

GLANSIS Survey Report

Findings and Insights for **GLANSIS** website

Prepared for

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Executive Summary

The survey instrument allows researchers to collect quantitative data about the target users to generate a correlation between their attitudes, characteristics, and behaviors. The survey results can be applied to the entire target population. A survey will help GLANSIS collect large amounts of data quickly about the local management groups' website preferences and working standards for the producer of uploading data to public resources. With this information, GLANSIS, as a governmental organization, will gain an overview of how and where most local management agencies share their data. GLANSIS could then design its website's data-sharing workflow following the local agencies' preferences and habits to improve user experience and attract more users. The research questions of the survey include:

1. What factors affect local management agencies' website choice to share their data with (size, location, funding, usability, etc.)?
2. Which platform is most commonly used among local management agencies for information sharing and searching?
3. What are the common procedures, habits, and frequency for local management agencies to share information?
4. What are some resources that are important for local agencies to be successful?

Introduction

A survey is a proper method to answer the research above. Interviews are best for collecting qualitative data so researchers can dive deeper into a specific topic or process. At the same time, surveys are best for quantitative data that can give the researchers an overview of the current trend and situations among the target population. To answer the overarching questions above, quantitative research is more effective than qualitative. The research questions aim to study the common trend among local agencies (the preferred website) and the correlation between their behavior (the frequency of uploading data), and the agencies' characteristics. This type of question could be answered with analyzed data from close-ended questions that are easy to answer, such as multiple choice. The graphical analysis can represent the correlation between factors or the most common answers from the participants.

With the understanding of the common trend and the factors that affect the agencies' choices of websites for data sharing, GLANSIS could design its website to fit the needs and habits of its target population. For the survey instrument, we divided the questions into five main sections.

1. Questions about the agency's basic information
2. Questions about the agency's data-sharing habits
3. Questions about the agency's data-sharing and searching platform
4. Questions about the use of citizen scientists
5. Questions about resources

The first section aims to collect characteristics and information about the agencies to set up the basis of the correlation study that can be generated from the survey result. The second and third part of the survey questionnaire collects data about the common behavior of the local groups. The last two sections ask about the agencies' needs regarding educational resources and access to other types of information that are lacking.

If the sampling and deployment process of the survey is ideal, GLANSIS can collect useful information on 1) how to improve its workflow of data sharing and data searching for users and 2) what are unique resources the GLANSIS website can provide for the users that other websites are not equipped with.

However, sampling may be a hurdle that makes the result less representative among all target groups of the website. The designed deployment of the survey is via emailing the worker at different local invasive species management agencies. This might cause a low response rate as it is common for emails sent from an address that is outside the organization to be sorted into spam or trash section, and this will decrease the chance of our target user seeing the survey. Another hurdle in sampling is the diversity of participants. The email deployment of the survey might lead to a

result that over-represents those who are “tech-savvy” or familiar with the technology. Those who do not have access to email or are less comfortable answering surveys online might be neglected in this process.

Sampling

Our survey will focus on sampling individuals employed at local conservation agencies that work on invasive species tracking. Due to GLANSIS focusing exclusively on aquatic invasive organisms in the great lakes region, those sampled should be conducting studies and tracking aquatic organisms and should reside in the great lakes region. The Great Lakes region is diverse, so pushing the survey to agencies within all states is imperative for getting a more comprehensive picture of what local agencies are doing regarding data sharing. The team will use stratified sampling to meet this goal. Each state would be a stratum. Not only will this help with multi-state representation it can also help to identify if other factors correlate with state location. Since the Great Lakes region lies on an international border, providing a passageway for international freighters, this can also help see if a correlation exists between international and non-international watersheds (Escobar et al., 2017).

Due to the importance of getting feedback representative of the entire Great Lakes region, we selected stratified random sampling. This sampling style will ensure the representation of each state when looking at the collected data.

Pilot Instrument

We conducted five pilot interviews to evaluate the quality of our survey (see Appendix 2). We invited the participants to a Zoom meeting where we observed their survey completion and followed up with questions as needed. Our participants comprised two individuals with a biology background, two field biologists not from the intended regions, and one field biologist in the Great Lakes region, who primarily dealt with terrestrial data.

Overall, we received positive feedback on the order, readability, research questions, and survey sampling methods. However, we have identified certain areas that require improvement. First of all, we realized that some single-choice questions should be revised to multiple-choice questions, allowing respondents to provide all relevant answers. We arrived at this conclusion after receiving feedback from participant 1, who expressed a desire to select multiple responses to Question 18, which inquired about the types of training provided to volunteers.

Secondly, we realized that the originally defined response scale for Question 2’s responses was rather broad and imprecise. As a result, we adjusted the intervals for

the responses based on all participant responses to capture a more precise measurement of the size of respondents' organizations.

Finally, we also made adjustments to the skip logic of our survey. For instance, we divided the single "no" response option for Question 14 into two distinct options, each leading to a different set of follow-up questions, in order to better align with the diverse range of circumstances and situations reported by our participants. This modification allowed us to personalize the survey experience for each respondent, providing them with more relevant and meaningful questions and reducing the likelihood of irrelevant or redundant queries.

By implementing these changes, we expect to collect more comprehensive and relevant data, which can lead to more informed decision-making and a deeper understanding of our users' needs (see Appendix 3).

Discussion

The survey looked into the platforms that local agencies are using and their data-sharing process. Still, it did not explore the challenges they are facing, and considering the uncertainty of the distribution of the survey, there should be some concerns that need to be addressed:

First, the sample size and the diversity may depend on how the client distributes the survey and how much users would pay attention to it. For example, those who are more motivated or engaged with the issue may be more likely to participate. As what we found in our interview, the Michigan users are more willing to respond. In order to accurately reflect the experiences and needs of all agencies. The client needs to think of a better way to spread the survey to get a larger sample size and minimize bias.

Also, Exploring the mechanisms and challenges of inter-agency collaboration and how they share data will help the client better understand how GLANSIS needs to be improved.

Finally, If the results have a clear preference for a specific answer, the client needs to consider that sometimes the preferred explanation might be wrong. For example, if the results show that a large number of local management agencies use a particular data-sharing platform, they may interpret it as the platform is popular and effective, but it could also be explained as the platform is widely used due to a lack of alternatives. To justify either, additional analysis should be used to demonstrate the effectiveness and popularity of the platform.

Conclusion

Considering our client's priority to promote responses from all states within the Great Lakes region, we encourage a stratified sample for this survey with a digital deployment via email. Through pilot survey testing, we modified our survey design better to accommodate the desired users through modification in answer style.

References

Escobar, L. E., Mallez, S., McCartney, M., Lee, C., Zielinski, D. P., & Ghosal, R. (2017, September 26). Aquatic Invasive Species in the Great Lakes Region: An Overview. *Reviews in Fisheries Science and Aquaculture*, 26(1), 121-138. Taylor & Francis Online. <https://doi.org/10.1080/23308249.2017.1363715>

Appendices

1. Pilot Questionnaire

Do local management agencies collect data on *aquatic* invasive species?

1. What is the organization you are associated with?

2. How many people are there in your organization?
 - a. 1-10
 - b. 11-50
 - c. 50-200
 - d. 200-500
 - e. >500

3. Where is your organization located?
 - a. Minnesota
 - b. Wisconsin
 - c. Illinois
 - d. Indiana
 - e. Michigan
 - f. New York
 - g. Ohio
 - h. Pennsylvania

4. On a scale of 1 to 5, how much does your organization deal with aquatic invasive species?
 - 1 (Exclusively work with terrestrial organisms)
 - 2
 - 3
 - 4
 - 5 (Exclusively work with aquatic organisms)

5. Does your organization collect AIS (Aquatic Invasive species) distribution data?
 - a. Yes
 - b. No

6. If Yes, where is the data made available?
 - a. MISIN
 - b. iMAPinvasives
 - c. EDDMapS
 - d. NAS

- e. GLANSIS
- f. NatureServe
- g. USGS
- h. Other: _____

What is the procedure for local management agencies to share information?

7. How frequently do you share invasive species tracking data with other agencies?
 - a. Never
 - b. 0-1 times a month
 - c. 2-3 times a month
 - d. 4 or more times a month
 - e. Other: _____

8. What device do you like to use to share data with other agencies? (multiple choice)
 - a. Laptop
 - b. Desktop
 - c. Tablet
 - d. Mobile
 - e. Other: _____

9. What kind of file type do you keep your data on? (multiple choice)
 - a. JSON
 - b. TXT
 - c. CSV
 - d. XLS
 - e. GIS Map
 - f. Google Sheets
 - g. Other: _____
 - h. Unsure

10. How is it determined who will share data with parties outside of your organization?
 - a. One person responsible for all outside data sharing
 - b. Lead Manager on individual projects
 - c. Each individual decides
 - d. Other: _____
 - e. No data sharing occurs

11. What is your preferred way of data sharing with other agencies?
 - a. Email
 - b. Cloud Sharing
 - c. Computer-based forms
 - d. API Sharing

e. Other: _____

12. Does your funding source dictate where you upload/share data?

- a. Yes, we must upload to a specific site
- b. Yes, we must share data, but with a site of our choice
- c. No, we are not required to share data with other agencies

13. Are there local/state/federal laws that dictate where you upload/share your data?

- a. Yes, we must upload to a specific site
- b. Yes, we must share data, but with a site of our choice
- c. No, we are not required to share data with other agencies

What host are they using to share data?

14. Are you familiar with GLANSIS or USGS-NAS?

- a. Yes
- b. No

15. If Yes, for Q12, how frequently do you use GLANSIS as an information source?

- a. I DO NOT use GLANSIS as an information source
- b. _____ times a week
- c. Other: _____

16. If A for Q13, what do you use as an information source? (multiple choice)

- a. MISIN
- b. iMAPinvasives
- c. EDDMapS
- d. NAS
- e. GLANSIS
- f. NatureServe
- g. USGS
- h. Other: _____

How do local management agencies train/educate volunteers/citizen scientists?

17. Do you use 'citizen scientists' or volunteers to provide data or conduct management?

- a. Yes
- b. No

18. If so, what training do you provide them/what training resources do you use?

- a. Agency Provided Curriculum
- b. Field Training (1:1 guidance from trained staff member)

- c. Curriculum Provided by Outside Contractor, if so please provide: _____
- d. If other, please specify: _____

What resources do local agencies feel they need to be successful?

19. What AIS-related information do you need that is currently unavailable or difficult to access?

20. What resources do you look for outside of data sharing?

2. Final Questionnaire

Basic Information About Respondents' Organization

1. What organization are you associated with?

2. Which state is your organization located in?
 - a. Minnesota
 - b. Wisconsin
 - c. Illinois
 - d. Indiana
 - e. Michigan
 - f. New York
 - g. Ohio
 - h. Pennsylvania

3. What is the size of your organization?
 - a. 1-5 people
 - b. 6-10 people
 - c. 11-20 people
 - d. 21-30 people
 - e. 31 - 50 people
 - f. 51 - 100 people
 - g. 101 - 200 people
 - h. > 200 people

4. How much does your organization deal with aquatic invasive species?
 - 1 (Exclusively work with terrestrial organisms)
 - 2
 - 3
 - 4
 - 5 (Exclusively work with aquatic organisms)

5. Does your organization collect AIS (Aquatic Invasive Species) distribution data?
 - a. Yes (Skip to question 6)
 - b. No, we collect terrestrial species data (Skip to question 6)
 - c. No, we do not collect data (Skip to question 17)

6. Where is the data made available? Check all that apply.
 - a. MISIN
 - b. iMAPInvasives
 - c. EDDMapS
 - d. NAS
 - e. GLANSIS
 - f. Nature Serve

- g. USGS
- h. iNaturalist
- i. Other: _____

What are the common procedures and frequency for local management agencies to share information?

7. How frequently do you share invasive species tracking data with other agencies?
 - a. Never
 - b. 0-1 times a month 2-3 times a month
 - c. 4 or more times a month
 - d. Other: _____

8. What device do you like to use to share data with other agencies?
 - a. Laptop
 - b. Desktop
 - c. Tablet
 - d. Mobile
 - e. Other: _____

9. What kind of file type do you keep your data on?
 - a. JSON
 - b. CSV
 - c. XLS
 - d. GIS
 - e. Map
 - f. Google Sheets
 - g. Other: _____

10. How is it determined who will share data with parties outside of your organization?
 - a. One person responsible for all outside data sharing
 - b. Lead Manager on individual projects
 - c. Each individual decides
 - d. No data sharing occurs
 - e. Other: _____

11. What is your preferred way of data sharing with other agencies?
 - a. Email
 - b. Cloud Sharing
 - c. Computer-based forms
 - d. Other: _____

12. Does your funding source dictate where you upload/share data?
 - a. Yes, we must upload to a specific site
 - b. Yes, we must share data, but with a site of our choice
 - c. No, we are not required to share data with other agencies

13. Are there local/state/federal laws that dictate where you upload/share your data?
- Yes, we must upload to a specific site
 - Yes, we must share data, but with a site of our choice
 - No, we are not required to share data with other agencies

Which platform is most commonly used among local management agencies for information sharing and searching?

14. Are you familiar with GLANSIS or USGS-NAS?
- Yes (Skip to question 15)
 - No (Skip to question 16)
15. How frequently do you use GLANSIS as an information source?
- I DO NOT use GLANSIS as an information source (Skip to question 16)
 - 1-2 times a week (Skip to question 17)
 - 3-4 times a week (Skip to question 17)
 - 5 or more times a week (Skip to question 17)
 - Other: _____
16. What do you use as an information source? Check all that apply.
- MISIN
 - iMAPinvasives
 - EDDMapS
 - NAS
 - GLANSIS
 - NatureServe
 - USGS
 - iNaturalist
 - Other: _____

Use of Citizen Scientists

17. Do you use 'citizen scientists' or volunteers to provide data or conduct management?
- Yes (Skip to question 18)
 - No (Skip to question 19)
18. What training do you provide them/what training resources do you use? Check all that apply.
- Agency Provided Curriculum
 - Field Training (1:1 guidance from trained staff member)
 - Other: _____

What resources do local agencies feel they need to be successful?

19. What AIS-related information do you need that is currently unavailable or difficult to access?

20. What resources do you look for outside of data sharing?

3. Survey Deployment

For the deployment of the survey, we encourage the use of email. The email should provide a statement guaranteeing participant anonymity and the survey link. CISMAS (<https://www.invasive.org/cismas/>) offers a directory of agency websites across the Great Lakes region, which provides employees' emails. Due to the variable schedules of individuals at the agencies, an early morning email would provide a way for many to see the email and complete the survey before exiting the office for field events.

4. Pilot Instrument

Preamble

Thank you for taking the time to meet up with us and participate in the interview session. I am [], and this is []. We are a team of graduate students at the University of Michigan working with NOAA to improve the usability of the GLANSIS website, which is short for the Great Lakes Aquatic Nonindigenous Species Information System. The purpose of the interview is to get your feedback on the need assessment survey we made for GLANSIS. If you do not mind, we would like to record the video for only reference purposes, and it will be confidential.

Warm-up

1. Please introduce your organization.
2. What responsibilities are included in your job role?
3. What makes you interested in managing invasive species?

Observation

Survey URL:

<https://docs.google.com/forms/d/e/1FAIpQLSdK8KxBji9upotYYPmMfOXibE4FzjBYBO2i0FiCAdiEFwmaCg/viewform>

Prompt:

“While doing the survey, please speak out loud about what you're thinking and why you're making certain decisions. We're interested in understanding your thought processes as you work through this task.”

Follow-up

1. Did you have any difficulty understanding any of the questions in this survey?
2. Do you feel like the survey covered all of the topics that it should have?
3. Was the language used in the survey easy to understand?
4. What do you think of the order or the questions?
5. Did you feel like you had enough options to express your thoughts and feelings in the survey?
6. Were there any questions that you felt were unnecessary or redundant?
7. Would you recommend any changes to the survey to make it better?
8. Did you feel comfortable sharing your thoughts and opinions in the survey?

5. Slide Deck