



County Government Approaches to Protecting, Restoring and Managing Wetlands

Abstract

In the United States, counties use many formal and informal mechanisms to govern wetlands within their jurisdiction. Wetlands play a major role in the world's economic, cultural and ecological systems and are among one of the many threatened natural resources world-wide and Wisconsin is no exception. Several studies have examined wetland governance at state and local government levels, particularly in the US Northeast. In general, these studies find that local level management can be superior to a national or federal strategy alone. Governance has been defined in multiple ways. One definition of governance is the "process by which the repertoire of rules, norms, and strategies that guide behavior within a given realm of policy interactions are formed, applied, interpreted, and reformed" (McGinnis, 2011). While we have some understanding of the formal institutions used by local governments, we have yet to understand the full range of formal and informal institutions (unwritten rules or processes) used at the local level. In our survey we ask about strategies county staff use with landowners of which visiting wetland sites and coordinating with land trusts are two examples of informal institutions. Informal institutions can play a large role in regulating wetlands and can go unnoticed if only the formal institutions are examined. We aim to understand both the formal and informal institutions and the interaction between the two in creating a wetland governance system and how it differs across localities. Understanding wetland governance at the local level can help managers and policy makers develop and implement policies that efficiently and effectively manage natural resources. We are conducting a survey of county governments to understand the range of approaches to protecting, restoring and managing wetlands.



NRCS Wisconsin- Wetland Reserve Easements, Ramsden Marsh

Methods

Current county government approaches to protecting, restoring, and managing wetlands were analyzed. Questions were created to understand the different perspectives on wetland management, ability to manage, and who is managing the wetlands in each county.

The survey was administered by locating mailing addresses for each zoning or conservation representative through each county's website. Each survey packet sent included, the survey, and a prepaid return envelope. 72 surveys were sent by mail to each individual county throughout the state.

The survey consisted of 25 individual questions with sub questions if necessary. Questions consisted of "Yes" or "No" questions, Likert scales, check all that apply, sliding scales, and open-ended questions. Several questions included free-response options to allow greater flexibility.

Upon return of the surveys, a code book was created to assign values to each answer throughout the survey. With the code book created, IBM SPSS Statistics software was used to analyze the data. Each survey was individually submitted into the program depending on the survey takers answers.

After every survey was recorded in SPSS, frequencies and data analysis was performed. We then selected questions that are central to answering our research goals.

After reviewing the survey data, we tried to understand how governments protect, restore, and manage wetlands on a county level. We looked at the demographics of the wetland managers, several different approaches to management including GIS work, providing incentives to landowners, and the regulatory and non-regulatory approaches to wetland management. We only used descriptive statistics in this initial examination of this survey.

Results

Survey Responses:

- 57 total responses
- 79.16 % response rate
- 90.2% of respondent's male
- 46 is the average age of respondents

Figure 1 shows a fairly even distribution between age categories. The youngest age group of employees under 40 years old made up about 37% of respondents within the county government agencies.

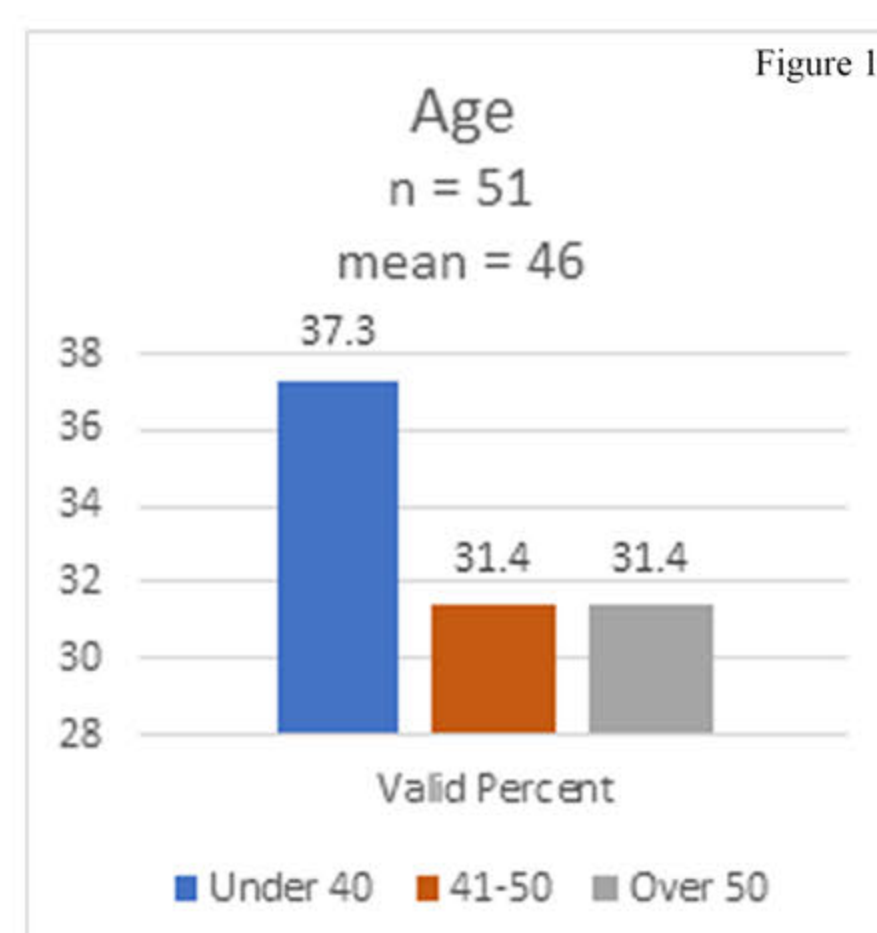
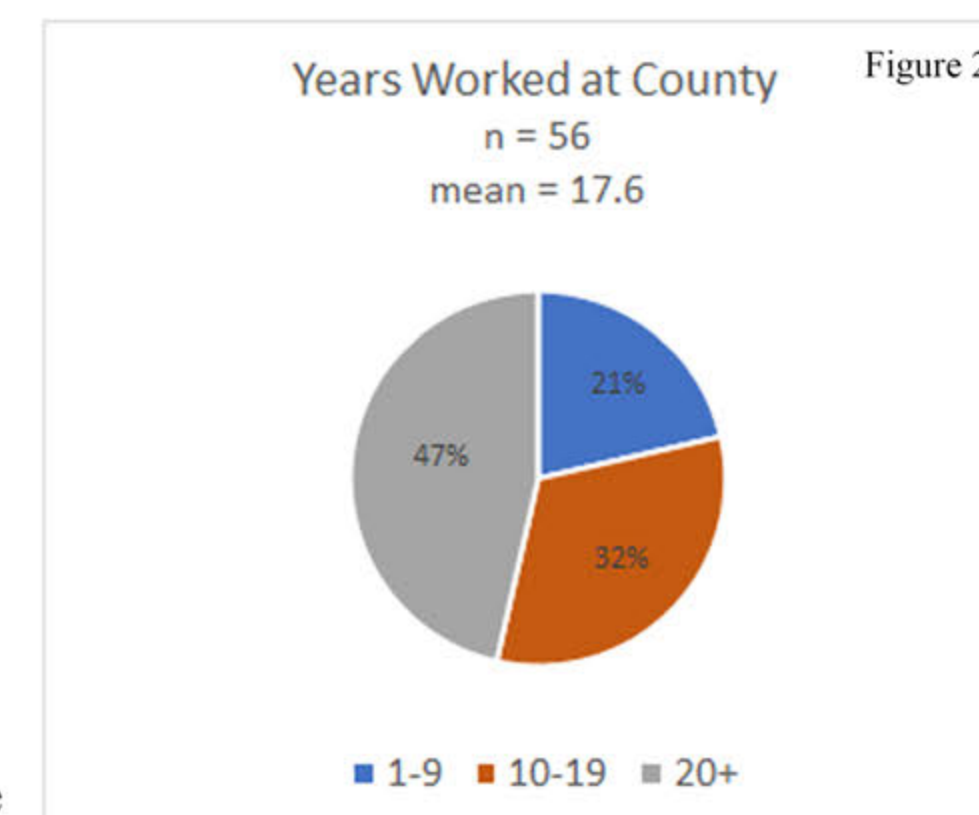
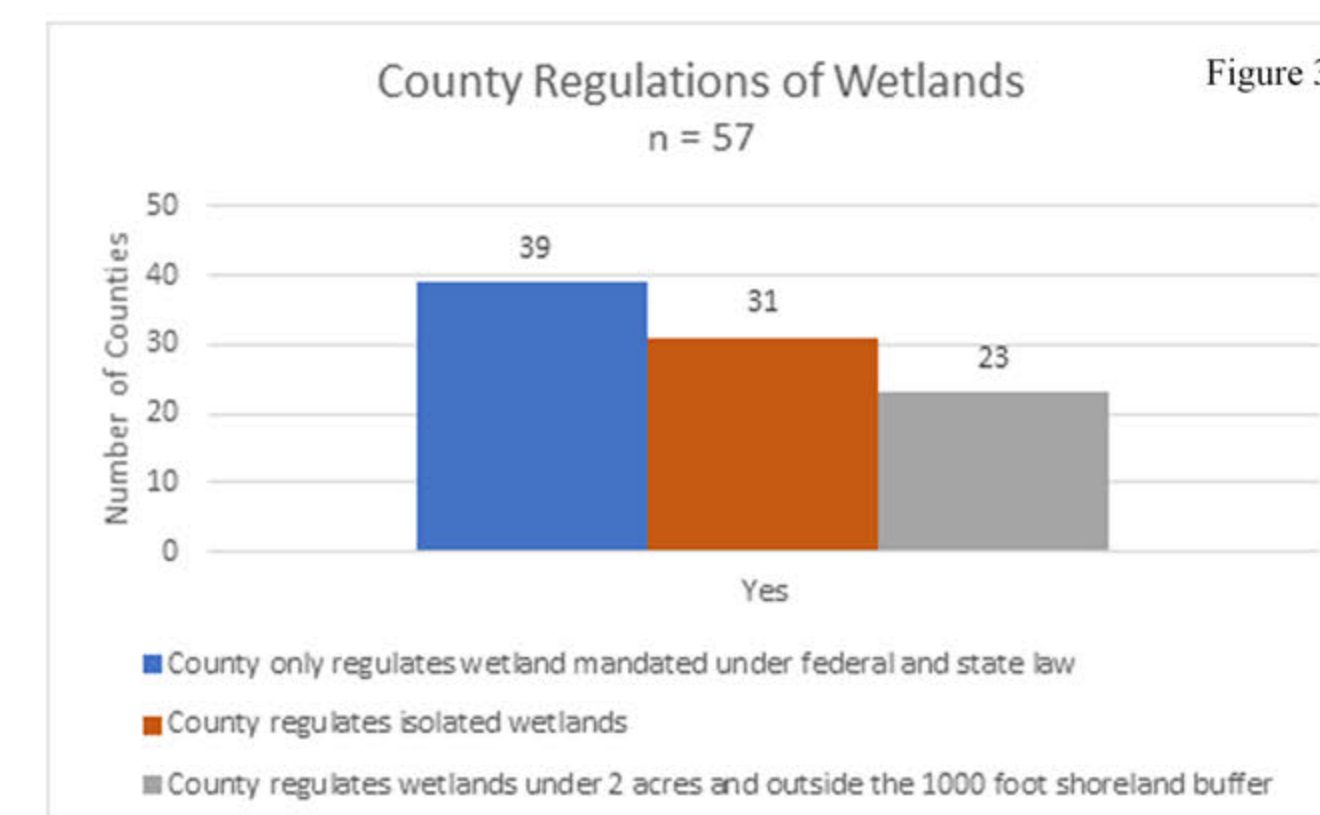


Figure 2 demonstrates the number of years the respondent has worked in this specific county government. The respondent may have held other positions or worked for other counties. Nearly half of the respondents worked at their respective county for over 20 years.



Current Operations:

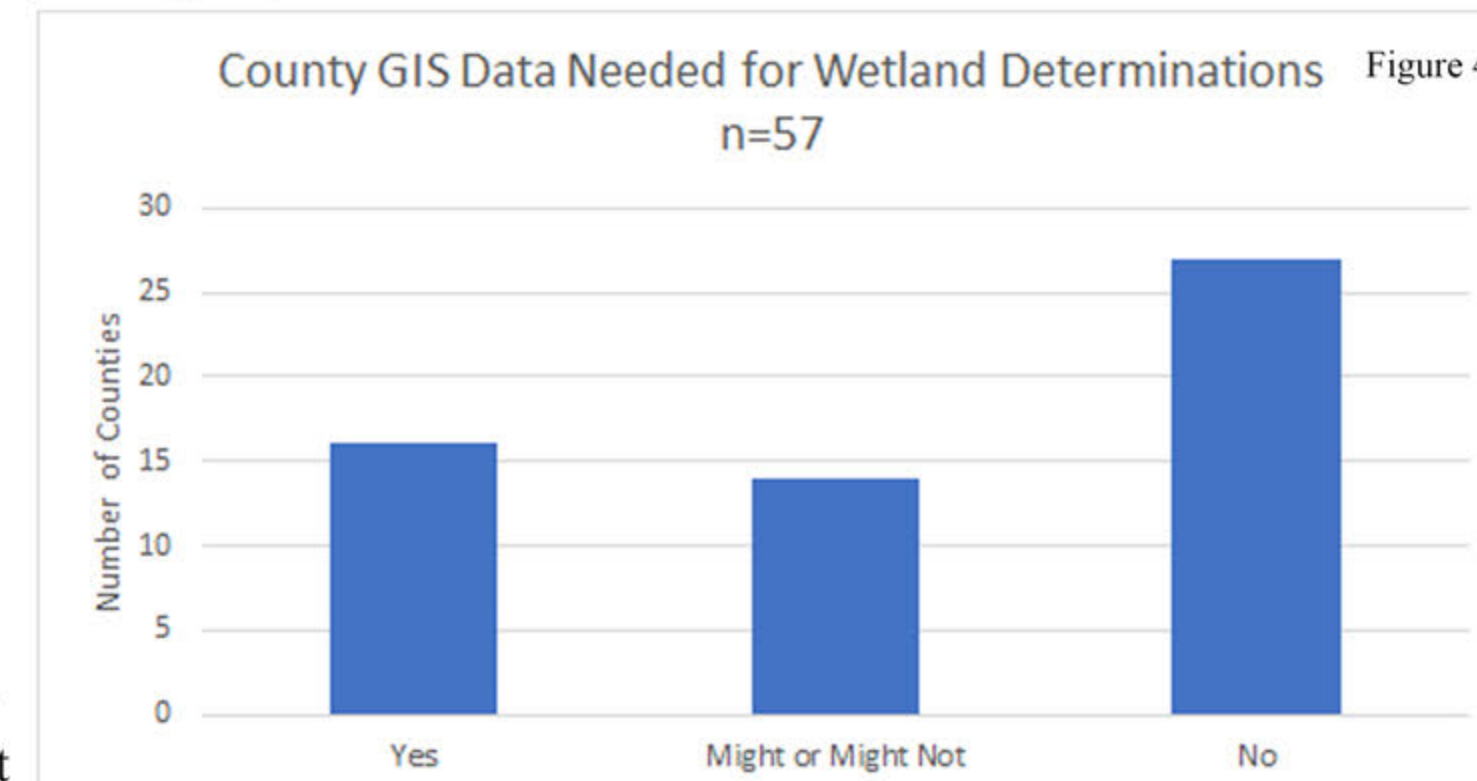
We wanted to understand what counties currently do. Figure 3 shows the results of three questions. 39 counties only regulate wetlands mandated under federal and state law. However, 31 counties also regulate isolated wetlands and 23 counties regulate wetlands under 2 acres and include those outside the 1000' buffer.



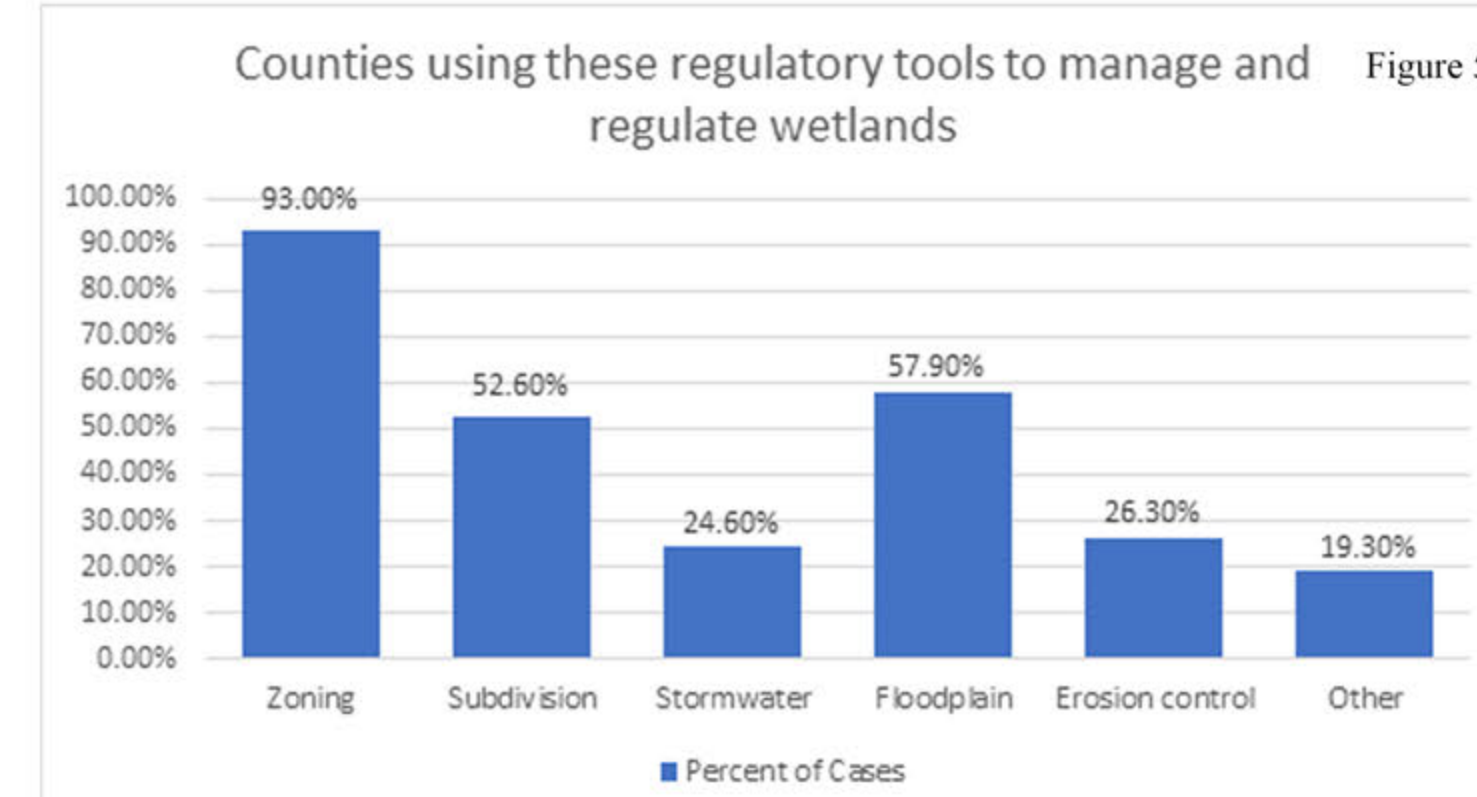
We asked about training of staff to delineate wetlands and found that 30.3% of counties have sufficient training to delineate wetlands (n= In, 37.5% of counties systematically map wetlands (n= 56). Digging

- 45.5% of counties who map wetlands use GIS to analyze and determine property characteristics
- 22.7% of counties who map wetlands are transitioning from paper to digital maps
- 45.5% of counties who map wetlands coordinate with WDNR on a regular basis to update wetland maps
- 9.1% of counties who map wetlands show connections to other hydrologic systems

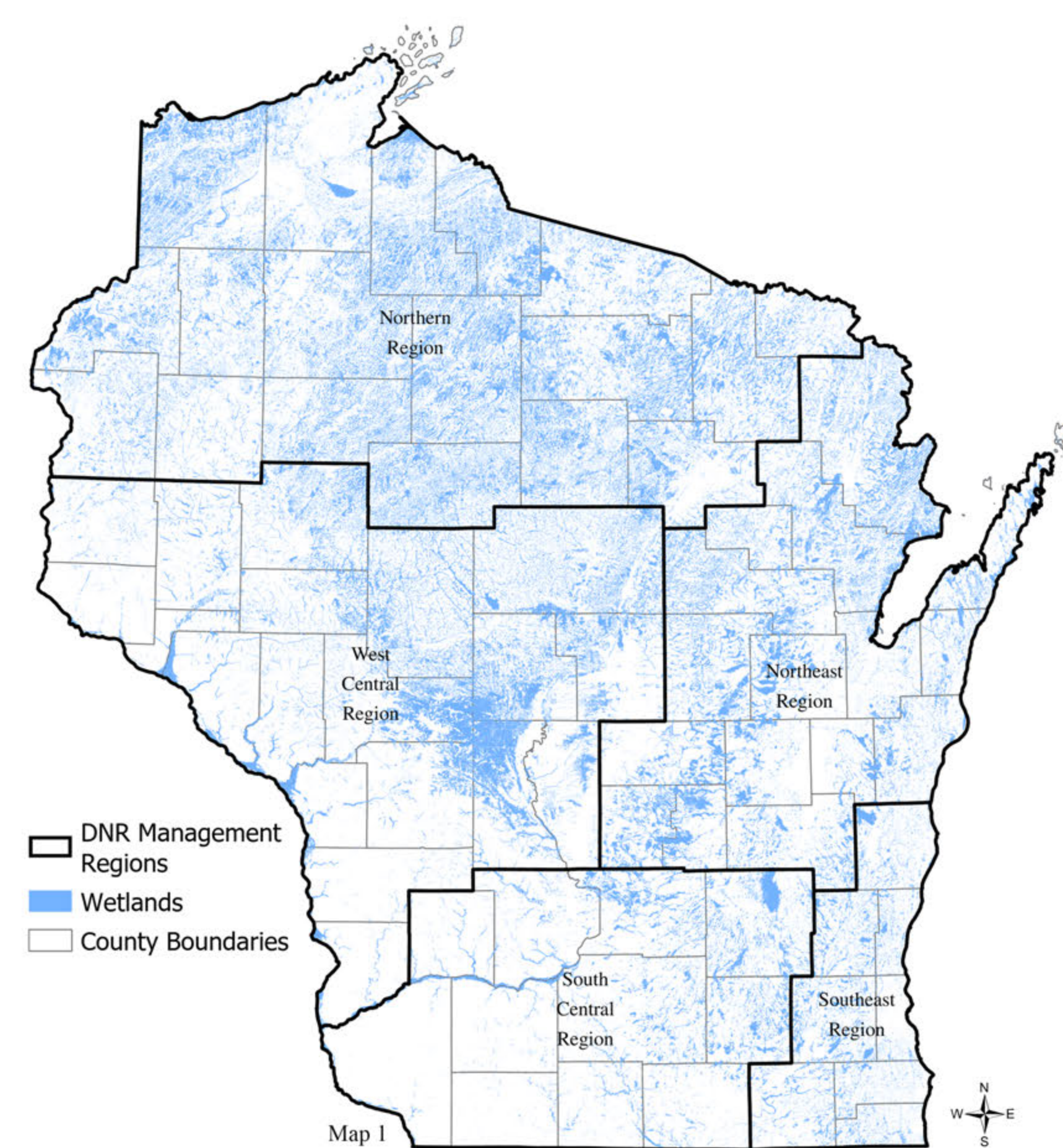
Figure 4 shows if counties believe their Geographic Informational System (GIS) data is enough to carry out wetland determinations. The "Yes" category represents those who answered *Definitely Yes* or *Probably Yes*. The "No" category represents those who answered *Probably Not* or *Definitely Not*.



One of our primary questions is how counties manage wetlands. In terms of regulation, Figure 5 shows the types of regulatory tools that are used in counties. For this question, the respondents could check all the tools that they use. Zoning is the one tool that is used in most counties with 53 responses.



County	Acres of Wetland	County	Acres of Wetland
Price	252,992	Waukesha	54,913
Oneida	237,546	Adams	52,268
Mariette-1989	212,997	Dane	51,418
Douglas-1991	194,169	Dodge-1987	50,990
Marathon-1987	172,293	Florence	49,974
Ashland-1991	168,388	Maitowoc-1989	48,758
Sawyer	162,641	Buffalo	44,934
Forest	161,056	Waubesa-1986	44,380
Oconto-1989	159,717	Dane	44,222
Iron-1991	151,065	Emm Claire	43,646
Wood	130,725	Trempealeau	43,386
Shawano	127,718	Washington	42,652
Juneau	122,485	Barron	42,640
Burnett	122,194	Sheboygan-1987	40,447
Lincoln	121,430	La Crosse	37,667
Taylor	120,979	Menominee	33,545
Vilas	116,866	Sauk	32,145
Jackson	113,070	Walworth	28,746
Rusk	113,005	Brown-1986	28,257
Wauzeka	112,761	Kewaunee-1989	27,436
Dodge	110,558	Crawford	27,331
Lamdales	108,800	Calumet	24,736
Clark	100,338	Grant	22,869
Portage-1992	92,748	Rock	19,424
Berkeley-1991	80,252	Kenosha	17,012
Washburn	79,140	Iowa	16,500
Chippewa	78,399	Ozaukee	16,265
Columbia	75,404	Richland	15,210
Outagamie	74,221	Vernon	14,511
Fond du Lac	69,128	St. Croix	14,254
Marquette	68,881	Racine	13,529
Polk	60,921	Green	12,301
Jefferson-1986	59,280	Pierce	7,397
Green Lake	58,816	Pepin	7,235
Washara	58,725	Milwaukee	4,466
Monroe-1988	56,842	Lafayette	3,116
TOTALS	5,385,290		



Map 1 shows the wetlands in the state of Wisconsin, the DNR Management Regions, and the county boundaries. Table 1 lists acres of wetlands per county via the DNR Open Portal Data. Note that some collected data in the table has not been updated in recent years.

Figure 6 shows how respondents focus their wetland management. Most respondents answered that they use more of a regulation focus rather than a restoration focus.

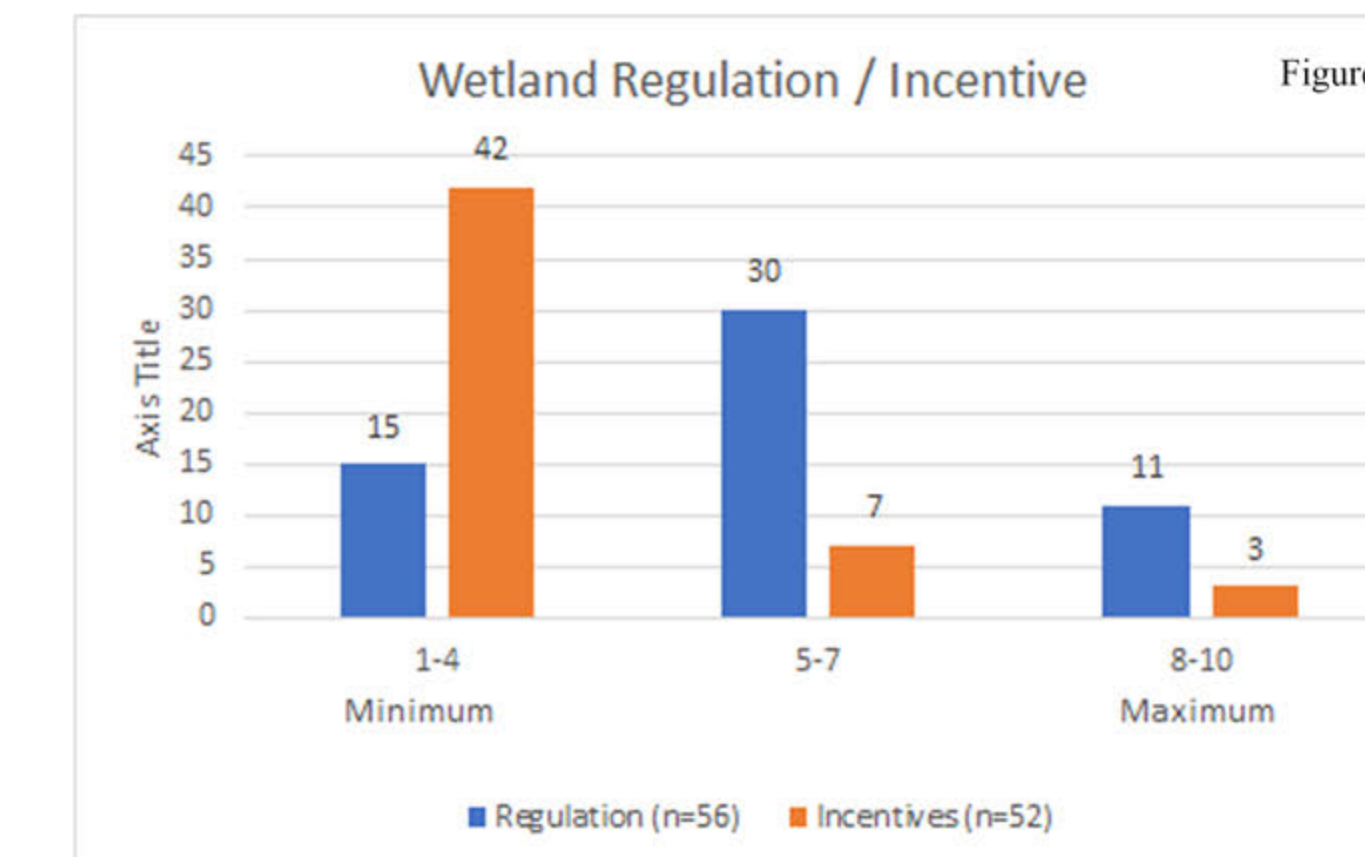
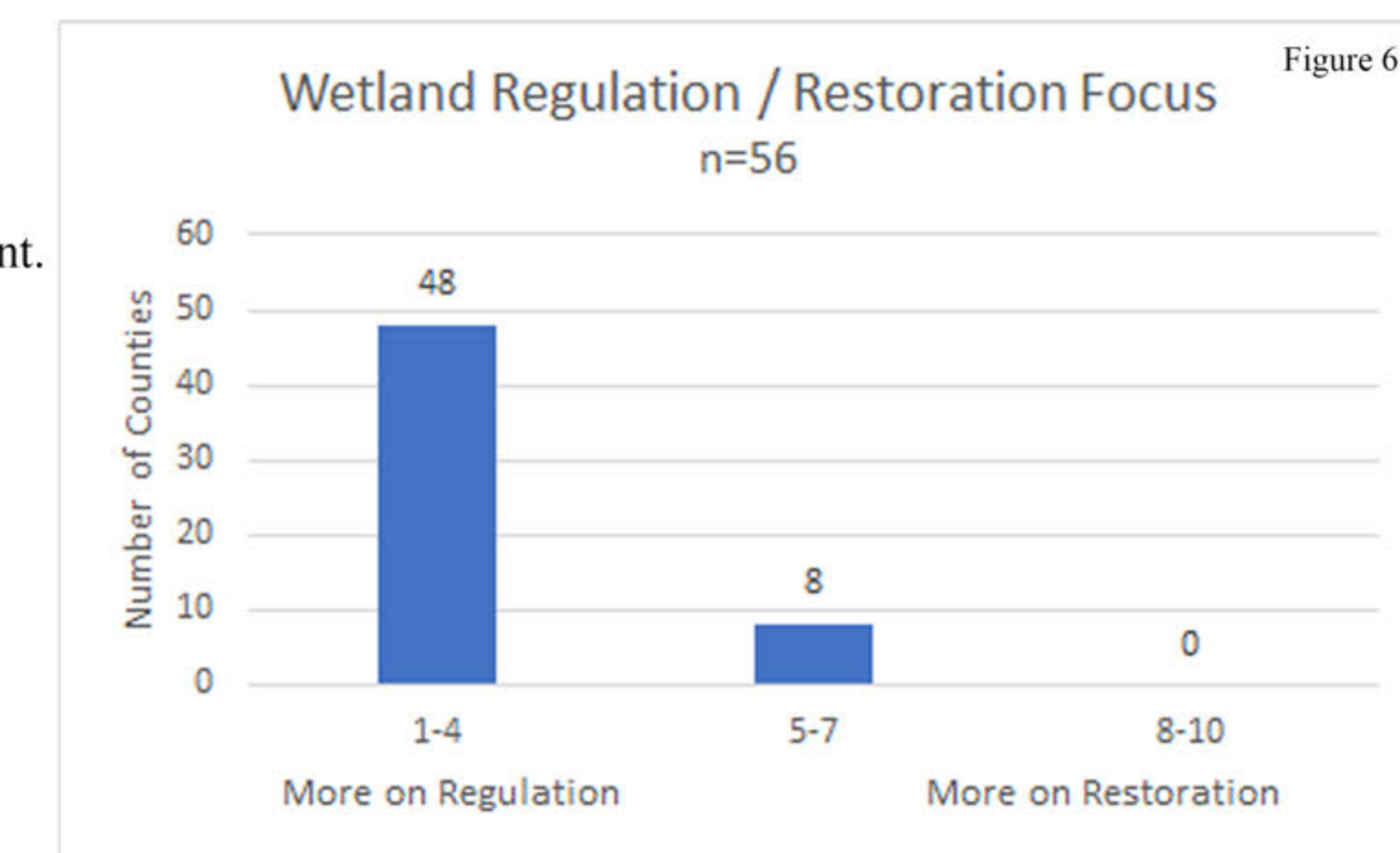


Figure 7 represents approaches to wetland management when looking at regulations and incentives. In the survey it was noted that a lot of the respondents circled a high number for regulation and a low number for incentives.

We also wanted to know the non-regulatory approaches that counties used for wetland protection and regulation. 75% of responding counties (n=57) use non-regulatory approaches. Figure 5 shows the kinds of non-regulatory approaches used by counties. In this question, respondents could check all the approaches they used. 39 counties coordinate with federal and/or state agencies, which is the highest response rate.

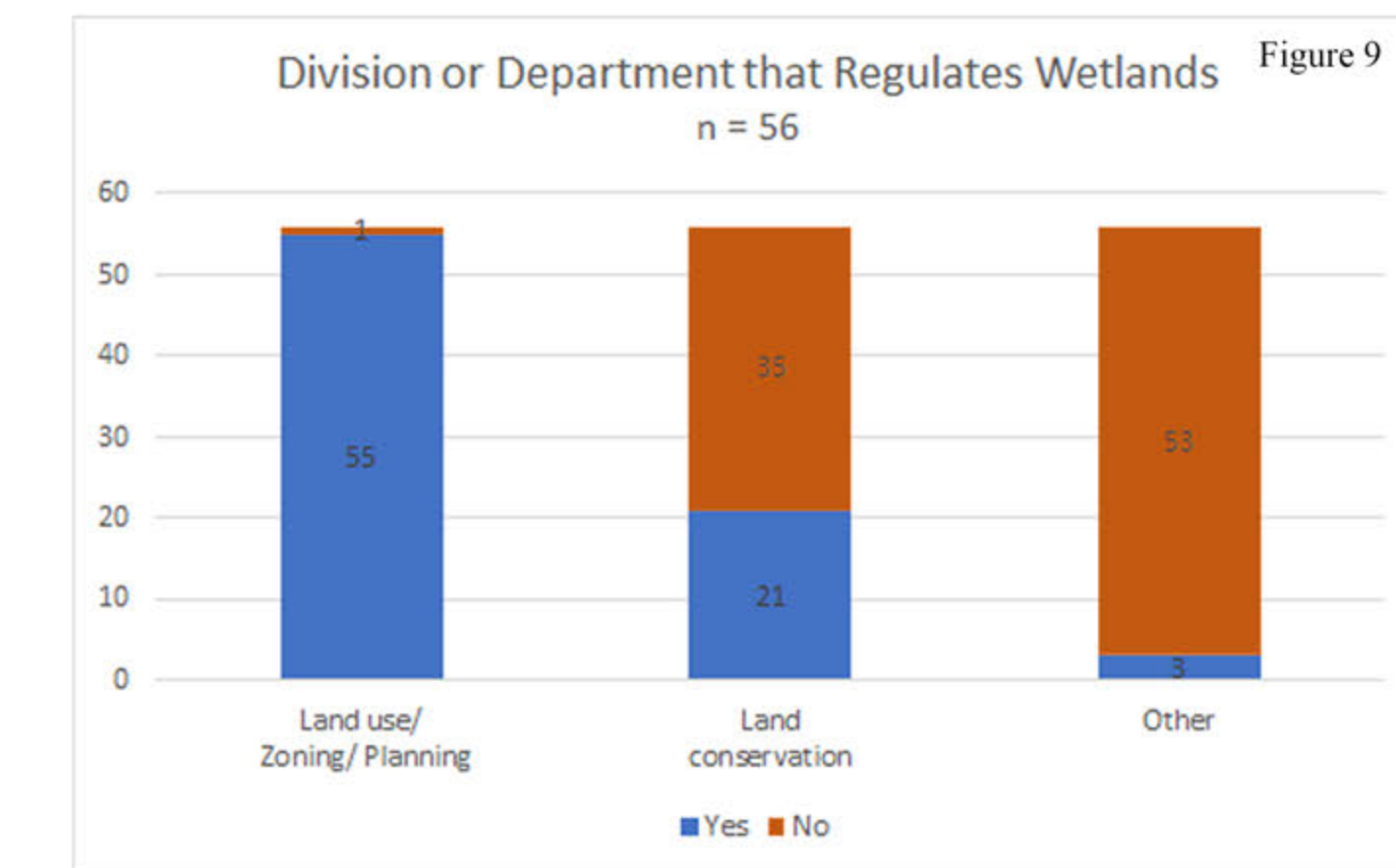
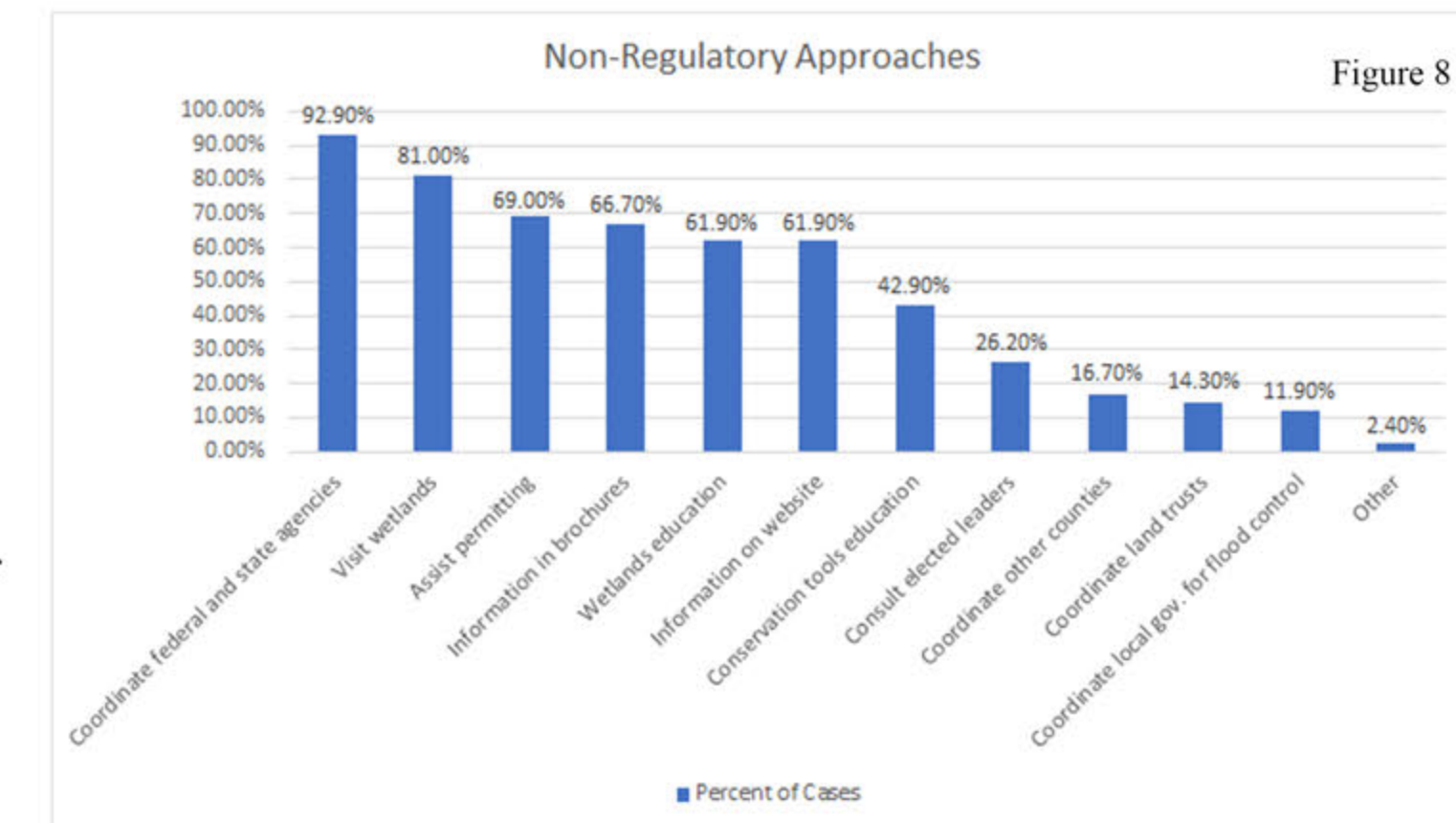


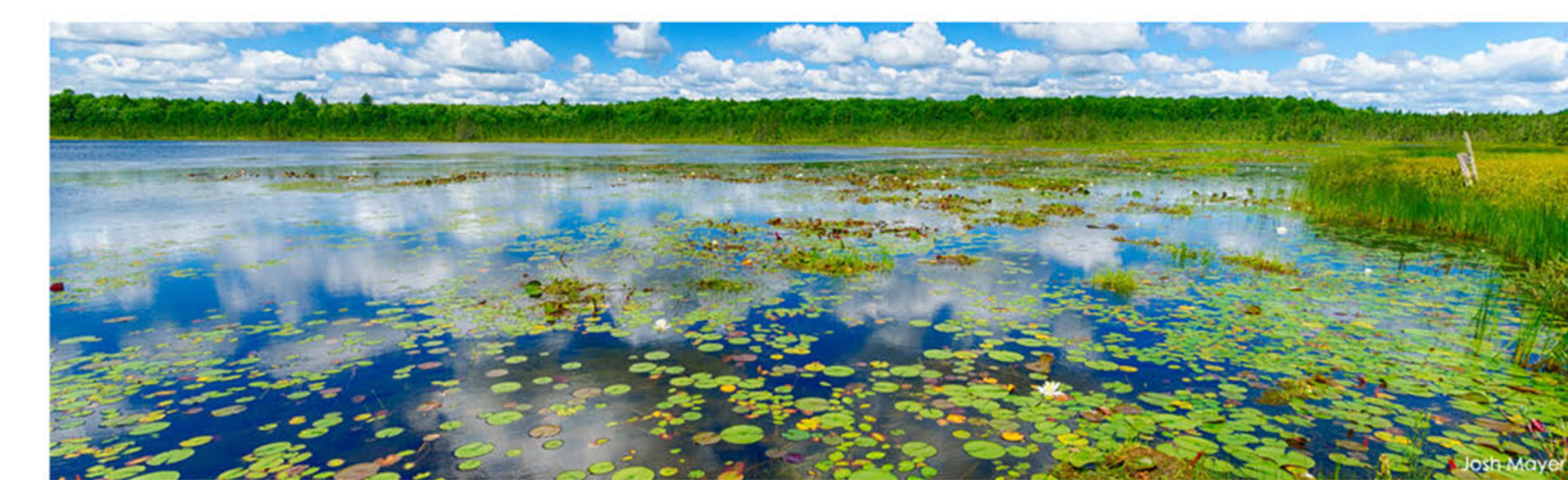
Figure 9 represents which division or department regulates wetlands in each county. Other groups that regulate wetlands consist of collaboration with DNR, Land Division, and Environmental Health (POWTS).

Discussion

- The demographics are perhaps starting to show the shift from the baby boom era to a new generation of managers.
- Many counties only regulate wetlands only required by state and federal law. However, many counties go beyond what is required.
- Many county staff may need additional training on how to delineate wetlands.
- In terms of mapping wetlands at the county level, there is much more work to be done. While we did not ask about funding, one of the barriers may be funding to more comprehensively map wetlands.
- Counties use a variety of regulatory tools to manage wetlands and use many non-regulatory approaches as well. This shows that while regulation is a necessary part of wetland management at a county level, many other approaches are necessary to protect and manage wetlands.

Next Steps

Our next steps are to examine if counties with a high amount of wetland acres manage their approaches to wetlands differently than counties with a lower amount of acres. It would be interesting to see if counties with a lower amount of wetlands are trying to preserve the remaining wetlands, or to see if their focus may be on other essential ecosystems within their county. Counties that have a larger amount of wetlands pose a difficult decision moving forward as it pertains to development. As some counties continue to grow, it may be important to measure the amount of wetlands that could be lost to new construction for economic benefit.



Wisconsin Wetlands Association