GLANSIS Interview Report

Findings and Insights for **GLANSIS** website
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Executive Summary

We conducted one stakeholder interview to define further the project's scope and goals for the GLANSIS team. Based on this discussion, we interviewed four employees at local invasive species management agencies who all had differing job roles and exposures to GLANSIS and invasive species databases. Over the interviews, we did begin to see trends. Many within the invasive species tracking field have little concern over what site to share their collected data with since data sharing occurs across all hosting sites. Individuals report that they are loyal to the site they first learned. Secondarily, they consider the ease of use when contributing the data. Researchers say using the GLANSIS functionality to track new or worsening conditions of invasive species in their watersheds.

GLANSIS can further the functionality of this tool by providing users who opt-in email alerts regarding organisms found within desired watersheds. A pain point recognized by many participating in fieldwork to get species counts is the ease of use and ability to pinpoint the location of a found invasive organism when able to report using a mobile application and phone GPS capabilities.

Introduction

The Great Lakes Aquatic Nonindigenous Species Information System (GLANSIS) is an effort of the National Oceanic and Atmospheric Administration to track and maintain a real-time gauge of the population levels of invasive species. In addition, GLANSIS is interested in better understanding the needs and behaviors of local management groups within the great lakes region regarding their invasive species tracking and contribution of the related data. To better understand the needs of the local invasive species management group, we interviewed four employees with different job roles and in other geographic locations of the Great Lakes region. Our interviews focused on providing additional context to the following questions:

- What functionalities do local agencies prioritize on data-sharing websites?
- How do local agencies collect data and monitor invasive species populations?
- What are the gaps in support for local management agencies?

The above questions are appropriate for an interview data collection method due to the nuance and context needed for each individual. These questions also are not attempting to identify a correlation between the two contexts. Instead, these questions determine the pain points local management groups struggle with when trying to contribute to the GLANSIS website or use the website to identify additional information on specific invasives. The GLANSIS team is interested in understanding where collected data is shared. The questions also provide context for GLANSIS's desire to understand better what educational curriculum will best support local management agencies.

Stakeholder Interview Summary

We met with our stakeholders to discuss the deliverables and scope of the project. We also discussed expectations. GLANSIS' main takeaway from this project would be a better understanding of where local invasive species upload and share their data. A secondary consequence of this assessment will be an idea of what educational curriculum and content local agencies are interested in.

Methods

We conducted four interviews with local management groups specializing in aquatic invasive species located around the Great Lakes region to understand their current management practices, the systems they preferred to use, and their needs. To complete the task, we divided the procedure into four steps:

1. Recruit Interviewee
2. Develop Interview Protocol
3. Conduct Interviews
4. Analyze Interview Data

Recruiting

To contact our target user groups, we used the CISMAs and CWMAs National County Distribution Map on https://www.invasive.org/cismas/ to find information about organizations in the Great Lakes Region. Our client asked for interview data distributed across the target region, so we emailed at least one management group from each state within the Great Lakes region (MN, WI, PA, MI, NY) to increase diversity for the interview. Our client also provides four suggested local management groups for us to contact.

In the recruiting email, we introduced ourselves and our client NOAA GLANSIS, explained the purpose of the interview, and asked for availability for a meeting that lasts around forty-five mins. In total, we sent out thirteen emails. We received four responses that agreed to meet us for the need assessment interview. Our four interviewees are from different local management agencies and have acquired different positions in their organizations; thus, their needs for websites and data information vary (See detail persona in appendix).

Interviewee Basic Information

	Location	Role
Interviewee 1[1]	GA	Director / Website Manager
Interviewee 2	MI	Coordinator / Biologist
Interviewee 3	MI/MN[2]	CEO / Coordinator
Interviewee 4	NY	Science Communicator

Interview Protocol

We divided the interview protocol into four sections: 1) Warm-up questions, 2) Questions about the current system the local management group uses, 3) Questions about GLANSIS, and 4) Questions about the local monitoring process (See complete protocol in appendix). The warm-up questions help us learn basic information about the interviewees and their organization. Throughout the interview, we asked the interviewees to recall the last time they used the websites to complete the tasks of uploading or searching data so that we could identify specific issues users might encounter while navigating the system.

[1] Interviewee 1 was contacted via the website of an agency that is based in Minnesota. Interviewee 1's organization helped power their website.
[2] Two members of the agency participated in the interview, one in MI and another in MN.

Interview

We conducted all four need assessment interviews via Zoom. For each interview, one person will be the interviewer who will lead the process, and another teammate will assist and take notes. Each group member was able to lead an interview and take notes for one. During the interview, we would ask the interviewees to share their screens when demonstrating their work process and introducing us to the website system their organization prefers if they are comfortable with it.

Interview Data Analysis

To analyze the data, we held interpretation sessions after each interview and reviewed the notes and the transcript to discuss the major takeaways as a group. Using a method similar to an affinity wall, in each meeting, the interviewer and note-taker would first present the overall content of the meeting and highlight the important points. After that, all members would scan through the notes and the key points, group them into different themes, and summarize them into simple statements: issues with uploading accurate data, constraints of agencies with data sharing, problems with lack of attraction, and recommendations for GLANSIS.

Findings and Recommendations

Summary Results

On the positive side, users indicated that GLANSIS functions well as a database that gives detailed data regarding aquatic invasive species. However, our team discovered that local management groups do not utilize GLANSIS extensively, have difficulties locating information effectively, and are restricted in where and how they can share data. These findings suggest that GLANSIS needs to improve its features, usability, and data-sharing capabilities to attract more users and become a more effective tool for managing invasive species.

Key Finding 1: GLANSIS is Not Commonly Used

According to the interviews, GLANSIS is not a standard tool for local management groups and needs to offer more incentives to recruit users. All interviewees mentioned that they either never used GLANSIS or hadn't used it for a long time. Interviewee 1 revealed a lack of interest in switching from their current tool to GLANSIS because they don't see the comparative advantage of GLANSIS. Interviewee 3 said they stuck with the tools they were first trained to use. Additionally, the fact that GLANSIS does not appear in the Google search results for the term "invasive species tracking tool" may significantly deter traffic.

Recommendations:

We recommend GLANSIS add functionalities that make it stand out as a competitor to other websites. As suggested by interviewees 2 and 3, GLANSIS can provide a subscription service that sends feeds about trends and news about invasive species

to its users. Furthermore, interviewee 2 said that their position has a high turnover rate, which means NOAA can draw in these new employees by holding local events and GLANSIS training sessions. We also suggest GLANSIS undertake SEO (search engine optimization) to optimize traffic from search engines. By doing this, GLANSIS will become more visible and attract more users to the website.

Key Finding 2: Challenges with Website Navigation

Our team discovered that users have difficulties finding the information they need on the website effectively. Specifically, Interviewee 1 reported that they use the site sparingly because it takes a while to navigate through the website to find the information they need. Furthermore, interviewee 2 reported having difficulty remembering the species' genus, species, and common name required to access the species profile on GLANSIS (see Fig. 1).

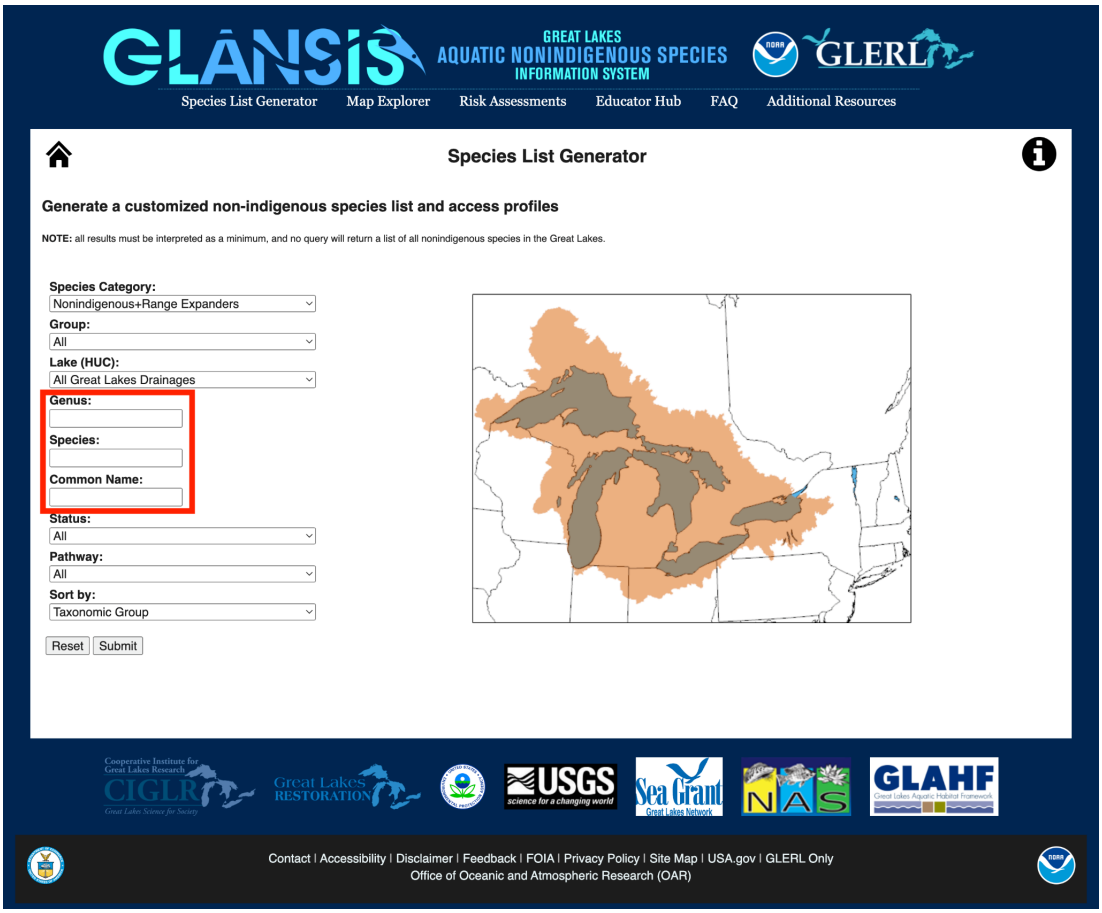


Figure 1. The interface for GLANSIS's Species List Generator tool. Access to the species' profile requires accurate identification of a species.

Recommendations:

To facilitate quicker access to desired content, we suggest reorganizing the website's content by limiting the number of interactive features on a page, using simple names for navigation links, and emphasizing vital messages(Rczewska, 2023). In addition, GlANSIS can highlight portals to Species List Generator, Contribute, and Education

Hub on its navigation bar and home page to direct users to these core features. The website can also add an autofill function or a dropdown menu for the species name to assist users' search process.

Key Finding 3: Constraints Regarding Data-Sharing

We identified a variety of constraints regarding where and how the data are shared. Interviewees 2 and 4 disclosed that their group is compelled to send data to a state-powered website since they receive state funding. Interviewee 2 mentioned that data that might invade others' privacy, for example, invasive species found on private properties, is not allowed to be uploaded to a public website. Another factor that impacts data sharing is what other agencies are included in the organization's current network. Organizations with broad ties with other groups and local branches share information more efficiently.

Recommendations:

We recommend increasing data sharing through more outreach efforts to communicate with groups that power other websites. Also, NOAA can contact local governments to share data. By improving communication and building stronger relationships with other organizations and networks, GLANSIS can obtain a broader range of data that will benefit the invasive species tracking community.

Discussion

Limitations of samples

The Great Lakes region includes eight states. Still, in our interviews, we got more responses from users in Michigan, which makes the study recruited participants from a narrow range of organizations or geographic regions. Besides, since we only had four interviews, we may need more data to fully capture the range of perspectives and experiences of the user base.

Significant questions that remain unaddressed by this study

Some questions that could be further studied: First is the data sharing challenges. While the recommendations for data sharing and updating promptly are essential, it is also important to consider challenges with data sharing and coordination among different organizations. The second is how GLANSIS can leverage strengths to improve data sharing and management. While the interview briefly mentioned the mobile application did a better job than the website, the study did not explore why and how to adopt the strengths and weaknesses of both cell phones and websites to complement each other to create a better experience for users.

Alternate interpretations

We found that there are constraints on data sharing among agencies because of privacy and local government push for specific platforms. But we could also think of funding-related constraints of this issue. Additionally, one of our interviewees

mentioned that she prefers mobile apps for it is more helpful. However, we need to know whether the reason is that they prefer to use their cell phones because of the portability or whether it is because the mobile app works better.

Conclusion

Through our interviews, we identified that local management groups are relatively loyal to the data-sharing website they use, mainly because of the ease of convenience and quickness they can navigate through the site. In addition, GLANSIS can increase its web traffic by improving its information hierarchy. To further expound on this study, we will conduct comparative research and design a survey for future implementation.

References

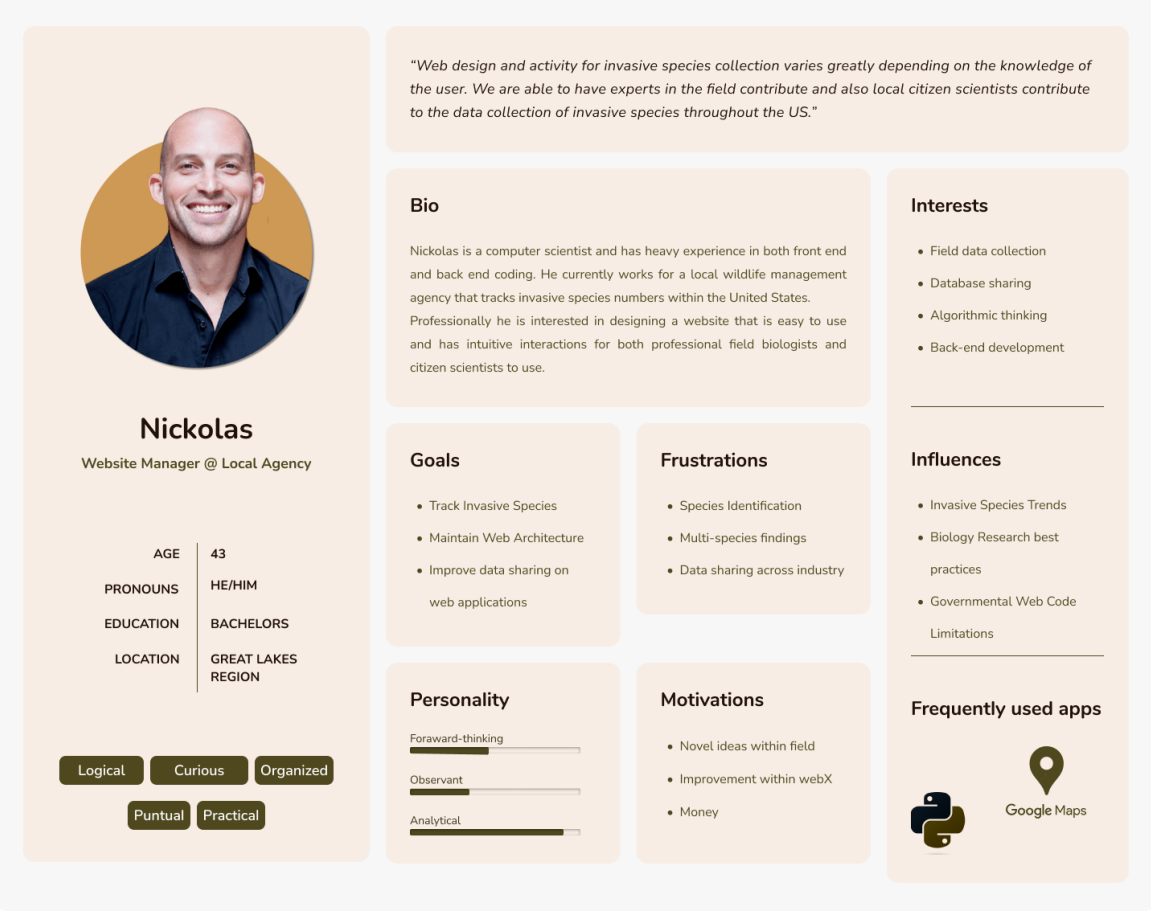
Rączewska, A. (2023, January 4). How to improve website navigation using these 12 tips. Digital Acceleration Company. Retrieved February 14, 2023, from https://www.netguru.com/blog/ux-tips-to-improve-website-navigation

Appendices

1. Personas and Scenarios

The personas are based on our interviewees. Even though some are not the current user of the GLANSIS websites, all of them are users of the direct or indirect competitors of GLANSIS, which makes them potential users of the website. The purposes for their using invasive species information systems vary due to the different responsibilities they have in the organization. We reference the scenarios and use cases described in the interview to help form the personas. Personas and scenarios are common empathy tools used by UX professionals to help develop an understanding of possible users and what they need out of the website. Websites like GLANSIS can have a diverse range of users, hence the variety of personas and scenarios. Through the development of personas and their scenarios, we can think through current and future functionality use cases.

1. A Website Manager at Local Management Agency



Scenario - Website Manager

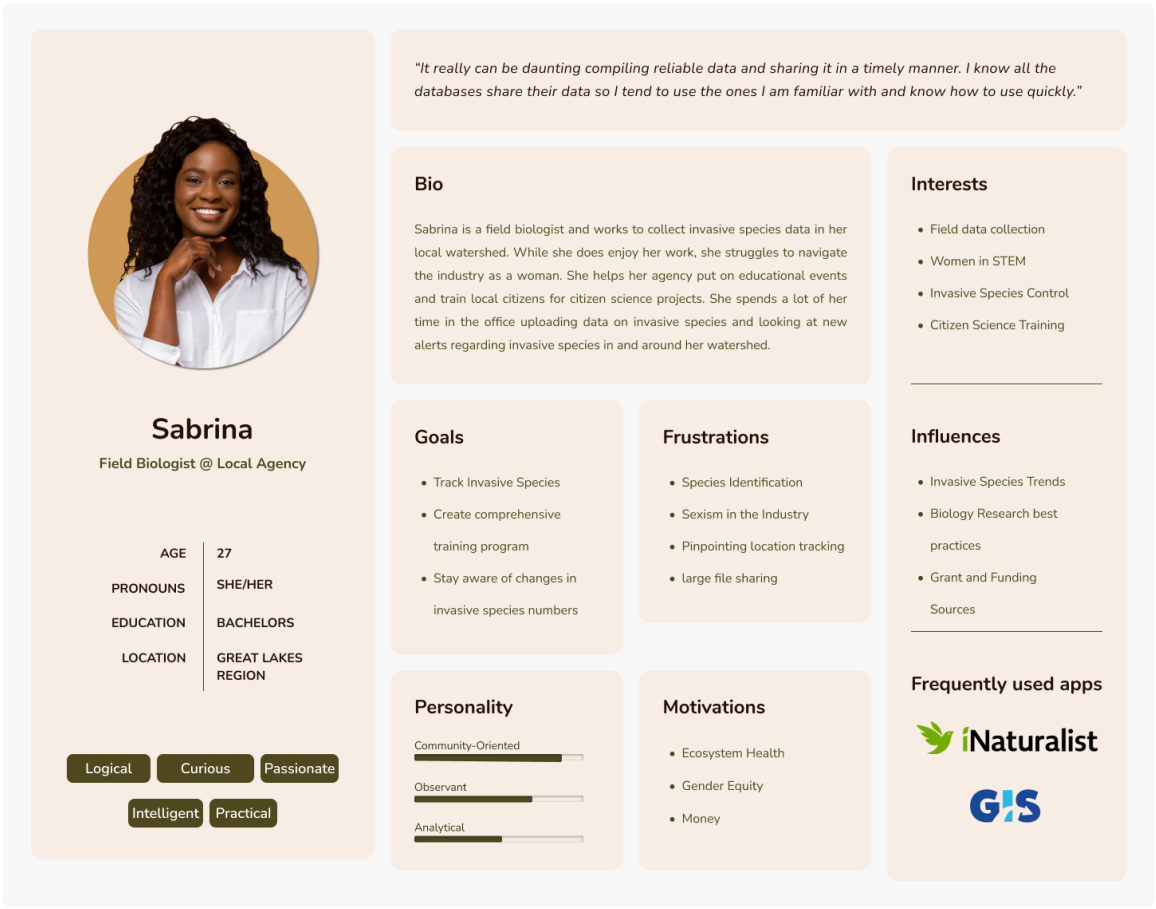
Nickolas is a website manager for an invasive species management agency. His agency developed a website for common citizens and invasive species specialists to search and share their aquatic and terrestrial invasive species findings. Nickolas' role is to develop and maintain their website to enhance usability and update data regularly.

One day Nickolas was asked by his supervisor to update the agency's website with the aquatic invasive species data from the GLANSIS website and to create an API to share the agency's data with other databases and organizations. Nickolas starts by navigating to the GLANSIS website using the Species List Generator and Map Explorer function to look for aquatic invasive species data that is not recorded on his website. Once he finds the needed data, Nicholas downloads it in a suitable format, such as CSV or Excel, and imports it into his agency's website. He then maps the GLANSIS data onto the maps of his agency's website to ensure consistency and accuracy.

Once the data has been imported, Nickolas creates an API to share his agency's data with other public resources such as GLANSIS. He starts packaging the data from his website and developing the API's necessary endpoints and formats. Nickolas tests the API using different scenarios to ensure it is reliable and secure before deploying it to their website.

After the API is accessible to the public, data-sharing between different organizations becomes successful. Managers of GLANSIS can access data from Nickolas' agency and update their websites with the aquatic invasive species data that GLANSIS lacks due to the different preferences of local management groups to upload data.

1.B Field Biologist at Local Management Agency



Scenario - Field Biologist

Sabrina is a field biologist at a local invasive species management agency within the great lake region. She is responsible for training volunteers and conducting fieldwork to monitor and manage aquatic invasive species near the great lake region. While in the field, she usually carries her phone and tablet to document her findings. Before heading out into the field, Sabrina usually holds a training session with her volunteers, providing them with educational materials, including videos, on identifying and managing invasive species.

One day, Sabrina gathers the volunteers for the seasonal training and decides to use the GLANSIS website to supplement her training materials. She navigates to the Education Hub of the website and finds a series of videos that provides clear instructions on identifying invasive species commonly found in the area. Sabrina shows the videos to her trainees in accordance with a lecture and some demonstrations.

Later in the week, Sabrina receives a report from other local management agencies that there has been a sighting of Sea Lamprey, an invasive species that her organization is responsible for in the region. She quickly gets her field equipment, including her phone and camera, and heads out to investigate. Once on site, Sabrina takes photos of her findings, identifying the seashore where the Sea Lampreys were found, their size, and their impact on the local ecosystem.

After taking the photos with her phone, Sabrina logs onto the GLANSIS website on her phone to report her finding. She navigates to the contribute section of the page and starts filling out the reporting form provided on the websites. After Sabrina uploaded the photos to the website, the GLANSIS website automatically identified the location of where the image was taken and the species as Sea Lampreys. Then Sabrina filled out additional information and description about her finding and submitted the form. She received a confirmation email from GLANSIS saying thank you for her contribution and informing her about the double checking of her submission before it is updated on the website.

1.C Office worker at Local Management Agency

Beverly

Office Worker @ Management Agency

AGE	54
PRONOUNS	SHE/HER
EDUCATION	MASTERS
LOCATION	GREAT LAKES REGION

Logical | Practical | Passionate | Intelligent | Proactive

"I have little interaction with invasive species tracking data anymore. I spend a lot of my time bring awareness and funding to our cause and helping our subsidiaries reach much needed milestones."

Bio

Beverly has lived in the Great Lakes Region for her entire life and has always felt passionately regarding the environment and its protection. While her position does not lend itself to going out in the field she can see the difference she makes in planning events for all the subsidiaries of the management agency. She helps to bring in experts in new technology and from various other government and private agencies working to monitor invasive specie spread. She enjoys meeting all of the field biologists and hearing what they need to better serve themselves and communities.

Goals

- Decrease invasive species population
- Engage with local communities
- Stay ahead of trends and be prepared to address

Frustrations

- Intra-agency communication
- New Tool Implementation
- Invasive Species Tracking
- Funding Sources

Personality

Community-Oriented

Forward Thinking

Analytical

Motivations

- Ecosystem Health
- Data Access Across Region
- Money

Interests

- Field data collection
- Tools for Data Collection
- Invasive Species Control
- Citizen Science Training

Influences

- Invasive Species Trends
- Biology Research best practices
- Grant and Funding Sources

Frequently used apps

AAAS

Scenario - Coordinator / Office Worker

Beverly is a coordinator and outreach scientist of a local invasive species agency. Beverly's organization has its own website, and her responsibilities include responding to emails from local citizens who inquire about invasive species. She needs to guide users to other platforms or websites that can provide a solution for their concerns. Beverly also coordinates with other local management agencies in the same state when research is founded.

One day, Beverly receives an email from a local biology teacher who believes he has spotted Bighead Carp, an aquatic invasive species. The person is unsure of the procedure to follow after sighting the species and asks Beverly for guidance. Beverly realizes that the GLANSIS website manages the data of aquatic invasive species in the Great Lakes region and can provide valuable information for the citizens.

Beverly navigates through the GLANSIS website and uses the Map Explorer and Species List Generator to search for the basic information and spotted areas for Bighead Carp and discovers that they are a highly invasive species that can cause significant harm to aquatic ecosystems. The website also explains that reports of the sighting are needed to increase awareness and prevent the spread of the invasive species. The GLANSIS website has a Contribute section that allows people to share their findings with governmental organizations.

Using the information she gathered, Beverly formulates a response to the citizen's email. She explains the importance of reporting the sighting of Bighead Carp and directs the citizen to the Contribute section on the GLANSIS website. She also advises the citizen to contact the local management agency in his region that is responsible for monitoring the invasive species.

2. Interview Tool

Introduction

Hi, my name is [*Interviewer*], and this is [*Note Taker*] – we're master's students at the University of Michigan School of Information. As you hopefully have heard, my class is working on a user experience research project with NOAA GLANSIS (Great Lake Aquatic Nonindigenous Species Information System). We are here to understand better how local groups such as [*Organization Name*] deal with aquatic invasive species. This interview will take about 45 minutes, during which time we'll go through some questions, and I might ask you to show me how you conduct your work. Throughout, I'd like you to treat me as if you're describing the situation to someone unfamiliar with your work. I'm here to learn from you.

A couple of things before we start. To the extent possible, we will take your comments to be confidential. We will aggregate all the comments from the four interviews we're conducting so that your comments are not easily traced to you. If we quote you in our final report, we will do so without identifying your name. If there's anything you don't want on the record, even if it's anonymous, please let me know. Also, this interview is entirely voluntary on your part – if you want to stop, please let me know. We can end the interview at that point with no repercussions for you of any kind. If you wish, I can also throw out my notes of what you've told me until that point.

We were hoping to record this interview for transcription purposes. How would you feel most comfortable recording? Could we use the recording function on Zoom, or prefer if we just take an audio recording? This is just so that my team doesn't miss anything – no one at your organization or otherwise will have access to the recording. Thanks.

Do you have any questions for me? All right, then, let's proceed.

Warm-Up Questions

- Could you please give me a brief introduction about [*Organization Name*]
- How did you become interested in invasive species management?
- What responsibilities are included in your job role?
- Is there anything we haven't discussed that your organization does work on?

About the Current System Local Management Team Use

- To what extent does your organization deal with aquatic invasive species?
- What website/tools do you utilize to track invasive species in your area?
    - Why that website, details for functionality, and what data was prioritized
    - Could you walk us through the last time you used the website?
        - What was your goal?
        - What did you do to complete the goal?
        - What devices do you usually use to access these websites/resources? Phone/Tablet/Laptop?
    - What frustrated you about the website?

        - If yes, what was it, and what did you do to solve the problem/overcome the difficulties?
    - What features, if any, would you like to see added to the site and why?
- What website did you use to share data about invasive species in your watershed? (iMapInvasive/EddMaps)
    - What devices do you usually use to access these websites when you want to upload your data?
    - Could you please walk me through the last time you tried to upload the data?
- Does your organization collect AIS (Aquatic Invasive species) distribution data, and if so, where is that data made available (e.g., MISIN, iMAPinvasives, EDDMapS, NAS, GLANSIS, NatureServe, etc.)?

About GLANSIS

- Have you ever used the GLANSIS website?
    - If yes, could you describe the last time you used it? What did you use it for?
    - What features do you use, and what could be potentially improved?
- List generator & Contribute specific (if they do not mention it above)
    - Walk us through your last time using "List generator" and "Contribute", did you meet any problems when using the "List generator" and "Contribute"?
    - How do you think they can be improved?
- Are there any features that the websites don't provide that you would like to see?

About The Local Monitoring Process

- How does your organization approach local monitoring?
    - Do you hold events to help track levels? If so, describe the last event you hosted.
    - When someone is out in the field for data collection, what tools are they using?
    - After data collection, what is done with the data? Walk me through this process.
    - What is the current distribution of the data/who do you share your data with?
- Think of the last time your organization was facing difficulty getting data/information you all needed. Describe what was happening and how you solved it.
- Do you use 'citizen scientists' or volunteers to provide data or conduct management?
    - If so, what training do you provide them/what training resources do you use?
- What AIS-related information do you need that is currently unavailable or difficult to access?