Lake Superior Headwater Sustainability Partnership

Community Atlas Case Studies

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Prepared by:

LimnoTech, Inc.











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1 INTRODUCTION

The Lake Superior Headwaters Sustainability Partnership (Headwaters Partnership, Partnership) developed the Community Atlas, located within the **Headwaters Partnership mapping tool**, to support the Partnership's community engagement and environmental justice goals and objectives. The Community Atlas is linked to the **Headwaters Partnership Community Engagement Toolkit**. The case studies in this document are intended to provide guidance for partners on how to use the Community Atlas for their projects.

Please note that the case studies and training video use the term "EJ Toolkit" and/or "Demographic Toolkit." We have since renamed the toolkit to the "Community Atlas" and the "Demographics" layer section of the mapping tool has been renamed to "Demographics and Indicators."

2 CASE STUDIES

The Community Atlas Case studies in this section were developed for three use cases of the Community Atlas:

1. Understanding community characteristics when beginning a landscape stewardship visioning process in a geographic zone
2. Preparing a grant proposal
3. Developing a community engagement plan

Each case study is presented as a script that accompanies the **Community Atlas training video.** Refer to the training video and the **Headwaters Partnership Community Atlas** and as you work through the case studies.

2.1 CASE STUDY 1: GEOGRAPHIC ZONE VISIONING

This case study is focused on utilizing the Demographic Toolkit to highlight natural areas in the estuary landscape to protect, restore, monitor, or enhance within a new geographic zone. As a part of this visioning process, the Demographic Toolkit will be used to identify and describe the characteristics of the rural and urban communities of the area to better understand those communities and how they compare with the rest of the Headwaters Partnership region.

For this case study, we'll consider the areas within the following geographic zone (Figure 1). First, we'll locate the project area within the mapping tool. Then, we'll investigate the characteristics of populations within the project area using the Demographic Toolkit and supplemental Demographic layers.

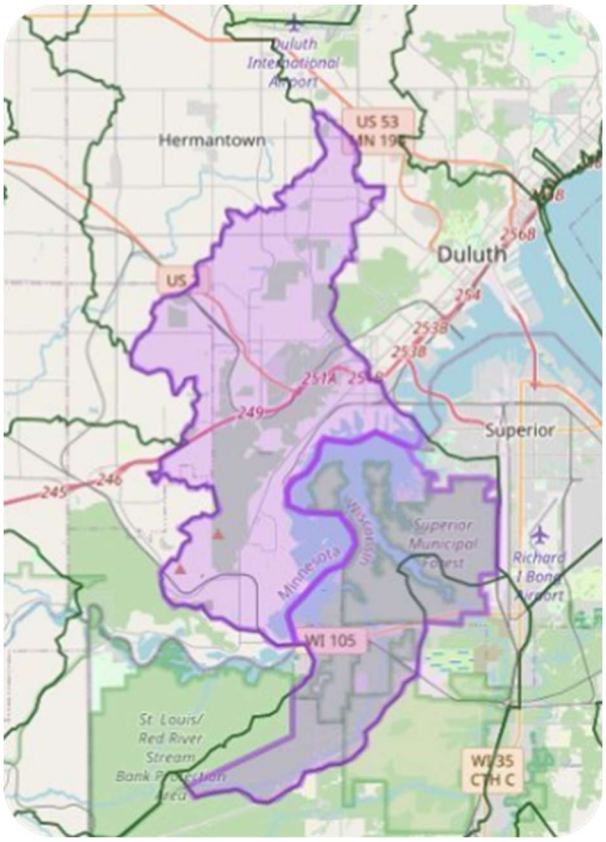

Figure 1. Visioning Process Geographic Zone

1. Locating the project area.
    a. By default, the **Geographic Zones** layer is activated when we open the map. The color key is available by expanding the "Base Layers" grouping within the sidebar and by expanding the legend in the top right corner of the map.
        i. Turn this layer off by unselecting the checkbox

b. Within this same “Base Layers” grouping, we can turn on the **Geographic Zone Watersheds** layer to identify the land area that makes up the geographic area in this visioning process.
    i. The geographic zone watersheds of interest are the **Upper St. Louis Bay** and **Lower St. Louis River** watersheds and a small portion of the **Pokegama Bay** watershed.

2. Investigate population characteristics. This question also asks about how the geographic visioning zone’s urban and rural communities compare to the rest of the Headwaters Partnership region, so we’ll be comparing the two along the way.
    a. We’ll pull in our Demographic toolkit layers to begin to identify the overlapping community characteristics.
        i. The Demographic toolkit layers allow partners to get a high-level, synthesized perspective on potential burdens and vulnerabilities experienced by communities.
        ii. Understanding demographics can be useful when it comes to community engagement and outreach and can inform approaches to engagement and outreach including.
        iii. Let’s first look at the Disadvantaged Areas from CEJST. We see that there are three tracts that intersect part or all of the Upper St. Louis Bay and Lower St. Louis River watersheds that are categorized as disadvantaged. Those census tracts are 27137003300, 27137003700, and 27137003800. Clicking on each of the tracts, we can bring up a dashboard that lets us see the category or categories of burden that apply.
            1. 27137003300- This census tract meets the threshold for a housing burden, indicating that the tract is at or above the 65th percentile for low-income and faces challenges in housing such as historic under investment, high housing costs, prevalent lead paint, or other burdens
                a. Additional questions to ask: What generally in causing the high housing burden in this census tract?
            2. 27137003700- This census tract meets the threshold for legacy pollution, indicating that the tract is at or above the 65th percentile for low-income and faces historic pollution challenges such as proximity to hazardous waste facilities, presence of one more abandoned mine land, proximity to Superfund sites, or other burdens.
                a. Additional questions to ask: What happened in this tract that resulted in the legacy pollution designation?
            3. 27137003800- This census tract meets the thresholds for housing, legacy pollution, and climate change indicating that the tract is at or above the 65th percentile for low income and faces housing challenges, historic pollution challenges, and challenges related to climate change such as expected agricultural losses, expected population loss from natural hazards, projected flood risk, projected wildfire risk, and other burdens.

        a. In addition to the questions above it useful to ask about what specific climate challenges this census tract is facing.
    4. In the other urban areas within the HP region, many census tracts near the mouth of the Saint Louis Bay are categorized as disadvantaged due to housing and legacy pollution burdens similar to the census tract in the geographic visioning zone near the Saint Louis River and Bay. These census tracts differ from the geographic visioning zone due to additional health, workforce development, and water and wastewater burdens.
    5. Rural areas within both the HP region and geographic visioning zone are not considered disadvantaged, except for census tract 27137011200 which covers a portion of the Fond Du Lac Indian Reservation.

iv. Next, let's look at the Social Vulnerability Index. After we turn on that layer, we can open the on-map key in the top right corner to see what the different colors mean. We see that areas of the geographic visioning zone nearest to the St. Louis Bay and River are classified as 'Low-Medium' to 'Medium-High' and the furthest areas are classified as 'Low'.

1. With the dashboard pulled up, we can see that for many of the census tracts overlying the geographic visioning zone the highest area of vulnerability relate to housing.
2. Census tracts within the City of Duluth range from "Low-Medium" to "Medium-High" similar to urban census tracts within the geographic visioning zone. Three other census tracts within city limits are categorized as "High" with housing and socioeconomic status the highest areas of vulnerability.
3. Most of the census tracts overlapping the most rural areas within the geographic visioning zone are categorized as "Low" with the exception of the census tract (55031020700) that covers a portion of the Pokegama Bay watershed, which is categorized as "Low-Medium". Outside of the geographic visioning zone census tracts overlapping rural areas range from "Low" to "High".

b. Next let's take a deeper dive into the demographic characteristics of the communities within the geographic visioning zone using the supplemental Demographic Layers from EJScreen.
    i. Some key layers from EJScreen, themselves based on census data, have been incorporated into the Headwaters Partnership Toolkit.
    ii. First, let's look at age, using the 2 age-related EJScreen layers: census block group ranking (percentile) based on the percent of the population under age 5 and over age 64.
        1. We see that three block groups of interest have a very low proportion of the population under age 5, ranking in the 97th, 93rd, and 92nd highest possible percentiles compared to all block groups nationally.

2. With regards to the population over age 64, the ranking is slightly lower, with five block groups ranking in the 83rd to 85th highest possible percentiles compared to all block groups nationally.

iii. Next, we'll look at race and ethnicity, looking at the percentile rankings for our area of interest with regards to People of Color and community members with limited English speaking ability as a proportion of the population.
    1. Within the geographic visioning zone we'll see that none of the block groups fall above the 50th percentile for people of color as a proportion of the population, but one block group (271370036002) near the Riverside community ranks at the 69th percentile of households in which no one age 14 and over speaks English "very well".

iv. Finally, we'll look at income levels, considering the percentile rankings for low income and unemployment percentages within the community population.
    1. There are a few block groups within the 50th to 60th percentiles for low income with one notable block group (271370158002) covering the Irving community ranking at the 72nd percentile for low income, indicating that this block group has a higher proportion of the population categorized as low income than over three quarters the block groups in the nation.
    2. Similarly block group 271370158002 ranks the highest in the geographic visioning zone at the 86th percentile for unemployment rates.

3. Considerations
    a. Spatial scaling of the demographic datasets does not align perfectly with the watershed boundaries that comprise the project area, and populations or population characteristics within census tracts or block groups may not be distributed evenly. Furthermore, key community needs or burdens may not be captured well by national-level datasets. Engage with on-the-ground partner organizations and community leaders to ground-truth impressions about community characteristics, vulnerabilities, and burdens from the Demographic Toolkit prior to finalizing the community engagement plan.
    b. The spatial scale of the demographic datasets may also not align with "communities" as considered for the purposes of this partner's community engagement intentions. The partner may want to consider additional data or local knowledge beyond what is included in the tool when defining communities of interest, such as the extent of neighborhoods within the watershed. This can be used to pointedly investigate the data about community characteristics provided in the Demographic toolkit.
    c. Data documentation for some datasets originally provided by the Federal government are no longer available at the links included in the Headwaters Partnership tool. If you have questions about the data, their sources, or their interpretation, please reach out – we have archived versions of the data documentation that may provide an answer.

2.2 CASE STUDY 2: PLANNING FOR COMMUNITY ENGAGEMENT WITHIN A PROJECT AREA

This case study is focused on utilizing the Demographic Toolkit to develop a community engagement plan for a project within a specific watershed. The partner would like to understand the characteristics of the communities within the project area, including demographics, burdens, and vulnerabilities.

Based on these characteristics, the partner can appropriately identify community leaders and organizations to connect with to inform the development of community outreach approaches for a community engagement plan.

For this case study, we'll consider the Keene Creek Watershed in Minnesota. First, we'll locate the project area within the mapping tool. Then, we'll investigate the characteristics of populations within the project area using the Demographic Toolkit and supplemental Demographic layers. We'll also discuss a few things to watch out for with this use case of the Demographic toolkit.

1. Locating the project area.
    a. For visibility and clarity, I'll begin by deactivating the "Geographic Zones" layer (located within the 'Base Layers').
    b. Next, I'll activate the 'NHD Streams (major)' and 'Subwatersheds' layers under the 'Hydrography and Bathymetry' heading. From here, I can navigate to Keene Creek. We can also turn on labels for that layer to make it easier to find.
        i. *Click streamline to pull up 'Keene Creek' label*
    c. The subwatersheds intersected by the creek line comprise our project area.
    d. For visibility as we proceed, I'm going to turn down the opacity of the subwatersheds layer, and ensure that my stream layer labels are turned off.
2. Investigate population characteristics.
    a. Next, we'll pull in our Demographic toolkit layers to get a better understanding of population characteristics, burdens, and vulnerabilities in the Keene Creek watershed. Considering population characteristics can help the partner better understand who may be representative communities leaders or organizations with whom to engage and can also help inform development of community outreach approaches that are relevant to their intended populations.
    b. Demographic Toolkit
        i. The Demographic toolkit layers allow partners to get a high-level, synthesized perspective on potential burdens and vulnerabilities experienced by communities.
        ii. Let's first look at the Disadvantaged Areas from CEJST. We see that there is one tract that intersects the Keene Creek Watershed that is categorized as

disadvantaged. By clicking on it, we can bring up a dashboard that lets us see the category or categories of burden that apply.

1. In this case, the census tract meets the threshold for a housing burden, indicating that the tract is at or above the 65th percentile for low-income and faces challenges in housing such as historic under investment, high housing costs, prevalent lead paint, or other burdens.

2. Implications for community engagement: there may need to be considerations related to this unique challenge, not present in other parts of the study area. Further research to understand the housing issue at play within this portion of the block group can ensure that the relevant community concerns are incorporated into the community outreach. Be aware that this may be a key issue for community members within this area.

3. We can also dig back in source tools to better understand the metrics. See **https://edgi-govdata-archiving.github.io/j40-cejst-2/en/#13.02/46.73374/-92.18461** (backup of no-longer-live CEJST)

    a. Low income

    b. Lack of indoor plumbing -> may have implications for watershed health

iii. Next, let's look at the Social Vulnerability Index. After we turn that layer on, we can open the on-map key in the top right corner to see what the different colors mean. We see that much of Keene Creek Watershed is classified as "low" social vulnerability, but that some of the downstream tracts have "low-medium" or "medium-high" vulnerability. Let's take a look at the one closest to the Bay, with "medium-to-high" vulnerability.

1. With the dashboard pulled up, we can see that highest areas of vulnerability for this tract relate to housing, with additional vulnerabilities related to socioeconomic status and household characteristics.

2. The housing burden was also identified by the CEJST layers, reinforcing that housing is a concern that should be considered while designing the engagement plan. Consider other tools and local resources that can provide additional insights on socioeconomic status and household characteristics to better understand the community in this area and plan for how to engage with this community

c. Supplemental Demographic layers

i. The supplemental demographic layers offer a mix of synthesized indices and single-metric datasets at a finer spatial resolution than the demographic Toolkit. These can help dive deeper into findings from the demographic Toolkit, as well as providing insight into other community characteristics that may help shape community engagement planning

1. For example, within a community with a high proportion of the population under age 5, the partner may consider community outreach in child-friendly settings and formats. We see that there is one block group which is at the 97th percentile for the proportion of the population that is under the age of 5.

2. In areas with a high proportion of the population with limited English Speaking Ability, it will be important to identify community leaders and organizations that are engaged with non-English speaking communities, and to ensure that community outreach is designed to bridge potential language barriers. This does not appear to be the case for the block groups overlapping Keene Creek Watershed, but this would be good to ground-truth while developing the community engagement plan.

3. Considerations

a. Spatial scaling of the demographic datasets does not align perfectly with the watershed boundaries that comprise the project area, and populations or population characteristics within census tracts or block groups may not be distributed evenly. Furthermore, key community needs or burdens may not be captured well by national-level datasets. Engage with on-the-ground partner organizations and community leaders to ground-truth impressions about community characteristics, vulnerabilities, and burdens from the demographic Toolkit prior to finalizing the community engagement plan.

b. The spatial scale of the demographic datasets may also not align with “communities” as considered for the purposes of this partner’s community engagement intentions. The partner may want to consider additional data or local knowledge beyond what is included in the tool when defining communities of interest, such as the extent of neighborhoods within the watershed. This can be used to pointedly investigate the data about community characteristics provided in the demographic toolkit.

c. Data documentation for some datasets originally provided by the Federal government are no longer available at the links included in the Headwaters Partnership tool. If you have questions about the data, their sources, or their interpretation, please reach out – we have archived versions of the data documentation that may provide an answer.

2.3 CASE STUDY 3: PREPARING A GRANT PROPOSAL

This case study is focused on utilizing the Demographic Toolkit prepare a grant proposal for a project. As a part of this proposal, the partner needs to identify and describe the characteristics of the communities served by a proposed projects, including age, race and ethnicity, and poverty rates.

Additionally, the partner is asked to identify connections to disadvantaged communities, as categorized by EJScreen.

For this case study, we'll consider the areas within the City of Superior in the Allouez Bay geographic zone. First, we'll locate the project area within the mapping tool. Then, we'll investigate the characteristics of populations within the project area using the Demographic Toolkit and supplemental demographic layers.

1. Locating the project area.
    a. By default the geographic zones layer is activated when we open the map. We can see the color key by expanding the "Base Layers" grouping within the sidebar. Allouez Bay, our geographic zone of interest, is shown in dark teal.
    b. From there, we can also turn on the Geographic Zone Watersheds layer to see the land area that drains to our zone of interest.
    c. Next, we want to focus on the City of Superior, WI. We can do this by activating the "Municipalities (WI)" layer in the "Jurisdictional Boundaries" section. The region marked as "Superior – C" corresponds with the City of Superior.
    d. Looking at the overlap of these layers, we see that our focal area is the northernmost section of the Allouez Bay Watershed.
2. Investigate population characteristics.
    a. Next, we'll pull in our Demographic toolkit layers to respond to the requests from the Grant Proposal. We'll begin with the second question first: this question asks the partner to "list the census blocks (or tracts) of the community/ies in which the work will be done."
        i. The Demographic Toolkit (dashboard) layers are at the Census Tract scale, while the Supplemental demographic layers are at the Block Group scale. We'll turn on the Demographic Index layer from the Supplemental deographic Toolkit to see the Block Groups that intersect our area of interest. We see that one Block Group covers our whole area of interest, so we'll note the Block Group ID from that polygon: 550310210002
        ii. We see that, strictly speaking, the grant proposal requests that we provide block IDs (not present in the datasets in the Demographic toolkit) or Census Tract IDs, if those are unavailable. So let's go ahead and pull the Census Tract ID for our area of interest, also. To do that, we'll activate one of the

Demographic Toolkit layers – we'll use CEJST since it has the simplest symbology. We can then copy the Tract ID from the dashboard that pops up. 55031021000

b. The second half of the question asks the partner to explain how the project primarily benefits at least one of the disadvantaged communities, as identified by EJSceen, within the region. In order to answer that, we'll need to identify any disadvantaged communities within the project area, according to the "IRA Disadvantaged Communities" layer.

    i. When we activate this layer, we see that the block group that covers our project area is categorized as disadvantaged. Based on that, the partner can explain the intended project activities that would benefit this community.

c. From there, let's turn back to the first question from the grant proposal. This question asks about the demographic information of the community intended to benefit from the project, including age, race & ethnicity, poverty rates, etc. The prompt encourages applicants to utilize census data and/or tools such as EJScreen.

    i. Some key layers from EJScreen, themselves based on census data, have been incorporated into the Headwaters Partnership EJ Toolkit and can be used to respond to this question.

        1. Note that the information buttons next to each layer can help provide insight into the source and nuances of the data.

    ii. First, let's look at age, using the 2 age-related EJScreen layers: census tract ranking (percentile) based on the percent of the population under age 5 and over age 64.

        1. We see that our block group of interest has a very low proportion of the population under age 5, ranking in the lowest possible percentile compared to all block groups nationally.

        2. With regards to the population over age 64, the ranking is slightly higher, with this block group having a higher proportion of the population over age 64 than 40% of block groups, nationally.

            a. If either of these groups are part of your target audience, consider how your proposed activities would impact these populations

    iii. Next, we'll look at race and ethnicity, looking at the percentile rankings for our bock group of interest with regards to People of Color and community members with limited English speaking ability as a proportion of the population.

1. We see that our block group of interest is in the 20th percentile for people of color as a proportion of the population, and the 0th percentile for proportion of the population with limited English speaking ability.

iv. Finally, we'll look at income levels, considering the percentile rankings for low income and unemployment percentages within the community population.

1. Our block group of interest is at the 53rd percentile for low income, indicating that this block group has a higher proportion of the population categorized as low income than over half the block groups in the nation.

2. The unemployment percentile ranking is even higher, indicating that the unemployment rate in this block group is in the highest 25% of block groups.

3. Since these indicators have the highest percentile ranking of all of those we looked at, it would be prudent to discuss how the project is going to benefit these communities in the grant proposal

v. This question goes on to ask about demographic information of not just the community but of the target audiences. This will require work by the partner beyond the Demographic toolkit based on on-the-ground knowledge and interactions.

3. Considerations

a. Spatial scaling of the Demographic datasets does not align perfectly with the watershed boundaries that comprise the project area, and populations or population characteristics within census tracts or block groups may not be distributed evenly. Furthermore, key community needs or burdens may not be captured well by national-level datasets. Engage with on-the-ground partner organizations and community leaders to ground-truth impressions about community characteristics, vulnerabilities, and burdens from the Demographic Toolkit prior to finalizing the community engagement plan.

b. The spatial scale of the Demographic datasets may also not align with "communities" as considered for the purposes of this partner's community engagement intentions. The partner may want to consider additional data or local knowledge beyond what is included in the tool when defining communities of interest, such as the extent of neighborhoods within the watershed. This can be used to pointedly investigate the data about community characteristics provided in the EJ toolkit.

c. Data documentation for some datasets originally provided by the Federal government are no longer available at the links included in the Headwaters Partnership tool. If you have questions about the data, their sources, or their interpretation, please reach out – we have archived versions of the data documentation that may provide an answer.