

How do Iowa farmers and the general public value water quality and visit Iowa lakes?

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32nd Integrated Crop Management Conference


December 2, 2021

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November 22, 2021

Ames, IA – A news conference will be held at 10:00 a.m. on Tuesday, December 14 to announce the results of the 2021 Iowa Land Value Survey conducted by the Center for Agricultural and Rural Development at Iowa State University and Iowa State University Extension and Outreach. Please note the change in location from previous years—the conference will take place in room 0009 of Curtiss Hall on the ISU campus in Ames.

For those who can't attend the conference, a livestream will be available on YouTube at <http://bit.ly/LandResults2021> .

- **To participate the 2021 ISU land value survey**
<http://bit.ly/landvalue2021>
- Northwest: **Emmet**, Palo Alto
North Central: Humboldt, Wright
Northeast: **Howard**, Allamakee, Buchanan, Dubuque, Black Hawk
West Central: **Crawford**, **Greene**, Ida, **Sac**
Central: Dallas, Boone, Polk
Southwest: Adams, **Fremont**, Taylor, Mills, Adair
South Central: Clarke, **Decatur**, Union, Davis
Southeast: **Lee**, **Mahaska**, **Van Buren**, **Wapello**, Davis, Louisa

April 2021

21-PB 32

Do Iowa Residents and Farmers Care about Improving Water Quality and Reducing Harmful Algal Blooms? Results from Two Household Surveys

Yau-Huo (Jimmy) Shr, Assistant Professor, Department of Agricultural Economics,
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A Report to the Iowa Department of Natural Resources The Iowa Lakes Valuation Project 2019: Summary and Findings

Xibo Wan, Yongjie Ji, Wendong Zhang

Staff Report 21-SR 115

November 2021

**Center for Agricultural and Rural Development
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Ames, Iowa 50011-1070
www.card.iastate.edu**

<https://www.card.iastate.edu/products/publications/pdf/21sr115.pdf>

<https://www.card.iastate.edu/products/publications/pdf/21pb32.pdf>

IWC Survey of Iowans: 821 general public (2019) + 487 farmers (Boone, N. Raccoon; 2020)

	2019 Iowa general public survey	2020 Boone & N. Raccoon farmers
No. respondents	858	493
Response rate	28.7%	49.4%
Survey period	June – Dec' 19	July – Sept' 20
Age	59	64
% Male	57%	89%
Some college or higher	78%	76%
% Retired	38%	17%
HH income > \$70k	48%	62%

Survey findings

- 32% lowans & 55% farmers think Iowa's water quality to be good or very good
- 58% of lowans are at least somewhat aware of algal blooms in Iowa's lakes
- Half of the general public & 30% farmers think algal blooms are very harmful
- 60% of lowans have seen algal blooms in Iowa lakes at least once
- 60% of the general public & 32% of farmers think agriculture (manure + fertilizer) is the No.1 source of excessive nutrients in Iowa's lakes
- 65% of the general public & 20% of farmers are not at all familiar with the Iowa Nutrient Reduction Strategy; 4% of the general public and 23% of farmers are very or extremely familiar with INRS
- 52% of the general public & 22% of farmers chose fertilizer taxes (ag + lawn) as the best way to fund INRS; a recreational fee as the top choice by farmers (30%)
- 35% of lowans & 26% of farmers are concerned about nitrates in drinking water in their neighbourhood
- lowans are willing to pay \$19 per household monthly on average for 25% less nitrate in source water; 50% less HABs related beach closure +10% less Gulf hypoxic zone

Overall, how would you rate the water quality in Iowa's lakes?

	Very Poor	Poor	Fair	Good	Very Good
General Public (N = 820)	2.93%	17.20%	47.68%	30.73%	1.46%
Farmer (N = 486)	0.82%	6.58%	37.86%	51.03%	3.70%

Are nitrates in drinking water a concern in your home or neighborhood?

	Yes	No	Not sure
General Public (N = 838)	34.37%	34.37%	27.21%
Farmer (N = 487)	26.08%	65.30%	8.62%

15% of Iowa general public and 62% of farmers rely on private wells for drinking water

Table 5a. How familiar are you with the issue of excessive nutrients in Iowa lakes?

	Not at all familiar	Slightly familiar	Somewhat familiar	Very familiar	Extremely familiar
General Public (N = 792)	25.51%	24.87%	31.57%	15.91%	2.15%
Farmer (N = 492)	5.49%	15.85%	46.34%	28.66%	3.66%

⌘ Table 5b. What is the number one source of excessive nutrients in Iowa's lakes?

	Agriculture	Stormwater	Municipal wastewater	Industrial wastewater	Not sure	Other
General Public (N = 836)	60.17%	5.98%	2.15%	2.27%	24.76%	4.67%
Farmer (N = 483)	32.09%	26.29%	6.63%	2.28%	22.57%	10.14%

Table 6a. Have you ever seen algal blooms in person? If so, how many times?

	Yes, only once	Yes, 2 or 3 times	Yes, more than 3 times	No, never
General Public (N = 837)	22.58%	15.05%	23.78%	38.59%
Farmer (N = 487)	8.62%	20.33%	25.87%	45.17%

Table 6b. How aware are you of algal blooms in Iowa's lakes?

	Not at all aware	Slightly aware	Somewhat aware	Very aware	Extremely aware
General Public (N = 844)	19.19%	23.58%	33.29%	19.79%	4.15%
Farmer (N = 494)	9.31%	19.64%	41.09%	26.72%	3.24%

Table 6d. In your opinion, how harmful are algal blooms in Iowa's lakes?

	Not at all harmful	Slightly harmful	Somewhat harmful	Very harmful	Extremely harmful
General Public (N = 807)	2.73%	9.17%	37.67%	40.89%	9.54%
Farmer (N = 482)	2.48%	12.72%	41.66%	36.31%	6.83%

HABs Awareness & Perception

Table 6c. Which nutrient is more likely the cause of algal blooms in Iowa's lakes?

	Nitrogen	Phosphorous	Not sure	Both
General Public (N = 831)	29.96%	14.80%	53.19%	2.05%
Farmer (N = 483)	29.40%	31.88%	34.99%	3.73%

Table 7a. How important are “reducing nutrients in Iowa’s waterways?”

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
General Public (N = 849)	1.57%	7.99%	24.33%	42.98%	23.12%
Farmer (N = 492)	1.92%	12.37%	42.22%	36.25%	7.25%

□

Table 7b. How important are “not sending nutrients downstream to other states?”

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
General Public (N = 849)	1.47%	6.97%	24.04%	41.83%	25.69%
Farmer (N = 492)	2.77%	12.15%	40.72%	36.89%	7.46%

Table 8a. How familiar are you with the Iowa Nutrient Reduction Strategy?

	Not at all familiar	Slightly familiar	Somewhat familiar	Very familiar	Extremely familiar
General Public (N = 839)	64.84%	19.67%	11.80%	2.98%	0.72%
Farmer (N = 486)	20.16%	19.75%	37.24%	18.93%	3.91%

Table 8b. How strongly you agree or disagree with the following statements: "the Iowa Nutrient Reduction Strategy is a feasible plan to reduce nutrients in Iowa's waterways?"

	Strongly disagree	Somewhat disagree	Neutral or Don't know	Somewhat agree	Strongly agree
General Public (N = 822)	3.04%	3.65%	51.46%	27.49%	14.36%
Farmer (N = 250)	4.00%	7.60%	42.00%	34.40%	12.00%

Table 8c. Which of the following is the most appropriate way to fund the Iowa Nutrient Reduction Strategy and similar programs for protecting lakes in Iowa?

	A fee on residential and business water bills	A recreational fee for use of parks	A special sales tax on fertilizer (for both agricultural and household uses)	Another way
General Public (N = 784)	8.80%	25.51%	52.04%	13.65%
Farmer (N = 443)	19.64%	30.47%	21.67%	28.22%

The Iowa Nutrient Reduction Strategy was developed by:



IOWA DEPARTMENT OF
**AGRICULTURE &
LAND STEWARDSHIP**



IOWA DEPARTMENT OF
NATURAL RESOURCES

IOWA STATE UNIVERSITY

Views about Gulf of Mexico hypoxic zone

Table 9a. How familiar are you with the hypoxic zone issue in the Gulf of Mexico?

	Not at all familiar	Slightly familiar	Somewhat familiar	Very familiar	Extremely familiar
General Public (N = 667)	39.88%	19.34%	26.24%	11.54%	3.00%
Farmer (N = 389)	18.51%	19.02%	38.05%	19.28%	5.14%

Table 9b. If nutrients in Iowa's waterways were reduced by 50%, how would that affect the hypoxic zone in the Gulf of Mexico?

	Much smaller	Slightly smaller	No effect	Slightly larger	Much larger	Don't know
General Public (N = 741)	16.73%	39.14%	8.37%	0.27%	0.27%	35.22%
Farmer (N = 251)	13.15%	45.82%	19.12%	0.00%	0.00%	21.91%

Table 9c. If there were fewer days of beach closures due to algal blooms in Iowa's lakes, what do you think would happen to the hypoxic zone in the Gulf of Mexico?

	Much smaller	Slightly smaller	No effect	Slightly larger	Much larger	Don't know
General Public (N = 522)	7.85%	25.29%	30.84%	1.92%	0.57%	33.52%
Farmer (N = 460)	3.91%	23.91%	45.65%	1.30%	0.22%	25.00%



Iowa Lakes Project

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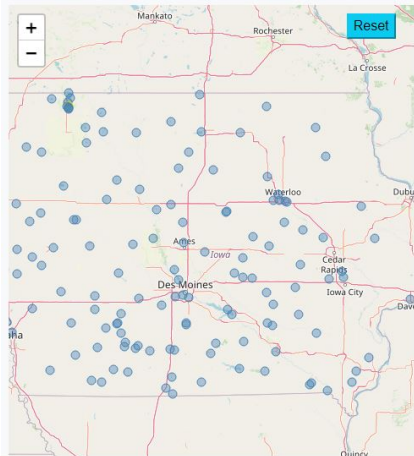
Iowa Lakes Survey 2019 Interactive Map by Lake

Activity

Travel Distance

Economic Impact

Customize Report



Lake: East Okoboji Lake

Boating



This Lake
State-wide

56%

23%

Swimming



This Lake
State-wide

37%

16%

Relaxing



This Lake
State-wide

43%

45%

Canoeing



3%

9%

Fishing



3%

12%

Wildlife



21%

38%

Other



Water skiing



18%

5%

Camping



34%

37%

Trails



13%

30%

Summary

- Sixty-five percent of Iowa respondents reported at least one single-day trip, while about 20% reported taking at least one overnight trip.

- In 2019, Iowa households took around 9 million single-day trips across Iowa. The top-10 most visited lakes in 2019 were Clear Lake, Saylorville Reservoir, Ada Hayden Lake, Coralville Lake, Lake Macbride, Grays Lake, Big Creek Lake, Red Rock Lake, George Wyth Lake, and Lost Grove Lake, respectively.

- Respondents made most of their lake trips in the summer, and the top three activities selected by respondents were relaxing and/or picnicking, fishing, and nature/wildlife watching, respectively.

- On average, Iowa respondents took around 8 trips and traveled 48 miles to visit Iowa lakes in 2019; neighboring states' respondents took one trip and traveled 84 miles to visit Iowa lakes in 2019.

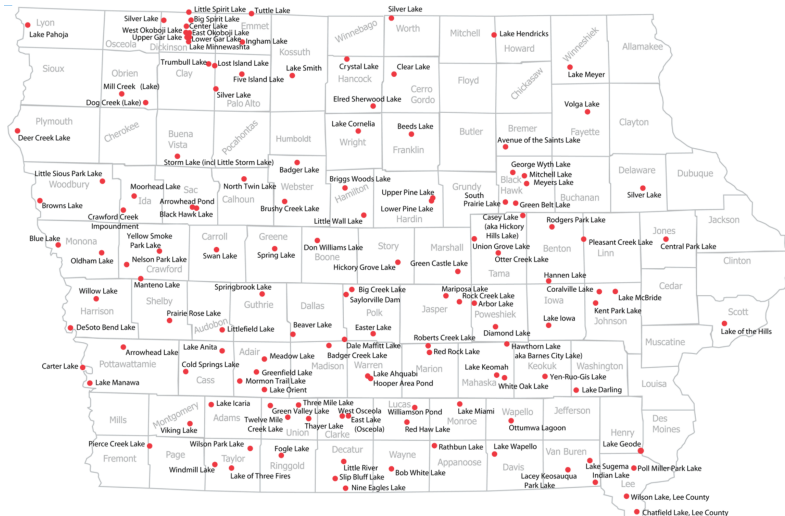
- We estimate that the total statewide expenses from all single-day trip takers was \$1.023 billion, or an average of \$7.4 million per lake.

- Iowans feel water quality is the most important factor when choosing a lake for recreation. Forty-seven percent of Iowa respondents indicated they use the DNR website to find Iowa lakes information.

Iowa Lakes Valuation Project

- 1 The Iowa Lakes Valuation Project is an ongoing economic study of the use of Iowa's lakes and the value Iowans place on water quality.
- 2 The survey has been conducted in 2002, 2003, 2004, 2005, 2009, 2014, and 2019.
- 3 The 2019 Iowa Lakes Survey was implemented in both online and mail.
- 4 The Survey asked respondents about their household lake visitation patterns during the 2019 calendar year and activities their household participated in during lake visits and visitation patterns to lakes in bordering states.

Map of Iowa Lakes Surveyed



Lake Usage of Respondents

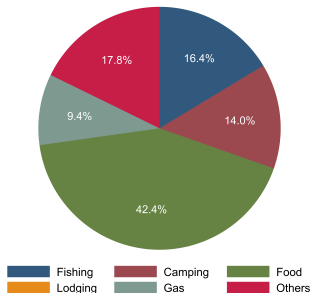
Q1: Have you or any member of your household visited any lakes in Iowa in 2019?

State	Never Visited	Have Visited	Total
Iowa	713 (35%)	1,349 (65%)	2,062
Iowa Panel	405 (33%)	826 (67%)	1,231
Illinois	48 (79%)	13 (21%)	61
Minnesota	37 (73%)	14 (27%)	51
Missouri	10 (77%)	3 (23%)	13
Nebraska	133 (78%)	70 (22%)	203
South Dakota	42 (68%)	20 (32%)	62
Wisconsin	21 (100%)	0 (0%)	21
Total	1,003 (41%)	1,470 (59%)	2,473

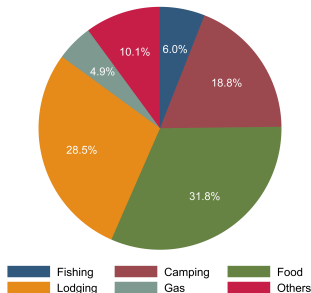
Expenditure Allocation

Q3: What percentage of total amount spent goes to each category?

Percentage of total amount spent for single day trips in 2019



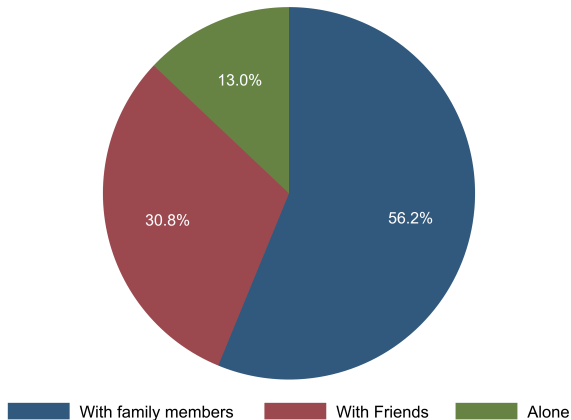
Percentage of total amount spent for overnight trips in 2019



Typical Lake Visit

Q4: Which best describe a typical lake visit for you or your household?

Which describes a typical lake visit for your household?



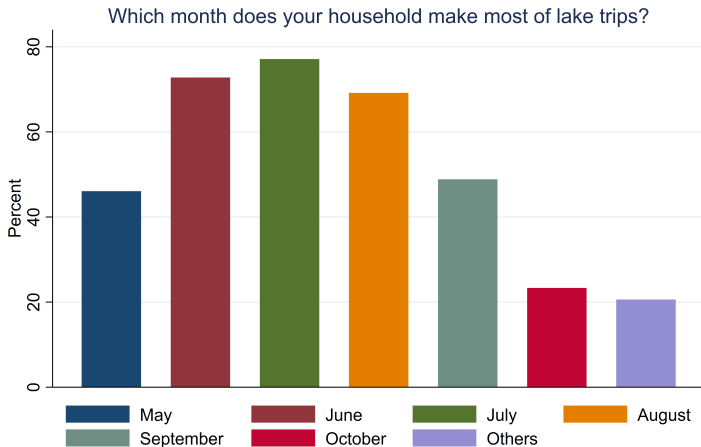
Typical Lake Visit

Q4: Which best describe a typical lake visit for you or your household?



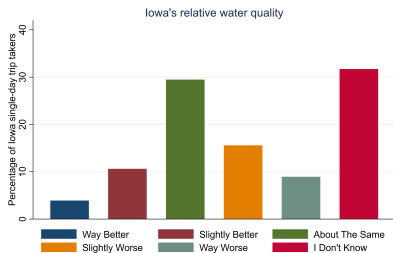
Month of Visiting Lakes

Q5: Which month do you or your household make most of your lake trips?

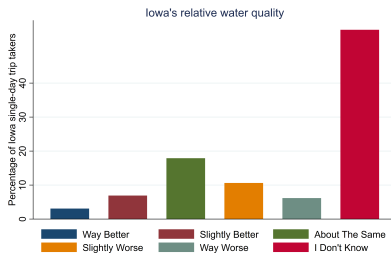


Water Quality Assessment by Seasons

Q5: water quality assessment in summer and other seasons



(a) Summer

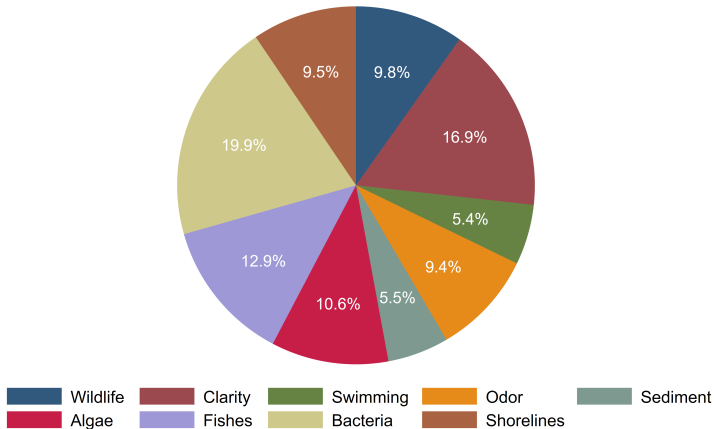


(b) Other Seasons

Characteristic Importance

Q9: Please indicate the importance of each characteristic by allocating your 100 points when choosing a lake for recreation.

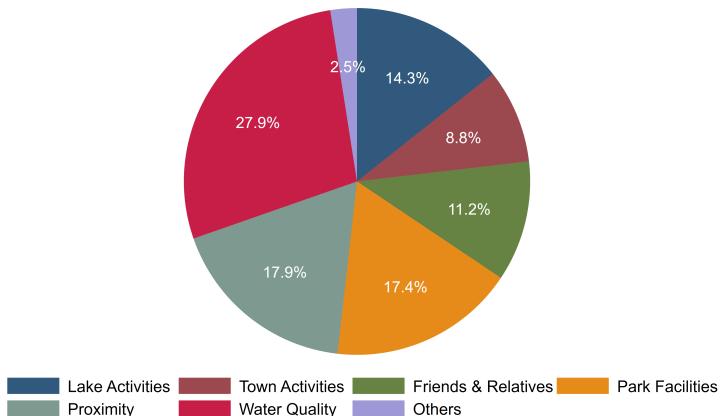
Importance of characteristics when choosing a lake for recreation



Factor Importance

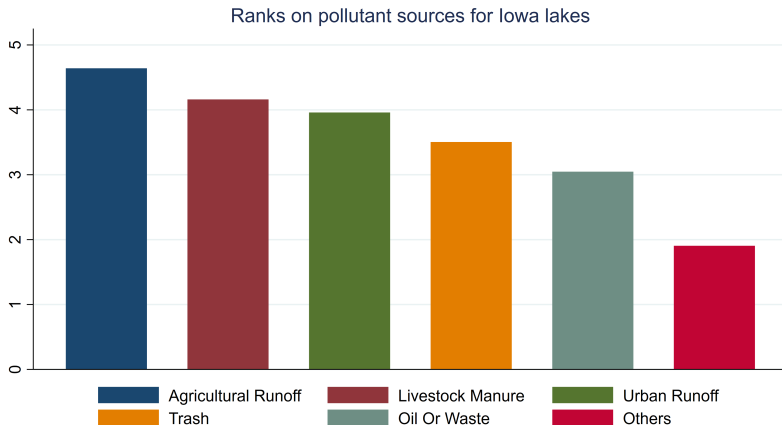
Q10: Please indicate the importance of each factor by allocating your 100 points when choosing a lake for recreation.

Importance of factors when choosing a lake for recreation



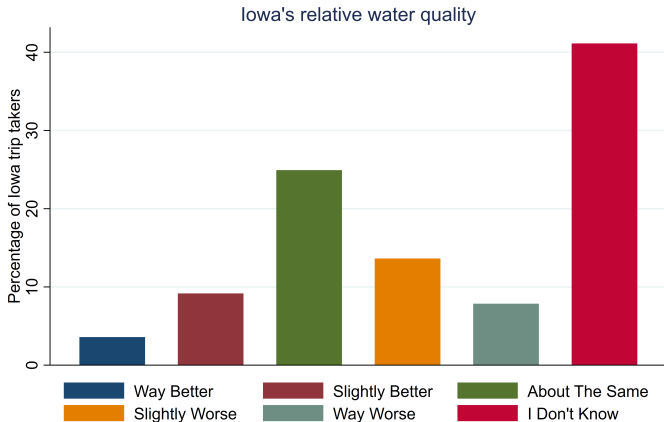
Potential Pollutant Source Rank

Q11: Please rank the following potential pollutant sources for Iowa lakes from 1(least important) to 6(most important).



Water Quality Assessment

Q12: Relative to lake water quality in surrounding states, Iowa's lake water quality is:



Social Media/Website Usage

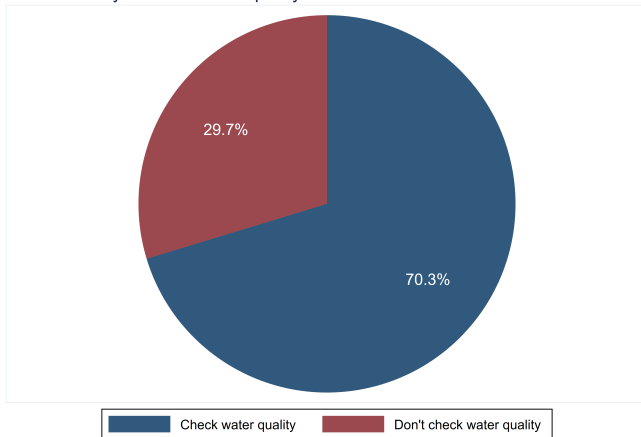
Q13: Please check all the social media/information website you have used for the following reasons.

Social Media(%)	Find Travel	Find Lakes	Share Travel	Share Lakes
DNR site	28	45	13	14
Google Apps	42	31	18	15
Facebook	25	27	38	34
Trip Advisor	26	15	10	7
Other	18	13	18	18
Whatsapp	4	8	3	3
Twitter	8	6	10	9
Youtube	6	6	3	2
Snapchat	5	3	5	4
Pinterest	3	2	1	1
Instagram	2	2	5	4

Check Water Quality Status

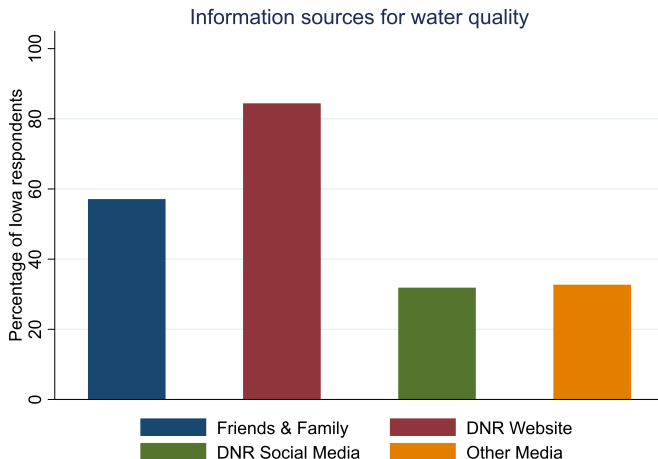
Q14: Do you check water quality status when you are planning your lake trips?

Do you check water quality status before visit lakes in 2019?



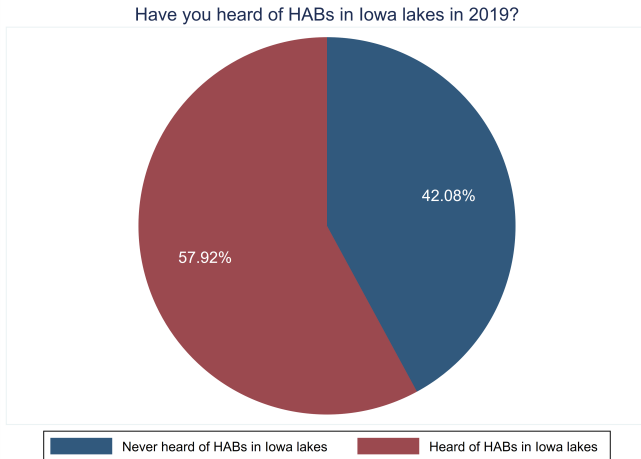
Information Sources

Q15: Check all sources of information when you look for water quality information.

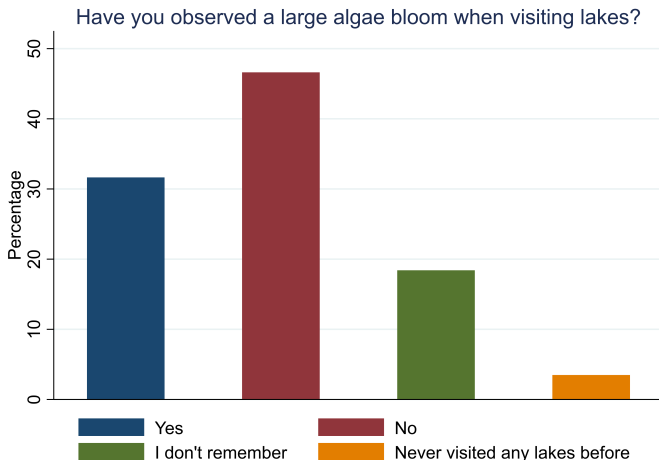


Harmful Algal Bloom (HABs)

Q16: Have you ever heard of Harmful Algal Bloom (HABs) in Iowa lakes?

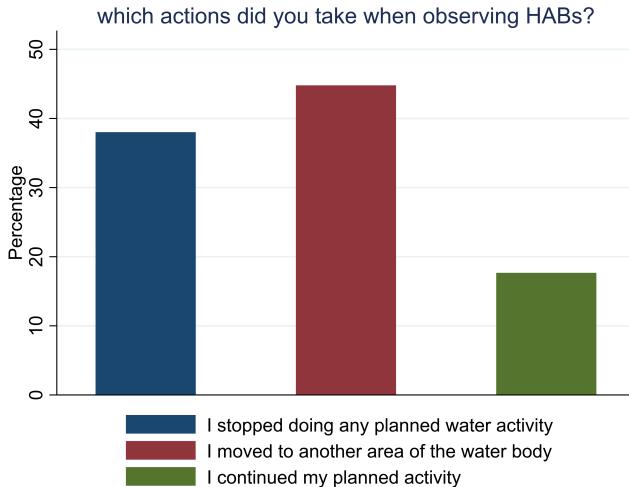


Q17: Have you observe a large algae bloom while fishing or visiting a lake?



HABs Response

Q18: While observing a algae bloom, which of following action did you take?



Costs of Reducing HABs & Conservation Practice Adoption Determinants

What Drives Landowners' Conservation Decisions? Evidence from Iowa

Wendiam Sawadgo, Wendong Zhang, Alejandro Plastina

September 2020 [20-WP 610]



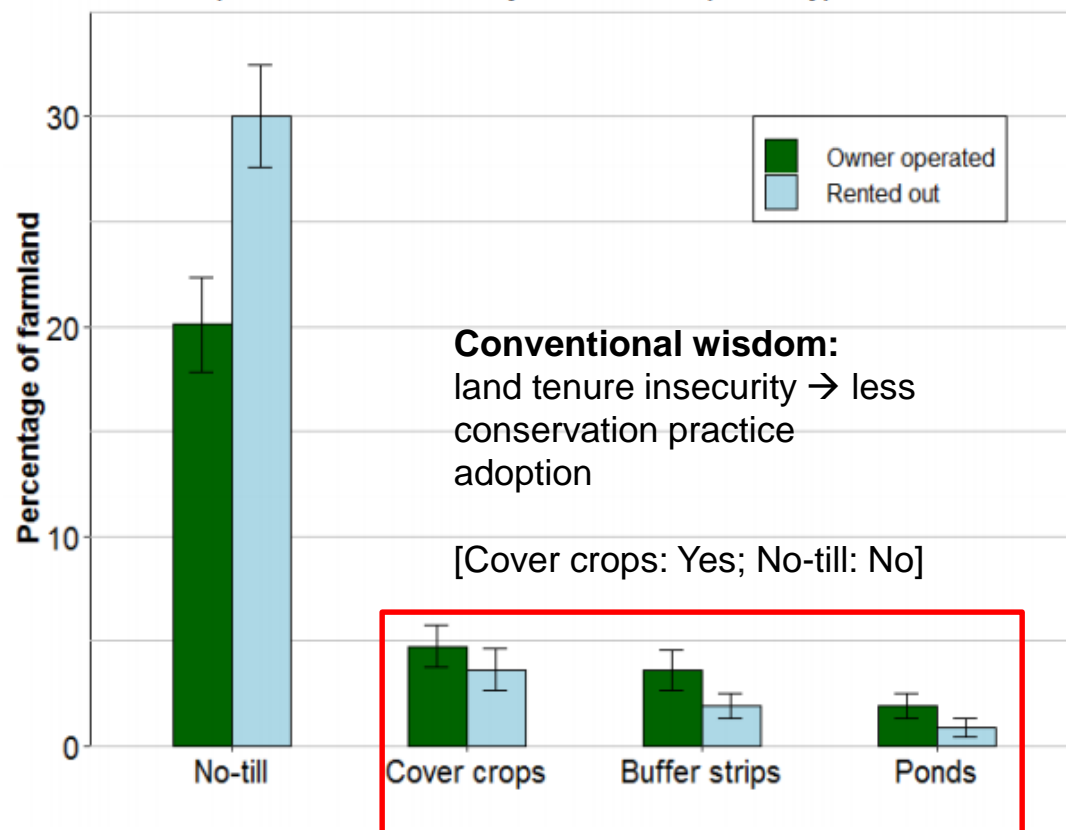
JOURNAL OF SOIL AND WATER
CONSERVATION
The science and art of natural resource management for sustainability

	Owners	Acres
No till	21%	27%
Cover crops	5%	4%
Buffer strips	3%	3%
Ponds	1%	2%

Iowa Farmland Ownership and
Tenure Survey, 1982-2017:
A Thirty-Five Year Perspective

Figure 3

Iowa conservation practice farmland shares by land tenure and practice type.



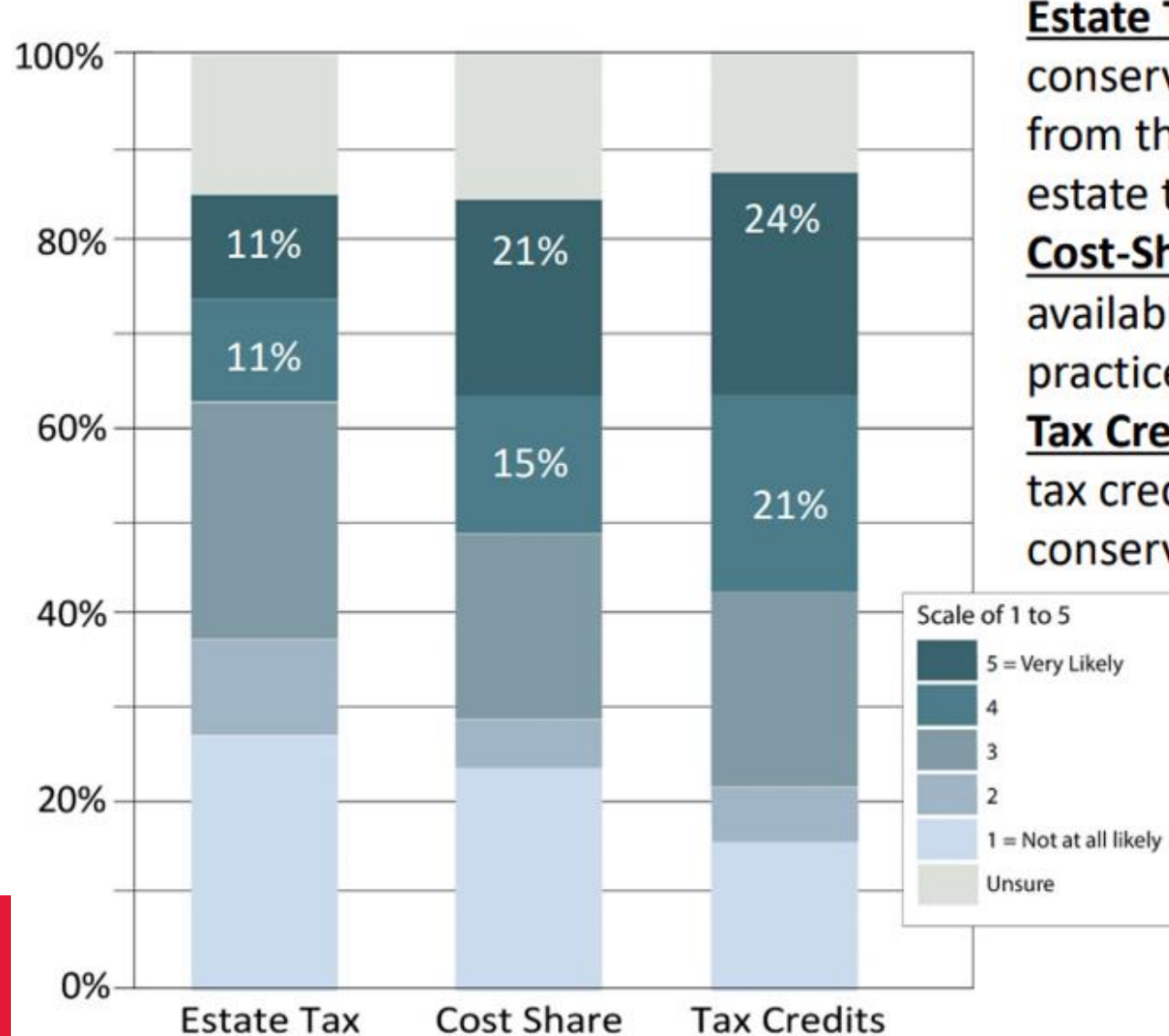
Bars reflect standard error of the mean.

Reasons for Not Using:

No-till				Cover crops			
	Operator	Non-operator	All		Operator	Non-operator	All
Not suitable for the land	12%	46%	21%	Tenant's decision	19%	36%	25%
Hurts crop yield	17%	22%	18%	Too costly to terminate	19%	27%	22%
Tenant's decision	15%	6%	13%	Requires too much labor/time or season is too short	16%	9%	14%

Top reason for not using buffer strips (84%) and ponds (88%) is that they were not needed on the land.


Landowners' Likelihood of Increasing BMPs under Alternative Policies



Estate Tax: land enrolled in conservation practices excluded from the value of the estate for estate tax purposes.



Cost-Share: tax-free cost sharing available for conservation practices.

Tax Credits: landowners to receive tax credits for implementation of conservation practices.



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2019 ISU Land Value Survey

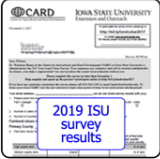
2019 ISU Land Value Survey

The 2019 ISU Land Value Survey shows a 2.3 percent increase in average Iowa farmland values from November 2018 to November 2019. The average statewide value of an acre of farmland is now estimated at \$7,432. This modest increase, which barely exceeds the pace of inflation, is the second rise over the past six years, but still represents a 15 percent decrease from the 2013 peak in nominal land values, or a 23 percent drop in inflation-adjusted values.


2017 Iowa Farmland Ownership & Tenure Survey Paper Copy Available for Order (\$5 Only)

The new, 60-page [2017 Iowa Farmland Ownership and Tenure Survey report](#) is available for order at the [Extension Store](#) for only \$5 each paper copy. This is a unique survey across the nation which provides statistically representative information on many aspects of land ownership, tenure and transitions in Iowa. For example, the survey finds that 60% of Iowa land is owned by people 65 years or older, 82% of Iowa land is owned free of debt, and 29% of all acres is primarily owned for family or sentimental reasons.


1. What are you interested in?



2019 ISU survey results



find more land value data



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CARD is a center located within the College of Agriculture and Life Sciences at Iowa State University.

www.card.iastate.edu/farmland

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Thank You!



Iowa Lakes Project


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[2019 Iowa Lakes Survey Report](#)

Valuing Water Quality Improvement in Iowa's Lakes

In Iowa, many public lakes are adversely affected by sediment, nutrients, or other nonpoint pollution (see details from Iowa State University's Limnology Lab). To make good policy decisions about water quality, it is important to understand the physical processes that affect water quality since water quality in turn affects visitation numbers, recreational uses of lakes, and the overall integrity of lake ecosystems. At the same time, efforts to improve water quality entail significant economic costs; thus it is critical to quantify the benefits to Iowans of water quality improvements. The information here will help Iowans and policymakers make the best decisions when weighing if and how to improve Iowa lakes.

On this website you will find a wide array of information for about 140 lakes in Iowa, including visitation patterns, water quality, lake usage, and the value of a lake to its local economy. Additionally, this site contains economic analysis of the benefits to Iowans and communities from improvements in water quality. The information and analysis are part of an ongoing research initiative by Iowa State University, and new information will be added as it becomes available.




2019 Survey

www.card.iastate.edu/lakes

To participate the 2021 land value survey
<http://bit.ly/landvalue2021>

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