	PROB_Lake	1	Reg5	Reg5	IL	5.069	2.23	4.09	4.07	133.5	1147.2	1.57	7	0.016
25	NLA06608-0037	7/13/2007 0.00	PROB_Lake	1	Reg1	Reg1	CT	8.016	2.9	3.37	3.38	98.02	468.8	2.59	7	0.019
26	NLA06608-0038	7/12/2007 0.00	PROB_Lake	1	Reg1	Reg1	VT	4.328	4.45	3.59	3.27	59.7	341.07	0.549	10	0.017
27	NLA06608-0041	6/12/2007 0.00	PROB_Lake	1	Reg3	Reg3	VY	0.884	8.48	1.29	1.24	82.91	293.71	0.601	4	0.011
28	NLA06608-0042	6/22/2007 0.00	PROB_Lake	1	Reg9	Reg9	VY	2.208	3.38	4.98	4.78	2152	151.26	0.791	14	0.014
29	NLA06608-0043	7/19/2007 0.00	PROB_Lake	1	Reg5	Reg5	IN	5.409	1.85	7.46	7.22	438.1	3442.43	3.74	16	0.015
30	NLA06608-0044	7/19/2007 0.00	PROB_Lake	1	Reg7	Reg7	NE	135.61	0.12	30.44	16.88	274.1	2901.61	121	27	0.035
31	NLA06608-0045	8/29/2007 0.00	PROB_Lake	1	Reg3	Reg3	VA	20.16	0.86	5.28	4.79	103.3	872.19	9.45	34	0.03
32	NLA06608-0048	8/12/2007 0.00	PROB_Lake	1	Reg7	Reg7	MO	54	0.28	5.21	4.77	223.9	1891.08	16.7	10	0.011
33	NLA06608-0049	8/19/2007 0.00	PROB_Lake	1	Reg10	Reg10	OR	1.136	2.53	2.03	1.88	91.89	829.8	1.55	5	0.014
34	NLA06608-0050	7/27/2007 0.00	PROB_Lake	1	Reg1	Reg1	NH	3.952	1.5	5.69	5.14	25.53	122.67	1.78	33	0.012
35	NLA06608-0053	8/23/2007 0.00	PROB_Lake	1	Reg2	Reg2	NY	6.256	0.85	2.95	2.88	196	1442.43	8.12	6	0.012
36	NLA06608-0057	6/19/2007 0.00	PROB_Lake	1	Reg4	Reg4	NC	125.396	0.5	1141	9.7	158.3	978.48	15.4	30	0.02
37	NLA06608-0061	6/23/2007 0.00	PROB_Lake	1	Reg9	Reg9	AZ	3.5	2	6.24	6.32	779.4	4267.17	3.49	11	0.019
38	NLA06608-0062	8/19/2007 0.00	PROB_Lake	1	Reg8	Reg8	ND	2.184	1.16	31.18	28.53	38.95	3844.13	12.3	18	0.046
39	NLA06608-0064	6/19/2007 0.00	PROB_Lake	1	Reg8	Reg8	MT	19.04	0.46	36.48	33.65	2504	8138.77	13.6	24	0.161
40	NLA06608-0065	7/17/2007 0.00	PROB_Lake	1	Reg8	Reg8	MT	0.588	7.02	1.89	1.28	194.2	1944.42	0.257	3	0.005
41	NLA06608-0066	6/19/2007 0.00	PROB_Lake	1	Reg3	Reg3	PA	1.78	1.75	1.63	1.63	184.6	257.32	1.32	0	0.028
42	NLA06608-0068	7/19/2007 0.00	PROB_Lake	1	Reg8	Reg8	CO	0.953	3.8	1.21	1.12	180.4	675.66	0.887	0	0.01
43	NLA06608-0069	7/19/2007 0.00	PROB_Lake	1	Reg4	Reg4	FL	7.408	0.65	13.62	13.24	145.9	141.78	2.74	77	0.02
44	NLA06608-0071	9/6/2007 0.00	PROB_Lake	1	Reg6	Reg6	LA	198.72	0.38	12.02	8.95	241.7	2238.55	14.4	13	0.026
45	NLA06608-0072	7/28/2007 0.00	PROB_Lake	1	Reg6	Reg6	TX	10.128	0.69	10.09	9.19	224.1	1905.77	14.5	35	0.047
46	NLA06608-0073	6/13/2007 0.00	PROB_Lake	1	Reg9	Reg9	VA	0.434	12.45	23.56	22.25	26820	68472.19	0.819	5	0.046
47	NLA06608-0076	7/27/2007 0.00	PROB_Lake	1	Reg7	Reg7	MO	10.98	1.26	4.99	5.1	254.1	1996.56	3.88	11	0.01
48	NLA06608-0077	9/19/2007 0.00	PROB_Lake	1	Reg2	Reg2	NJ	67.968		8.32	7.25	308.4	1710.99	17.4	15	0.015
49	NLA06608-0078	8/19/2007 0.00	PROB_Lake	1	Reg8	Reg8	ND	10.016	0.75	52.91	49.81	2086	24939.33	20.2	62	0.057
50	NLA06608-0079	7/12/2007 0.00	PROB_Lake	1	Reg8	Reg8	CO	2.952	6.95	1.74	1.8	84.95	937.32	0.278	4	0.024
51	NLA06608-0080	9/19/2007 0.00	PROB_Lake	1	Reg6	Reg6	AR	58.464	0.51	6.16	5.41	410.6	2076.24	9.4	10	0.012
52	NLA06608-0081	7/13/2007 0.00	PROB_Lake	1	Reg10	Reg10	VA	6.684	5.74	9.89	9.05	61.72	507.87	0.73	38	0.069
53	NLA06608-0082	6/13/2007 0.00	PROB_Lake	1	Reg8	Reg8	ND	3.744		41.6	38.85	4281	15445.28	13.7	30	0.065
54	NLA06608-0083	7/19/2007 0.00	PROB_Lake	1	Reg10	Reg10	ID	4.04	0.1	11.66	10.64	213.8	890.24	1.97	23	0.047
55	NLA06608-0086	8/12/2007 0.00	PROB_Lake	1	Reg3	Reg3	NY	18.24	2.07	3.08	2.96	110	900.22	4.01	8	0.01
56	NLA06608-0089	6/17/2007 0.00	PROB_Lake	1	Reg4	Reg4	NC	11.36	1.35	2.12	1.9	62.88	332.38	3.14	10	0.01
57	NLA06608-0090	6/23/2007 0.00	PROB_Lake	1	Reg8	Reg8	ND	4.287	1.45	2.62	2.46	34.4	271.55	1.45	21	0.022
58	NLA06608-0091	7/19/2007 0.00	PROB_Lake	1	Reg5	Reg5	IL	188.8	1.31	17.21	7.27	325.9	1566.95	1.55	15	0.023
59	NLA06608-0093	7/12/2007 0.00	PROB_Lake	1	Reg5	Reg5	VI	4.6	1.95	5.91	5.69	557.8	4063.96	4.98	9	0.028
60	NLA06608-0091	8/21/2007 0.00	PROB_Lake	1	Reg1	Reg1	CT	0.695	9.6	0.79	1.18	15.73	1.37	0.401	9	0.005
61	NLA06608-0092	8/3/2007 0.00	PROB_Lake	1	Reg1	Reg1	ME	12	4.37	3.73	3.67	20.01	7.95	0.916	16	0.01
62	NLA06608-0094	8/22/2007 0.00	PROB_Lake	1	Reg7	Reg7	KS	38.2	0.23	6.58	6.57	308.9	2895.57	27.3	20	0.046

Introduction Regional View Local View EcoRegion View DATA Tables Admin

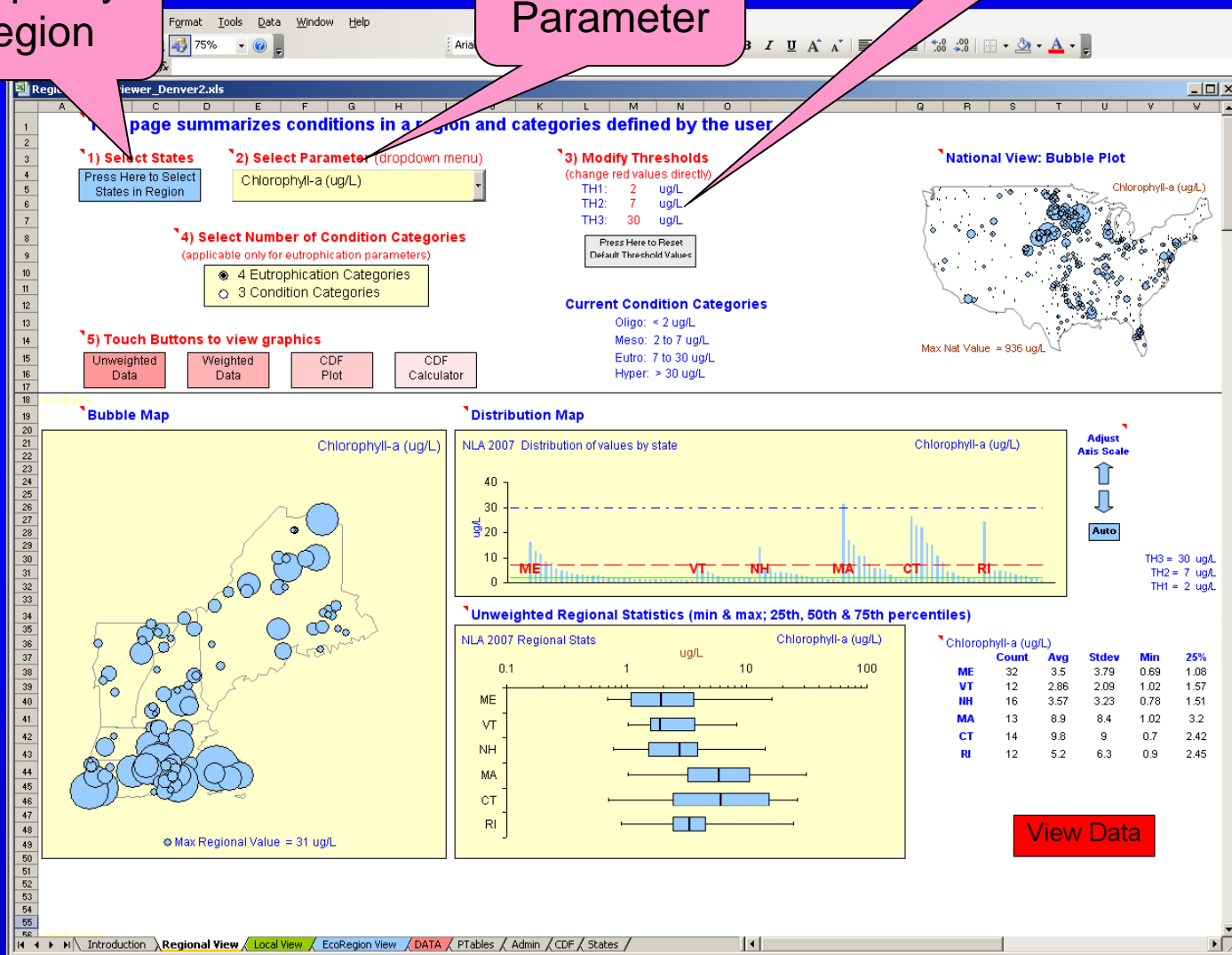
# Regional View Page

## Three steps to operate

1) Specify Region

2) Specify Parameter

3) Specify Thresholds



# Specify region of interest

## All graphics and calculations are updated

Microsoft Excel - Regional\_NLA\_viewer\_Denver3.xls

File Edit View Insert Format Tools Data Window Help

Type a question for help

P33

JumpStates Use this page to select states included in spreadsheet calculations. Selected states are designated as the "Region" on plots & tables. Touch pink macro box to clear all checkboxes (or click checked box to deselect) Select between 2 and 12 states by checking boxes below. Touch green macro box to implement changes.

StateLines X&

Clear All Checkboxes

Press Here to Implement Selection and/or Return to Main Page

Reg 1	Reg 2	Reg 3	Reg 4	Reg 5	Reg 6	Reg 7	Reg 8	Reg 9	Reg 10
<input type="checkbox"/> ME	<input type="checkbox"/> NY	<input type="checkbox"/> PA	<input type="checkbox"/> KY	<input type="checkbox"/> MN	<input checked="" type="checkbox"/> NM	<input type="checkbox"/> NE	<input type="checkbox"/> MT	<input type="checkbox"/> CA	<input type="checkbox"/> WA
<input type="checkbox"/> VT	<input type="checkbox"/> NJ	<input type="checkbox"/> MD	<input type="checkbox"/> TN	<input type="checkbox"/> WI	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> KS	<input type="checkbox"/> ND	<input type="checkbox"/> NV	<input type="checkbox"/> OR
<input type="checkbox"/> NH		<input type="checkbox"/> DE	<input type="checkbox"/> SC	<input type="checkbox"/> MI	<input checked="" type="checkbox"/> AR	<input type="checkbox"/> IA	<input type="checkbox"/> SD	<input type="checkbox"/> AZ	<input type="checkbox"/> ID
<input type="checkbox"/> MA		<input type="checkbox"/> WV	<input type="checkbox"/> MS	<input type="checkbox"/> IL	<input checked="" type="checkbox"/> TX	<input type="checkbox"/> MO	<input type="checkbox"/> WY		
<input type="checkbox"/> CT		<input type="checkbox"/> VA	<input type="checkbox"/> AL	<input type="checkbox"/> IN	<input checked="" type="checkbox"/> LA		<input type="checkbox"/> UT		
<input type="checkbox"/> RI			<input type="checkbox"/> GA	<input type="checkbox"/> OH			<input type="checkbox"/> CO		
			<input type="checkbox"/> FL						

Introduction / Regional View / Local View / EcoRegion View / DATA / PTables / Admin / CDF / States

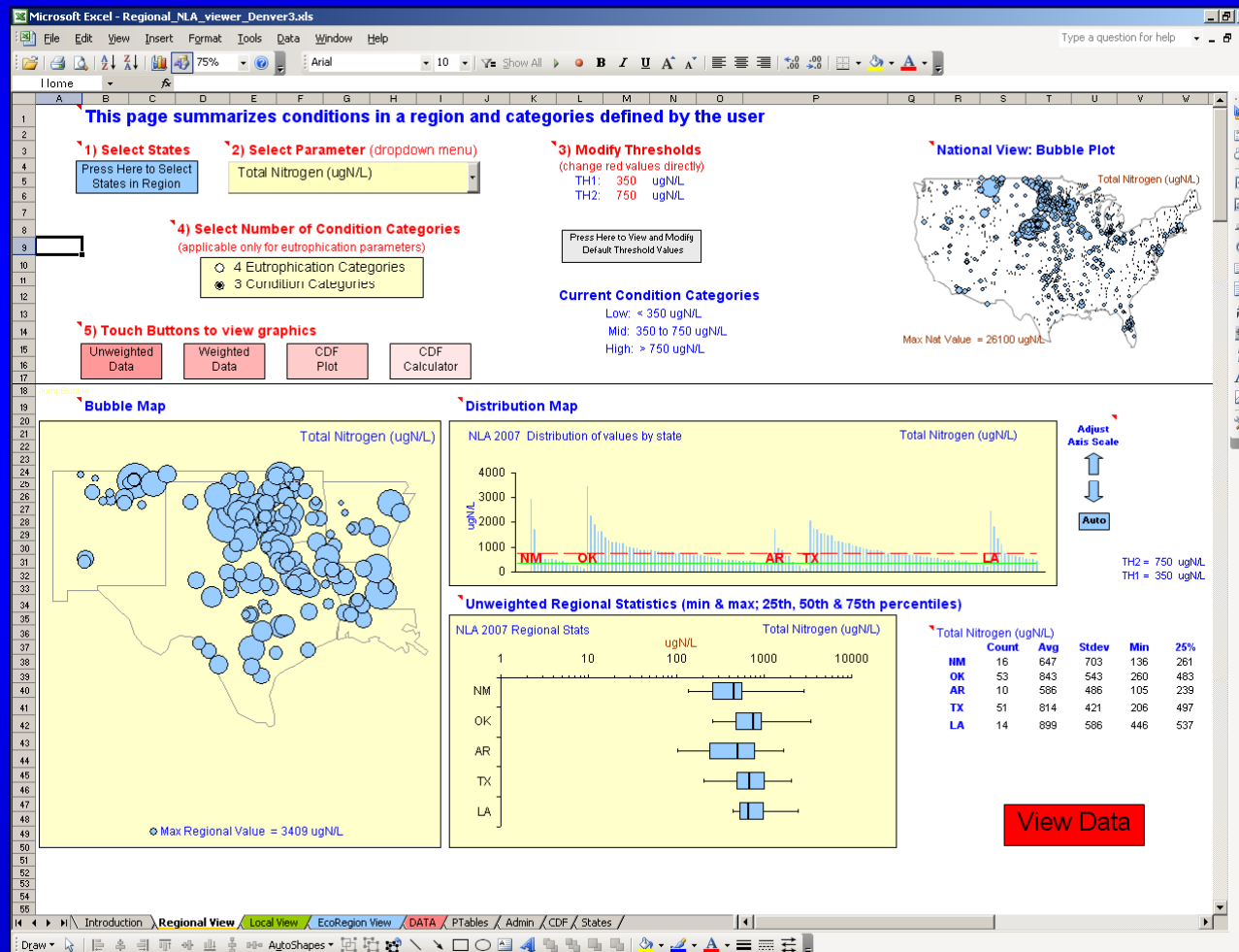
Draw

Ready

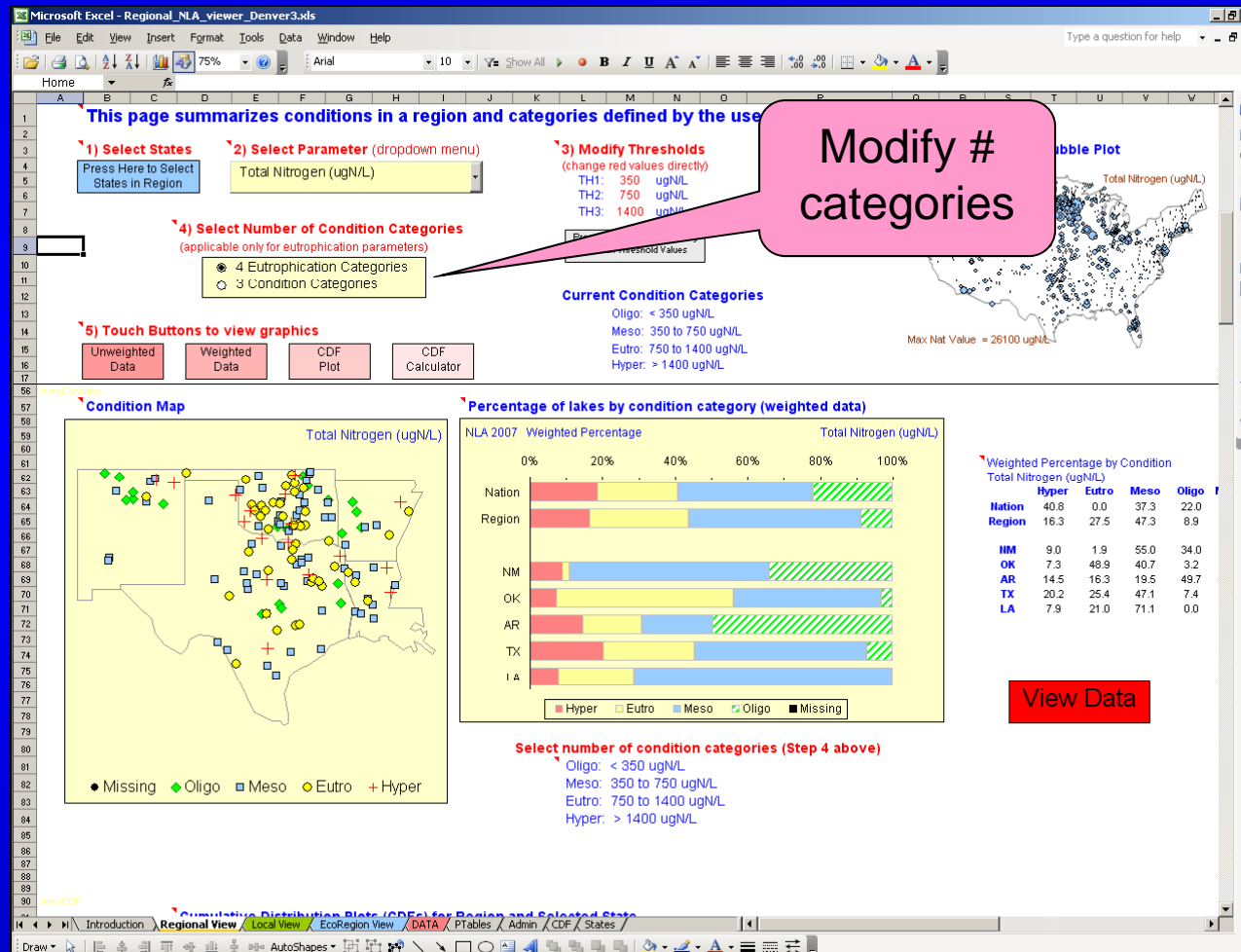


# Select parameter

All graphics and calculations are updated

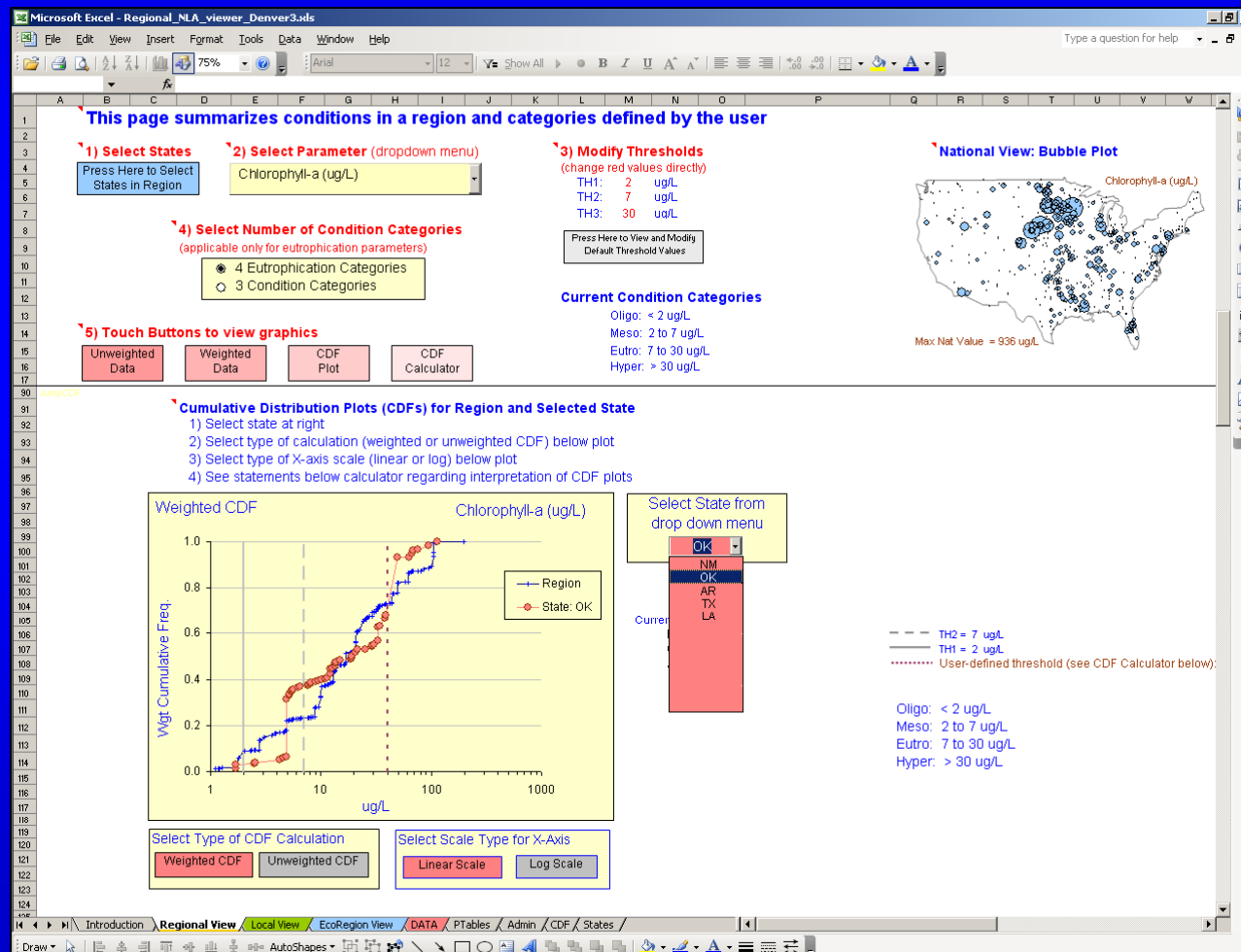


# View weighted data



# Cumulative distribution plots (CDF)

- Weighted or unweighted
- Compare state with region



# How to interpret CDFs

## How to interpret Cumulative Distribution Functions (CDFs)

### What information is available from CDFs?

- The range and frequency of values can be determined from the horizontal axis.
  - The vertical axis provides an estimate of the fraction of lakes displaying conditions less than or equal to values on the horizontal axis (see below regarding difference between estimates indicated by unweighted and weighted CDFs).
  - The relative positions of state and regional curves provides a useful comparison of conditions:
    - When less is better (e.g., nutrient concentrations), a curve positioned "to the left" indicates better conditions
    - When more is better (e.g. dissolved oxygen), a curve positioned "to the right" indicates better conditions
- Note: the horizontal axis may be formatted as either a linear scale or log scale to facilitate comparison of state and regional CDFs

### Difference between unweighted and weighted CDFs

**Unweighted CDF:** All stations are equally weighted; vertical spacing between points are equal  
An unweighted CDF is appropriate when unbiased sampling cannot be assumed (i.e., when a survey was not conducted according to a probabilistic sampling design).  
Unweighted CDF estimates therefore pertain only to the sampled lakes.  
Statement appropriate for unweighted CDF: "Based on the unweighted CDF, 80% of SAMPLED lakes in the State are estimated to have Chlorophyll a values less than or equal to 30 ug/L"

**Weighted CDF:** Station weights reflect number of lakes in size classes and within ecoregions & states. Large weights generally indicate smaller lake size.  
Vertical spacings between points are variable and proportional to station weight.  
Note: if a state CDF shows large vertical jumps for one or two points (stations), this indicates that weighted results for the state are dominated by results at those stations  
Estimates from weighted CDFs are representative of ALL lakes in the state or region, not just those sampled in the survey.  
Statement appropriate for weighted CDF: "Based on the weighted CDF, 80% of ALL lakes in the State are estimated to have Chlorophyll a values less than or equal to 30 ug/L"  
Use weighted CDFs for interpretation of NLA data.

## CDF Calculator

**CDF Calculator:** Estimate the percentage of lakes with values less than or equal to a designated value

**To Operate:** Enter a threshold value into yellow box. Estimated percentages of lakes with values less than or equal to this threshold are calculated below.

Appropriate statements

OK  
AR  
TX  
LA

Appropriate statements:

Based on the Weighted CDF, 68.1% of ALL lakes in Oklahoma are estimated to have values less than or equal to 40 ug/L.  
Based on the Weighted CDF, 73.1% of ALL lakes in the specified Region are estimated to have values less than or equal to 40 ug/L.

User-defined Threshold (X-value): 40 ug/L

(this value appears as dotted line in CDF plot above)

% State lakes  $\leq$  X-value: 68.1%  
% Regional lakes  $\leq$  X-value: 73.1%

Chlorophyll-a (ug/L) Weighted CDF

1) Enter Value

Estimates are calculated

# Local View Page

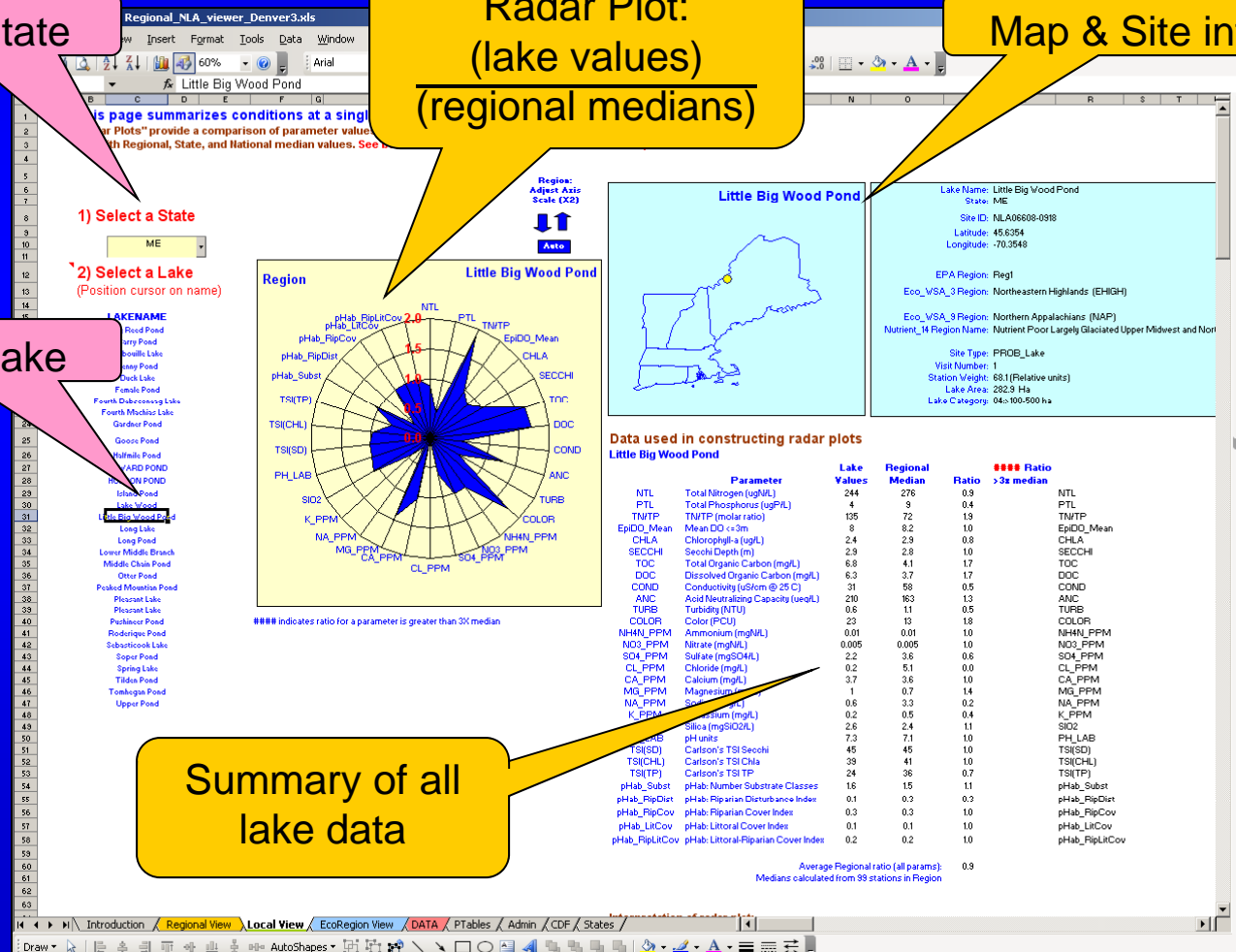
## Summarizes conditions at a single selected lake

1) Select State

2) Select Lake

Radar Plot:  
(lake values)  
(regional medians)

Map & Site info





# Local View Page

## Examples of radar plots

Data used in constructing radar plots

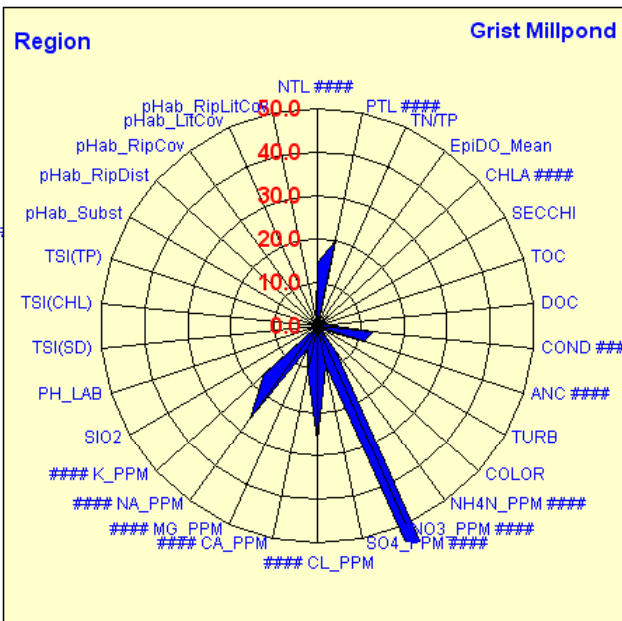
Long Pond

Data used in constructing radar plots

Highland Lake

Data used in constructing radar plots

Grist Millpond



Parameter	Lake Values	Regional Median	Ratio	#### Ratio >3x median	
NTL Total Nitrogen (ugNL)	4022	276	14.6	####	Total Nitrogen (ugNL)
PTL Total Phosphorus (ugPL)	181	9	20.1	####	Total Phosphorus (ugPL)
TN/TP TN/TP (molar ratio)	49	72	0.7		TN/TP (molar ratio)
EpiDO_Mean Mean DO <=3m	8.9	8.2	1.1		Mean DO <=3m
CHLA Chlorophyll-a (ug/L)	14.9	2.9	5.1	####	Chlorophyll-a (ug/L)
SECCHI Secchi Depth (m)	2	2.8	0.7		Secchi Depth (m)
TOC Total Organic Carbon (mg/L)	5.6	4.1	1.4		Total Organic Carbon (mg/L)
DOC Dissolved Organic Carbon (mg/L)	5.6	3.7	1.5		Dissolved Organic Carbon (mg/L)
COND Conductivity (uS/cm @ 25 C)	746	58	12.9	####	Conductivity (uS/cm @ 25 C)
ANC Acid Neutralizing Capacity (ueq/L)	1849	163	11.3	####	Acid Neutralizing Capacity (ueq/L)
TURB Turbidity (NTU)	2.2	1.1	2.0		Turbidity (NTU)
COLOR Color (PCU)	15	13	1.2		Color (PCU)
NH4N_PPM Ammonium (mgNL)	0.07	0.01	7.0	####	Ammonium (mgNL)
NO3_PPM Nitrate (mgNL)	3.168	0.005	633.6	####	Nitrate (mgNL)
SO4_PPM Sulfate (mgSO4/L)	34.1	3.6	9.5	####	Sulfate (mgSO4/L)
CL_PPM Chloride (mg/L)	135.6	5.1	26.6	####	Chloride (mg/L)
CA_PPM Calcium (mg/L)	38.3	3.6	10.6	####	Calcium (mg/L)
MG_PPM Magnesium (mg/L)	4	0.7	5.7	####	Magnesium (mg/L)
NA_PPM Sodium (mg/L)	87.2	3.3	26.4	####	Sodium (mg/L)
K_PPM Potassium (mg/L)	8.2	0.5	16.4	####	Potassium (mg/L)
SIO2 Silica (mgSiO2/L)	0.7	2.4	0.3		Silica (mgSiO2/L)
PH_LAB pH units	8.5	7.1	1.2		pH units
TSI(SD) Carlson's TSI Secchi	50	45	1.1		Carlson's TSI Secchi
TSI(CHL) Carlson's TSI Chla	57	41	1.4		Carlson's TSI Chla
TSI(TP) Carlson's TSI TP	79	36	2.2		Carlson's TSI TP
pHab_Subst pHab: Number Substrate Classes	1	1.5	0.7		pHab: Number Substrate Classes
pHab_RipDist pHab: Riparian Disturbance Index	0.2	0.3	0.7		pHab: Riparian Disturbance Index
pHab_RipCov pHab: Riparian Cover Index	0.4	0.3	1.3		pHab: Riparian Cover Index
pHab_LitCov pHab: Littoral Cover Index	0.2	0.1	2.0		pHab: Littoral Cover Index
pHab_RipLitCov pHab: Littoral-Riparian Cover Index	0.3	0.2	1.5		pHab: Littoral-Riparian Cover Index

Average Regional ratio (all params): 29.2 ####  
Medians calculated from 99 stations in Region

# Analyze by Ecoregion

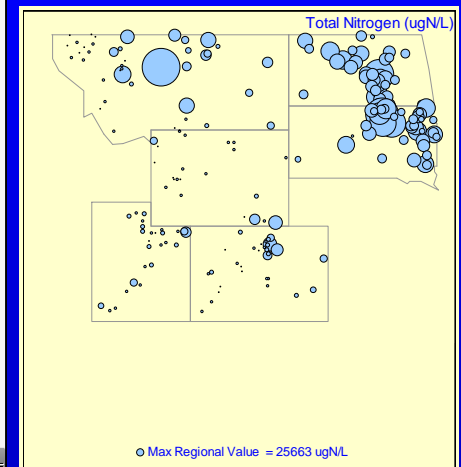
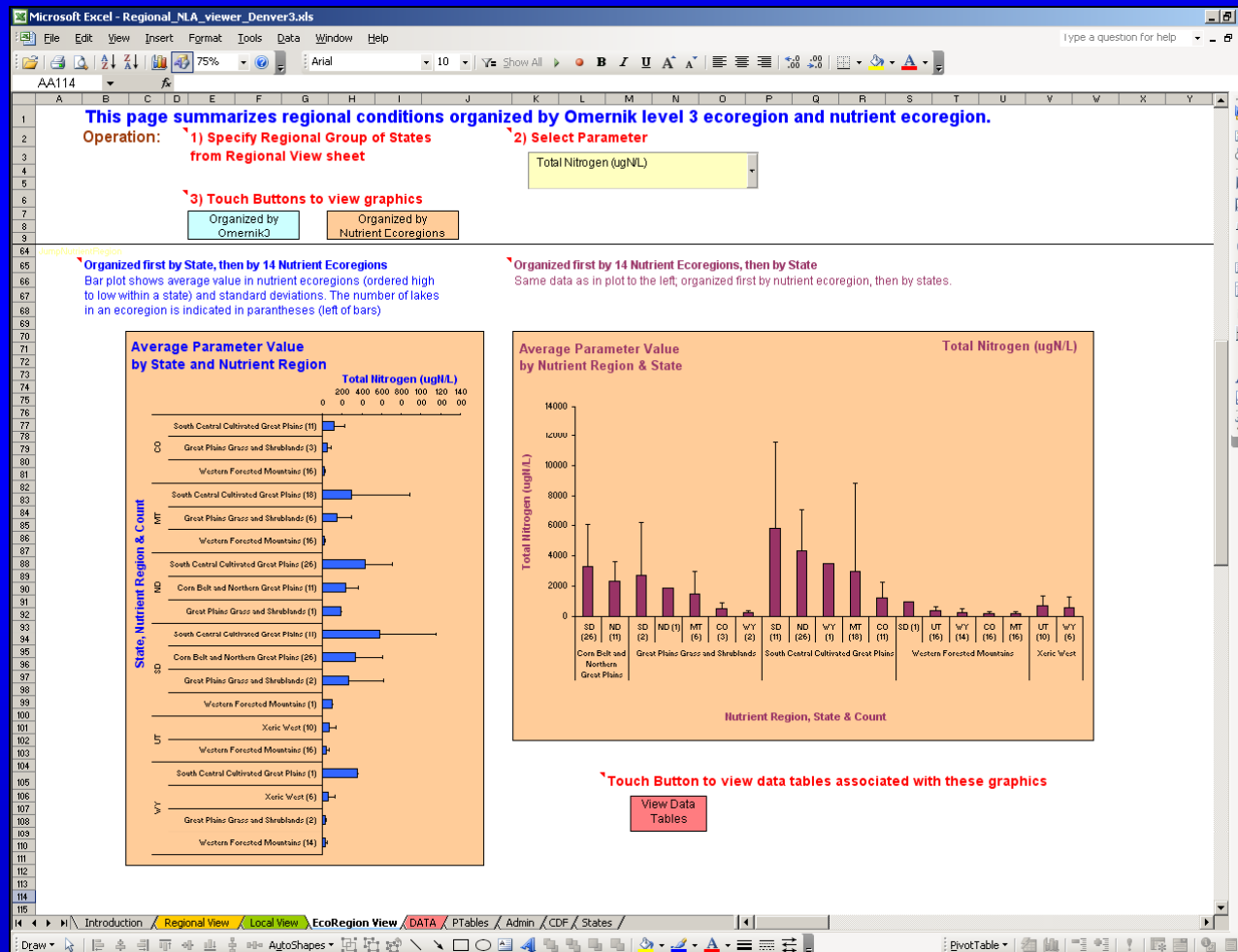
## Level 3 Omernik ecosystem classification



# Ecoregion View Page

Do conditions vary by ecoregion?

Average values plotted vs Level 3 Omernik ecoregions.



# NLA Data Viewer: Pros

**Familiar Excel environment**

**Simple access to NLA data**

**Multiple views of NLA data**

**interpretive graphics**

**basic stats; weighted stats**

**cumulative distribution function**

**radar plots**

**Emphasis on regional & local scale**

**user-defined regions**

**user-defined thresholds**

**Familiar Excel Environment**

# NLA Data Viewer: Cons

## Data concerns

- Version control

- Unintentional corruption by user

## Stability concerns

- Spreadsheet not “bullet-proof”

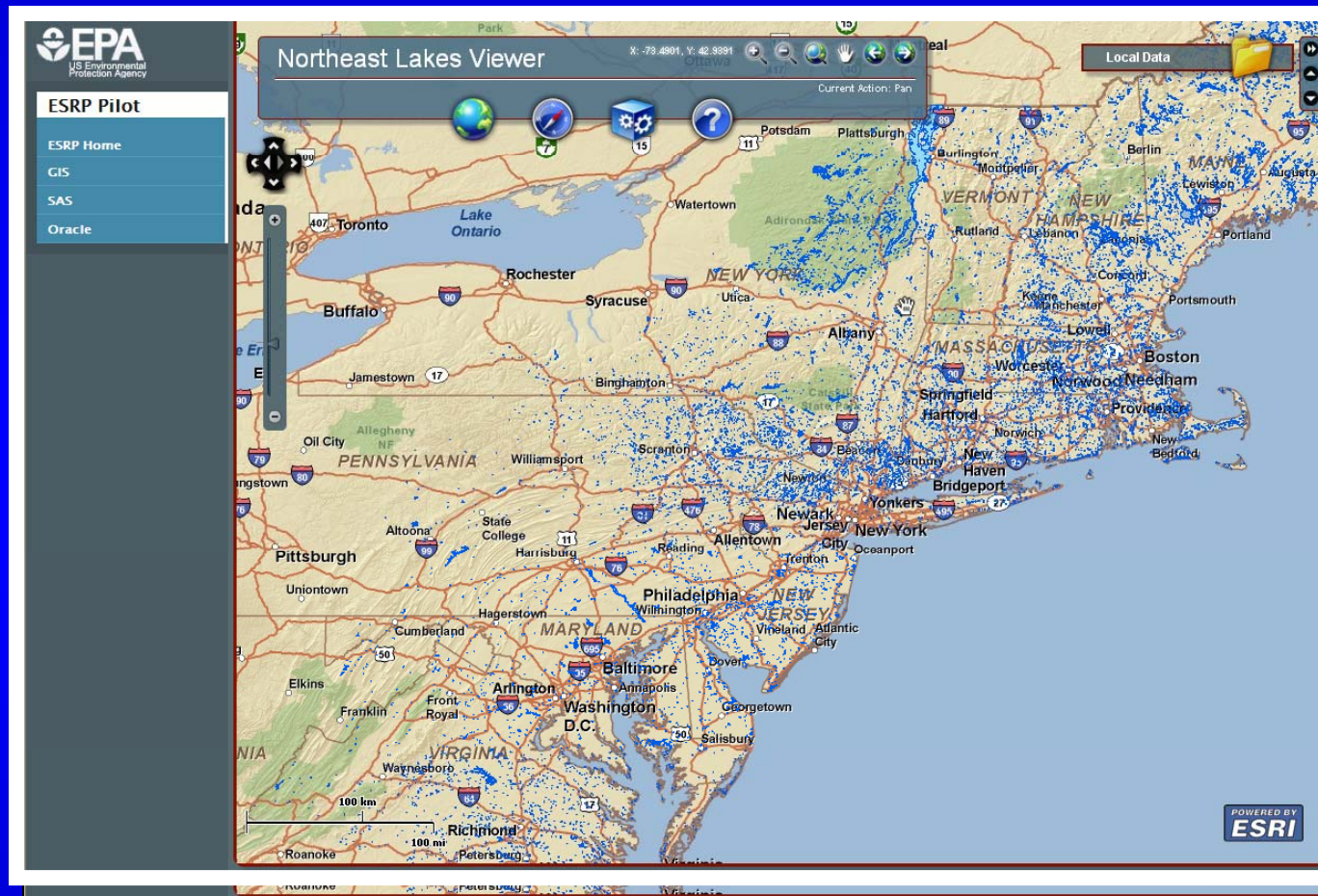
- Who is the Help-Desk?

- Better alternate technologies?



# Alternate Viewer (under development)

## Northeast Lakes Viewer



**Jane Copeland, SRA**  
**Harry Buffum & David Bender, Raytheon**

# GIS and data analysis via web browser

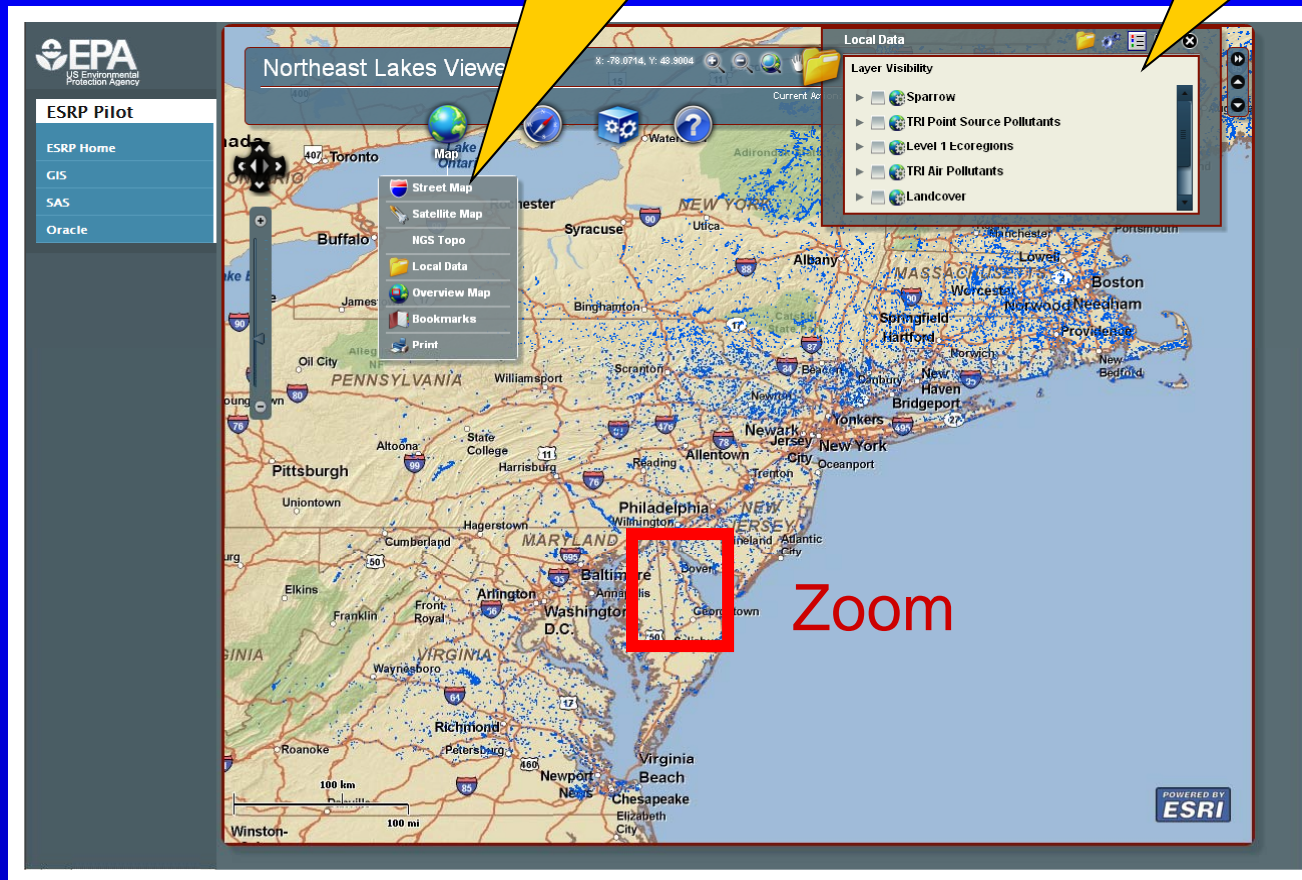
ArcGIS Server

SAS Intrnet

Oracle APEX

Base layers from  
ArcGIS Online

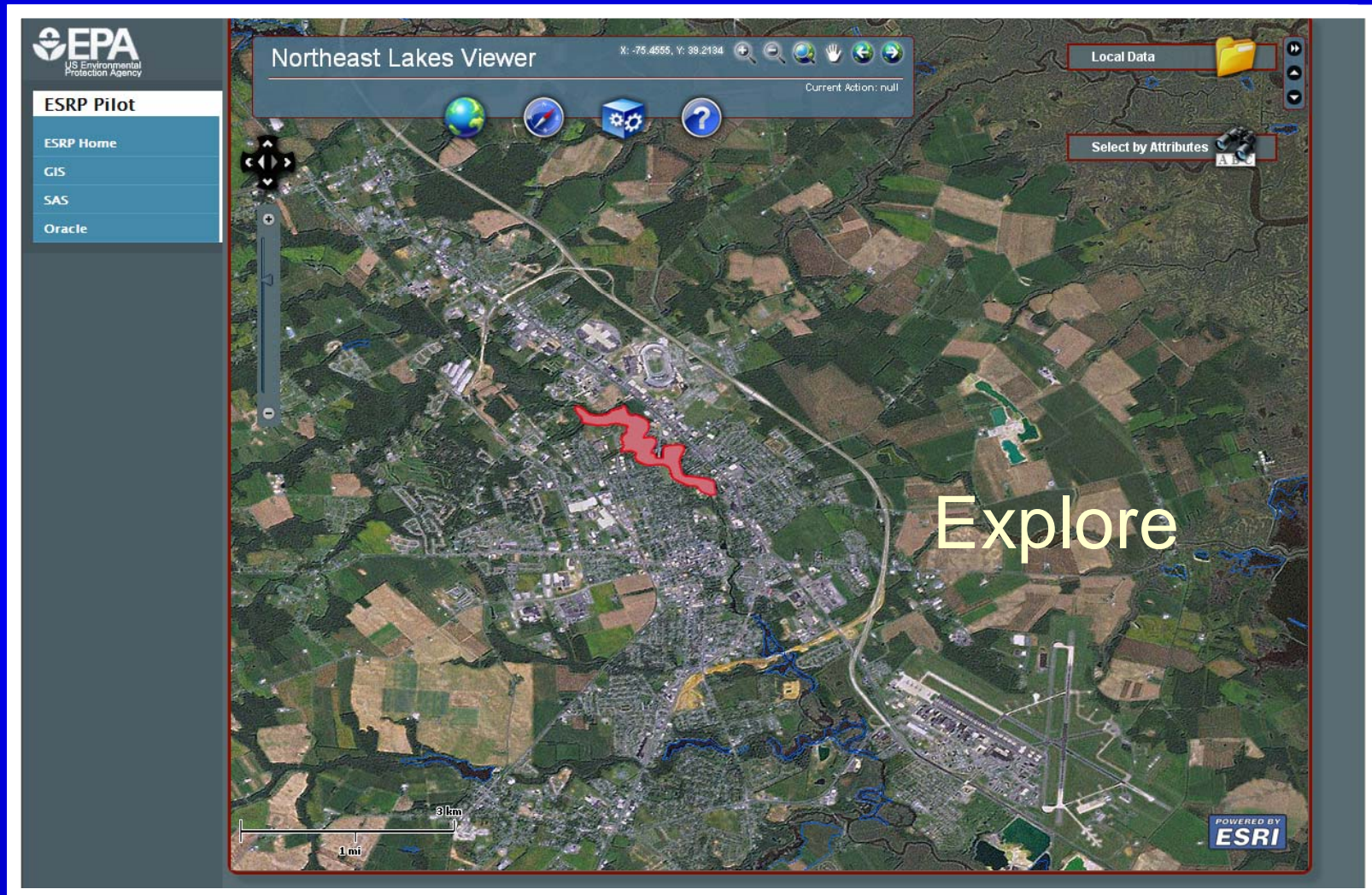
Additional layers  
and datasets from  
local server





# Northeast Lakes Viewer Features:

## Query by attribute, highlight results





# Northeast Lakes Viewer Tools:

## Bar charts, radar plots, full GIS analysis tools



# SAS Intrnet:

## Summaries, maps, charts.....

### ESRP Pilot

ESRP Home

GIS

SAS

Oracle

### SAS Report

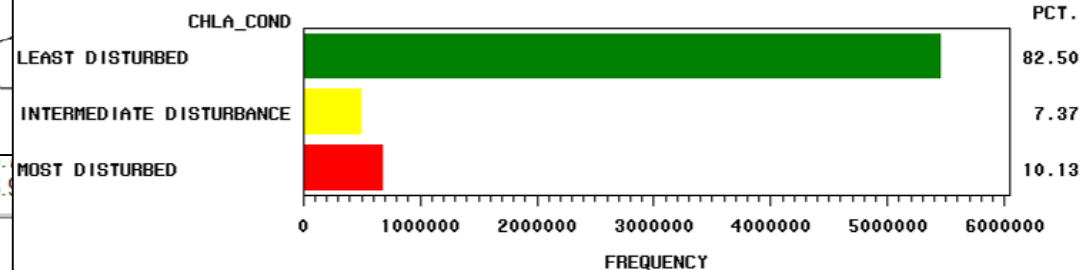
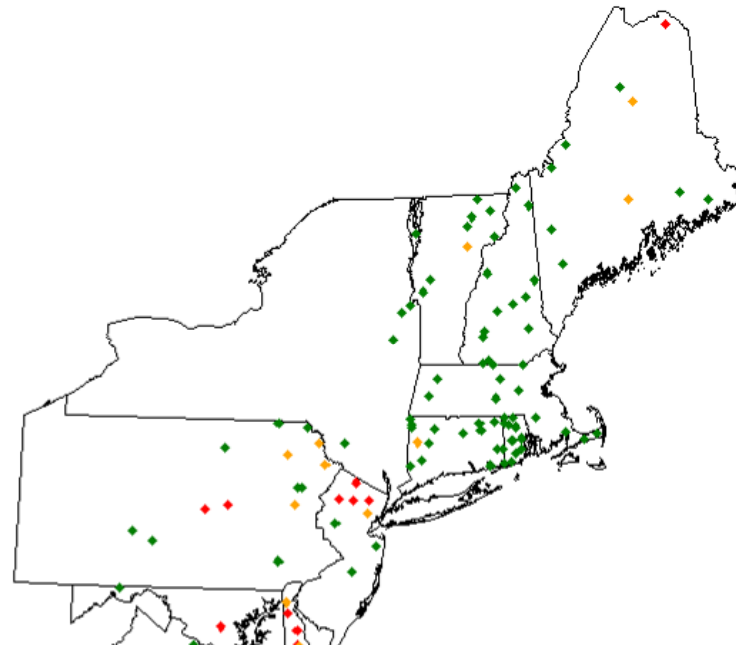
#### Select Report:

- ☒ Chlorophyll Condition Report
- ☐ ANC Condition Report
- ☐ Turbidity Condition Report
- ☐ Total Nitrogen Condition Report
- ☐ Total Phosphorus Condition Report
- ☐ Dissolved Oxygen Condition Report

### National Lakes Assessment

The ME

Variable	Label	N	Mean
VISIT_NO	VISIT_NO	115	1.00000
LAT_DD	LAT_DD	115	41.85665
LON_DD	LON_DD	115	-73.36023
DO2_2M	DO2_2M	109	8.31218
ANC	ANC	115	580.93800
CHLA	CHLA	115	19.68242
NTL	NTL	115	635.69565
PTL	PTL	115	34.01739
TURB	TURB	115	4.8953565





# Oracle APEX:

## Data delivery, manipulation, download.....

US-EPA ESRP Northeast Lakes Database Pilot  
(Atlantic Ecology Division)

ESRP Pilot

ESRP Home  
GIS  
SAS  
Oracle

ECOSYSTEM SERVICES  
RESEARCH PROGRAM  
Northeast Lakes Database

Login to the ESRP Pilot Northeast Lakes Database

Rows 15 Go

Nla Id	Nla Lake Name	Latitude	Longitude	Ntl	Ptl	Ca	Mg	Chla
NLA06608-0029	Red Mill Pond	38.75662	-75.21301	146	162	7.222	3.886	106.8
NLA06608-0029	Red Mill Pond	38.75662	-75.21301	2106	247	7.842	3.966	123.12
NLA06608-0050	Adder Pond	43.44606	-71.80946	399	18	2.183	.469	10.08
NLA06608-0050	Adder Pond	43.44606	-71.80946	303	16	1.97	.474	3.952
NLA06608-0053	Lake Champlain	43.54476	-73.46221	275	19	24.32	5.79	5.008
NLA06608-0053	Lake Champlain	43.54476	-73.46221	246	29	24.52	5.008	6.256
NLA06608-0037	Waramaug, Lake	41.69141	-73.34949	338	14	7.329	2.893	5.264
NLA06608-0037	Waramaug, Lake	41.69141	-73.34949	239	14	7.14	2.664	8.008
NLA06608-0038	Island Pond	44.8075	-71.872778					
NLA06608-0038	Island Pond	44.8075	-71.872778					
NLA06608-0045	Beaver Pond	37.29456	-77.88768	430	60	8.9	4.291	21.12
NLA06608-0045	Beaver Pond	37.29456	-77.88768	648	54	7.805	3.843	20.16
NLA06608-0006	Morris Reservoir	41.67626	-73.14483	223	4	5.425	1.872	3.224

### Oracle Tools

- Select Columns
- Filter
- Sort
- Control Break
- Highlight
- Compute
- Aggregate
- Chart
- Flashback
- Save Report
- Reset
- Help
- Download

Selected data

# Summary: Excel Data Viewer

User creates regional view of NLA data

Customized region

Customized thresholds

Graphics & stats put state's condition in context

Excel tool not yet robust. Is it worth the effort to make it bullet-proof?

Alternative strategy..... Use Excel tool to identify useful graphics/calculations. Build similar capability into web browser.

# Feedback is sought & appreciated

Is the Excel tool approach advisable?

Who would use such a tool?

How would you use it?

Any component particularly useful.... or not?

What's missing?

## Contact (at USEPA Narragansett)

John Kiddon [kiddon.john@epa.gov](mailto:kiddon.john@epa.gov) 401-782-3044

Hal Walker [walker.henry@epa.gov](mailto:walker.henry@epa.gov) 401-782-3134