# Enhancing the Human Wellbeing Vital Signs through Inclusive Engagement

## A Report for Empowering People in Communities


Washington Department of FISH & WILDLIFE

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# Table of Contents



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**Cover Image:** "Fish Tacoma!" taken by Shannon Smith, WDFW

## Executive Summary

This report outlines the processes and results from a collaborative multi-year (2021-2023) project focused on inclusively engaging Puget Sound residents in order to enhance the Human Wellbeing (HWB) Vital Signs (VS). The HWB VS are a series of social indicators used to monitor the health and recovery of Puget Sound and are coordinated by the Puget Sound Partnership, a Washington state agency. The HWB VS are primarily monitored by Oregon State University's Human Dimensions Lab. This project focused on enhancing inclusive engagement among Hilltop residents, notably Black and African American community members, in the City of Tacoma, a community underrepresented within current human wellbeing monitoring efforts.

This project included establishing new sustainable community partnerships, co-creating knowledge with community collaborators, and capturing lessons learned to further this community-based monitoring work for the Puget Sound Partnership and its ecosystem recovery network. A community-based participatory research (CBPR) approach was conducted to co-develop and co-implement this project with Empowering People in Communities (EPIC), a community organization located in the Hilltop neighborhood of Tacoma, WA. While the initial focus was Black and African American residents, the project overtime shifted to emphasize the place-based Hilltop community. The CBPR approach included the co-creation of facilitated dialogues (community workshops) (n=52) and implementation of an optional HWB VS Survey (n=50).

| Healthy Human Population | Vibrant Human Quality of Life |
|---|---|
| Air Quality | Cultural Wellbeing |
| Drinking Water[1] | Economic Vitality |
| Local Foods | Good Governance |
| Outdoor Activity | Sense of Place |
| Shellfish Beds | Sound Stewardship |

**Table 1.** Human Wellbeing Vital Signs

| Hilltop Residents' Wellbeing (n=52) |
|---|
| Accessibility |
| Equity |
| Physical Health |
| Place and Landscape |
| Plants and Trees |

**Table 2**. Community Dimensions of Wellbeing

Overall, the facilitated dialogues demonstrated that the HWB VS (Table 1) were relevant and resonated among participating Hilltop community members. This was reflected in the workshop responses. For example, Sense of Place (including Psychological Wellbeing and Life Satisfaction), Cultural Wellbeing (including spiritual/religious practices and family activities), Good Governance (or perceived lack thereof), and Outdoor Activity were featured prominently as themes (coded responses) among participating Hilltop community members. New Community Dimensions of

[1] The Human Wellbeing Vital Signs include Drinking Water, and the biophysical Vital Signs include Freshwater and Marine Water Quality. Given that many community members mentioned water in various forms, these three Vital Signs were merged into one (Water or Water Quality) in much of this report.

human wellbeing[2] also emerged during the workshops (Table 2). For example, Accessibility, Equity, Physical Health, Place and Landscape, and Plants and Trees were common emergent and salient Community Dimensions among participating Hilltop residents. Some of these new Community Dimensions demonstrated shared environmental justice concerns and cultural, aesthetic, existence, inherent, relational, and recreational values associated with these natural attributes and contributors to human wellbeing (Chan and others 2012; Bieling and others 2014; Belaire and others 2015; Dickinson and Hobbs 2017; Wilson et al. 2018; Jones and others 2019; Jiang and Marggraf 2022). Responses also demonstrated the role of place and linkages among places, landscapes or landscape features, and human wellbeing among community members (Bieling and others 2014; Jones and others 2019).

| **Hilltop Residents' Human Wellbeing Survey Results (n=50)** |
|---|
| ***Good Governance: 3.51*** on a 1-7 scale (strongly disagree to strongly agree). On average, participants largely responded between "somewhat disagree" and "neutral." |
| ***Local Foods: 1.39*** on a 1-5 scale (never to frequently). On average, participants largely responded between "never" and "rarely" (1-2 times a season). |
| ***Sound Stewardship: 2.53*** on a 1-7 scale (never to frequently). On average, participants largely responded between "rarely" (1-4 times a year) and "occasionally" (once a month). |
| ***Cultural Wellbeing: 3.29*** on a 1-6 scale (dissatisfied to satisfied). On average, participants largely scored between "neither satisfied nor dissatisfied" and "somewhat satisfied." |
| ***Sense of Place: 5.05*** on a 1-7 scale (strongly disagree to strongly agree). On average, participants largely scored between "somewhat agree" and "agree."<br>• ***Psychological Wellbeing: 3.56*** on a 1-5 scale (never to frequently). On average, participants largely responded between "occasionally" (once a month) and "regularly" (one a week).<br>• ***Life Satisfaction: 3.67*** on a 1-5 scale (dissatisfied to satisfied). On average, participants largely responded between "neither satisfied nor dissatisfied" and "somewhat satisfied." |
| ***Outdoor Activity***<br>• ***Outdoor Recreation:*** Most frequently engaged in recreational activities included use of paved trails and picnic/bbq.<br>• ***Nature-based Work:*** 8% of respondents engaged in nature-based work with 6% engaging in such work 5 hours a week or more. |

**Table 3.** Human Wellbeing Survey Results Summary

| **Regional & Latinx Human Wellbeing Survey Results (2018-2022)[3]** | | | | |
|---|---|---|---|---|
| **Vital Sign** | **2018** | **2020** | **2022** | **Latinx** |
| Good Governance | 4.13 | 4.18 | 4.05 | 4.81 |
| Local Foods | 1.58 | 1.43 | 1.42 | 1.84 |
| Sound Stewardship | 3.47 | 3.14 | 3.36 | 2.95 |
| Cultural Wellbeing | Not Applicable due to survey modifications between 2018 and 2020 | 3.64 | 3.81 | 3.73 |

[2] Human wellbeing was determined to be the primary term used during the workshops (rather than health). This was an intentional choice made during the workshop co-creation process and was determined to be more relevant to the participating Hilltop community members.

[3] All data stems from the 2018, 2020, Latinx 2021, and 2022 Human Wellbeing Surveys (Fleming and others 2018; Fleming and others 2021; Justiniano 2021; Harrington and others 2023).

| | | | | |
|---|---|---|---|---|
| Sense of Place<br>• Psychological Wellbeing<br>• Life Satisfaction | 5.66<br>• 3.94<br>• Not available | 5.57<br>• 4.01<br>• Not available | 5.49<br>• 3.98<br>• 4.41 | 5.02<br>• 3.64<br>• 3.98 |
| Outdoor Activity<br>• Outdoor Recreation<br>• Nature-based Work | • Gardening/yard work, use of paved paths or trails, use of unpaved trails during Summer and Winter were most frequently engaged activities<br>• 19% engaged in nature-based work | • Gardening/yard work, wildlife viewing/birding, using paved paths or trails in Spring and Fall were the most frequently engaged activities<br>• 12.42% engaged in nature-based work<br>• 69% worked more than 5 hours a week | • Non-motorized water sports (Summer only), wildlife viewing/birding, gardening/yard work, use of paved paths or trails, and use of unpaved paths or trails were the most frequently engaged activities in Summer and Winter<br>• 14% engaged in nature-based work<br>• 77% worked more than 5 hours a week | • Paved paths or trails, picnic/bbq, and unpaved trails in Fall and Spring were the most frequently engaged activities<br>• 36% engaged in nature-based work<br>• More than 70% worked more than 5 hours a week |

**Table 4.** Regional & Latinx Human Wellbeing Vital Signs Survey Results

Overall, the participating Hilltop community members demonstrated similar patterns of human wellbeing as it relates to the health of Puget Sound when compared to responses from other Human Wellbeing Vital Signs Surveys, with some variations (Fleming and others 2018; Fleming and others 2021; Harrington and others 2023)(Tables 3-4). Hilltop community members had similar average responses to some VS questions. For example, Hilltop respondents had similar average responses to Sense of Place (5.05), Cultural Wellbeing (3.29), and Local Foods (1.39) when compared to regional survey findings. While somewhat similar, some stark variations did emerge compared to the regional survey findings. For example, Hilltop respondents had lower average responses for Sound Stewardship (2.53), Life Satisfaction (3.67), and Good Governance (3.51). The latter of which further highlights the environmental justice concerns reflected during the workshops, as Accessibility, Equity, and Safety (mentioned less than the former two Community Dimensions) were linked to a shared perception of poor or a lack of governance among community members. All detailed findings and corresponding data visualizations are outlined in the following sections**.**

# Introduction

**Figure 1.** "A Dream Coming True" Hilltop Neighborhood mural by Bob Henry[4]

Working in close collaboration with Empowering People in Communities (EPIC), specifically Executive Director Brendan Nelson, a community-based research project was co-created in order to enhance the monitoring of human wellbeing in the Puget Sound region through inclusive engagement. The project primarily consisted of a series of facilitated dialogues (also referred to as workshops). The workshops were co-created in order to accomplish the project's overarching objectives (Box 1.). The overarching approach to this project was a community-based participatory research (CBPR) approach, emphasizing close collaboration, knowledge co-creation, and the use of co-created knowledge (e.g., findings) to inform change (Rand 2016; Wilson and others 2018; Chazan and Baldwin 2021; Ardoin and others 2022; Trimbach and others 2022a), including changes to the monitoring of human wellbeing coordinated by the Puget Sound Partnership and its diverse network of partners.

**Box 1.** Project Objectives

1. enhance knowledge of minority communities' human wellbeing (HWB) in the Puget Sound region
2. expand HWB Vital Sign data, information, and messaging
3. build new community relationships for sustainable long-term collaboration
4. create a protocol detailing how the work, if successful, can be sustained with an agency, program, or other durable funding source

The researcher and lead report author initially reached out to Communities for a Healthy Bay (CHB), a Tacoma-based environmental organization, for advice and recommendations of potential project partners. CHB recommended connecting with the City of Tacoma's Office of Equity and Human Rights (OEHR). Through discussions with OEHR, the researcher connected with EPIC for this project. EPIC was then engaged during the project proposal development process with the intention of co-developing the project and co-

[4] Image source: https://www.kellijoandsharon.com/tacoma-muralspart-2-city-of-paint---dozens-of-photos

creating new knowledge to enhance the Puget Sound Partnership's Human Wellbeing Vital Signs. Once EPIC approved and consented to participating in the project, the project proposal was submitted and eventually funded by the Puget Sound Partnership. Although the researcher formed an initial project concept and design, EPIC had the ability to critique, question, contribute, and refuse (to provide input or participate) during all phases of the project.

Over the course of the project's timeframe, lasting roughly 2021-2023 (with a ~6 month gap due to the researcher changing positions and institutions), the project activities included 16 project planning meetings and 3 community workshops. The workshops themselves ranged from 1.5-2 hours in length. Each workshop took place at two different locations, that included (1) a neighborhood affordable housing facility and community for older low-income residents, and (2) the Peace Community Center, both located in the Hilltop neighborhood in Tacoma. Given that initial workshop location was a specific housing facility, the name has been omitted for anonymity and confidentiality of participants.

The facilitated dialogues recruited 52 (n) participating community members. The workshops were initially organized to focus on specific age cohort groups, starting with community elders; however, due to workshop timing issues and recruitment concerns, the remaining workshops were open to any adult residents, regardless of age. Additionally, 4 workshops were initially planned; however, due to urgent neighborhood issues and recruitment concerns, only 3 workshops were held. Each workshop included identical agendas that included: ice breaker activity (How long have you lived in Hilltop? What are your community concerns?), introductions, why this project?/what are the Vital Signs?, workshop activity and discussion, wrap-up and optional survey opportunity (Appendix D). Each workshop also included facilitation from Cascadia Consulting Group (Mike Chang and/or Nicole Gutierrez), although this varied by workshop. Near the end of each facilitated dialogue, participants had an opportunity to complete an optional Human Wellbeing Survey (2020 version). A total of 50 (n) workshop participants completed the optional survey instrument. All workshop participants were provided a $50 gift card incentive for their participation, regardless of how much they participated or if they completed the survey. The results of the facilitated dialogues and optional survey are outlined in the following sections.

## Facilitated Dialogues

Each facilitated dialogue aimed to achieve the project's objectives by addressing key topics/questions that included: (1) continued relevance of the Human Wellbeing Vital Signs (Are the Human Wellbeing Vital Signs still relevant?); (2) resonance of the Human Wellbeing Vital Signs (Do the Human Wellbeing Vital Signs resonate among Hilltop community members?); (3) variations of human wellbeing, including interpretations, perspectives, and values (Are there variations in human wellbeing among Puget Sound communities, notably Hilltop community members?); (4) climate change impact's on human wellbeing (How is climate change impacting Hilltop community members' human wellbeing?); and (5) places that contribute to human wellbeing (What places contribute to Hilltop community members' human wellbeing? Why?). Using these 5 guiding topics/questions, the workshops were subsequently co-created to focus on the following overarching themes: (1) wellbeing; (2) community; (3) nature's contributions to wellbeing; (4) climate change impacts on wellbeing; and (5) places that contribute to wellbeing. Each theme was oriented with an emphasis on nature and Puget Sound.

| Workshop # | Participants (#) | Surveys Completed (#) | Survey Response Rate (%) | Date | Location | Target Audience |
|---|---|---|---|---|---|---|
| 1 | 24 | 24 | 100% | 4/22/2022 | Hilltop Elderly Resident Community Building, Tacoma, WA | Neighborhood elders |
| 2 | 16 | 15 | 94% | 4/15/2023 | Peace Community Center, Tacoma, WA | Neighborhood adult residents (any) |
| 3 | 12 | 11 | 92% | 4/19/2023 | Peace Community Center, Tacoma, WA | Neighborhood adult residents (any) |
| **Totals:** | **52** | **50** | **96%** | | | |

**Table 5.** Facilitated Dialogue Information

Between 2022-2023, 3 community workshops were held in the Hilltop neighborhood in Tacoma (Table 5). One workshop focused on community elders, while the other two were open to any resident adult. Each workshop included community appropriate refreshments and an adjacent space for children to play, as organized by EPIC. Table 5 outlines the details of each workshop, including the number of participants and how many surveys were completed at each workshop. During each workshop, each overarching theme was discussed with the participating community members. Each theme was discussed using guiding questions and each participant had the ability to free-list their responses on provided sticky notes (using provided pens) (Jones and others 2019; Biedenweg and others 2020). Participants could free-list responses or items individually (one response per sticky note) or could lump them together (multiple responses per sticky note). Once participants stopped placing items after about 5-10 minutes (if needed, more time was provided), the facilitator led a

discussion of the theme, allowing for a rich discussion, that often included questions, challenges, stories, and connections among various responses or emergent response patterns.

Data collected from the workshops included written responses (free-listed sticky note responses) and workshop audio (partial due to varying room, group sizes, and logistics). For the purpose of this report, the written responses were the primary source of data used and analyzed for this project. The responses per overarching theme were analyzed via abductive analysis, blending both deductive and inductive coding (Dubois and Gadde 2002; Timmermans and Tavory 2012; Thompson 2022; Vila-Henninger and others 2022). Deductive codes were based on the Human Wellbeing Vital Sign categories (e.g., Healthy Human Population and Vibrant Quality of Life) and Vital Sign indicators (e.g., Sense of Place, Air Quality, etc.) with some flexibility with interpretation. For example, if someone responded with "water" or "air," and not "drinking water" or "air quality," those responses were coded to Water (Drinking, Fresh, Marine) (combining Human Wellbeing and biophysical Vital Signs) and Air Quality. Or if participants mentioned "healthy food" or "eating well," those responses were flexibly coded to Local Foods, even if no local foods were explicitly mentioned. Additionally, if respondents referenced place-based aesthetic qualities or psychological benefits of nature (e.g., stress reduction or mental health), those responses were coded to Sense of Place, given the Vital Sign's and broader notion's encompassing conceptualization. Such flexible interpretations should be taken into consideration when reviewing the results.

Inductive codes were based on a grounded coding process, which allowed for shared emergent themes or patterns that arose from participants' diverse responses. The abductive analysis and coding process was conducted iteratively and cyclically, allowing for revisiting, rethinking of alternatives or linkages, and recoding until saturation and mutually distinct, yet constitutive, codes were created. The inductive codes were categorized as Community Dimensions of human wellbeing and included a diverse range of community-based themes. Once the codes were created and defined in a codebook (Appendix A), the codes were shared with primary project collaborators to gauge their feedback and approval. If any codes were rejected, the codes would be changed or updated; however, that did not take place. Given that responses often included more than one word, sometimes whole sentences or lists, responses were coded more than once; thus, responses likely were coded more than once with linked mutually constitutive codes. A complete list of all codes per workshop theme with responses, percentages of responses per theme, and examples are outlined in this report (Appendix B). The overarching themes (e.g. Wellbeing) and associated codes (e.g,, Accessibility) are outlined in the following sections. Each section includes the number of participants (n=52) and number of responses per theme (e.g., responses: 61). Each section also includes a figure aimed to illustrate the percentage of responses coded to each code. Given that responses were often coded to more than one code, the totals are not intended to add up to 100% (with the exception of some place-based codes), but rather aim to reflect code frequency, with codes representing workshop participants' responses.

**Wellbeing (n=52; responses: 61)**

When asked to define wellbeing (e.g., what is wellbeing?), including nature's linkages to wellbeing, respondents largely responded with community-based dimensions of wellbeing (Community Dimension), notably Accessibility (44%), Physical Health (38%), and Place and Landscape (20%). For example, one participant responded with "good transit system to get people to parks," (Workshop #1 Participant, 4/22/2022). Workshop participants mentioned multiple types of

accessibility, that included mobility, geographic proximity, and resource/amenity access. Participants also shared responses that aligned with the Human Wellbeing Vital Signs, notably Cultural Wellbeing (25%), Sense of Place (25%) (includes references to Psychological Wellbeing and Life Satisfaction) and Good Governance (21%). For some participants, issues related to equity and accessibility were linked to governance. For example, one participant shared that "wellbeing is being seen and heard and advocated for," (Workshop #2 Participant, 4/15/2023).

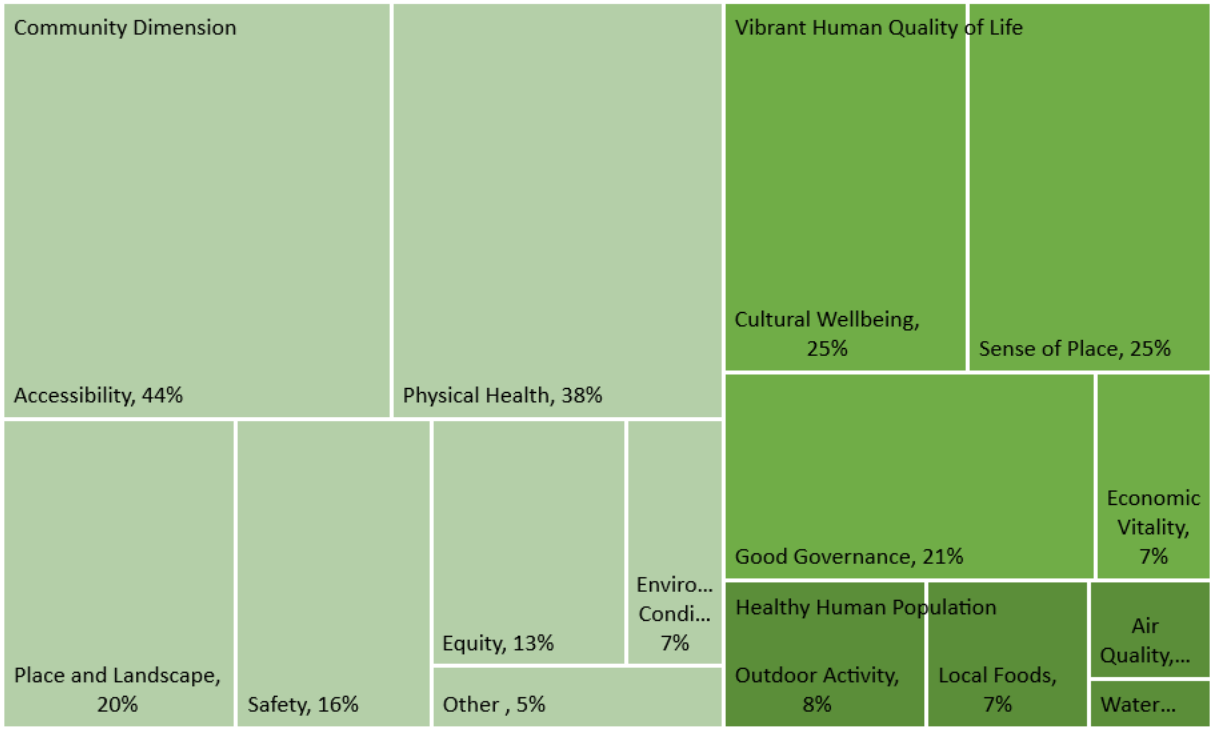



**Figure 2.** Participants' Dimensions of Wellbeing

**Community (n=52; responses: 34)**

Community members were asked to define community (e.g., what is community?). This particular workshop question or theme was not necessarily or explicitly connected to nature; however, this question was seen as integral to structuring the workshops and discussion. Given that this particular question or theme did not connect to nature, the responses were not necessarily intentionally aligned with the Human Wellbeing Vital Signs, as most with one exception (Sense of Place) were not reflected in the participants' responses. Participants largely responded with blended responses reflecting Sense of Place (26%), and other community-derived codes, notably Shared Goals, Interests, and Values (24%), Place and Landscape (24%), Equity (24%), and Activities and Interactions (24%). For example, one participant shared that "community-the people and places you feel you belong to," (Workshop #2 Participant, 4/15/2023). Many participants included multiple dimensions of community, as one respondent shared "what is community? Shared spaces, shared memories, neighbors, businesses, gathering places, landmarks, common values/goals, common solutions," (Workshop #2 Participant, 4/15/2023).


**Figure 3.** Participants' Dimensions of Community

**Contributions (n=52; responses: 57)**

When asked to identify the ways in which nature contributes to peoples' wellbeing (e.g., how does nature contribute to your wellbeing?), respondents largely responded with emergent alternative community-based dimensions of wellbeing (Community Dimensions). The most commonly shared dimensions included Equity (39%), Accessibility (35%), and Place and Landscape (30%). For example, one participant shared "My community hasn't had the kind of access and connection to nature due to systemic racism. I think it can be [a] struggle to figure out if nature is for 'us,'" (Workshop #2 Participant, 4/15/2023). This type of response was mirrored by others who largely emphasized Equity and/or Accessibility in order to illustrate a lack of equity or access (or overall justice) among community members and nature. For example, another participant shared "seeing people with more access, make people feel sad about wellbeing," (Workshop #3 Participant, 4/19/2023). The frequency or continued emphasis on Equity and Accessibility reflected overarching themes throughout the Hilltop community workshops. Participants also shared responses that aligned with the Human Wellbeing Vital Signs, notably Sense of Place (33%), Cultural Wellbeing (33%), and Outdoor Activity (25%). For example, one participant mentioned that nature contributes to their wellbeing because nature "helps with defusing stress and promotes relaxation," (Workshop #2 Participant, 4/15/2023).

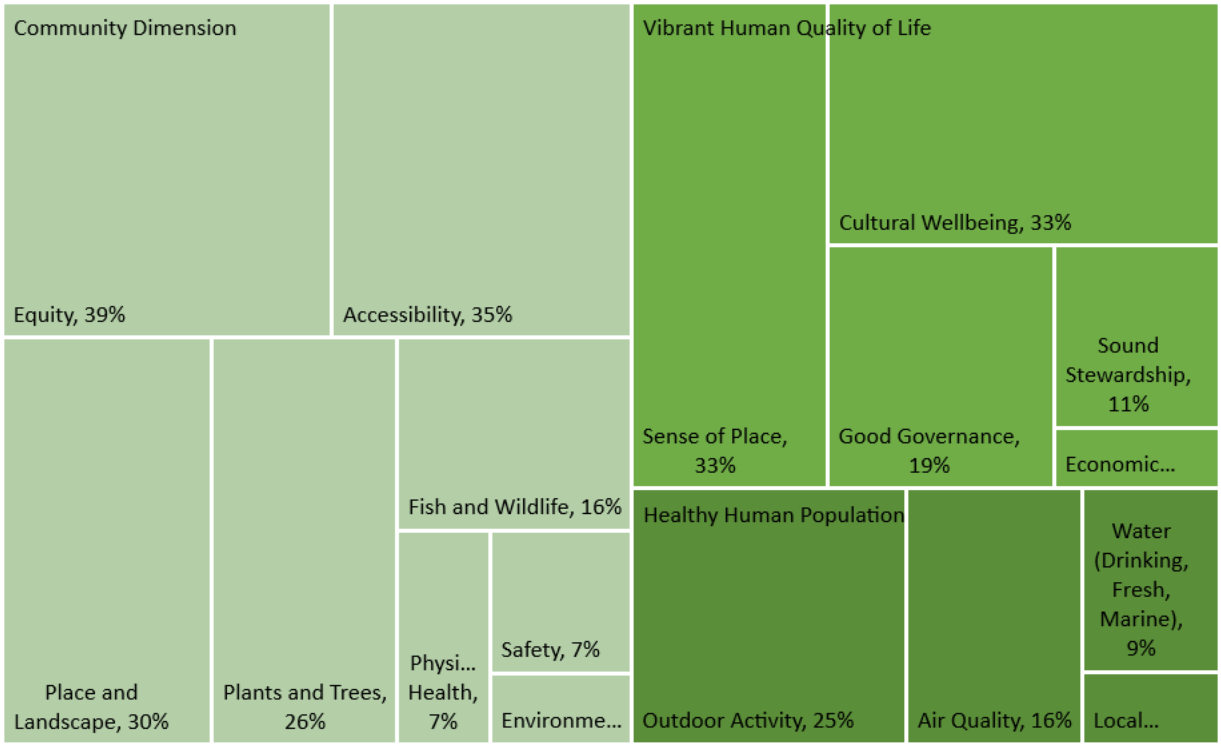



**Figure 4.** Community Dimensions of Nature's Contributions to Wellbeing

**Climate Change (n=52; responses: 39)**

When asked to identify how climate change impacts peoples' wellbeing (e.g., how does climate change impact your wellbeing?), workshop participants largely shared responses reflecting new Community Dimensions of wellbeing, notably Seasonal and Temperature Change (46%), Physical Health (28%), and Natural Disasters (15%). For example, one workshop respondent shared that climate change impacts included "late snow, cold temperatures, too hot in summer," (Workshop #1 Participant, 4/22/2022), while another participant stated that climate change has sparked a "the change in weather conditions," (Workshop #2 Participant, 4/15/2023). While not the most frequent code, some respondents did link other community-based changes to Equity (13%) or Accessibility (5%). For example, one participant shared that "climate change has created a fear that my kids and their kids will not be able to live a free, healthy life, climate change feels devastating and deathly, especially [for] community of color. We can do small individual acts to fight climate change but the greed of those in power persists," (Workshop #2 Participant, 4/15/2023). While the majority of responses were coded to Community Dimensions of wellbeing, other responses did reflect the Human Wellbeing Vital Signs, including Sense of Place (26%) (largely related to Psychological Wellbeing) and Outdoor Activity (10%). For example, one participant shared that climate change "has been very stressful lately," (Workshop #1 Participant, 4/22/2022), while another mentioned that

climate change prevents them from doing outdoor activities as "[it is] warmer earlier in the summer than before, sometimes too hot to do yard work," (Workshop #2 Participant, 4/15/2023)

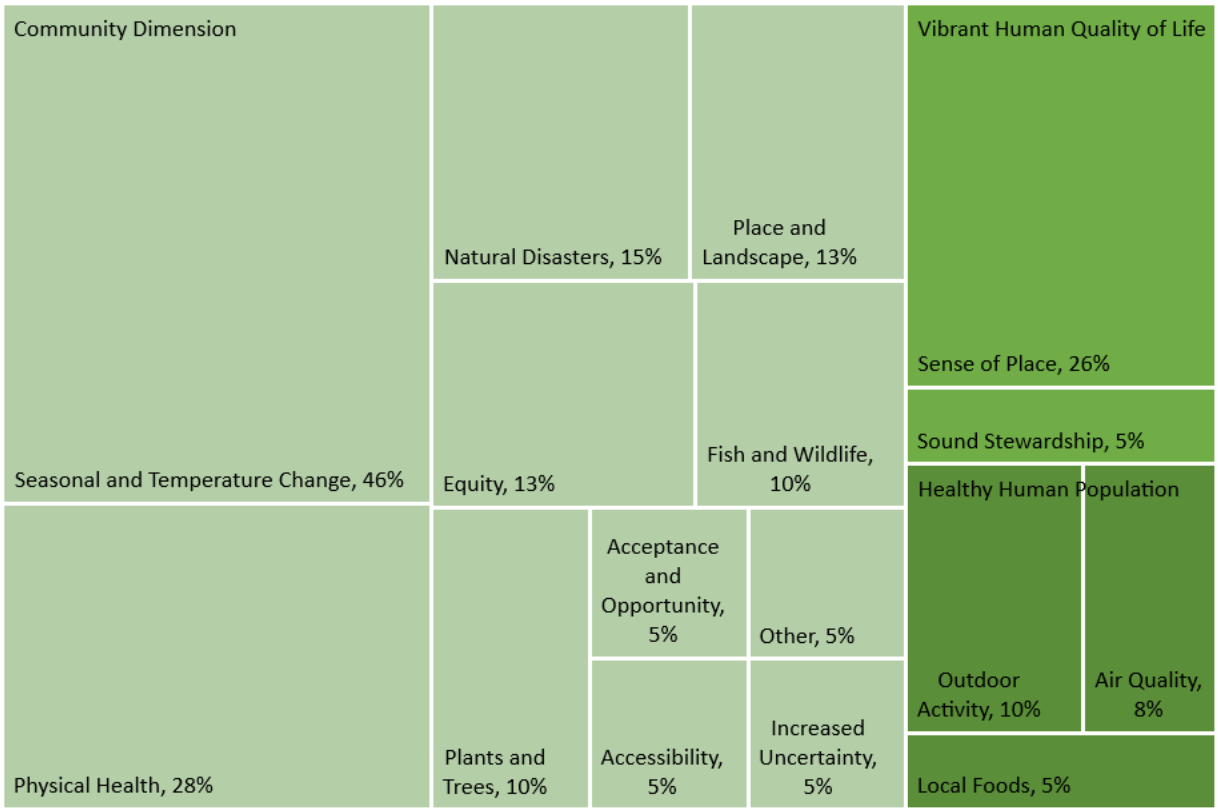



**Figure 5.** Climate Change Impacts on Participants' Wellbeing

**Place (n=52; responses: 46[5])**

The final theme/question of the workshops focused on place, notably what (natural) places contribute to Hilltop residents' wellbeing. Place and landscape have been noted to contribute to peoples' health and wellbeing (Bieling and others 2014), particularly as peoples' interactions with nature and contributions from nature are emplaced and are associated with people-place relationships (Flueret and Atkinson 2007; Williams and others 2013; Quinn and others 2019; Majeed and Ramkissoon 2020; Jiang and Marggraf 2022). Initially, this activity was going to feature a participatory mapping exercise (Jones and others 2019); however, due to feasibility (e.g., time, technology, and potential participant geographic literacy variations), the activity was integrated into the free-listing sticky note exercise near the end of each facilitated dialogue. This modified format allowed for great inclusion and ease during the workshop. Given that this was not a participatory mapping exercise, participants were given the ability to answer openly. Participants were asked to

[5] Note that when asked about Place (in general), community members provided 37 total responses. This relatively low level of responses was partly due to one workshop not including Place as a topic/question (due to time constraints). Out of those 37 responses, 46 places were identified, including 27 specific places and 19 broadly defined places. Thus, the total responses listed (46) reflects those actual places mentioned and not the total number of general place responses. Please take this distinction into consideration when reviewing the Place findings.

identify places that contribute to their wellbeing and also asked to explain how or why. Given that this was the final question in the series, participants tended to respond less to these questions compared to the others, which was illustrated by the overall lack of responses from community members. Given that the workshops took place in and focused on Tacoma, WA (Pierce County, South Puget Sound), the majority of responses reflected places in that geographic area. While the collaborators intended to address Place during the third workshop, due to a long conversation about accessibility, equity, and justice, particularly as it related to government agencies, the workshop did not end up including that particular topic/question. Thus, only data from Workshops #1-2 are included below. The responses are outlined below and include figures and corresponding maps.

***Place: Where? (n=52; responses: 27 (Specific) and 19 (Broad))***

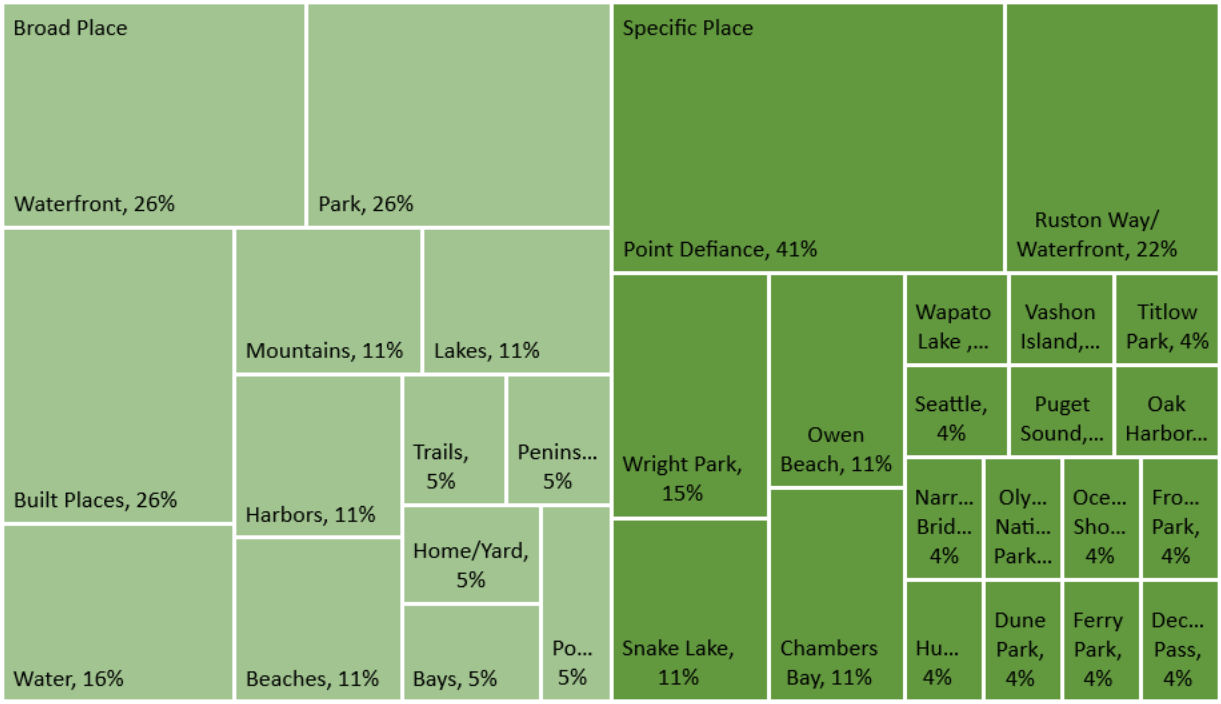



**Figure 6.** Participants' Places that Contribute to Wellbeing[6]

When participants were asked to identify places in Puget Sound that contributed to their wellbeing, respondents provided both broadly defined (41%) and specific (59%) places (Figure 6). The most frequently shared broadly defined places included waterfront (26%), built places (26%), and parks (26%). These broad responses were aligned with and reflected the specific places shared. The most frequently shared specific places included Point Defiance Park (41%) (Tacoma, WA), Ruston Way/Waterfront (22%), and Wright Park (15%). While respondents shared places both outside and

[6] Note that the percent (%) represents the percentage of responses within that particular place category (Broad vs. Specific). Thus Point Defiance Park represented 41% of places coded under Specific Place.

inside the greater Puget Sound region (Figure 7), the vast majority of places were highly local to Tacoma (Figure 8).

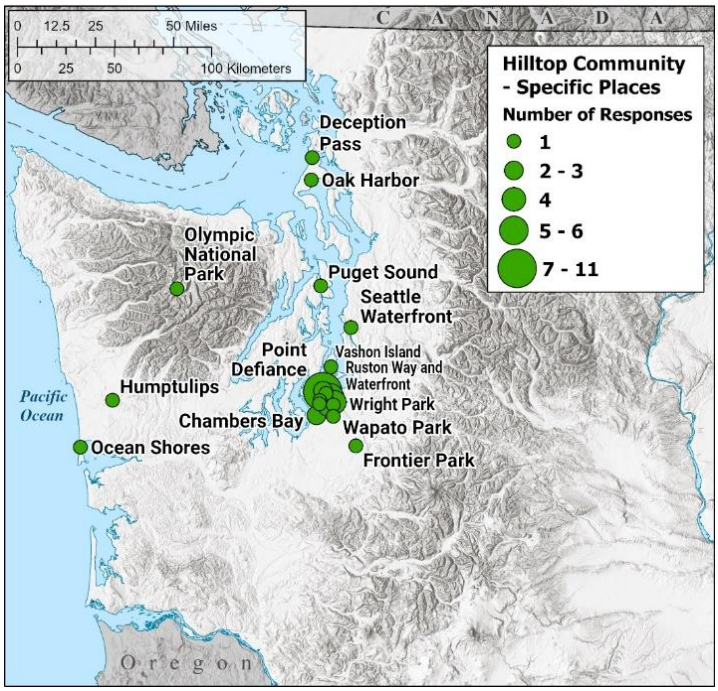



**Figure 7.** Regional Map of Places that Contribute to Community Members' Wellbeing

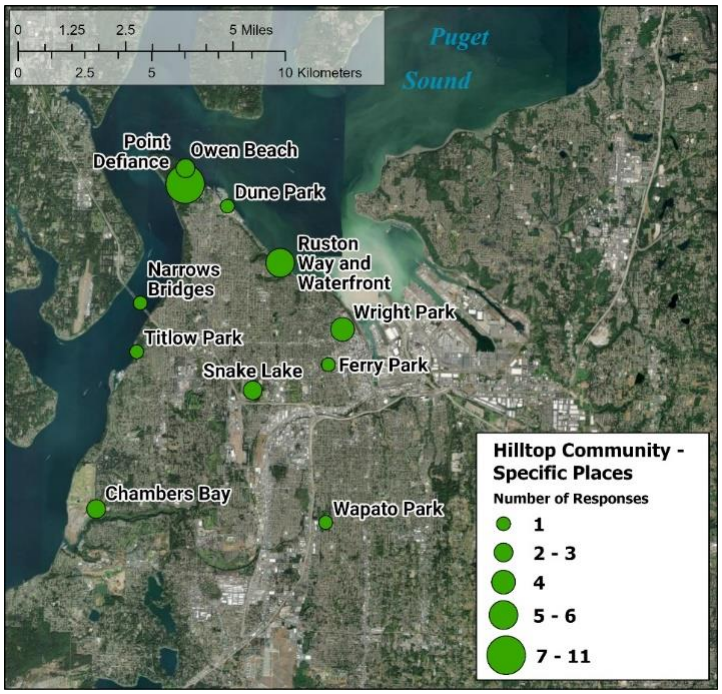



**Figure 8.** Local Map of Places that Contribute to Community Members' Wellbeing

***Place: Why? (n=52; responses: 14)***


**Figure 9.** Places' Contributions to Participants' Wellbeing

When asked to explain how or why the noted places contributed to wellbeing, community members largely shared responses aligned with the Human Wellbeing Vital Signs (Figure 9). The most frequently shared responses were coded to Sense of Place (93%) (much of which related to Psychological Wellbeing and place-based aesthetics), Outdoor Activity (21%), and Cultural Wellbeing (14%). For example, one participant shared "part of my history where I grew up (memories)," (Workshop #1 Participant, 4/22/2022) demonstrating a deep connection to a particular place, while another participant responded that "water-reminds me of home, parks-gives my kids pockets of joy, trails-gives me access to natural beauty," (Workshop #2 Participant, 4/15/2023). While the majority of responses reflected the Human Wellbeing Vital Signs, some participants shared new Community Dimensions, including Accessibility (29%) and Fish and Wildlife (14%). For example, one participant shared "Snake Lake - I value this place because it is beautiful, an enjoyable walk, free access and a quick drive from my home" (Workshop #2 Participant, 4/15/2023).

## Conclusions and Recommendations

| Hilltop Residents' Wellbeing (n=52) |
|---|
| Accessibility |
| Equity |
| Physical Health |
| Place and Landscape |
| Plants and Trees |

**Table 6**. Community Dimensions of Wellbeing

Through the co-created facilitated dialogues, Hilltop community participants (n=52) shared a diverse range of responses that reflected the Human Wellbeing Vital Signs and emergent Community Dimensions (Table 6) of human wellbeing. The workshops revealed that when asked to discuss wellbeing, nature's contributions to wellbeing, climate change impacts on wellbeing, and places' contributions to wellbeing, Hilltop community members largely shared responses reflecting emergent Community Dimensions of wellbeing. Such Community Dimensions notably reflected

Accessibility, Equity, Physical Health, Place and Landscape, and Plants and Trees. These shared responses demonstrated that participating community members directly connected nature to their communities' access and equity to the natural environment, physical health, particular places and landscapes, and place-based plants and trees. Accessibility and equity in particular were frequently coded responses demonstrating overall a shared perceived lack of access and inequity in relation to the natural environment, notably local parks and nature-based amenities. Such inaccessibility and inequity have been well-documented within interdisciplinary research with greater calls for more equitable and inclusive environmental management, ecosystem restoration, and human-environment relationships (Finney 2014; Batavia 2022; Morales and others 2022; Löfqvist and others 2022), including within urban environments (Schell and others 2020; Nay and others 2022). The other emergent codes represented perspectives that directly or more explicitly connected nature to other alternative aspects of wellbeing, all of which have been supported by research, including physical health (Haines and Frumkin 2021), place and landscapes (Bieling and others 2014; ), and plants and trees (Turner-Skoff and Cavender 2019). While not necessarily a top dimension, Safety was also a recurring code that emerged from participants' responses, often linked to Accessibility and Equity. Safety was a frequently mentioned response and was memorable given that respondents openly discussed not feeling safe outside, both in their neighborhood or at parks. Safety can be considered a fundamental element of wellbeing and integral to interacting with nature, as it likely impacts all other elements and abilities to interact with or benefit from nature. Safety, particularly among Black or African American residents in the United States, has been highlighted as a barrier to access elsewhere (Finney 2014; Winter 2020; Hornbuckle 2021), illustrating that this is part of a wider pattern that also manifests locally in the Puget Sound region.

Although many shared responses were emergent Community Dimensions of wellbeing, other participants echoed perspectives aligned with the Human Wellbeing Vital Signs, notably Sense of Place (including Psychological Wellbeing, Life Satisfaction, and aesthetics), Cultural Wellbeing, Outdoor Activity, and Good Governance (largely related to equity and accessibility, or perceived lack thereof). While these were the most frequently coded Human Wellbeing Vital Sign-aligned responses nearly all other already established Vital Signs were also reflected in the responses, including Economic Vitality, Sound Stewardship, and Good Governance. Thus, participants shared responses that reflected 9 out of the 10 Human Wellbeing Vital Signs, notably those monitored through the regional Human Wellbeing Vital Signs Survey. Shellfish Beds was the only Vital Sign not referenced or coded from the responses.

This response pattern demonstrated that the Vital Signs in their current iteration were relevant and resonated among participating Hilltop community members; however, community-derived Community Dimensions reflected variations in how communities interpret wellbeing and the wellbeing-nature nexus. Often Community Dimensions were more pronounced than the established Human Wellbeing Vital Signs. Such linkages were also reflected in the climate change and place discussions; however, participants did face challenges connecting climate change to wellbeing, as many referred to examples of climate change during the discussion (e.g., seasonal or temperature changes and natural disasters) rather than directly or explicitly linking climate change impacts to their wellbeing. Although, some respondents highlighted connections between climate change impacts and their inequitable distribution among communities, further illustrating the importance of Accessibility and Equity among participants. This linkages demonstrated that more research and

examination is needed to better understand climate change and human wellbeing among diverse communities in the region.

Based on the results of the discussion, the workshop results illustrate alternatives and recommendations for the Human Wellbeing Vital Signs. Recommendations include exploring potential indicators that focus more on (1) accessibility (e.g., available data from WA Department of Health, like those captured by the Environmental Health Disparities Map, or could be integrated into the Human Wellbeing Survey), (2) equity (e.g., available data from WA Department of Health, like those captured by the Environmental Health Disparities Map or could be integrated into the Human Wellbeing Survey), (3) physical health (e.g., available data from WA Department of Health, like those captured by the Environmental Health Disparities Map), (4) place and landscape (e.g., could be integrated into the Human Wellbeing Survey as part of Sense of Place, as conducted by the Baltic Sea Health Index (Blenckner and others 2021), and (5) plants and trees (e.g., available data on vegetation or tree canopy in the region, like those captured by the Landscape Ecology Modeling, Mapping and Analysis or LEMMA at Oregon State University). Both accessibility and equity could potentially be explored as part of a new Environmental Justice or Environmental Equity Vital Sign that could include indicators focused (or index) on accessibility, equity, and safety. Overall, these emergent Community Dimensions may be potentially explored during the Vital Signs revision process or through the development of a working group focused on further identifying these particular themes within the human wellbeing monitoring context coordinated by the Puget Sound Partnership. Given the unique CBPR approach, the project also revealed the potential of CBPR for enhancing community collaborations, including around monitoring, notably among non-traditional monitoring or environmental partners, and the potential use of community workshops or community events (likely with some sort of participant incentive) more broadly to implement the Human Wellbeing Vital Signs Survey.

**Limitations**

This project faced multiple limitations that directly or indirectly informed the project and likely its development, implementation, analysis, and results. Limitations included a ~6 month gap in the project's timeline, as the researcher changed positions and institutions (Oregon State University to WDFW). This gap in time impacted the project's implementation stage and ability to collaborate with key partners, partly as new subcontracts had to be established with all partners, and timely hire a student research assistant. This time gap also impacted the analysis and dissemination stage as well, as less time was able to be adequately dedicated for analysis and write-up. Other potential limitations included variations in workshop dates/times, variations in outreach efforts per workshop, variations in priorities between researcher and partners, shifting workshop dates, and community issues.

## Human Wellbeing Vital Signs Survey

The Human Wellbeing Vital Signs Survey was also conducted as part of the facilitated dialogues. All participating community members during the facilitated dialogues had the optional opportunity to complete the survey instrument. Completion of the survey was strongly encouraged near the end of each workshop and was associated with the participant incentives; however, individual workshop attendees were not denied an incentive if they decided to not complete the survey. Surveys were distributed in hard copy to all participants. Participants were provided writing utensils to complete them as needed. Questions were addressed and assistance was provided to participants during the survey completion time period, also as needed. The overall response rate for the surveys was 96%, with nearly all participating community members optionally completing the survey.

A Cronbach's alpha reliability estimate was also calculated in order to test the ability to create indices for specific Vital Signs (those that emphasize average responses). These Vital Signs included: Good Governance, Sound Stewardship, Psychological Wellbeing, Sense of Place, Local Foods, and Cultural Wellbeing. All Vital Signs had a score of 70% or higher, signifying a reliable index. This process was conducted in order to be consistent with how Oregon State University's Human Dimensions Lab processes and analyses the regionally distributed and generalizable Human Wellbeing Vital Signs Survey (Fleming et al 2019. Fleming and others 2021; Harrington and others 2023). Using this information, an index was created for the appropriate Human Wellbeing Vital Signs. All survey data was processed and analyzed using Statistical Package for the Social Sciences (SPSS 29) and Microsoft Excel. Each Vital Sign and its corresponding results are outlined in the following sections. Please note that the responses solely reflect those of self-selected Hilltop community members who willingly participated in the facilitated dialogues and optional survey (n=50).

## Good Governance

Good Governance reflects peoples' level of agreement with how Puget Sound's natural environment in managed and whether or not they feel represented in environmental decision-making in the region. Good Governance reflects transparency, trust, accountability, representation, participation, equity, and inclusivity within environmental management and among government institutions. Good Governance is measured by asking survey respondents to rate their level of agreement or disagreement with statements about the governance of natural resources on a 1-7 point Likert scale.

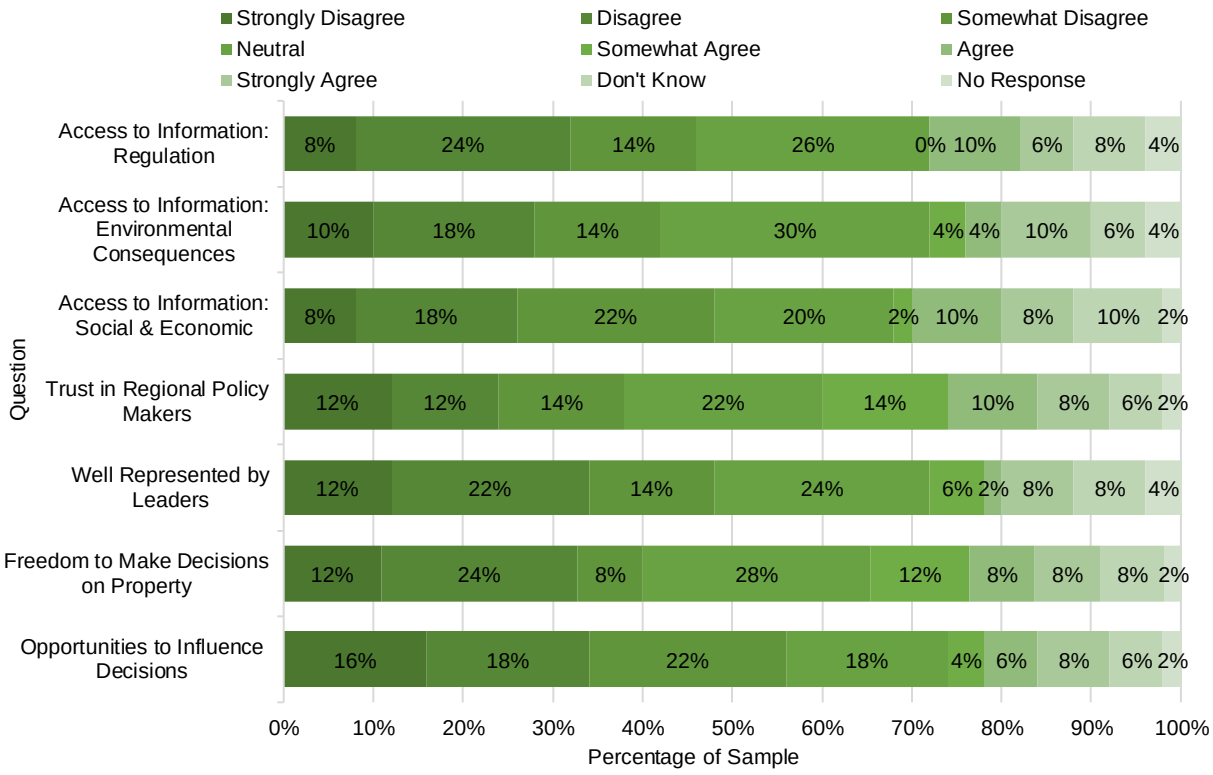



**Figure 45.** Good Governance Results

**3.51** was the average response among respondents (n=50), which equates to community members largely responding between "somewhat disagree" and "neutral." This is lower than regional averages from 2018 (4.13), 2020 (4.18), and 2022 (4.05), which largely reflected 'neutral' responses. This average response was also reflected in some of the responses and discussions during the workshops, notably the linkages among governance, accessibility, equity and safety.

## Local Foods

Local Foods demonstrates the rich variety of local plants, fungi, and animals that are harvested locally in the Puget Sound region. Local Foods measures what and how often people in Puget Sound harvest local foods. Local Foods is measured by asking respondents to rate their frequency of engagement in harvesting activities (e.g., fishing, shellfish harvesting, foraging, and hunting) on a 1-5 point Likert scale.

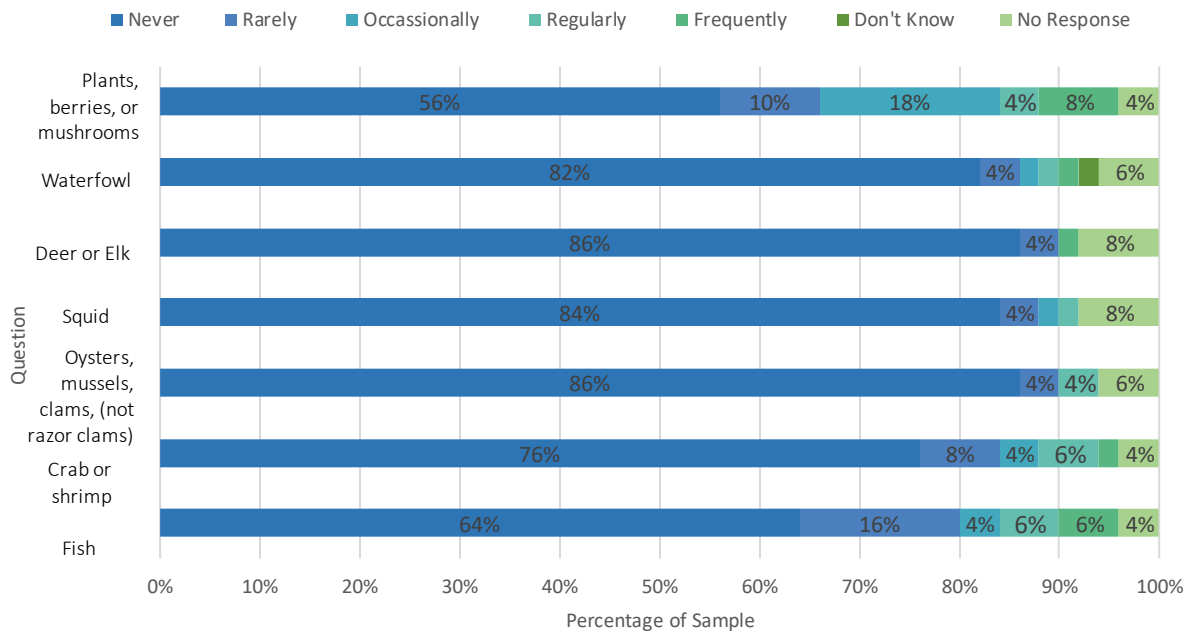



**Figure 46.** Local Foods Results

**1.39** was the average response among respondents (n=50), which equates to collecting and/or harvesting local foods between "never" and "rarely" among community members. This score is fairly consistent with regional averages from 2018 (1.58), 2020 (1.43), and 2022 (1.42); however, direct comparisons cannot be made as the survey changed between 2018 and 2020. Plants, berries, and mushrooms were the most frequently harvested set of local foods among respondents.

**Note: Percentages less than 4% are not labeled for visibility.*

### Sound Stewardship

Sound Stewardship illustrates how frequently residents engage in pro-environmental stewardship behaviors that benefit Puget Sound's natural environment. Sound Stewardship is measured by asking respondents how often they engage in stewardship behaviors on a 1-5 point Likert scale.

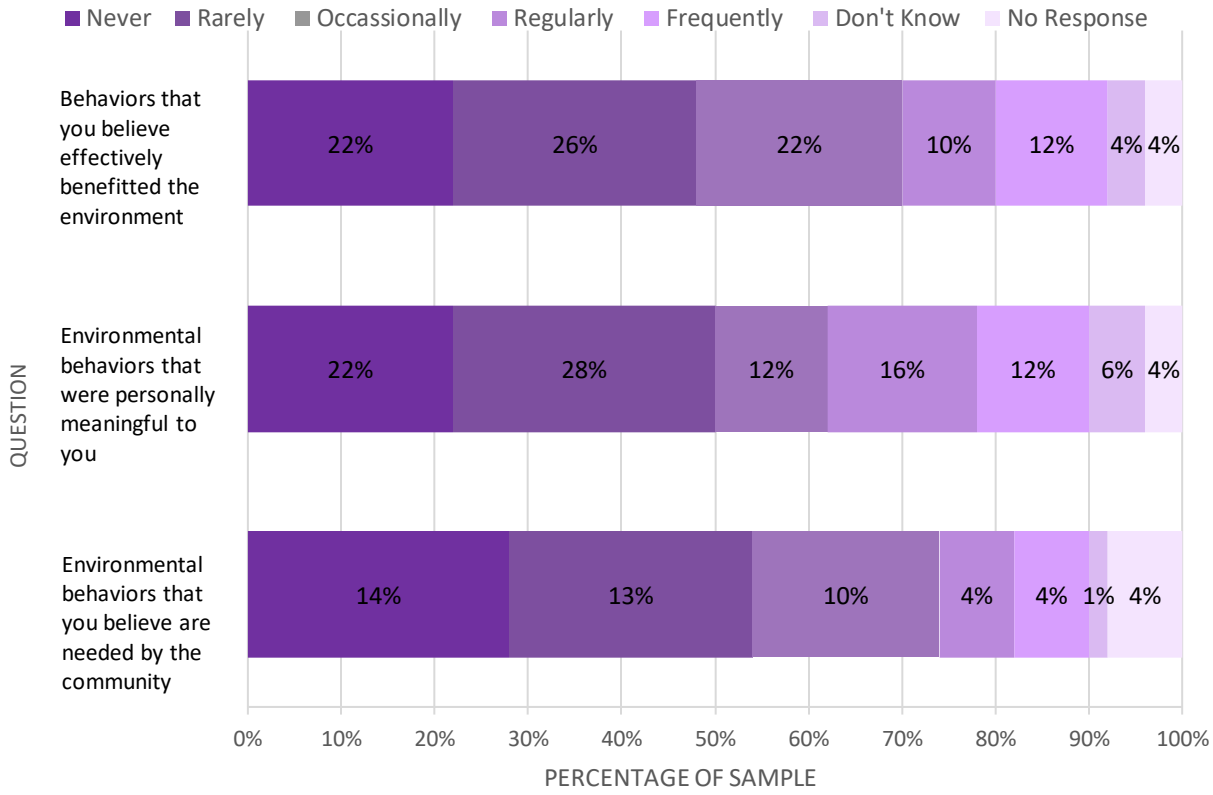



**Figure 47.** Sound Stewardship Results

**2.53** was the average response among community respondents (n=50), which equates to community members engaging in stewardship behaviors between "rarely" and "occasionally." This score is lower than regional averages from 2018 (3.47), 2020 (3.14), and 2022 (3.36).

## Cultural Wellbeing

Cultural Wellbeing reflects residents' engagement in meaningful cultural activities and/or traditions in the Puget Sound region. Cultural Wellbeing is measured by asking respondents to rank their level of satisfaction with their engagement in a range of cultural practices on a 1-5 point Likert scale.

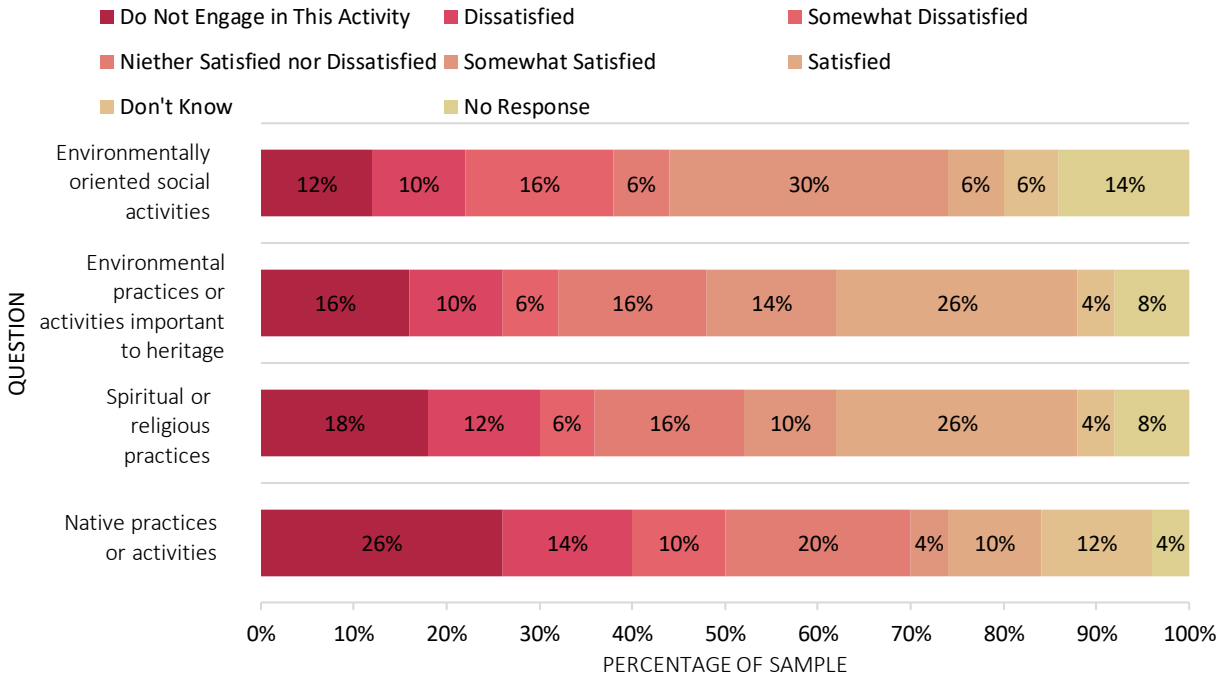



**Figure 48.** Cultural Wellbeing Results

**3.29** was the average response among participating community members (n=50). This score means that community members felt between "neither satisfied nor dissatisfied" and "somewhat satisfied" with their ability to engage in cultural practices. This score was similar to the regional averages from 2020 (3.64) and 2022 (3.81). This response pattern was demonstrated during the workshops, as many respondents mentioned cultural practices, notably those associated with their religious/spiritual communities and their families.

## Sense of Place

Sense of Place demonstrates residents' attachments, identities, and emotional connections to Puget Sound's natural environment. Sense of Place is measured by asking respondents to rate their level of agreement or disagreement with a series of statements on a 1-7 point Likert scale.

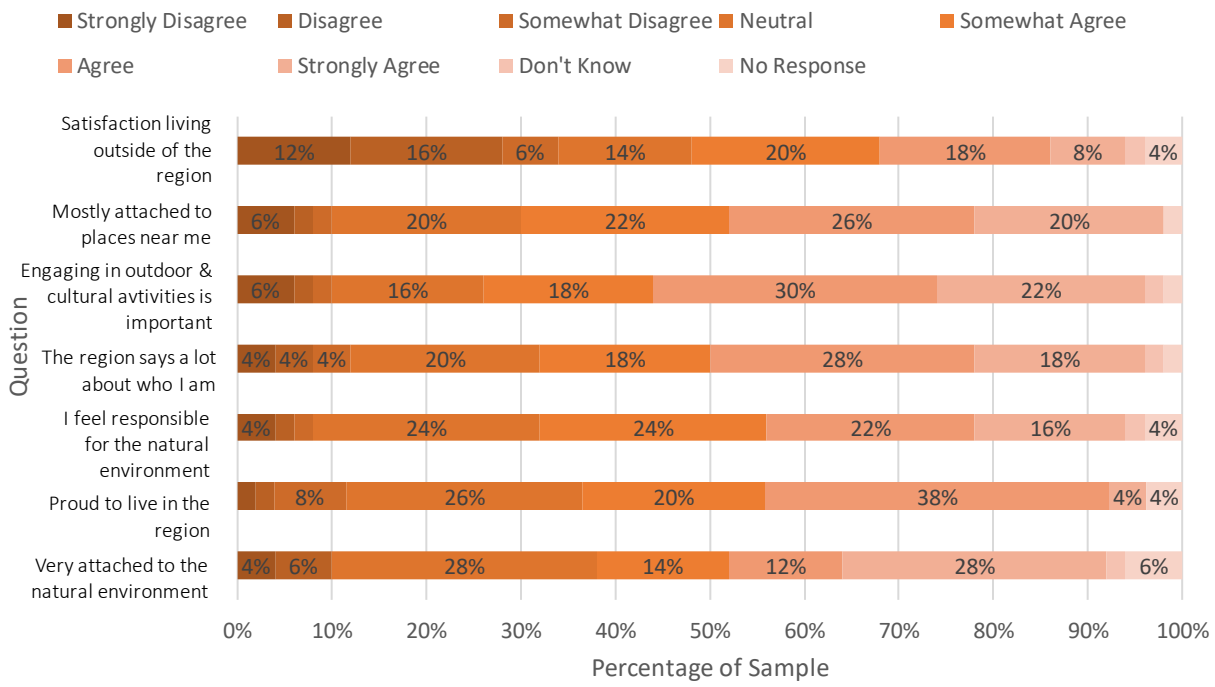



**Figure 49.** Sense of Place Results

**5.05** was the average response among respondents (n=50). This score means that community members largely felt like they "somewhat agree" to "agree" to having a sense of place of Puget Sound's natural environment. This is similar to the regional averages from 2018 (5.66), 2020 (5.57), and 2022 (5.49).

**Note: Percentages less than 4% are not labeled for visibility.*

### *Psychological Wellbeing*

Psychological Wellbeing is a part of the Sense of Place Vital Sign. Psychological Wellbeing reflects residents' emotional and cognitive health in relation to Puget Sound's natural environment. Psychological Wellbeing is measured by asking respondents how often they have experienced stress reduction and inspiration as a result of spending time in nature on a 1-5 point Likert scale.

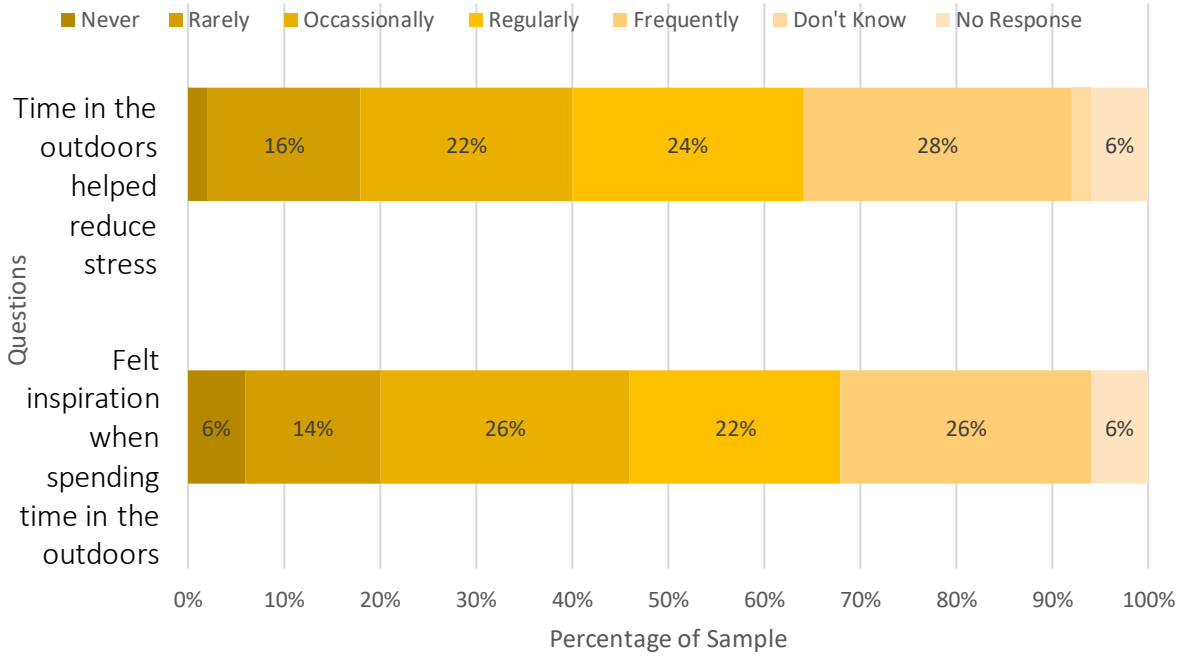



**Figure 50.** Psychological Wellbeing Results

**3.56** was the average response among respondents (n=50). This score demonstrated that respondents largely "occasionally" to "regularly" experienced inspiration or stress reduction from the outdoors. This average is similar, yet slightly lower, than the regional averages from 2018 (3.94), 2020 (4.01), and 2022 (3.98). Attributes or examples of Psychological Wellbeing were discussed often among participants during the workshops; however, those responses were included in the overarching Sense of Place Vital Sign (or code).

**Note: Percentages less than 3% are not labeled for visibility.*

### *Life Satisfaction*

Life Satisfaction is a part of the Sense of Place Vital Sign. Life Satisfaction illustrates residents' level of life satisfaction in the Puget Sound region. Life Satisfaction provides a baseline to better understand broad trends in environmental health and residents engagement in outdoor activities. Life Satisfaction is measured by asking respondents how satisfied or dissatisfied they are with their life on a 1-5 point Likert scale.

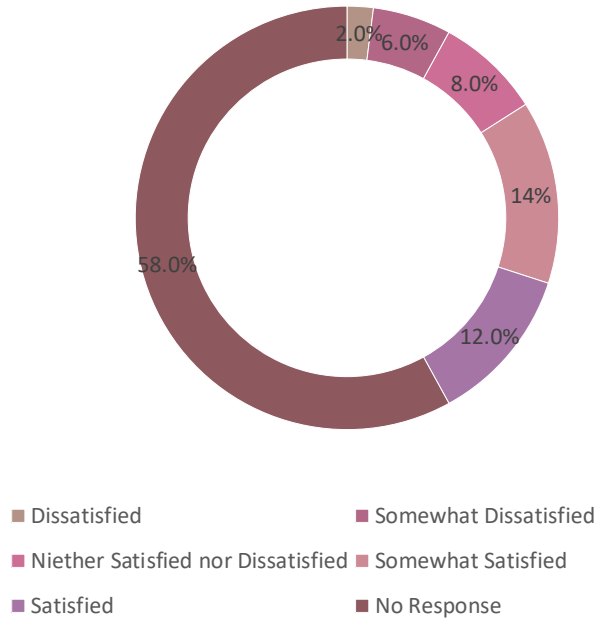



**Figure 51.** Life Satisfaction

**3.67** was the average response among respondents (n=50), which equates to community members having felt between "neither satisfied nor dissatisfied" and "somewhat satisfied" with their lives. Participants' average response was lower than the regional average from 2022 (4.41).

## Outdoor Activity

Outdoor Activity demonstrates the frequency of residents' outdoor recreational activities and nature-based work in Puget Sound's natural environment at different times a year (e.g., Fall and Spring). Outdoor Activity provides an opportunity to gauge both activity type and frequency of engagement. We measure Outdoor Activity by asking respondents to assess their engagement and frequency of engagement in 11-12 outdoor activities, including nature-based work (as a separate measure) during two different times (seasons) a year.

### *Nature-based Recreation (Fall, about September-November)*

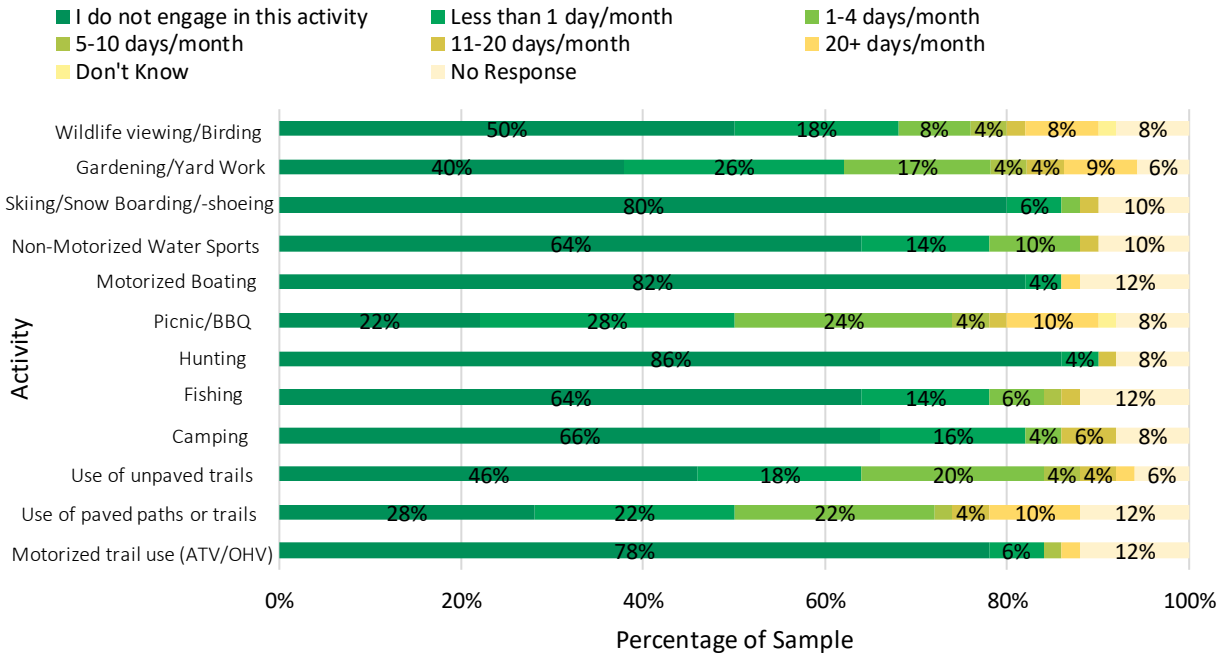



**Figure 52.** Outdoor Activity Results

Community respondents engaged in picnics/bbqs, the use of paved paths or trails, and gardening/yard work most frequently in the fall months. The activity that participants engaged with the least was hunting. Compared to regional activities (2022), responses were somewhat different. For example, participants engaged in non-motorized water sports less frequently.

**Note: Percentages less than 4% are not labeled for visibility.*

### *Nature-based Recreation (Spring, about March-May)*

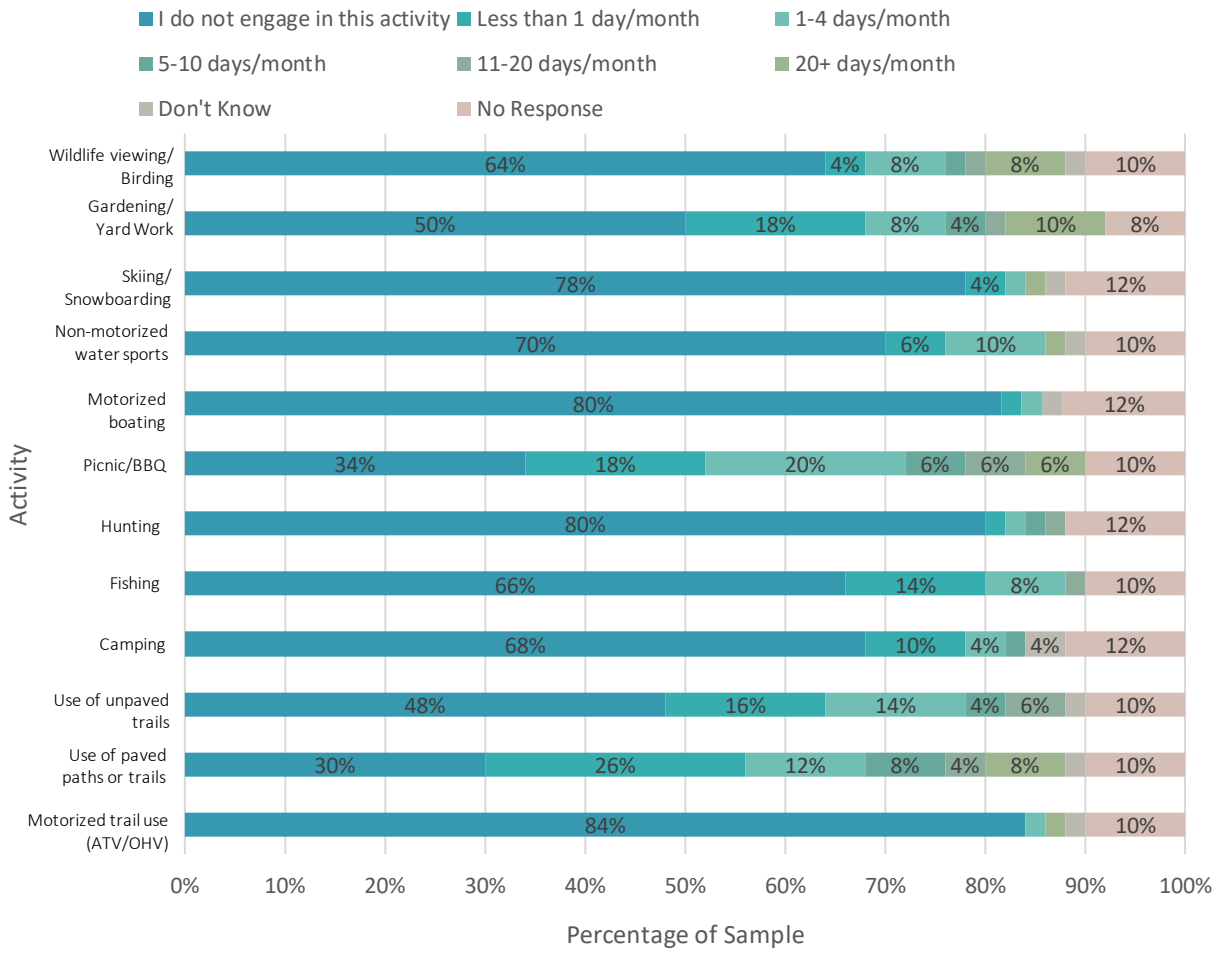



**Figure 53.** Nature-based Recreation Results

Survey respondents engaged in the use of paved paths or trails, picnics/bbqs, and gardening/yard work most frequently in the winter months. The activities participated in the least during the winter months included the use of motorized trail use (ATV/OHV), motorized boating, and hunting. Compared to regional surveyed activities (2022), responses were somewhat different. For example, participants engaged in picnics/bbqs more frequently.

**Note: Percentages less than 4% are not labeled for visibility.*

***Nature-based Work***

Nature-based Work is part of the Outdoor Activity Vital Sign. Nature-based Work reflects whether or not residents engage in nature-based employment opportunities and how often, including commercial or charter fishing, farming, forestry, habitat restoration, or outdoor recreation jobs. Nature-based Work is measured by asking respondents whether their work includes spending time in the natural environment. For those respondents that do engage in nature-based occupations ("yes"), they are then asked to estimate the number of hours per week.

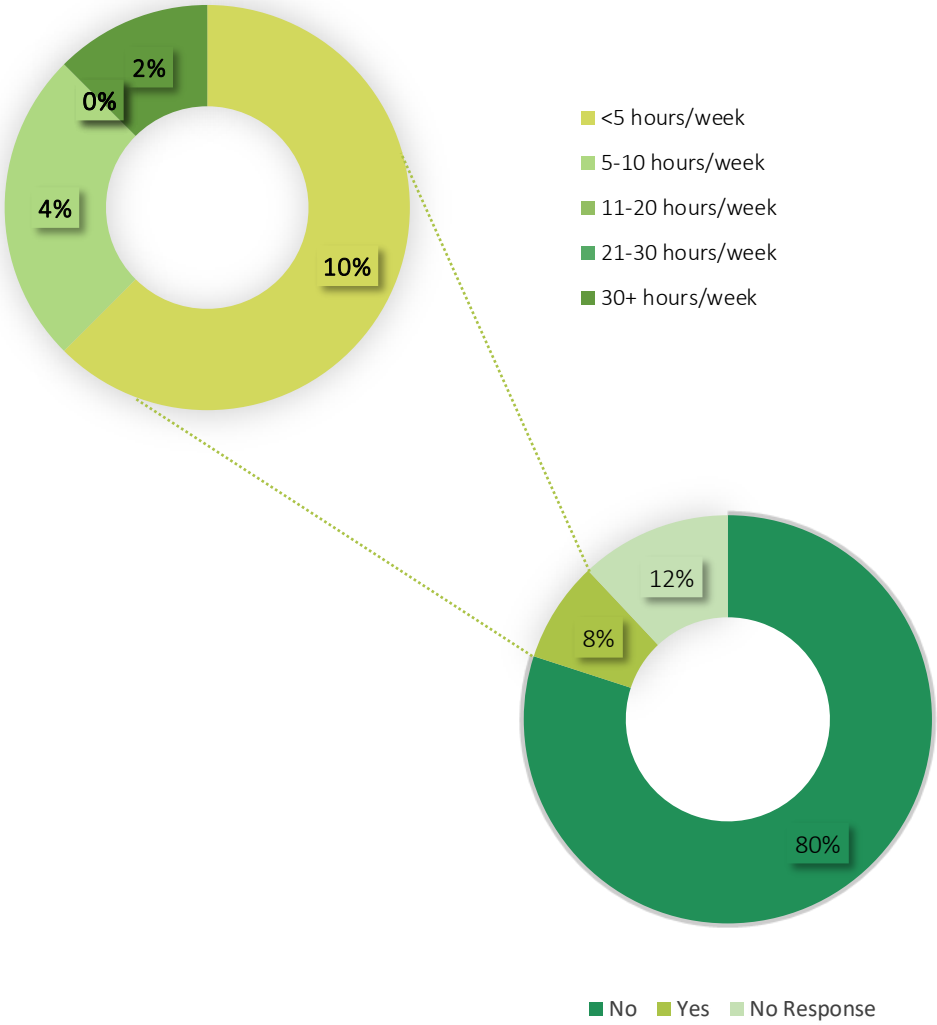



**Figure 54.** Nature-based Work Results

**8%** of workshop participants said their work involved spending time in the outdoors. Of these respondents, 6% work more than 5 hours or more a week outdoors. This response was lower than the regional surveyed "yes" responses from 2020 (12.4%) and 2022 (13.6%)

## Respondent Demographics

The following figures highlight responses stemming from a series of demographic questions included in the Human Wellbeing Survey. Some interpretation is provided for some demographic attributes, but not all. Additional interpretation was solely provided when deemed appropriate to that attribute.

### *Years Lived in Puget Sound (n=50; mean: 37.28 years)*

The majority of survey respondents stated that they have lived in Puget Sound for 20 years or more with the average being 37.28. This is somewhat similar to regional survey respondents, including those who responded to the 2022 survey (mean: 34.9 years).

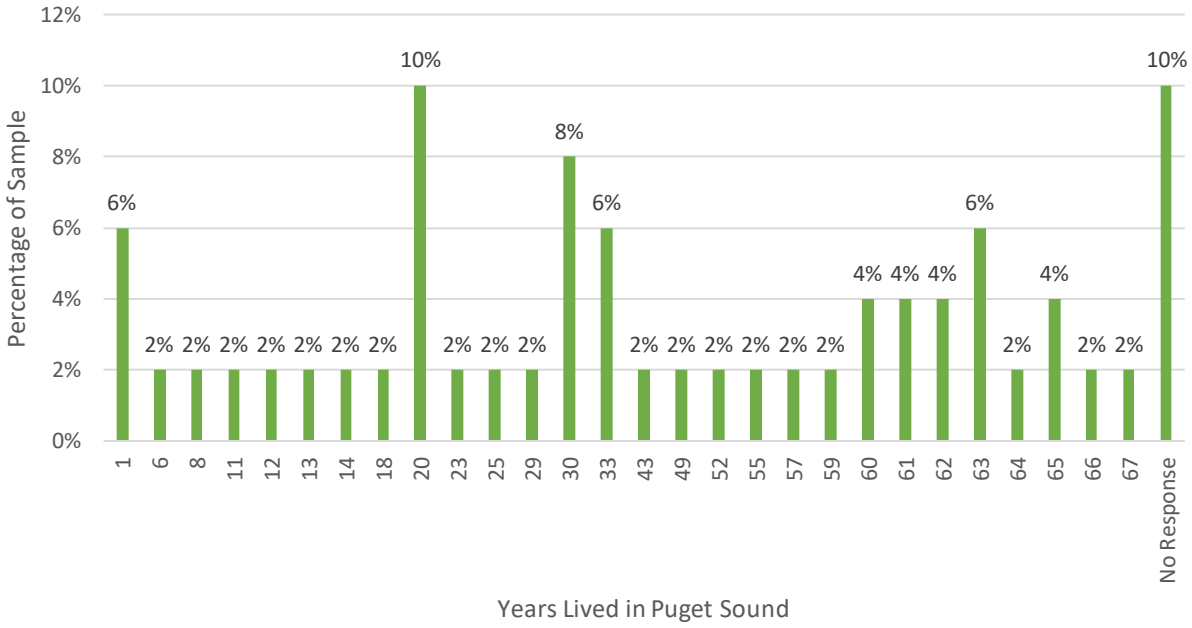
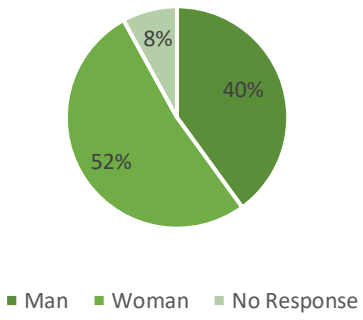



**Figure 55.** Years Lived in Puget Sound Results

### *Sex*




The majority of survey respondents identified as women. This differs from the respondents to the regional surveys from 2020 and 2022, where the majority of respondents identified as men; although it should be noted that the 2022 survey changed the question (gender identity) and potential responses.

**Figure 56.** Respondents' Sex

***Area Type***

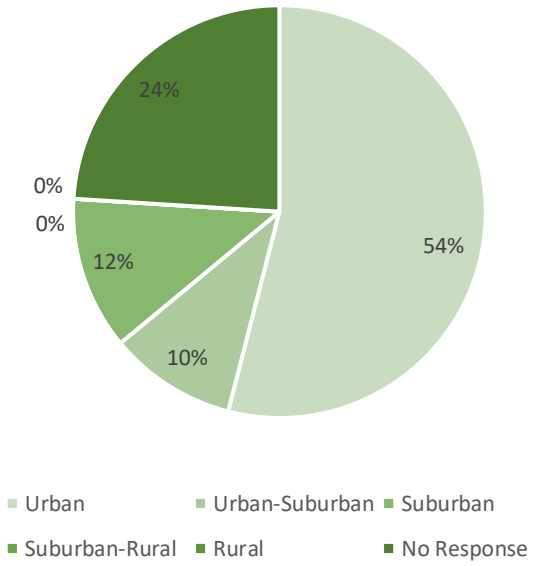



**Figure 57.** Area Type Results

The majority of survey respondents lived in urban areas (54%). This reflects the urban focus of the workshop on the Hilltop neighborhood in Tacoma, WA and also likely illustrates a changing neighborhood, as some workshop participants mentioned that they no longer live in the neighborhood, but still visit and are seeking to return after moving away (some due to housing affordability and displacement). This differs from regional survey respondents (2022), who largely comprised rural (38%) and suburban (23%) residents.

***Figure 58. Education (n=50; mean: 14.45 years)***

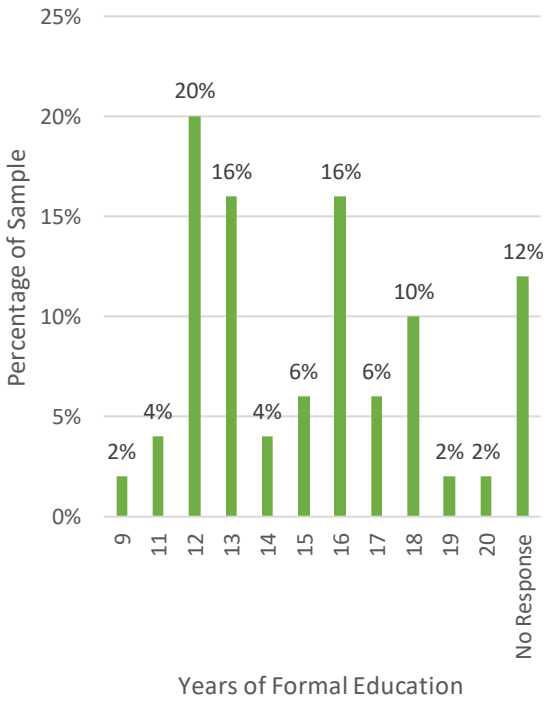
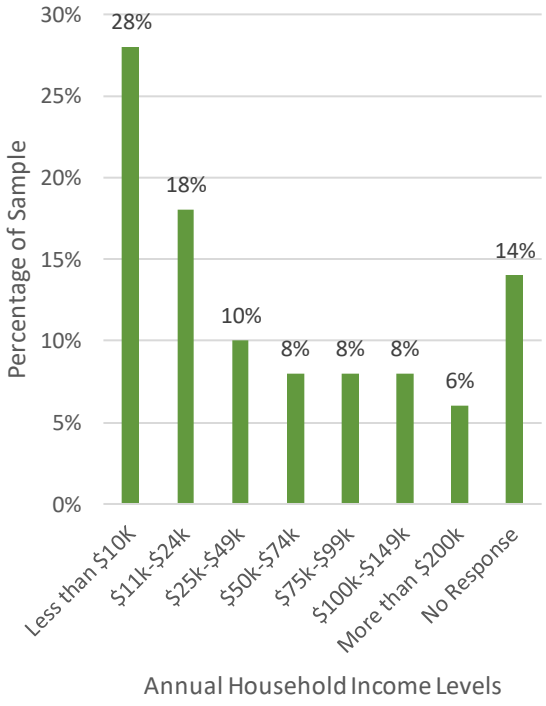



***Figure 59. Income***



***Race and Ethnicity***

The majority of survey respondents self-identified at Black or African American (54%). This response pattern was intentional and was embedded in project design and outreach efforts. This varies from the regional survey, including 2022 (1.2% Black or African American respondents). While Black or African American residents were a key demographic for this project, it should be emphasized that Black or African American residents, like Hilltop (and Puget Sound) residents more broadly embody multiple simultaneous identities and/or are not solely part of one or another racial or ethnic community.

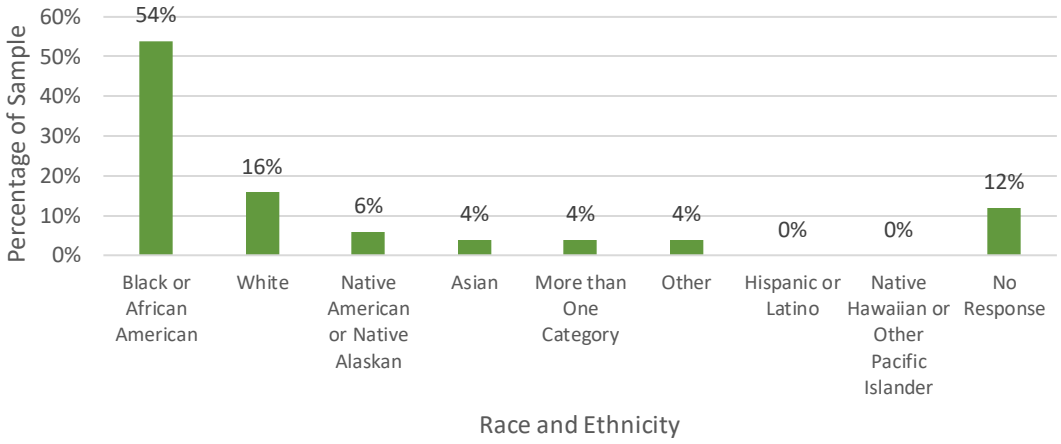



**Figure 60.** Respondents' Race and Ethnicity Results

***Age (n=50; mean: 58.73 age)***

The majority of survey respondents from the workshops were in the '61-70 years' age class. This pattern likely reflected the workshop times, location, and outreach conducted, among other factors informing workshop participation. This majority age class was identical to the majority age class from the regional survey (2022).

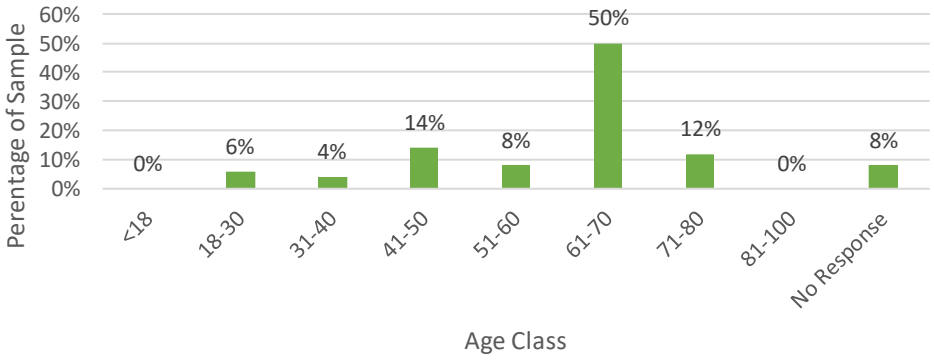



**Figure 61.** Respondents' Age Results

### *Political Ideology*

**3.07** was the average response among workshop participants who completed the survey. This average response equates to "neither Conservative nor Liberal," which is fairly consistent with regional survey average response in 2022 (3.32).

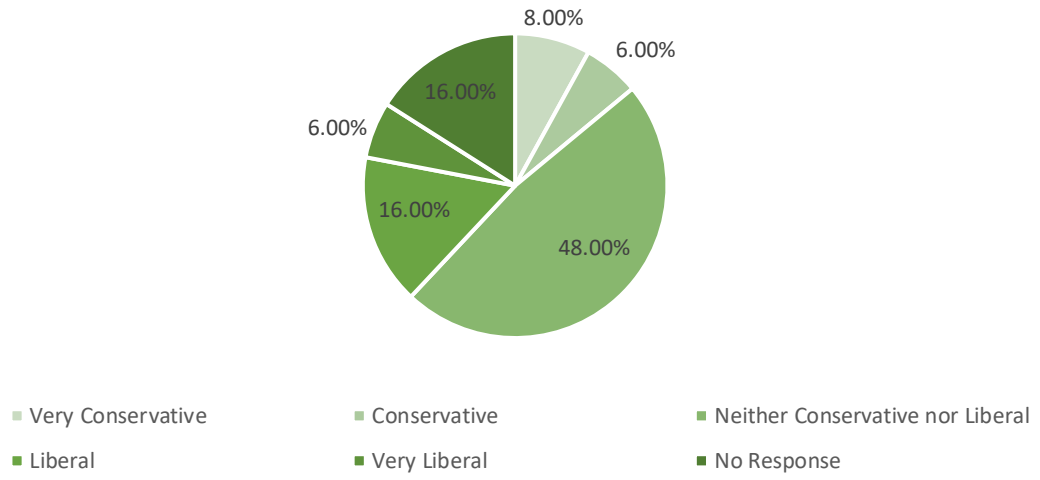



**Figure 62.** Respondents' Political Ideology Results

### Conclusions and Recommendations

During the facilitated dialogues, Hilltop community members were provided an optional opportunity to complete the Human Wellbeing Survey. Out of a total of 52 community members participating in the workshops, 50 completed the option survey (96% response rate). Participant interest and response rates were high during each workshop. This finding demonstrates the potential of CBPR, facilitated dialogues, mixed-methods, or even non-research community events at increasing the reach of the Human Wellbeing Survey effort. This also likely demonstrates the potential of greater community engagement in monitoring (and recovery more broadly) and the benefit of incentives. This blending of approaches in turn could make the survey and its findings (and larger monitoring effort) more inclusive and representative of Hilltop community members, including Black and African American residents in the region.

| **Hilltop Residents' Human Wellbeing Survey Results (n=50)** |
|---|
| ***Good Governance: 3.51*** on a 1-7 scale (strongly disagree to strongly agree). On average, participants largely responded between "somewhat disagree" and "neutral." |
| ***Local Foods: 1.39*** on a 1-5 scale (never to frequently). On average, participants largely responded between "never" and "rarely" (1-2 times a season). |
| ***Sound Stewardship: 2.53*** on a 1-7 scale (never to frequently). On average, participants largely responded between "rarely" (1-4 times a year) and "occasionally" (once a month). |
| ***Cultural Wellbeing: 3.29*** on a 1-6 scale (dissatisfied to satisfied). On average, participants largely scored between "neither satisfied nor dissatisfied" and "somewhat satisfied." |
| ***Sense of Place: 5.05*** on a 1-7 scale (strongly disagree to strongly agree). On average, participants largely scored between "somewhat agree" and "agree." |

- ***Psychological Wellbeing: 3.56*** on a 1-5 scale (never to frequently). On average, participants largely responded between "occasionally" (once a month) and "regularly" (one a week).
- ***Life Satisfaction: 3.67*** on a 1-5 scale (dissatisfied to satisfied). On average, participants largely responded between "neither satisfied nor dissatisfied" and "somewhat satisfied."

***Outdoor Activity***

- ***Outdoor Recreation:*** Most frequently engaged in recreational activities included use of paved trails and picnic/bbq.
- ***Nature-based Work:*** 8% of respondents engaged in nature-based work with 6% engaging in such work 5 hours a week or more.

**Table 7.** Hilltop Community Human Wellbeing Survey Results

| Regional & Latinx Human Wellbeing Survey Results (2018-2022)[7] | | | | |
|---|---|---|---|---|
| **Vital Sign** | **2018** | **2020** | **2022** | **Latinx** |
| Good Governance | 4.13 | 4.18 | 4.05 | 4.81 |
| Local Foods | 1.58 | 1.43 | 1.42 | 1.84 |
| Sound Stewardship | 3.47 | 3.14 | 3.36 | 2.95 |
| Cultural Wellbeing | Not Applicable due to survey modifications between 2018 and 2020 | 3.64 | 3.81 | 3.73 |
| Sense of Place<br>• Psychological Wellbeing<br>• Life Satisfaction | 5.66<br>• 3.94<br>• Not available | 5.57<br>• 4.01<br>• Not available | 5.49<br>• 3.98<br>• 4.41 | 5.02<br>• 3.64<br>• 3.98 |
| Outdoor Activity<br>• Outdoor Recreation<br>• Nature-based Work | • Gardening/yard work, use of paved paths or trails, use of unpaved trails during Summer and Winter were most frequently engaged activities<br>• 19% engaged in nature-based work | • Gardening/yard work, wildlife viewing/birding, using paved paths or trails in Spring and Winter were the most frequently engaged activities<br>• 12.42% engaged in nature-based work<br>• 69% worked more than 5 hours a week | • Non-motorized water sports (Summer only), wildlife viewing/birding, gardening/yard work, use of paved paths or trails, and use of unpaved paths or trails were the most frequently engaged activities in Summer and Winter | • Paved paths or trails, picnic/bbq, and unpaved trails in Fall and Spring were the most frequently engaged activities<br>• 36% engaged in nature-based work<br>• More than 70% worked more than 5 hours a week |

[7] All data stems from the 2018, 2020, Latinx 2021, and 2022 Human Wellbeing Surveys (Fleming and others 2018; Fleming and others 2021; Justiniano 2021; Harrington and others 2023).

| | | | | |
|---|---|---|---|---|
| | | | • 14% engaged in nature-based work<br>• 77% worked more than 5 hours a week | |

**Table 8.** Regional & Latinx Human Wellbeing Survey Results (2018-2022)

The survey findings reflect that Hilltop community survey respondents demonstrated similar patterns of human wellbeing as it relates to the health of Puget Sound when compared to the other Human Wellbeing Survey respondents (Tables 7-8). Hilltop community members had similar average responses to many Human Wellbeing Vital Signs (Tables 7-8). For example, Hilltop respondents had roughly similar average responses to Sense of Place (5.05), Cultural Wellbeing (3.29), Local Foods (1.39), and Psychological Wellbeing (3.56). While somewhat similar, some stark variations emerged compared to the other survey findings. For example, Hilltop respondents had lower average responses to Sound Stewardship (2.53), Life Satisfaction (3.67), and Good Governance (3.51). Differences in Good Governance were quite salient, as governance (or perceived lack thereof) was also featured prominently during the facilitated dialogues, particularly during discussions around accessibility, equity, safety, and environmental justice. Hilltop respondents also engaged is nature-based work less than other survey respondents (8%). This variation illustrates potential community-based differences in human wellbeing as it relates to nature among Puget Sound's diverse communities, but also how communities perceive and engage the natural environment in Puget Sound, notably through governance systems or stewardship behaviors. This latter finding highlights the need for greater community inclusion and engagement with human wellbeing monitoring, more attention to environmental (in)justices, and further demonstrates the need to potentially modify the Human Wellbeing Vital Signs with workshop-derived Community Dimensions of wellbeing.

**Limitations**

The survey instrument faced numerous limitations, one being sampling. While generalizability was not necessarily the intended goal of this project or survey instrument, given the CBPR approach, which is highly context- and community-specific, generalizability can help with interpretation and application of survey results for management or decision-making purposes. One limitation is that the regional Human Wellbeing Survey was updated since the 2020 survey of which this is based, making comparisons to the 2022 survey somewhat challenging. Given the survey was implemented during community workshops with self-selected participating community members via nonprobability sampling, sampling errors likely exist, producing a sample not fully representative of the Hilltop or Black or African American community in Tacoma, Pierce County, or Puget Sound as a whole. Likely sampling errors include nonresponse error and measurement error. Additionally, the workshops themselves revealed the importance of recognizing intersectionality and the intersectional identities of people, thus, much care and intention need to be taken into consideration when attempting to engage individuals or groups that may self-identify with one group (whether racial, ethnic, linguistic, cultural, place-based, or other), as they also likely self-identify with others simultaneously. Additionally, the workshops also reflected the multiracial or multiethnic families and communities that are entwined with one another in the region, as some participants brought family members or

other community leaders who did not necessarily self-identify with the same (limited) racial and ethnic categories used by the U.S. Census and current iterations of the Human Wellbeing Survey.

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# Appendix A. Facilitated Dialogues Codebook

This codebook includes codes solely linked to the facilitated dialogues. This codebook includes codes applied to both sets of facilitated dialogues due to the similarity in overarching themes and questions, including the deductive codes linked to the Human Wellbeing Vital Signs. Some distinct notes are included for those codes associated solely with one set of facilitated dialogues or even community, as the sets of facilitated dialogues did vary. Given that the codebook was shared and used for the analysis for data stemming from the Empowering People in Communities co-led workshops and those workshops conducted in collaboration with the Asia Pacific Cultural Center (another Tacoma-based nonprofit), both sets of codes and coding information are included in the table (Table 9). This was done as the workshops were framed around similar guiding questions/topics and themes. The below codebook includes the following information: (1) code category (Human Wellbeing Vital Sign category (e.g., Health Human Population or Vibrant Human Quality of Life) or community category (e.g., Community Dimension of health/wellbeing); (2) code (short straightforward word or set of words, including those associated with the Human Wellbeing Vital Signs or emergent Community Dimensions; and (3) code description, which includes definitions, keywords (keywords derived from participant responses), examples (participant responses), and code type (e.g., deductive vs. inductive). The codebook reflects the abductive coding process informed by social science literature on abductive coding and analysis (Dubois and Gadde 2002; Timmermans and Tavory 2012; Thompson 2022; Vila-Henninger and others 2022). The codes are also color-coded with the lighter shade illustrating codes aligned with the already established Human Wellbeing Vital Signs and the bolder shade illustrating emergent codes derived from the participating community members.

| Code Category | Code | Description |
|---|---|---|
| Healthy Human Population | Air Quality | Definition: All references to air and air quality.<br><br>Keywords: air, fresh air, air quality, breathing, clean air<br><br>Example: “air quality, bad air makes it harder to breathe”<br><br>Code Type: Deductive (Human Wellbeing Vital Signs) |
| Healthy Human Population | Water/Water Quality (Drinking, Fresh, and Marine) | Definition: All references to water and water quality, regardless if water type was described (e.g., drinking, fresh, and marine). Note that most participants did not reference water type at all.<br><br>Keywords: water, water quality, clean water, fresh water, drinking water, waterways<br><br>Example: “water quality”<br><br>Code Type: Deductive (Human Wellbeing and Biophysical Vital Signs) |
| Healthy Human Population | Local Foods | Definition: All references to local foods, including those prioritized within the Local Foods Vital Sign, but also alternatives that could be included, like seaweed.<br><br>Keywords: food, fish, shellfish, clams, seafood, mushrooms, seaweed, vegetables, fruits, locally grown produce, |

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| | | produce, farms, gardening, harvest (and other references to food or eating)<br><br>Example: “Different vegetables seem to grow better or worse”<br><br>Code Type: Deductive (Human Wellbeing Vital Signs) |
| Healthy Human Population | Outdoor Activity | Definition: All references to outdoor recreational activities, including those prioritized by the Outdoor Activity Vital Sign, but also alternatives that could be included.<br><br>Keywords: recreation, outdoor recreation, outdoor activities, recreational activities, fishing, gardening, skiing, hiking, walking, biking, shellfish harvest, camping, exercise (and other examples of recreation)<br><br>Example: “climate change has made it difficult to participate in more outdoor activities due to hail and snow”<br><br>Code Type: Deductive (Human Wellbeing Vital Signs) |
| Healthy Human Population | Shellfish Beds | Definition: All references to shellfish and shellfish beds as demonstrated by the Shellfish Beds Vital Sign. May include references to shellfish harvesting and the eating of shellfish.<br><br>Keywords: shellfish, shellfish harvest, clams, clam digging<br><br>Example: “Tolmie State Park, walking, clam digging, picnic”<br><br>Code Type: Deductive (Human Wellbeing Vital Signs) |
| Vibrant Human Quality of Life | Cultural Wellbeing | Definition: All references to cultural wellbeing, including the prioritized cultural or community practices by the Cultural Wellbeing Vital Sign, but also alternatives that could be included, like those associated with children and families.<br><br>Keywords: church activities, spiritual practices, religious activities, community, community events, family activities, family events, kids, children, neighbor engagement, neighborhood activities, culture, (examples of) cultural activities<br><br>Example: “the community connects with nature by utilizing it in to describe its sheer amazing in dances (hula)”<br><br>Code Type: Deductive (Human Wellbeing Vital Signs) |
| Vibrant Human Quality of Life | Economic Vitality | Definition: All references to economics, jobs, and work, as demonstrated by the Economic Vitality Vital Sign.<br><br>Keywords: economy, work, jobs, financial, products<br><br>Example: “economy” |

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| | | Code Type: Deductive (Human Wellbeing Vital Signs) |
| Vibrant Human Quality of Life | Good Governance | Definition: All references to attributes of good governance, like accessibility, trust, and transparency, as demonstrated by the Good Governance Vital Sign, but also some alternatives.<br><br>Keywords: laws, policy, government, decision making, and (examples of) good governance or the lack thereof<br><br>Example: "agency in decision making"<br><br>Code Type: Deductive (Human Wellbeing Vital Signs) |
| Vibrant Human Quality of Life | Sense of Place | Definition: All references to attributes of sense of place, including those attributes associated with psychological wellbeing, life satisfaction, and aesthetics, as demonstrated by the Sense of Place Vital sign.<br><br>Keywords: mental health, proud, relax, emotional health, connection, identity, memories, heritage, home, stress, responsibility, beauty, and (examples of) aesthetic qualities and emotional or mental health<br><br>Example: "I am proud of living at Puget Sound, beautiful environment, clean air and water, I think I live a decade can compare to live another states"<br><br>Code Type: Deductive (Human Wellbeing Vital Signs) |
| Vibrant Human Quality of Life | Sound Stewardship | Definition: All references to stewardship behaviors, including the prioritized attributes or behaviors demonstrated by the Sound Stewardship Vital Sign, including Sound Behavior Index. This includes alternative behaviors associated with stewardship as well, including those that might be more broadly defined by participants.<br><br>Keywords: cleaning, litter, trash, taking care, help, save<br><br>Example: "picking up litter, saving trees, mountains, waterways, and wetlands"<br><br>Code Type: Deductive (Human Wellbeing Vital Signs) |
| Community Dimension | Accessibility | Definition: All references to access and accessibility, including as accessibility relates to human mobility, public/private transportation, geographic proximity to parks or natural areas, and resources/amenities.<br><br>Keywords: access, accessibility, transportation, transit, amenities, proximity, mobility, ability, (examples of) all of the aforementioned keywords<br><br>Example: "good transit system to get people to parks" |

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| | | Code Type: Inductive |
| Community Dimension | Equity | Definition: All references to equity and fairness associated with nature, including when it comes to recognitional, procedural, and distributional equity.<br><br>Keywords: equity, fairness, equal, consideration, and (examples of) the aforementioned keywords<br><br>Example: "low income should not equal low standards (e.g., having parking)"<br><br>Code Type: Inductive |
| Community Dimension | Physical Health | Definition: All references to physical health, including any references to the physical body.<br><br>Keywords: physical health, bodily health, sick, pain, disease, medicine, nutrition, body, and (examples of) physical health or ill health<br><br>Example: "body composition"<br><br>Code Type: Inductive |
| Community Dimension | Fish and Wildlife | Definition: All references to fish and wildlife, including insects. Fish and wildlife references include those associated and not associated with food or outdoor activities. Many references to fish and wildlife demonstrate an inherent or existence value associated with non-human beings in nature.<br><br>Keywords: fish, wildlife, birds, animals, insects, ducks, turtles, squirrels, bees, dogs, cats, chickens, fauna, shellfish, clams<br><br>Example: "the sound of the birds"<br><br>Code Type: Inductive |
| Community Dimension | Plants and Trees | Definition: All references to plants and trees, including specific plants, like flowers or moss. Note that often, responses included both plants and trees.<br><br>Keywords: trees, plants, flowers, flora, moss, and (other examples of non-tree) plants<br><br>Example: "trees, plants"<br><br>Code Type: Inductive |
| Community Dimension | Place and Landscape | Definition: All references to place and landscape, including references to broad and specific places or landscape features, like beaches or parks. |

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| | | Keywords: parks, beaches, mountains, space, wetlands, home, oceans, Puget Sound, forests, rivers, trails, gardens, Mt. Rainier, pastures, sea, and (additional examples of) places and landscapes<br><br>Example: “parks and nature”<br><br>Code Type: Inductive |
| Community Dimension | Safety | Definition: All references to safety and security.<br><br>Keywords: safety, security, danger, police<br><br>Example: “clean park to be safe, to walk the street make safe for kids”<br><br>Code Type: Inductive |
| Community Dimension | Environmental Condition | Definition: All references to the condition of the natural environment, typically references that are fairly broad or generic, including those associated with cleanliness.<br><br>Keywords: environment, clean, good, pollution, destruction, negative, loss, and (generic example of) the environmental condition<br><br>Example: “environment”<br><br>Code Type: Inductive |
| Community Dimension | Other | Definition: All references that illustrate some distinct quality or characteristic that does not adequately or easily align with others.<br><br>No keywords included.<br><br>Example: “wellbeing lasting transformation”<br><br>Code Type: Inductive |
| Community Dimension | Everything | Definition: All references to and the verbatim use of everything. Note that everything was a commonly used response among Vietnamese respondents.<br><br>Keywords: everything<br><br>Example: “health is everything”<br><br>Code Type: Inductive |

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| Community Dimension | Gold[8] | Definition: All references to and the verbatim use of gold. Note that gold was a commonly used response among Vietnamese respondents. According to the workshop interpreter and confirmed by interdisciplinary literature, gold is a common phrase or term used to define health among Vietnamese speakers. This may also be applicable to or associated with everything and life.<br><br>Keywords: gold<br><br>Example: "health is gold"<br><br>Code Type: Inductive |
| Community Dimension | Life | Definition: All references to and the verbatim use of life. Note that gold was a commonly used response among Vietnamese respondents.<br><br>Keywords: life<br><br>Example: "life"<br><br>Code Type: Inductive |
| Community Dimension | Increased Uncertainty | Definition: All references to increased uncertainty associated with the impacts of climate change. This code was solely used to analyze the climate change responses.<br><br>Keywords: uncertainty, unknown, unpredictable<br><br>Example: "climate change is unpredictable and can be extreme at times"<br><br>Code Type: Inductive |
| Community Dimension | Acceptance and Opportunity | Definition: All references to acceptance and potential opportunities associated with the impacts of climate change. This code was solely used to analyze the climate change responses.<br><br>Keywords: happy, glad, (examples of) new opportunities or experiences<br><br>Example: "warmer winters, more recreation time outside"<br><br>Code Type: Inductive |

[8] Note: "Health is gold" is a common Vietnamese health phrase, as represented in other research (McPhee and others 1996), and was used often among Vietnamese-speaking participants.

| | | |
|---|---|---|
| Community Dimension | Natural Disasters | Definition: All references to natural disasters associated with the impacts of climate change. This code was solely used to analyze the climate change responses.<br><br>Keywords: natural disaster, flood, heat waves, fire, sea level rise, storms, tornados, hurricanes, draught<br><br>Example: “hurricanes, tornadoes, snow, rain, flooding, fires, and draught”<br><br>Code Type: Inductive |
| Community Dimension | Seasonal and Temperature Change | Definition: All references to seasonal and/or temperature change associated with the impacts of climate change. This code was solely used to analyze the climate change responses.<br><br>Keywords: temperature, season, winter, summer, weather, heat, cold,<br><br>Example: “4 seasons are not clear”<br><br>Code Type: Inductive |
| Community Dimension | Something Lost or Past | Definition: All references to longing for or examples of the past or something, like a sense of community or belonging, being lost. This code was solely used to analyze the community responses for Hilltop Residents only.<br><br>Keywords: (examples of) loss or past<br><br>Example: “back in the 60 and 70 was a community on the hilltop”<br><br>Code Type: Inductive |
| Community Dimension | Shared Goals, Interests, and Values | Definition: Definition: All references to shared community attributes associated with common goals, interests, and/or values. This code was solely used to analyze the community responses for Hilltop Residents only.<br><br>Keywords: (common or shared, including examples of) goals, values, solutions, memories, interests, care, church<br><br>Example: “common goals”<br><br>Code Type: Inductive |
| Community Dimension | Activities and Interactions | Definition: Definition: All references to community activities and interactions that contribute to defining a community. This code was solely used to analyze the community responses for Hilltop Residents only.<br><br>Keywords: coming together, gathering, events, collaboration, interactions, culture, and (examples of) |

| | | |
|---|---|---|
| | | specific activities or interactions, like political/coalition building<br><br>Example: “events, genuine/nice interactions with people, integrating cultures, relationship with police”<br><br>Code Type: Inductive |

**Table 9.** Codebook

## Appendix B. Workshop Codes, Responses, and Examples

This table includes codes linked to the facilitated dialogues. This table includes codes applied to the Hilltop Residents' Workshops co-created and co-conducted with Empowering People in Communities and the Peace Community Center. The table is organized by facilitated dialogues theme or question (in bold and highlighted with a bright color), including: wellbeing (e.g., What is wellbeing (including as it relates to nature)?), community (e.g., What is community?), contributions (e.g., How does nature contribute to your wellbeing?), climate change (e.g., How does climate change impact your wellbeing?), and place (e.g., What places (in nature) contribute to your wellbeing? Why?). Each theme or question is bolded and includes the number of responses (#) and sample (number of respondents) (n). The table then also includes each code, response per code, response as percent per code (per overarching theme or question), and an example of each code (per overarching theme or question). The codes are also color-coded with the lighter shade illustrating codes aligned with the already established Human Wellbeing Vital Signs of the Puget Sound Partnership and the bolder or darker shade illustrating emergent codes derived from the participating community members. For more information about the codes, see Appendix A.

| Question/Theme | Responses[9] | Precent | Examples |
|---|---|---|---|
| **Wellness (n=52)** | **61** | | |
| Accessibility | 27 | 44.26% | "accessing parks" |
| Physical Health | 23 | 37.70% | "what is wellbeing? Peace of mind about where I am in life, personally, relationally, work wise, healthy body, mind, and relationships, hopeful outlook for life and the future" |
| Cultural Wellbeing | 15 | 24.59% | "engaging with neighbors as well as knowing each other, safe, and informed on things happening in our community" |
| Sense of Place | 15 | 24.59% | "mental health" |
| Good Governance | 13 | 21.31% | "wellbeing is being seen and heard and advocated for" |
| Place and Landscape | 12 | 19.67% | "nature, food, trees, water, mountain, air" |
| Safety | 10 | 16.39% | "safety" |
| Equity | 8 | 13.11% | "equity and fairness" |
| Outdoor Activity | 5 | 08.19% | "walking outside, seeing beauty (including human)" |
| Environmental Condition | 4 | 06.55% | "wellbeing holistic understanding of self through our physical, emotional, mental, environmental lenses" |

[9] Please note that responses include those that are multi-coded, meaning one particular response from a participant may be coded more than once, given that their response may have included more than one item or type of content that aligned with more than one code. Given that responses are multi-coded, the code response numbers (under Responses) will not add up to the response totals (e.g., Wellness, Responses: 61), nor will the percentages add up to 100% (with some place-based response exceptions). This is intentional and part of the abductive analysis.

| | | | |
|---|---|---|---|
| Local Foods | 4 | 06.55% | “good health, fresh food, fresh air, as balance of urban living, and nature, community” |
| Economic Vitality | 4 | 06.55% | “physical health, mental health, resources within a community, financial stability, representation” |
| Other | 3 | 04.91% | “wellbeing lasting transformation” |
| Air Quality | 2 | 03.27% | “clean bike and walking trails, fresh air, safer to be [in] hilltop” |
| Water (Drinking, Fresh, Marine) | 1 | 01.63% | “wellbeing is how someone is holistically - it depends on if your needs are met, needs: housing, food, water, healthcare, transportation, fun” |
| **Community (n=52)** | **34** | | |
| Sense of Place | 9 | 26.47% | “feeling at home and familiar with neighbors” |
| Shared Goals, Interests, and Values | 8 | 23.52% | “what is community? Shared spaces, shared memories, neighbors, businesses, gathering places, landmarks, common values/goals, common solutions” |
| Place and Landscape | 8 | 23.52% | “community is connection to place, each other, job, looking out for your neighbor, access to green food, stores where the workers know your name” |
| Equity | 8 | 23.52% | “all people are important and need to be in an inclusive community, beautiful places in the community to enjoy nature for all people in the community” |
| Activities and Interactions | 8 | 23.52% | “events, genuine/nice interactions with people, integrating cultures, relationship with police” |
| Accessibility | 3 | 08.82% | “accessibility across the community” |
| Something Lost or Past | 3 | 08.82% | “they brought in people who was not raise on the hill and the prices are high, now there stores” |
| **Contributions (n=52)** | **57** | | |
| Equity | 22 | 38.59% | “my community hasn't had the kind of access and connection to nature due to systemic racism. I think it can be struggle to figure out if nature is for ‘us.’” |
| Accessibility | 20 | 35.08% | “accessibility across the community” |
| Cultural Wellbeing | 19 | 33.33% | “public parks are great places to gather and have activities” |
| Sense of Place | 19 | 33.33% | “I feel responsible to be kind to the earth” |
| Place and Landscape | 17 | 29.82% | “gathering in parks in the neighborhood, going to the beach |

| | | | |
|---|---|---|---|
| | | | nearby, gardening in our yard/parking strip by base" |
| Plants and Trees | 15 | 26.31% | "plants contribute to our wellbeing" |
| Outdoor Activity | 14 | 24.56% | "family, camping, adventures, fishing" |
| Good Governance | 11 | 19.29% | "agency in decision making" |
| Fish and Wildlife | 9 | 15.78% | "get to see ducks, turtles, birds, fountains" |
| Air Quality | 9 | 15.78% | "clean air, clean water, smooth roads" |
| Sound Stewardship | 6 | 10.52% | "cleaner community, levels to healthier children…clean as in trash, homelessness, and the building/areas" |
| Water (Drinking, Fresh, Marine) | 5 | 08.77% | "parks, trails, water" |
| Safety | 4 | 07.01% | "kids not being able to move and travel and play safely" |
| Physical Health | 3 | 07.01% | "makes me happy, relaxes me, strengthens my muscles" |
| Environmental Condition | 2 | 03.50% | "clean doesn't necessarily mean trash" |
| Local Foods | 2 | 03.50% | "family, community, ownership, locally grown produce" |
| Economic Vitality | 2 | 03.50% | "financial opportunity" |
| **Climate Change (n=52)** | 39 | | |
| Seasonal and Temperature Change | 18 | 46.15% | "late snow, cold temperatures, too hot in summer" |
| Physical Health | 11 | 28.20% | "pollen count is up, runny nose" |
| Sense of Place | 10 | 25.64% | "has been very stressful lately" |
| Natural Disasters | 6 | 15.38% | "affects nature by causing speeding up or slowing down fires and causing droughts" |
| Place and Landscape | 5 | 12.82% | "different color of trees, gives quiet beauty" |
| Equity | 5 | 12.82% | "long winter so cold, stuck indoor and higher price on gas/light bill" |
| Fish and Wildlife (changes) | 4 | 10.25% | "less birds singing" |
| Outdoor Activity (reduction of) | 4 | 10.25% | "warmer earlier in the summer than before, sometimes too hot to do yard work" |
| Plants and Trees | 4 | 10.25% | "climate change-weather patterns are changing, temp max and min, rain timing and amounts, etc. plants and animals are adapted to the new conditions. Different animals and plants appear and often disappear/change." |
| Air Quality | 3 | 07.69% | "air quality, bad air makes it harder to breathe" |
| Acceptance and Opportunity | 3 | 05.12% | "Washington go with flow, just glad alive, just watch" |

| | | | |
|---|---|---|---|
| Accessibility | 2 | 05.12% | "climate change - nature evolved it smothered it, depressed it, wellbeing-carried anxiety, discomfort, emergencies, climate change causes changes in access, wealth, and health" |
| Other | 2 | 05.12% | "it effects my well-being to have to hear people argue about climate change" |
| Sound Stewardship | 2 | 05.12% | "climate change - I will continue to seek ore information to help save the planet" |
| Local Foods | 2 | 05.12% | "I noticed mushrooms aren't growing like they used to" |
| Increased Uncertainty | 2 | 05.12% | "just the fact that things are changing in an unknown way causes unease." |
| **Place (n=52; all Place responses: 37)** | **46[10]** | | |
| **Specific** | **27** | **58.69%** | |
| Point Defiance | 11 | 40.74% | "point defiance" |
| Ruston Way/Waterfront | 6 | 22.22% | "ruston way, beaches" |
| Wright Park | 4 | 14.81% | "I love wright park, easy to access to the coffee shops" |
| Snake Lake | 3 | 11.11% | "snake lake - I value this place because it is beautiful, an enjoyable walk, free access and a quick drive from my home" |
| Owen Beach | 3 | 11.11% | "owens beach" |
| Chambers Bay | 3 | 11.11% | "I appreciate the chambers park and ruston waterfront" |
| Wapato Lake | 1 | 03.70% | "I love wapato lake, lots of benches to rest on" |
| Vashon Island | 1 | 03.70% | "point defiance, zoo and aquarium, beaches, and the ferry to take to the island [Vashon] is nearby" |
| Titlow Park | 1 | 03.70% | "ruston way, chambers creek, love to sit or walk, titlow park, like to look at narrows bridge" |
| Seattle | 1 | 03.70% | "waterfront, seattle, water, harbor" |
| Puget Sound | 1 | 03.70% | "places I value - the waterways, lakes ponds, and the sound, bays and harbors, why? - water is the key to life, poison the water and…" |
| Oak Harbor | 1 | 03.70% | "peninsula, humptulips, deception pass, oak harbor" |

[10] Note that when asked about Place (in general), community members provided 37 responses. This relatively low level of responses was partly due to one workshop not including Place as a topic/question (due to time constraints). Out of those 37 responses, 46 places were identified, including 27 specific places and 19 broadly defined places. Please take this distinction into consideration when interpreting the Place findings.

| | | | |
|---|---|---|---|
| Narrows Bridges | 1 | 03.70% | “narrows bridge” |
| Humptulips | 1 | 03.70% | “peninsula, humptulips, deception pass, oak harbor” |
| Olympic National Park | 1 | 03.70% | “the flora and fauna of the olympic peninsula because love to hike and see the beauty” |
| Ocean Shores | 1 | 03.70% | “ocean shores” |
| Frontier Park | 1 | 03.70% | “waterfront or to frontier park” |
| Dune Park | 1 | 03.70% | “ferry park tacoma, access the street from my home, titlow beach, owen beach, dune park, wright park - gathering place for meaningful events” |
| Ferry Park | 1 | 03.70% | “ferry park tacoma, access the street from my home, titlow beach, owen beach, dune park, wright park - gathering place for meaningful events” |
| Deception Pass | 1 | 03.70% | “peninsula, humptulips, deception pass, oak harbor” |
| **Broad** | **19** | **41.30%** | |
| Waterfront | 5 | 26.31% | “I value the waterfront because I like to fish” |
| Park | 5 | 26.31% | “many parts of it [in puget sound], parks, lakes, playgrounds” |
| Built Places | 5 | 26.31% | “mccarver elementary, my church edward temple, parks” |
| Water | 3 | 15.78% | “water front, seattle, water, harbor” |
| Mountains | 2 | 10.52% | “go to mountains, so nice” |
| Lakes | 2 | 10.52% | “many parts of it [in puget sound], parks, lakes, playgrounds” |
| Harbors | 2 | 10.52% | “water front, seattle, water, harbor” |
| Beaches | 2 | 10.52% | “ruston way, beaches” |
| Trails | 1 | 05.26% | “water-reminds me of home, parks-gives my kids pockets of joy, trails-gives me access to natural beauty” |
| Peninsula | 1 | 05.26% | “peninsula, humptulips, deception pass, oak harbor” |
| Home/Yard | 1 | 05.26% | “ferry park tacoma, access the street from my home, titlow beach, owen beach, dune park, wright park - gathering place for meaningful events” |
| Bays | 1 | 05.26% | “places I value - the waterways, lakes ponds, and the sound, bays and harbors, why? - water is the key to life, poison the water and…” |
| Ponds | 1 | 05.26% | “places I value - the waterways, lakes ponds, and the sound, bays and harbors, why? - water is the key to life, poison the water and…” |

| Why | 14 | | |
|---|---|---|---|
| Sense of Place | 13 | 92.85% | “water-reminds me of home, parks-gives my kids pockets of joy, trails-gives me access to natural beauty” |
| Accessibility | 4 | 28.57% | “snake lake - I value this place because it is beautiful, an enjoyable walk, free access and a quick drive from my home” |
| Outdoor Activity | 3 | 21.42% | “I value the waterfront because I like to fish” |
| Fish and Wildlife | 2 | 14.28% | “the flora and fauna of the olympic peninsula because love to hike and see the beauty” |
| Cultural Wellbeing | 2 | 14.28% | “ferry park tacoma, access the street from my home, titlow beach, owen beach, dune park, wright park - gathering place for meaningful events” |
| Physical Health | 1 | 07.14% | “chambers bay, snake lake, point defiance, walking seeing nature and beauty, good for physical/mental health” |
| Water (Drinking, Fresh, Marine) | 1 | 07.14% | “places I value - the waterways, lakes ponds, and the sound, bays and harbors, why? - water is the key to life, poison the water and…” |

**Table 10.** Codes, Responses, and Examples

# Appendix C. Research Approach

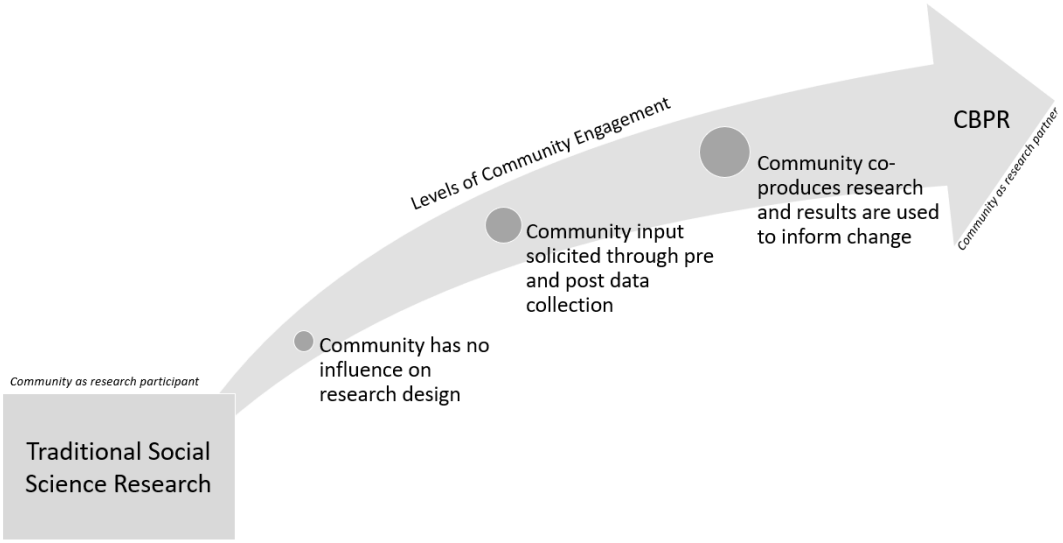


**Figure 28.** Levels of Community Engagement within Social Science Research (Modified from Michalak and others 2016)

This project applied a community-based participatory research (CBPR) approach (Figure 28) that included co-created facilitated dialogues (also referred to as workshops) (Drimie and others 2021; Milz 2018), fieldnotes, and optional survey instrument to collect data from primarily Black and African American community members in the Puget Sound region, specifically in the Hilltop neighborhood in Tacoma, WA. While the workshop primarily focused on Black and African American residents, the project also included all Hilltop community members, regardless of racial or ethnic identity. CBPR is a highly collaborative form of social science research (Horowitz and 2009; Leavy 2017; Minkler and others 2008), largely, but not solely, informed by public health (Israel and others 2005; Minkler and others 2008; Hull and others 2010; Unertl and others 2015; Wallerstein and others 2020). CBPR tends to be a highly individualized approach, as CBPR is context-, community-, problem-, and collaborator-dependent. CBPR also tends to be a responsive approach, often requiring the approach and/or methods to be revised during the research process. As such, CBPR can be challenging to evenly replicate and to adequately create a template for application (Leavy 2017). CBPR is not new to Puget Sound recovery, as it has been applied to help integrate social science (and human wellbeing) into local watershed recovery efforts (Biedenweg and others 2021), used to better include residents' perspectives into Island County coastal management (Trimbach and others 2022a), and advocated for to enhance equity within the Puget Sound monitoring community (Noufi and Sheikh 2022).

CBPR reflects wider trends within higher education (Rock 2022), humanities (Yi 2016), and social sciences (Horowitz and others 2009; Parker and others 2020; Chazan and Baldwin 2021; Ardoin and others 2022) to engage communities or diverse partners more inclusively within research. For example, within the academic discipline of geography, a new subfield of community geography has emerged (Shannon and others 2020), partly in response to the growing need for and application of more community-based research approaches to address shared place-based problems or priorities, including through participatory mapping or even CBPR (Shannon and others 2020; Trimbach and

others 2022a). CBPR also aligns with greater calls for more inclusive conservation (Dawson and others 2021) and environmental research, planning, management, and governance (Williams and others 2018; Egoz and De Nardi 2020; Schell and others 2020; Gurney and others 2021; Batavia 2022; Löfqvist and others 2022; Morales and others 2022; Nay and others 2022). Such approaches allow for greater community input and engagement, which also contributes to recognitional, procedural, and distributional forms of environmental and landscape justice.

CBPR was identified as an appropriate research approach for this project as traditional western social science research methods or approaches often face challenges engaging and representing minority populations, notably those considered historically underserved, excluded, and/or marginalized (Minkler and others 2008; Laganà and others 2013; George and others 2014; Unertl and others 2015; Leavy 2017; Wilson and others 2018). CBPR was identified because it prioritizes relationship building and knowledge co-production (Djenontin and Meadow 2018) with the intention of using the results to inform change, like enhancing knowledge of minority communities' human wellbeing in the Puget Sound region and building new community relationships for sustainable long-term collaboration within the Puget Sound recovery network (Michalak and others 2016) (Figure 28). Through CBPR, community collaborators (e.g., EPIC) were viewed and included as equal partners and not subjects as part of this project. Given this approach and its emphasis on collaboration, the various engaged project partners are named or referenced in distinct ways throughout this report. EPIC is frequently referred to as a partner or collaborator, the social scientist and report lead author, Dr. David J. Trimbach (Conservation Social Scientist, Washington Department of Fish and Wildlife, WDFW) is frequently referred to as the researcher, and participating Hilltop residents are often referred to as community members or community participants; although there may be some variation.

With CBPR as the overarching approach, the project included: the co-development of facilitated dialogues, the co-implementation of facilitated dialogues, survey implementation during the facilitated dialogues, data analysis (qualitative and quantitative), partner review, and dissemination (written materials and presentations, all including partner review). Facilitated dialogues are intentionally created processes focused on supporting diverse groups to address dynamic social-ecological problems by creating "safe" (or "safe enough") discursive spaces for fostering and developing shared understandings, alternative approaches, and new solutions (Milz 2018; Drimie and others 2022). CBPR was implemented early on in the project during the letter of inquiry/proposal phase. The researcher reached out to various potential project partners in the Puget Sound area, including outside of Tacoma. The researcher and lead report author initially reached out to Communities for a Healthy Bay (CHB), a Tacoma-based environmental organization engaged in local environmental justice programming. CHB recommended connecting with the City of Tacoma's Office of Equity and Human Rights (OEHR). Through discussions with OEHR, the researcher connected with EPIC for this project. While this report covers and project included EPIC, it is important to recognize that this project and collaboration was part of a larger effort that also included collaboration with the Asia Pacific Cultural Center, a Tacoma-based nonprofit organization providing services and programs to Puget Sound's Asian American and Pacific Islander community. Given that these project partners and communities were identified as distinct with unique community and culturally specific contexts and needs, these projects co-evolved independently. The researcher communicated and engaged EPIC throughout this process. Although the researcher formed an initial project concept and design, EPIC had the ability to critique, question, contribute, and refuse (to

provide input or participate) during all phases of the project, including the proposal development phase. Once funded and formally initiated, the researcher working closely with EPIC through a CBPR approach, co-created a series of facilitated dialogues.

The facilitated dialogues were co-created with EPIC to focus on the following overarching topics/questions:

1. continued relevance of HWB Vital Signs (e.g., Do the Vital Signs still work?);
2. resonance of HWB Vital Signs among Hilltop residents (e.g., How do the Vital Signs connect to you and/or your community?);
3. variations of HWB Vital Sign interpretations, perspectives, and values (e.g., Do the Vital Signs reflect your values? If not, what are alternative understandings or components of HWB?); and
4. locations linked to Hilltop residents' HWB (e.g., What locations do you identify, associate, or prioritize with your HWB?).

The above questions were identified as potential mechanisms to help address the aforementioned project objectives. The facilitated dialogues were co-created with EPIC through extensive planning meetings (EPIC: 16). The researcher took detailed meeting (field) notes per meeting and shared those with the project partners for their input and for transparency. The facilitated dialogues were co-created to include: opening ice breaker activities, attendee and/or researcher introductions (depended on group size and timing), workshop orientation (why this project?/what are the vital signs?), workshop activity and discussion, wrap-up, and closing optional survey opportunity (Appendix D). Each facilitated dialogue addressed the aforementioned themes/questions by discussing the following topics/questions: wellbeing (e.g., What is wellbeing (including as it relates to nature)?), contributions (e.g., How does nature contribute to your wellbeing?), climate change (e.g., How does climate change impact your wellbeing?), and place (e.g., What places (in nature) contribute to your wellbeing? Why?). This particular project emphasized and intentionally selected to frame the discussions around "wellbeing," rather than "health." This was intentional after careful discussion of language and appropriate terms to use during the workshops. Thus, during the EPIC facilitated dialogues, wellbeing was used exclusively. Once the facilitated dialogues were planned and co-created (including materials), the project was submitted for ethics review (Institutional Board Review) and was approved. As part of the ethics review process, all workshop participants completed a signed consent form (that was also translated) at the beginning of each workshop.

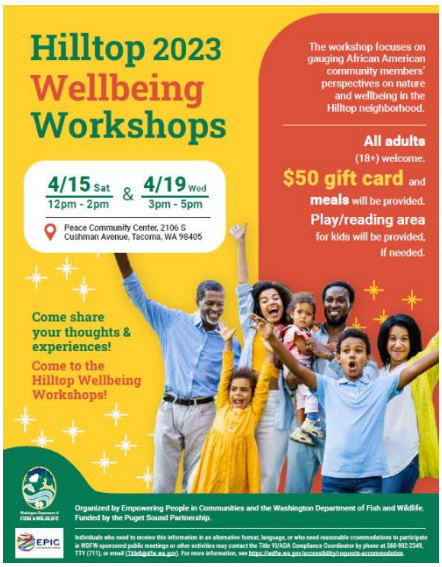


**Figure 29.** Flyer Example

Community participants were primarily elicited through community partners. Community partners took the lead on community outreach and engagement efforts; although flyers and outreach materials were WDFW graphic designer (all 2023 outreach flyers; Figure 29). In some cases, WDFW public engagement staff assisted with outreach, including through social media and distributing flyers around the City of Tacoma. Given the reliance on community partners and their relational networks,

the participants were elicited through referral sampling (snowball) and respondent-driven sampling (a form of referral sampling), two forms of nonprobability sampling. CBPR often relies on forms of nonprobability sampling by design. Referral sampling is often applied to engage minority or marginalized communities, address sensitive topics, build trust and relationships, and integrate a researcher into an unfamiliar context (Trimbach 2016). Respondent-driven sampling attempts to address potential sampling bias by ensuring more geographic and internal group (intersectional) representation (Heckathorn 1997). The latter form of sampling was intentionally used in order to ensure diversity among the elicited community members, notably by using multiple outreach mechanisms to ensure community participants included individuals not directly connected to community partners or their respective organizations or social networks. This was also partly done by expanding the sample criteria beyond Black and African American residents to all adult Hilltop residents to better reflect the intersectional dynamics of the broader Hilltop community, including those self-identifying as Black and African American. While referral sampling has its strengths, it also faces limitations like potential sample bias (e.g., self-selection bias).

During the facilitated dialogues, participants had the opportunity to engage in free-listing exercises (Jones and others 2019). Community members were provided prompts/questions (e.g., What is wellbeing?) and were provided the ability to free-list as many responses as they desired on provided sticky notes (Jones and others 2019; Biedenweg and others 2020. Participants were provided sticky notes to write their listed responses with provided writing utensils. Participants were given 5-10 minutes (or longer) to respond to each prompted question with as many responses as they desired or were able. Participants could walk up and place their sticky note on a shared blank poster board in the workshop space (Figure 30) or have workshop organizers (e.g., researcher, collaborators, and/or facilitators) collect their responses. Following each prompt, a facilitated discussion was led by an external facilitator from Cascadia Consulting Group (Mike Chang and/or Nicole Guitierrez). Participants had a high degree of flexibility, freedom, and openness with their responses. Due to this very open format, variations in dialogue richness and detail emerged depending on group size, timing of agenda items, group dynamics, and other issues. For example, participants oftentimes responded with one word or would write entire paragraphs on a sticky note as their response to the prompt. During each facilitated dialogue, the researcher took fieldnotes, particularly if new topics or questions emerged. Nearly every facilitated dialogue was also recorded (audio recorded) with some exceptions due to room size, group size, and group volume following group consent. The fieldnotes (meetings and workshops), were reviewed in order to contribute to lessons learned and best practices associated with this approach, which were provided to the Puget Sound Partnership (funder). Near the end of each facilitated dialogue, participants had an opportunity to complete an optional Human Wellbeing Survey. This was the same survey instrument and version that had been conducted for the 2020 Human Wellbeing

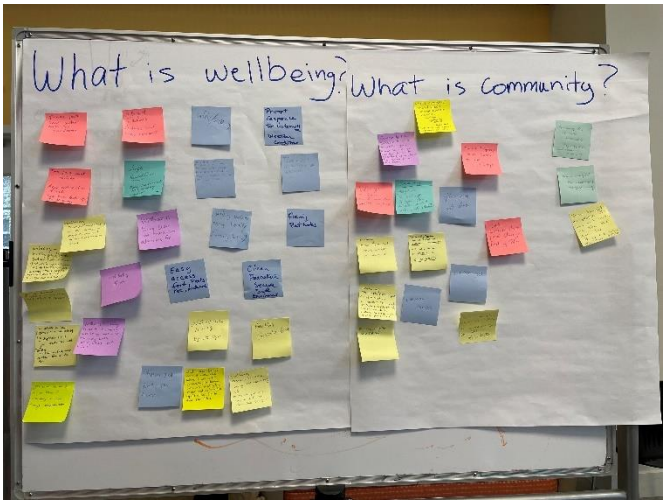


**Figure 30.** Workshop Response Examples

Vital Signs Survey and Latinx HWB project, both conducted by Oregon State University's Human Dimensions Lab. Both surveys were used to help monitor human wellbeing among Puget Sound residents in the region for the Puget Sound Partnership. A total of 76 workshop participants completed the optional survey instrument. All facilitated dialogue participants were provided a $50 gift card incentive for their participation, regardless of how much they participated or if they completed the survey. Since the surveys were embedded into the workshops, participants did have opportunities to ask for clarity, share questions, or request assistance. During and/or after each workshop, the researcher also took additional fieldnotes.

Following the workshops, the facilitated dialogue data (sticky note responses) were organized, translated (if needed), and coded via NVivo qualitative analysis software. The responses were analyzed via abductive analysis, blending both deductive and inductive coding (Dubois and Gadde 2002; Timmermans and Tavory 2012; Thompson 2022; Vila-Henninger and others 2022). Deductive codes were based on the Human Wellbeing Vital Sign categories (e.g., Healthy Human Population and Vibrant Quality of Life) and Vital Sign indicators (e.g., Sense of Place, Air Quality, etc.) with some flexibility with interpretation. For example, if someone responded with "water" or "air," and not "drinking water" or "air quality," those responses were coded to Water (Drinking, Fresh, Marine) (combining water-based wellbeing and biophysical indicators) and Air Quality. Additionally, if respondents mentioned aesthetics or aesthetic qualities and psychological benefits of nature (e.g., "reduces stress"), those responses were coded to Sense of Place, as Sense of Place includes those diverse elements. Inductive codes were based on a grounded coding process, which allowed for shared emergent themes or patterns to arise from participants' diverse responses. The abductive analysis and coding process was conducted iteratively and cyclically, allowing for revisiting, rethinking of alternatives or linkages, and recoding until saturation and mutually distinct, yet constitutive, codes were created. The inductive codes were categorized as Community Dimensions of human health and included a diverse range of community-based themes. Once the codes were created and defined in a codebook (Appendix A), the codes were shared with primary project collaborators (e.g., EPIC) to gauge their feedback and approval, if desired or feasible. If any codes or themes were rejected, the codes would be changed or updated; however, that did not take place. Given that responses often included more than one word, sometimes whole sentences or lists, responses were coded more than once; thus, responses likely were coded more than once with linked mutually constitutive codes. A complete list of all codes per workshop theme with responses, percentages of responses per theme, and examples are outlined in table (Appendix B).

Given that the project priority was the facilitated dialogues and relatively low sample size among workshop participants (n=50), descriptive statistics were largely conducted for the survey responses. Quantitative analysis of the survey data was conducted with the Statistical Package for the Social Sciences (SPSS 29) and Microsoft Excel. Further analysis may be conducted depending on need among the Puget Sound Partnership, community partners, and Human Dimensions Lab at Oregon State University. Given that the majority of survey questions focused on scales, Cronbach's alpha, a measure of internal consistency and reliability, was also calculated for all appropriate HWB Vital Signs. These HWB Vital Signs included: Good Governance, Sound Stewardship, Psychological Wellbeing, Sense of Place, Local Foods, and Cultural Wellbeing. A score of 70% or higher is considered a reliable index. This process was conducted in order to be consistent with how Oregon State University's Human Dimensions Lab processes and analyses the survey data (Fleming and others 2019; Fleming and others 2020; Justiniano and others 2021; Harrington and others 2023). Using this

information, an index was created for each Human Wellbeing Vital Sign. This approach is outlined with greater detail in the body of the report.

This approach did face challenges and limitations that directly or indirectly informed the project and likely its development, implementation, analysis, and results. Notable challenges and limitations included a 6 month gap in the project's timeline due to the researcher changing institutions and positions, that hindered any project progress. Other potential limitations included variations in workshop dates/times, variations in outreach efforts per community, variations in or changes in priorities between researcher and partners, shifting workshop dates, and language-related issues. Another key limitation was the high reliance on community partners and liaisons for participant elicitation, which likely informed who the workshop participants and survey respondents were and how or why they participated. Other limitations included the inability to hire of a research assistant within the project timeline, which impacted the division of labor for this project, notably the analysis and dissemination components.

# Appendix D. Human Wellbeing Vital Signs Survey

## PUGET SOUND HUMAN WELLBEING SURVEY

IMPORTANT QUESTIONS TO UNDERSTAND YOUR EXPERIENCES

A STUDY COMPLETED COOPERATIVELY BY:


PUGET SOUND PARTNERSHIP 326 East D Street Tacoma, WA 98421

Oregon State University 204 Hoveland Hall 2700 SW Campus Way Corvallis, OR 97331



**Thank you for participating in this survey of human wellbeing in the Puget Sound, funded by the Puget Sound Partnership. It should take less than 10 minutes of your time. Please complete the brief survey and return it to the researcher using the pre-paid envelope. Participation is voluntary, and your responses are completely confidential.**

**If you have any questions about the survey, please contact Principal Investigator Kelly Biedenweg by e-mail at Kelly.biedenweg@oregonstate.edu.**

**The results of this survey will be reported in the Puget Sound Partnership's *State of the Sound Report* in 2021. Please visit the following website for more details: http://ww w.psp.wa.gov/vitalsigns/**

**1. How much do you agree or disagree with the following statements related to the Puget Sound Region? Please circle one number for each question:**

| Statement | Strongly Disagree | Disagree | Somewhat Disagree | Neutral | Somewhat Agree | Agree | Strongly Agree | Don't Know |
|---|---|---|---|---|---|---|---|---|
| I have plenty of opportunities to influence natural resource decisions in the Puget Sound region if I want to | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |
| I have the freedom to make personal decisions about how natural resources are managed on my property | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |
| I feel well represented by the leaders of Puget Sound natural resource management processes | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |
| I trust regional policymakers to protect Puget Sound's natural resources | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |
| I have access to enough information regarding the social and economic consequences of how natural resources are managed in the Puget Sound | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |
| I have access to enough information regarding the environmental consequences of how natural resources are managed in the Puget Sound | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |
| I have access to enough information regarding the regulatory aspects of how natural resources are managed in the Puget Sound | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |

**What agencies, policymakers, or institutions were you thinking of when answering the above questions?:**

_____

**2. In the past year, about how often did you hunt, harvest, gather, or forage for the following food in the Puget Sound Region? Please circle one number for each item:**

| Local Food | Never | Rarely (1-2 times a season) | Occasionally (3-5 times a season) | Regularly (6-8 times a season) | Frequently (More than 10 times a season) | Don't Know |
|---|---|---|---|---|---|---|
| Fish | 1 | 2 | 3 | 4 | 5 | ☐ |
| Crab or Shrimp | 1 | 2 | 3 | 4 | 5 | ☐ |
| Clams (geoducks, oysters, or mussels (not razor clams)) | 1 | 2 | 3 | 4 | 5 | ☐ |
| Squid | 1 | 2 | 3 | 4 | 5 | ☐ |
| Deer or Elk | 1 | 2 | 3 | 4 | 5 | ☐ |
| Waterfowl | 1 | 2 | 3 | 4 | 5 | ☐ |
| Plants, Berries, or Mushrooms | 1 | 2 | 3 | 4 | 5 | ☐ |

**3. In the past year, about how often did you engage in stewardship behaviors/activities that you believed benefitted the environment? Please circle one number for each question:**

| Behavior/Activity | Never | Rarely (1-4 times a year) | Occasionally (Once a month) | Regularly (Once a week) | Frequently (Almost every day) | Don't Know |
|---|---|---|---|---|---|---|
| Behaviors that you believe effectively benefitted the environment | 1 | 2 | 3 | 4 | 5 | ☐ |
| Environmental behaviors that were personally meaningful to you | 1 | 2 | 3 | 4 | 5 | ☐ |
| Environmental behaviors that you believe are needed by the community | 1 | 2 | 3 | 4 | 5 | ☐ |

**4. Does your work involve spending time in natural environments (e.g. commercial or charter fishing, farming, forestry, habitat restoration, or outdoor-recreation jobs?**

☐ No ☐ Yes

→ **If Yes: About how many hours a week do you perform work that involves spending time in natural environments?**

☐ Less than 5 hours/week ☐ 5-10 hours/week ☐ 11-20 hours/week

☐ 21-30 hours/week ☐ More than 30 hours/week

**5. In the past year, about how often have you felt *inspiration* when spending time in the outdoors of the Puget Sound region? Please circle one number:**

| Never | Rarely (1-4 times a year) | Occasionally (Once a month) | Regularly (Once a week) | Frequently (Almost every day) | Don't Know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | ☐ |

**6. In the past year, about how often has spending time in the outdoors of the Puget Sound region helped you reduce *stress*? Please circle one number:**

| Never | Rarely (1-4 times a year) | Occasionally (Once a month) | Regularly (Once a week) | Frequently (Almost every day) | Don't Know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | ☐ |

**7. In the past year, how satisfied were you with your level of participation in any of the following cultural activities or traditions *related to the environment*? Please circle one number for each question:**

| Environmental Cultural Activity or Tradition | Dissatisfied | Somewhat Dissatisfied | Neither Satisfied nor Dissatisfied | Somewhat Satisfied | Satisfied | I do not engage in this activity or tradition | Don't Know |
|---|---|---|---|---|---|---|---|
| Native Practices or Activities (canoe journey, Tribal center events, potlach, etc.) | 1 | 2 | 3 | 4 | 5 | ☐ | ☐ |
| Spiritual or Religious Practices related to the environment (meditation, prayer, solstice observance etc.) | 1 | 2 | 3 | 4 | 5 | ☐ | ☐ |
| Environmental Practices or Activities Important to your Heritage (formal or informal family or community events, etc.) | 1 | 2 | 3 | 4 | 5 | ☐ | ☐ |
| Environmentally oriented Social Activities (environmental clubs, festivals, outdoor events, etc.) | 1 | 2 | 3 | 4 | 5 | ☐ | ☐ |

**8. About how many days per month on average did you participate in the following recreation activities in the Puget Sound region this past fall (about September - November). Please circle one number for each question:**

| Outdoor Activity | I do not engage in this activity | Less than 1 day per month | 1-4 days per month | 5-10 days per month | 11-20 days per month | More than 20 days per month | Don't Know |
|---|---|---|---|---|---|---|---|
| Motorized Trail Use (e.g. ATV or OHV Riding) | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Using Paved Paths or Trails for Walking, Running, Biking | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Using Unpaved Trails for Walking, Running, Biking, Horseback, Hiking, Backpacking | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Camping (Car or Back Country) | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Fishing | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Hunting | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Picnic or BBQ | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Motorized Boating | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Non-Motorized Water Sports (e.g. Kayak, Surf, Sailing, Swimming, Scuba) | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Skiing/Snow Boarding or Snowshoeing | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Gardening or Yard Work | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Wildlife Viewing/Birding | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |

**9. About how many days per month on average did you participate in the following recreation activities in the Puget Sound region this past Spring (about March – May). Please check one box for each question:**

| Outdoor Activity | I do not engage in this activity | Less than 1 day per month | 1-4 days per month | 5-10 days per month | 11-20 days per month | More than 20 days per month | Don't Know |
|---|---|---|---|---|---|---|---|
| Motorized Trail Use (e.g. ATV or OHV Riding) | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Using Paved Paths or Trails for Walking, Running, Biking | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Using Unpaved Trails for Walking, Running, Biking, Horseback, Hiking, Backpacking | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Camping (Car or Back Country) | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Fishing | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Hunting | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Picnic or BBQ | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Motorized Boating | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Non-Motorized Water Sports (e.g. Kayak, Surf, Sailing, Swimming, Scuba) | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Skiing/Snow Boarding or Snowshoeing | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Gardening or Yard Work | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |
| Wildlife Viewing/Birding | 1 | 2 | 3 | 4 | 5 | 6 | ☐ |

**10. How much do you agree or disagree with the following statements related to the Puget Sound Region?**

**Please circle one number for each question:**

| Statement | Strongly Disagree | Disagree | Somewhat Disagree | Neutral | Somewhat Agree | Agree | Strongly Agree | Don't know |
|---|---|---|---|---|---|---|---|---|
| I am very attached to the natural environment in the Puget Sound region | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |
| I am proud to live in the Puget Sound region | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |
| I feel responsible for taking care of Puget Sound's natural environment | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |
| Living in the Puget Sound region says a lot about who I am | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |
| Being able to engage in outdoor activities or cultural practices is important to my connection to the Puget Sound | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |
| I am mostly attached to parts of Puget Sound that are nearest to me | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |
| I could be satisfied living in other places outside the Puget Sound | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ☐ |

**11. In general, how satisfied or dissatisfied are you with your life overall? Please circle one number:**

| Dissatisfied | Somewhat Dissatisfied | Neither Satisfied nor Dissatisfied | Somewhat Satisfied | Satisfied |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

**12. How many years have you lived in the Puget Sound?** _____

**13. What is your sex?**

☐ Man ☐ Woman ☐ Other ☐ Prefer not to answer

**14. Which of the following best describes the area you live in? Please circle one number:**

| Urban | Suburban | Rural |
|---|---|---|
| 1 | 2 3 4 | 5 |

**15. What is the highest level of education you have completed? Please circle one number:**

| Elementary and High School | | | | | | | | | | | College or Technical School | | | | Graduate or Professional School | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24+ |

**16. What is your annual household income?**

☐ Less than $10,000 ☐ $10,000-$24,999 ☐ $25,000-$49,999 ☐ $50,000-$74,999
☐ $75,000-$99,999 ☐ $100,000-$149,999 ☐ $150,000-$200,000 ☐ Greater than $200,000

**17. What is your race? Mark all that apply.**

☐ Black or African American ☐ Native American or Native Alaskan ☐ Native Hawaiian or Other Pacific Islander
☐ Asian ☐ White ☐ Hispanic or Latino ☐ Other

**18. What is your age?** _____

**19. Which of the following do you consider yourself? Please circle one number:**

| Very Conservative | Conservative | Neither Conservative nor Liberal | Liberal | Very Liberal |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

**Thank you for completing this survey. If you have any additional thoughts on human wellbeing in your area, please write them here, as needed.**

# Appendix E. Selected Facilitated Dialogues Content

Hilltop Wellness Workshop Agenda

Organized by: Empowering People in Communities, Washington Department of Fish and Wildlife, and Cascadia Consulting Group

Funded by: Puget Sound Partnership

- **Introductions (20 minutes)**
- **Why this project? (5 minutes)**
- **Workshop Activity and Discussion (45-60 minutes)**
    - Respond to the following questions in groups or as individuals. Please go to each question or topic station. Spend as much time as you would like at each station. Please use the provided sticky notes to respond to each question(s) per station. Please feel free to ask questions and/or discuss your responses with others, including the organizers.
    - Nature and Health: What is wellbeing? How would you define wellbeing? What is community? How would you define community? Let's discuss together.
    - Health, Connections, and Values: How does nature contribute to your wellbeing? How does your community connect to nature? What do you value in nature? Use stick-notes.
    - Climate Change: What is climate change? How has climate change impacted nature? How has climate change impacted your wellbeing? Discuss examples. Use sticky-notes.
    - Place: What places in Puget Sound do you value? Why do you value them? Use the map provided and/or sticky-notes to respond to this question.
    - Vital Signs: Do the Vital Signs reflect your values? Do the Vital Signs reflect your responses? Do the Vital Sign reflect your community? Let's discuss.
- **Wrap-Up and Survey Opportunity (30 minutes)**
- **Thank you!** If you have any follow-up questions related to the workshop and workshop next steps, please contact Brendan Nelson from EPIC at nvision.epic@gmail.com and/or Dr. David Trimbach from the Washington Department of Fish and Wildlife at David.Trimbach@dfw.wa.gov.