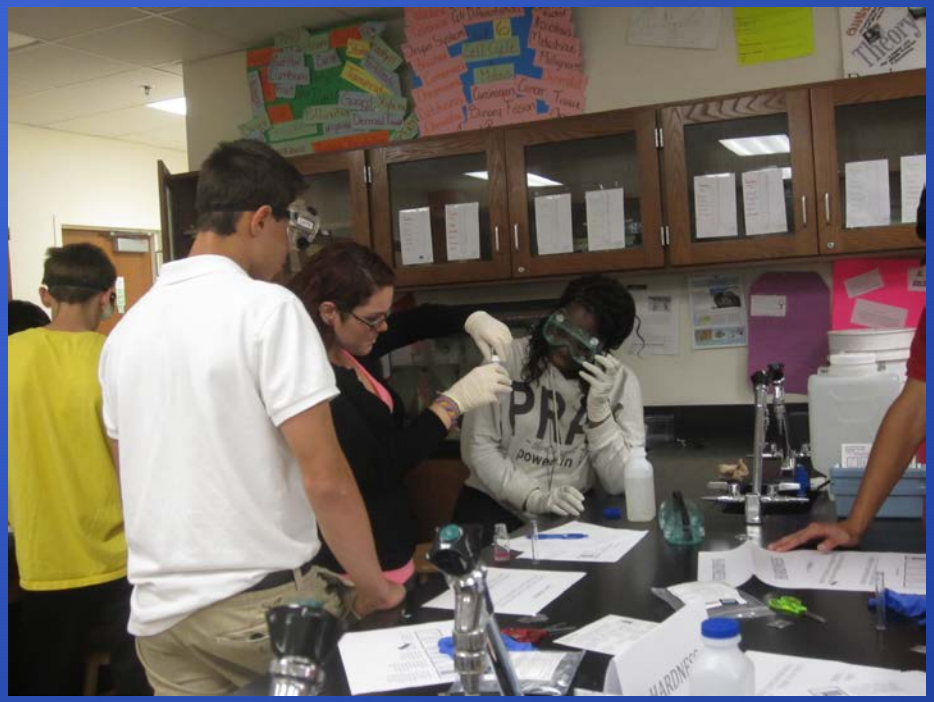

GET WET!
Loxahatchee, Florida
Spring 2013

Follow the PowerPoint Guidelines

- Introduce What, Why, & Where
- Present results as graphs
- Use lots of pictures
- Wrap-up ideas



What, Why, Where, & How

- Tell the audience what you were testing for
- Tell Them why you were testing for those parameters
- Tell them where the testing takes place
  include:
    - Habitat Types
    - Local Geology (historical?)
    - Land-use (causes?)

- Tell them how you tested the parameters

What?

- Hardness
- pH
- Conductivity
- Nitrates
- Total Metals
- Sodium & Chloride

Why?

- Historical groundwater/drinking water issues in your area

- Local drinking water concerns relating to:

PRIVATE WELL WATER
And
TOWN WELL WATER

(i.e., E.Coli from failing septic systems; water scarcity, previous or present industries, old dump sites, etc.)

Where?

- What are the land use issues that may effect groundwater wells (i.e., industry, natural, private septic, etc.)

- Does the well water in your area generally come from: an aquifer, unconfined aquifer (water table), or bedrock fractures

Land Use

- Septic systems
- Leaky underground storage tanks
- Industrial sites, waste disposal facilities
- Agricultural land
- Highways Historical issues
- Gun range

How?

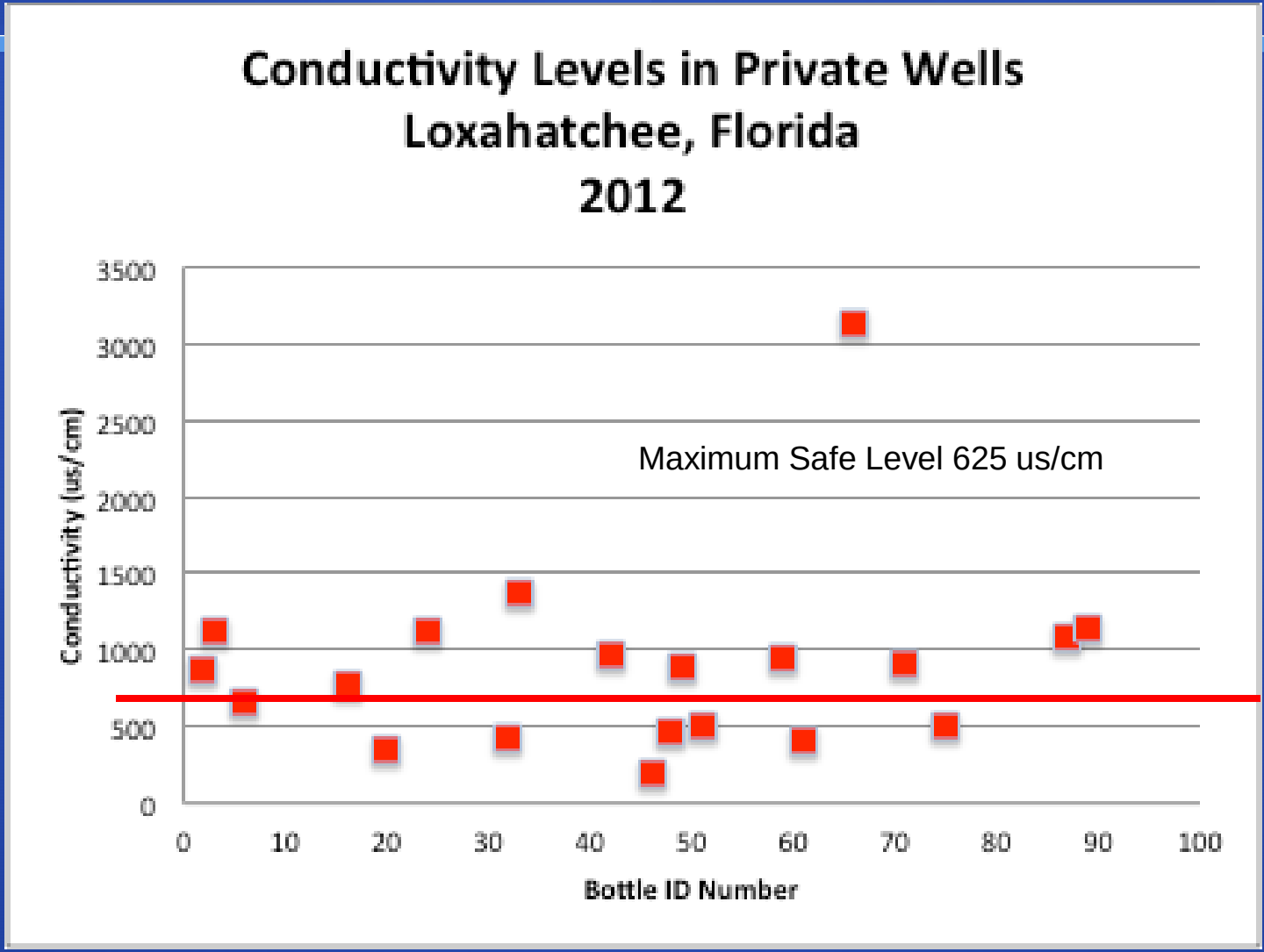
Talk/Show your audience how you tested the parameters in the classroom

Results

- Graphs
- Statistics from Excel
- Excel spread sheets
- Google Earth Maps

- GIS Maps from the local GIS Expert

Student & Lab Comparison (for each of the six tests)



Statistics from Excel

RANGE	0 - .3	MEAN	.08
MEDIAN	.09	MODE	0
SD	.08		

DO STATISTICS FOR EACH OF THE SIX TESTS

EXCEL SPREAD SHEETS 2013

Red shows **Above Max Level** in sampling

Bottle Identification Number	Chloride (mg/L)	Nitrate (mg/L)	pH	Hardness (mg/L CaCO3)	Total Metals	Conductivity (uS/cm)
4	145	0	7.69	68.4	0.01	285.6
6	115	2	7.37	256.5	100	271.2
7	100	0.5	7.89	0	200	278.2
14	4	0.5	7.42	205.2	14	76.5
16	500+			222.3	0.05	
19	50	0.5	7.33	171	10	273.7
21	55	0	7.23	342	0.02	269
22	225	0.5	7.24	437.5	0.02	286.8
24	110	0	7.5	359.1	100	286.1
29	35	0.5	7.26	256.5	0.01	271.3
31	120	0.5	7.29	15	0.1	22.3
32	110	0	7.26	376.2	0.02	272.4
33	85	0	7.69	34.2	50	283.1
37	45	2	7.52	153.9	1000	278.1
39	25	0	7.56	273.6	50	272.4
41	195	0	7.77	34.2	0.01	282.2
46	120	0	7.16	461.7	300	35.3
47	200	2	7.66	513	10	272.2
53	45	0	7.45	222.3	10	269.2
58	70	0.5	7.17	422.5	50	285.9
66	80	0	7.39	0	10.1	277.3
80	140		6.7	803.7	0.02	202.1

EXCEL SPREAD SHEETS 2013

Red shows **Above Max Level** in sampling

Bottle Identification Number	Chloride (mg/L)	Nitrate (mg/L)	pH	Hardness (mg/L CaCO3)	Total Metals	Conductivity (uS/cm)
81	65	2	7.13	359.1	0.02	270.1
82	40	0	7.23	290.7	0.01	278.3
83	95	0.5	7.1	273.6	0.2	266.7
85	65	2	7.48	290.7	50	273.7
87	105	5	7.81	51.3	254.7	
88	35	0.5	7.21	273.6	0.01	270.5
89	90	2	7.41	290.7	50	274.5
94	25	0	7.31	290.7	<10	280.2
102	40	2	6.5	136.8	0.02	278.1
104	35	0	7.48	359.1	50	281
108	75	0.5	7.53	85.5	20	260.3
112	115	0.5	7	307.8	20	279.7
114	75	0.5	7.58	239.4	10	269.8
118	250	5	7.46	376.2	1000	286.3
121	50	0	7.98	136.8	1000	278.1
124	70	20	7.47	427.5	1	281.2
126	50	0	6.9	461.7	0.1	279.3
129	55	0	7.9	300.9	50	268.9
130	25	0.5	7.38	222.3	20	276.5
137	185	0	7.65	0	20	293
143	40	0	7.49	188.1	<10	263.6
146	70	0	7.41	393.3	20	277.1
149	60	2	7.12	376.2	1000	270.1

EXCEL SPREAD SHEETS

2012

Bottle Identification Number	Chloride (mg/L)	Nitrate (mg/L)	pH	Hardness (mg/L CaCO3)	Total Metals (mg/L)	Conductivity (uS/cm)
49	130	0	7.01	239.4	20	893
87	175	0	6.93	51.2	10	1075
75	45	0	7.05	136.8	20	512
71	135	0	7.1	324.9	10	912
48	45	0	7.1	119.7	10	460
66	665+	0	7.21	17.1	50	**3126**
89	330	0	6.96	34.2	20	1135
61	280	8.8	6.8	85.5	20	400
24		0	7.13	51.2	200	1124
59	145	0	6.86	324.9	10	950
20	95	8.8	6.85	119.7	100	341
3	250	0	6.88	68.4	50	1123.5
6	235	0	7.2	51.3	20	667.5
33	295	22	4.12	222.3	100	1371.5
32	105		6.78	119.7	119.7	427
46	70	0	9.1	34.2	20	192
2	150	0	7.05	239.4	10	869
51	25	0	7.18	205.2	50	501
42	365	0	7	51.3	100	969
16	125	0	7.05	273.6	100	770

EXCEL SPREAD SHEETS 2013

Filtered

Red shows **Above Max Level** in sampling

Bottle Identification Number	Chloride (mg/L)	Nitrate (mg/L)	pH	Hardness (mg/L CaCO3)	Total Metals	Conductivity (uS/cm)
FILTERED						
F1	60	10	7.5	239.4	10	250.8
F15	65	0	7.24	259.1	0.05	274
F23	250	0	6.7	17.1	0.02	276.4
F25	120	2	7.55	85.5	0.02	266.6
F30	160	0	7.36	376.2	0.02	283.3
F44	8	0.5	8.48	68.4	1000	185
F49	150	0	7.69	102.6	100	281.8
F120	85	5	7.33	68.4	100	253
F134	90	0	7.38	102.6	1000	259.2
F135	325	0	7.32	427.5	20	281.6
F144	50	2	7.53	205.2	20	256
FILTERED & PUBLIC						
FP54	100	0.5	7.26	4	0.02	259

EXCEL SPREAD SHEETS
Jupiter Farms 2013

Red shows **Above Max Level** in sampling

Bottle ID #	Chloride (mg/L)	Nitrate (mg/L)	pH	Hardness (mg/L Ca CO3)	Total Metals (mg/L)	Conductivity (uS/cm)
9	360	2	7.2	444.6	20	1244
11	190	0	7.3	85.5	200	880
13	25	0	6.9	136.8	10	
15	165	2	6.8	17.1	0.02	750
16	110	1	6.85	188.1	100	559
20	115	0.35	8	119.7	<10	395
21	130	0	8	95.6	1000	467
25	140	0	8	51.3	100	1200
26	80	0	7.2	290.7	50	789
32	195	0	6.7	51.3	10	1562
35	60	0.5	7	17.1	200	704
40	30	0.15	6.9	307.8	0.02	624
59	95	2	8	102.6	10	505
61	225	0	7.5	51.3	10	757
63	100	0.5	6.85	188.1	10	521
65	85	0	7	136.8	200	620
75	60	2	7	153.9	10	461
79	100	0	7.2	68.4	200	684
81	100	0	7	85.5	1000	482
83	125	0	7.5	102.6	100	600
84	55	2	7	119.7	0.01	548
85	135	0	6.65	342	0.2	1132
86	400	2	8	68.4	20	2028
91	34	0	7.4		0.01	
92	200	0.5	6.65	256.5	0.01	1500
99	200	0	6.9	34.2	50	1060
100	90	0.5	8	85.5	75	428
102	50	0	7	102.6	20	517
108	30	0	7	34.2	50	187
109	350	2	6.85	393.3	100	1605
111	260	0	6.95	427.5	10	430
112	115	0	7.2	102.6	400	502
118	205	0	6.6	3078	50	1128

EXCEL SPREAD SHEETS
Jupiter Farms 2013

Red shows **Above Max Level** in sampling

Bottle ID #	Chloride (mg/L)	Nitrate (mg/L)	pH	Hardness (mg/L Ca CO3)	Total Metals (mg/L)	Conductivity (uS/cm)
124	75	0.5	7.2	188.1	50	1436
129	85	2	6.5	239.4	0.02	699
132	70	0.5	7	342	100	610
140	205	0	6.9	205.2	10	
146	145	0	7.8	34.2	10	1043
152	250	0	7.1	188.1	10	1476
156	450	0	7.5	34.2	100	1992
158	115	0	7.5	342	50	791
161	70	0.5	7.35	195.2	10	712
162	120	0.5	7	307.8	50	1.01
163	100	0	8	119.7	50	475
165	120	2	6.7	427.5	0.05	1027
172	300	0	6.5	393.3	20	1450
177	220	0.5	6.7	85.5	10	1561
178	140	0.5	7.5	17.1	20	830
181	40	0	6.9	427.5	10	940
183	185	0	7.45	51.3	100	800
188	60	0	7.6	17.1	20	810
189	270	0.5	7.4	393.3	<10	676
191	190	2	6.6	119.7	20	1072
194	85	0	8	51.3	50	425
198	50	2	6.85	153.9	50	773
201	175	0	7	171	10	1223
204	70	0.5	6.8	239.4	0.002	709
207	125	0.5	7	119.7	1000	660
208	85	0.15	6.75	171	20	687
211	80	0.5	6.75	273.6	0.035	778
213	165	11	8	1700	100	449
214	105	11	6.8	444.6	10	1050
219	60	0	6.8	17.1	20	527
220	150	0	7.1	239.4	0	953
225	85	0.5	7.1	4	20	945
229	480	2	8	34.2	20	1746
231	125	2	6.9	13	0.05	900
232	240	0.5	7.3	393.3	10	1009
242	75	0	6.85	153.9	20	890
244	30	0	6.9	2052	50	590
246	225	0	6.6	393.3	0.01	
249	525	0	7.6	119.7	10	2949
	120	0.5	7	307.8	50	

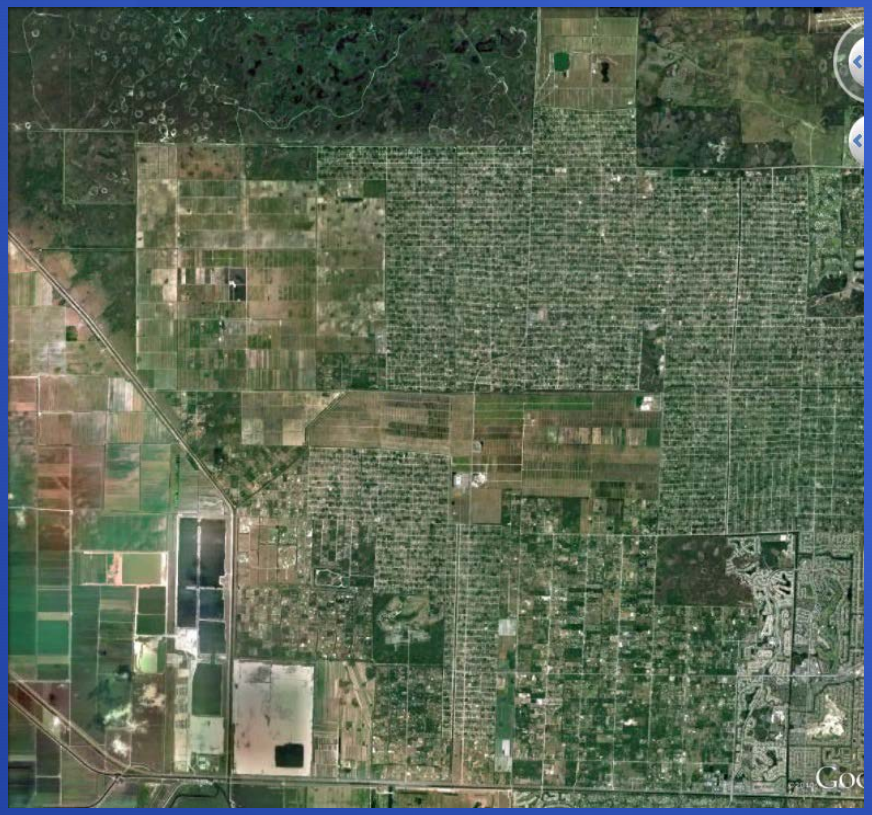
EXCEL SPREAD SHEETS
Jupiter Farms 2013

Filtered

Red shows **Above Max Level** in sampling

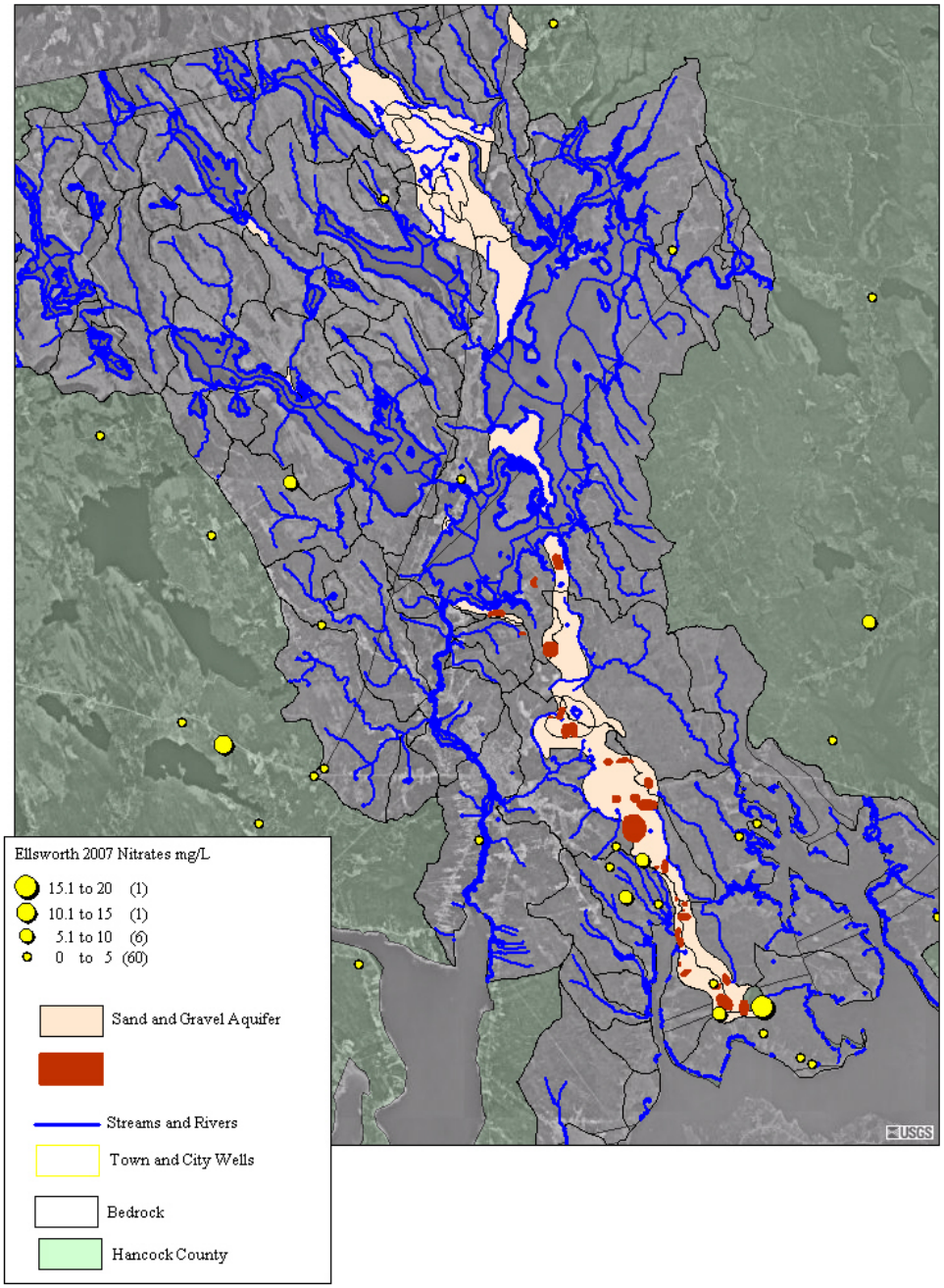
FILTERED Well Water						
22	85	0.5	8	171	20	470
23	90	0.25	7.2	0	200	
52			7.2	102.6	0.05	2359
91	34	0	7.4	136.8	10	860
96	90	0	7.1	119.7	20	452
103	245	0.5	7.6	85.5	20	1520
149	450	1	6.8	20257.2	200	1949
166	405	0	7.3	17.1	20	1730
170	750	2	7.3	85.5	0.4	
183	185	0	7.45	51.3	0.1	
PUBLIC						
7	90	0	8	136.8	10	
8	100	0	7	102.6	50	
18	80	0	0	0	20	515
19	95	0.5	8	684	20	488
20						
24	105	0.5	7	119.7	1000	514
67	105	0.5	8	102.6	10	500
69						
139	75	0	6.6	222.3	0.1	483
142	130	0	6.25	171	20	500
171						
199	125	0	6.9	2.6	400	502
223	125	0	7	136.8	50	505
235	100	0.5	6.8	205.2	400	512
236	150	11.1	6.65	153.9	0.1	60
FILTERED & PUBLIC						
14	60	0	6.9	153.9	0.1	494
49	75	0	7	171	0.05	490

Google Earth Maps



Range Maps
-nitrates
-salinity
-Total Metals
-conductivity
-hardness
-total Iron

GIS Results


Ellsworth 2007 Nitrates mg/L
15.1 to 20 (1)
10.1 to 15 (1)
5.1 to 10 (6)
0 to 5 (60)
Sand and Gravel Aquifer
Streams and Rivers
Town and City Wells
Bedrock
Hancock County
USGS

Conclusion

- Can you make assumptions based on results?

- How can you better define your results?

Conclusion Continued

- Recommendations:
  - What chemical parameters should private wells in your community be tested for that have not been covered by GET WET! (i.e., Radium, Radon, MTBE etc.,)
  - Which organizations does the community contact if they have questions or concerns regarding their private wells
  - How often to test wells and where to get them tested (state certified labs).
- THANK YOUR AUDIENCE

Recap

- Intro: with what, where, and why
- How: (Oxbridge Students)

- Results: graphs, tables, & statistics
- Conclusion: recommendations

THANK YOU!!!!

Questions?