

Policy Making and Academic Cooperation for Sustainable Development

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Role for Academics

- Issues in sustainability classic example of need for government policy
- Independent science assessment
 - “Honest brokers” in contentious public debates

Role for Academics

- Economists can provide information
 - Core data, information on alternatives
 - Modeling, scenario analysis
 - Benefit cost analysis

Example: Benefit Cost-Analysis

Water Quality Improvement

- Four year data on Iowans usage of Iowa lakes
 - Surveyed 8000 Iowans, random population sample
 - Use, knowledge, and perceptions regarding lake quality
- water quality at 130 primary lakes in Iowa
- Economic value = how much are people willing to give up to get more water quality
- Use observed patterns in lake usage to infer WTP for water quality

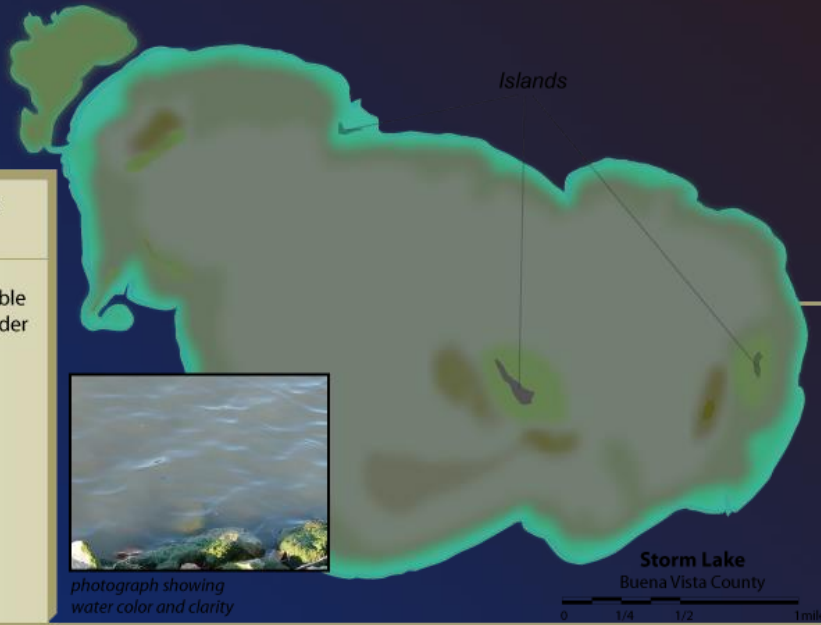
Stated Preference
Question: Would you be willing to pay \$25/year in property taxes to support a project to improve the conditions of Storm Lake to those described below?

Current conditions of Storm Lake can be summarized as:

- Water Clarity:** objects distinguishable 8 inches to 3 feet under water
- Algae blooms:** 2 to 5 per year
- Water color:** brown to green
- Water odor:** mild to strong odor
- Bacteria:** possible short-term swim advisories
- Fish:** low diversity



photograph showing water color and clarity

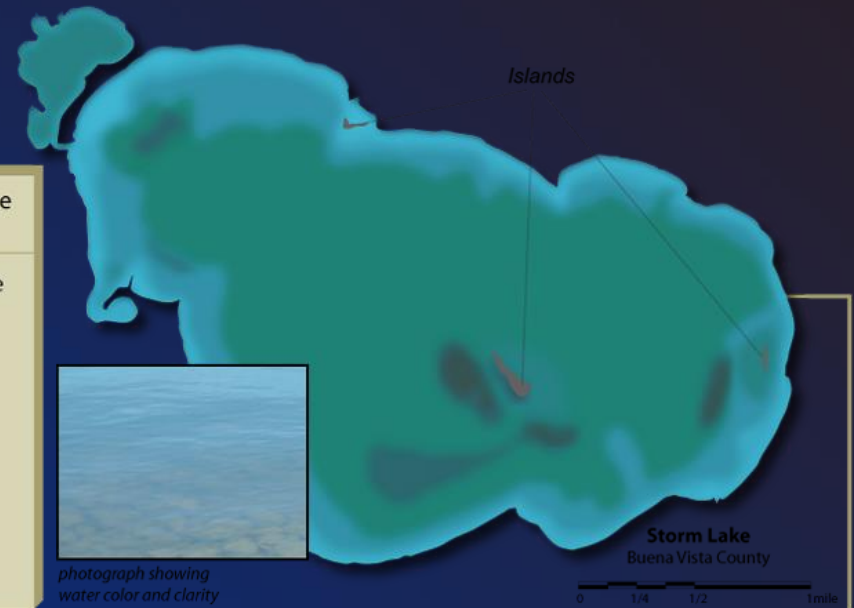


Improved conditions of Storm Lake can be summarized as:

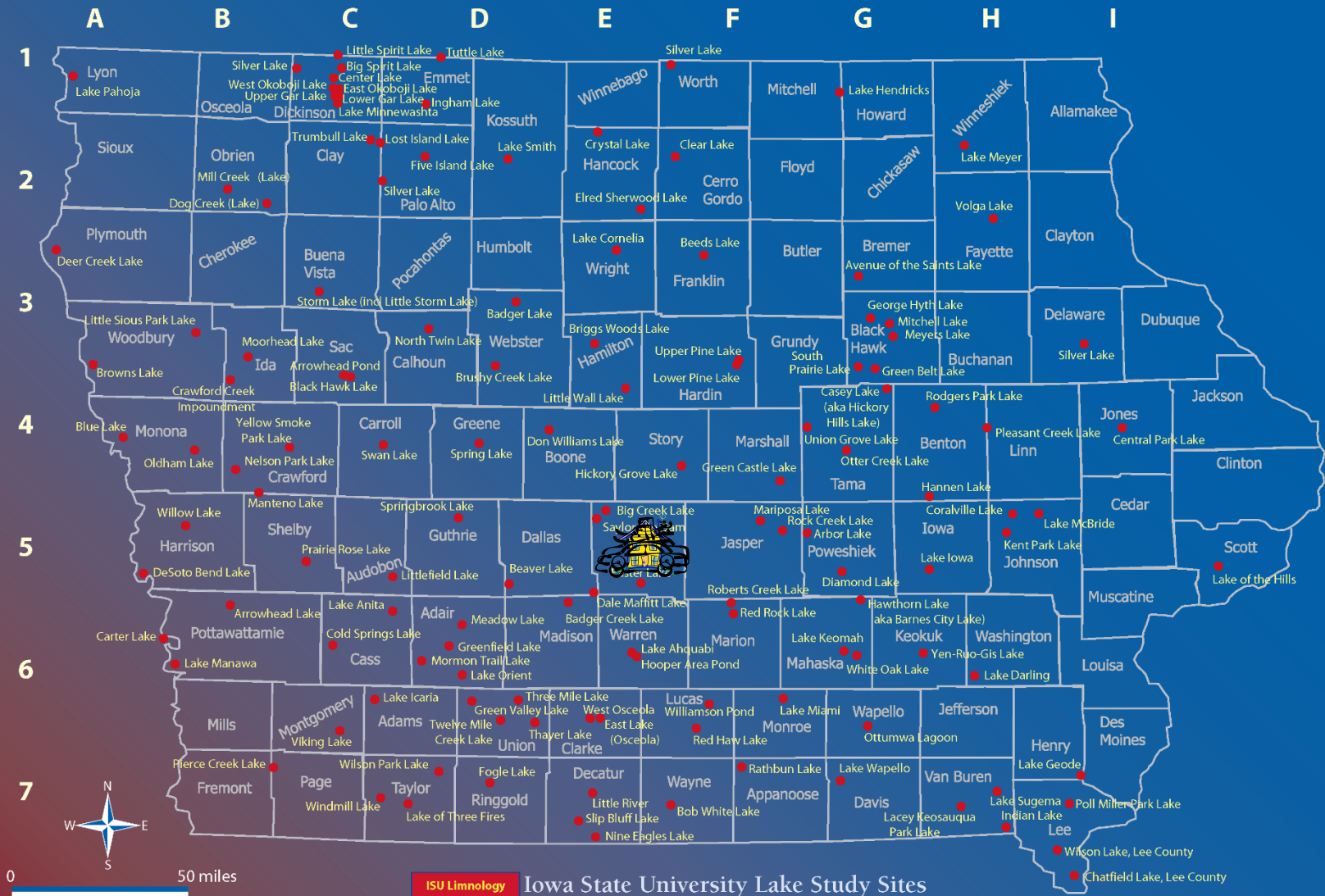
- Water Clarity:** objects distinguishable 6 to 8 feet under water
- Algae blooms:** Rarely more than 1 per year
- Water color:** green to blue
- Water odor:** usually fresh
- Bacteria:** rare swim advisories (most years none)
- Fish:** high diversity



photograph showing water color and clarity



Using Travel Patterns to Reveal Valuation



Top 10 Lake Usage

Lake_Name	2002	2003	2004	2005	Average
Saylorville	607,186	695,917	567,669	642,079	628,213
Coralville	401,716	528,547	408,423	485,895	456,145
West Okoboji	348,149	474,738	479,125	437,648	434,915
Big Creek	382,165	495,476	396,514	379,190	413,336
Clear	347,466	453,621	426,007	401,653	407,187
East Okoboji	267,737	383,770	363,797	338,222	338,382
Red Rock	309,965	340,080	345,740	354,317	337,526
Spirit Lake	182,173	344,252	321,300	300,886	287,153
Macbride	266,744	153,073	310,843	340,093	267,688
Rathbun	192,700	279,335	269,325	250,380	247,935

Single Lake Rankings

Sorted by Total Net Benefits (\$million)

<u>Ranking</u>	<u>Lake</u>	<u>Net Benefits</u>	<u>Benefits</u>	<u>Costs</u>
1	Big Creek	733.74	755.76	22.03
2	Brushy Creek	490.70	517.20	26.50
3	Hickory Grove	275.94	277.80	1.86
4	Lake McBride	218.18	226.21	8.03
5	Clear Lake	185.32	202.93	17.61
6	Lake Geode	161.34	166.11	4.77
7	Three Mile	153.36	163.67	10.32
8	Easter	102.33	113.48	11.15
9	Lake Ahquabi	86.91	88.55	1.64
10	Little Wall	76.78	81.85	5.07
11	Lake Anita	68.81	69.67	0.86
12	Kent Park	61.28	61.99	0.71
13	Springbrook	60.69	61.79	1.10
14	Red Haw	54.65	55.10	0.45
15	Don Williams	54.12	66.14	12.02



Iowa Department of Natural Resources

- Used this information as one component of ranking of lakes for project funding of water quality investments
- other components: engagement of watershed groups, geographic distribution and others
- Continuing work: keep tracking usage, values, and use data to value investments