Enhancing the Human Wellbeing Vital Signs through Inclusive Engagement Report

Washington Department of FISH & WILDLIFE

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Executive Summary

This report outlines the processes, lessons learned, and results from a collaborative multi-year (2021-2023) project focused on inclusively engaging Puget Sound residents in order to enhance the

Figure 1. View of Mt. Rainier and Tacoma from Ruston

Human Wellbeing (HWB) Vital Signs (VS). This project included establishing new sustainable community partnerships, co-creating knowledge with community partners, 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 the Asia Pacific Cultural Center (APCC) and Empowering People in Communities (EPIC), two Tacoma, WA-based community organizations. This approach included the co-creation of facilitated dialogues (community workshops) (combined n=218) and implementation of an optional Human Wellbeing Vital Signs Survey (2020 version; Appendix E) (combined n=126). While project results can be combined, this project was co-designed through a CBPR approach that was highly community-dependent. As such, the project was intentionally designed to be two separate, yet complementary and simultaneous, projects. This intentional design choice is illustrated in this report, as the report contains two community-specific reports with shared high level sections, including a shared executive summary, background, conclusions and recommendations, and appendices.

While complementary, both projects included distinct communities. One project emphasized Asian American and Pacific Islander (AAPI) residents of Puget Sound and was co-created with Faaluaina (Lua) Pritchard (Executive Director) of APCC. The second project emphasized Black and African American residents of Puget Sound with an emphasis on the Hilltop neighborhood in Tacoma and was co-created with Brendan Nelson, (Executive Director) of EPIC (Mr. Nelson was also affiliated with the Peace Community Center, where 2/3 of the workshops were physically held). The latter project shifted overtime from Black and African American residents to broader Hilltop residents.

Overall, the facilitated dialogues demonstrated that the HWB VS were relevant and resonated among participating community members. This was reflected in the workshop responses, that were abductively coded to the established Vital Signs[1] (Table 1) and coded to highlight emergent community dimensions of health/wellbeing[2] (Table 2). Variations did emerge among the different

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[1] For more information related to the coded responses linked to the Vital Signs or Community Dimensions of health/wellbeing, see Appendix B.

[2] Participating collaborators and communities selected different words when discussing human wellbeing. During the AAPI workshops, health was used to frame the discussions, while during the Hilltop workshops, wellbeing was used to frame the

participating communities. Cultural Wellbeing, Sense of Place, Outdoor Activity, and Good Governance, among others, were commonly referenced themes among participating Hilltop residents, demonstrating the linkages between nature, cultural or recreational practices (including those associated with family, place-based community, and spiritual/religious-based community), and peoples' connections, psychological benefits, and life satisfaction, derived from the natural environment (Table 2). Hilltop residents also emphasized Good Governance; however, governance or governing institutions were largely framed negatively or as neglectful, highlighting locally perceived environmental injustice.

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

Table 1. Human Wellbeing Vital Signs

Asian American & Pacific Islander Residents' Health (n=166)	Hilltop Residents' Wellbeing (n=52)
Physical Health	Accessibility
Plants and Trees	Equity
Place and Landscape	Physical Health
Fish and Wildlife	Place and Landscape
Environmental Condition	Plants and Trees

Table 2. Community Dimensions of Health and Wellbeing

Cultural Wellbeing and Sense of Place were also common themes among participating AAPI community members; however, some additional referenced themes were also quite salient, notably Local Foods, Air Quality, and Water Quality[3] (Table 1). Overall, when responses were combined, all already established HWB VS were reflected during the facilitated dialogues. AAPI communities referenced all HWB VS, while Hilltop residents referenced all except Shellfish Beds.

New Community Dimensions of human health/wellbeing also emerged during the workshops (Table 2). For example, Accessibility, Equity, and Physical Health were salient referenced themes among participating Hilltop residents, while Physical Health, Plants and Trees, and Place and Landscape were common referenced themes among participating AAPI community members. Participating community members also demonstrated climate change impacts on human health/wellbeing and identified places (mostly local) that contributed to their health/wellbeing. The workshop findings demonstrated that while the current iteration of the HWB VS appear to reflect diverse communities' relationships with and contributions from Puget Sound's natural environment, the region's diverse

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discussions. This was an intentional decision and reflected the CBPR approach, which emphasizes close collaboration and knowledge co-production.

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

communities also contain a multitude of alternative Community Dimensions of human health/wellbeing. This latter finding warrants more exploration within the Puget Sound Partnership's monitoring community, including through the potential inclusion of new indicators and also furthers calls for the greater inclusion of more communities within Puget Sound recovery.

Asian American & Pacific Islander Residents' Human Wellbeing Survey Results (n=76)	Hilltop Residents' Human Wellbeing Survey Results (n=50)
Good Governance: 5.19 on a 1-7 scale (strongly disagree to strongly agree). On average, participants largely responded between "somewhat agree" and "agree."	***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: 1.41 on a 1-5 scale (never to frequently). On average, participants largely responded between "never" and "rarely" (1-2 times a season).	***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: 2.95 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).	***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: 3.66 on a 1-5 scale (dissatisfied to satisfied). On average, participants largely scored between "neither satisfied nor dissatisfied" and "somewhat satisfied."	***Cultural Wellbeing: 3.29*** on a 1-5 scale (dissatisfied to satisfied). On average, participants largely scored between "neither satisfied nor dissatisfied" and "somewhat satisfied."
Sense of Place: 5.58 on a 1-7 scale (strongly disagree to strongly agree). On average, participants largely scored between "somewhat agree" and "agree." • ***Psychological Wellbeing: 3.40*** 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: 4.47*** on a 1-5 scale (dissatisfied to satisfied). On average, participants largely responded between "somewhat satisfied" and "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[4]:*** Most frequently engaged in recreational activities included: gardening/yard work and use of paved trails or paths. • ***Nature-based Work:*** 33% of respondents engaged in nature-based work with 20% engaging in such work 5 hours a week or more.[5]	***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 3. Human Wellbeing Survey Results Summary

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[4] Outdoor recreation activities are solely those that took place during the Fall and Spring months.
[5] Note that translations of "work" in natural environments may have varied contributing to alternative interpretations of the question.

Regional & Latinx Human Wellbeing Survey Results (2018-2022)[6]				
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 • Psychological Wellbeing • Life Satisfaction	5.66 • 3.94 • Not available	5.57 • 4.01 • Not available	5.49 • 3.98 • 4.41	5.02 • 3.64 • 3.98
Outdoor Activity • Outdoor Recreation • 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 • 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 • 12.42% engaged in nature-based work • 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 • 14% engaged in nature-based work • 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 • 36% engaged in nature-based work • More than 70% worked more than 5 hours a week

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

Overall, the self-selected survey respondents demonstrated similar patterns of human wellbeing as it related to the health of Puget Sound (Table 3). Both sets of community members had similar average responses to most Vital Sign questions. For example, participants from both groups had similar average responses to Local Foods (1.41, 1.39), Sense of Place (5.19, 5.05), and Cultural Wellbeing (3.66 , 3.29). While largely similar, some stark differences did emerge, notably for Good Governance (5.19 and 3.51) and Life Satisfaction (4.47 and 3.67). Both groups also share similar average responses with those Puget Sound residents who completed the regional and/or Latinx Human Wellbeing Surveys (Table 4). For example, both respondent groups shared similar average responses for Local Foods, Sense of Place, and Cultural Wellbeing when compared to the results of other Human Wellbeing Surveys (Table 4). Both respondent groups also shared similar Outdoor Activity responses with Latinx respondents (e.g., use of paved trails or paths and picnic/bbq). Both survey respondent groups did have some variation in comparison to the other surveys. For example, both groups shared similar average responses for Sound Stewardship, which was lower than regional average responses. Also, AAPI respondents had higher average responses for Good Governance than the findings demonstrated by other surveys, while Hilltop respondents had a lower Good Governance response average than all of the other surveys (including AAPI survey). The survey responses also helped further confirm and support some of the referenced themes and Community Dimensions from the facilitated dialogues. For example, Hilltop respondents frequently discussed Accessibility, Equity, and Safety (less than the former), often through an environmental (in)justice lens, demonstrating perhaps why Good Governance was rated lower among respondent groups when compared to the findings of all other surveys (including AAPI residents). All detailed findings and corresponding data visualizations are outlined per participating community and can be found in the community-based reports of this document.

Background

Puget Sound's natural environment is integral to the human wellbeing (HWB) (Box 1) of the region's diverse residents. This recognition is explicitly reflected through the Puget Sound Partnership's (Partnership) statutory goals (Stiles and others 2015), Social-Ecological Integrated Conceptual Framework (Harguth 2015), and HWB Vital Signs (VS) (Figure 2) (Biedenweg 2017; Biedenweg and Trimbach 2021). The HWB VS are social indicators of social-ecological system health and recovery in the Puget Sound region (Figure 2). These indicators were developed through an extensive multi-year highly collaborative process and were approved by the Partnership's Leadership Council in 2015 (Stiles and others 2015). Since their formal adoption, Oregon State University's Human Dimensions Lab, led by Dr. Kelly Biedenweg, has coordinated a 12-county survey

Box 1. Human Wellbeing (HWB)

Human wellbeing is defined as an interdisciplinary perspective on what allows humans to thrive in relation to the natural environment. HWB entails values, physical and psychological health, governance, and social, cultural, and economic wellbeing (Trimbach and others 2020).

instrument aimed at gauging human wellbeing among the region's residents (Fleming and others 2019; Fleming and others 2021; Justiniano and others 2021; Harrington and others 2023). The survey and its results contribute much to regional recovery efforts and environmental decision-making, including through the Partnership's overarching monitoring process, biennial State of the Sound report, and Action Agenda. The survey and larger effort also contribute much to regional understanding of the relationships among people, nature, and wellbeing in the region. The HWB VS have emerged as an exemplar case study on integrating human wellbeing via social indicators into ecosystem recovery and monitoring (Biedenweg and Trimbach 2021).
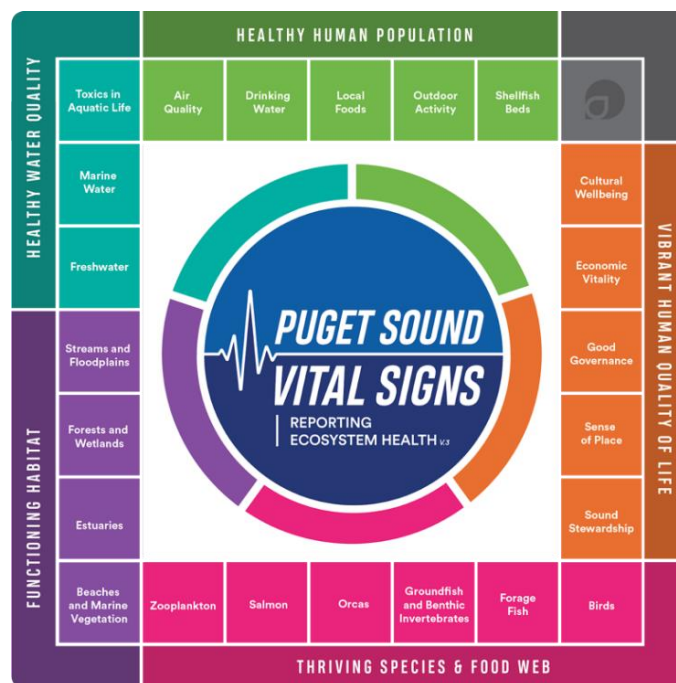
Figure 2. Human Wellbeing Vital Signs (Puget Sound Partnership 2023)
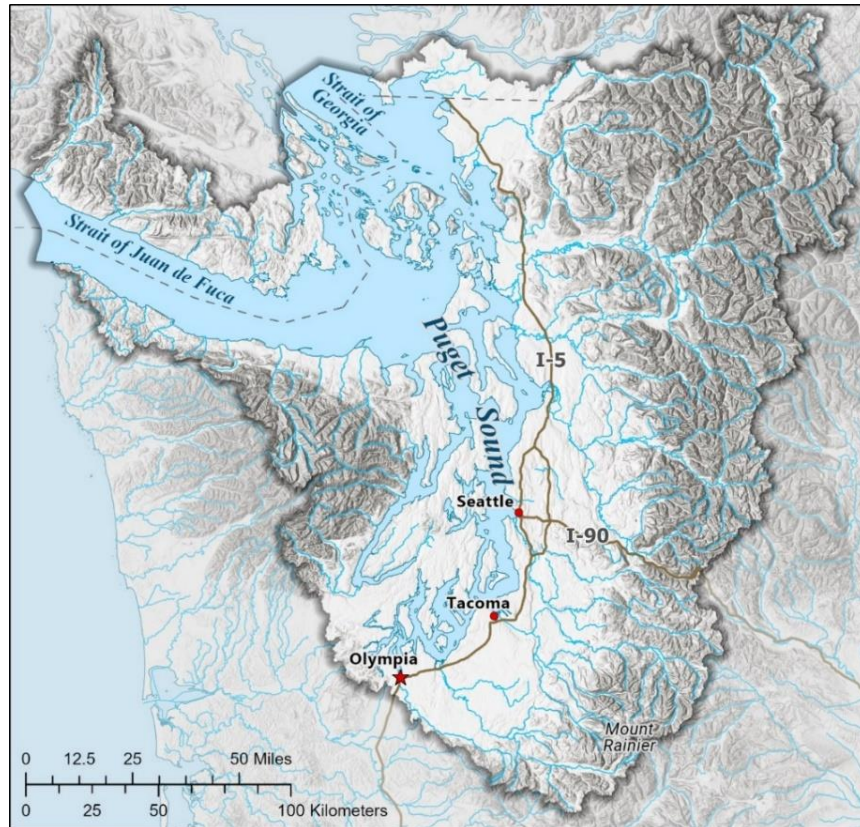
Figure 3. Puget Sound Map

The survey has taken place in 2018, 2020, and 2022 (Fleming and others 2019; Fleming and others 2021; Harrington and others 2023). Based on results of the 2018, 2020, and 2023 surveys, non-white resident engagement and consequently representation in survey results have been limited. For example, non-white representation was less than 20% (all non-white populations combined) in 2018, 12% (all non-white populations combined) in 2020, and 10% in 2022 (Fleming and others 2019; Fleming and others 2021; Harrington and others 2023). While white representation has largely remained representative of the region's population as a whole (roughly between 75-80%) and non-white representation combined has also remained roughly reflective of the region's population, individual racial or ethnic identity groups themselves have not been representative. For example, Black or African American residents comprised 5.54% of the region's population, Asian American and Pacific Islanders comprised 13.73%, and individuals self-identifying as embodying two or more races comprised 5.82% of Puget Sound's (Figure 3) population (in 2020), while the 2020 Human Wellbeing Survey respondents of those same group categories represented 0.88%, 3.01%, and 3.17% respectfully.[7] Such differences have been observed before and contributed to a Latinx resident project aimed at better gauging the region's Latinx population's human wellbeing (Justiniano and others 2021).

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[7] Demographic percentages come from the WA Office of Financial Management (2020).

Such low representation reflects wider challenges associated with the application of traditional social science research methods when attempting to engage minority populations (Laganà and others 2013; George and others 2014; Wilson and others 2018). Such low representation also demonstrates a growing need to address environmental justice (Box 2) and landscape justice within environmental planning, management, governance, and research (Finney 2014; Law and others 2017; 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). Landscape justice (LJ) is a form of environmental justice (EJ) that emphasizes people-place relationships and landscapes, including landscape-derived benefits and participation in landscape-based decisions, plans, or actions (Dalglish and others 2017; Egoz and De Nardi 2017; Garcia and others 2020). LJ is understood to be connected to health, wellbeing, inclusion, and belonging, notably among new residents (e.g., immigrants and refugees) (Dalglish and others 2017; Egoz and De Nardi 2017; Garcia and others 2020). Both EJ and LJ were considered when developing the initial concept and

> **Box 2.** Environmental Justice
>
> Environmental justice (EJ) generally refers to a lens, framework, and/or movement focused on fairness in the allocation of environmental burdens and benefits, and the allocation processes of those burdens and benefits (Scott 2014). EJ is multidimensional and often includes recognitional, procedural, and distributional justices (Holifield and others 2018).

design for this collaborative research project. Within the HWB VS monitoring context, whose wellbeing greatly matters as the monitoring data and findings demonstrate community recognition within regional monitoring (recognitional justice), which consequentially informs monitoring-based decision-making (procedural justice), and monitoring impacts (distributional justice), like those impacts associated with action plans, resource allocation, and value, interest, or even geographic site prioritization.

> **Box 3.** Community
>
> Community refers to a unit of identity as defined by a sense of connection and identification to other people, common values or norms, shared interests, symbols, and/or mutual needs (Israel and others 2005). Communities may include geographically bounded or place-based groups and/or those who share a common identity, like a racial, ethnic, sexual, or other form of identity (Israel and others 2005).

This project built upon this growing recognition and the need for greater inclusive engagement in Puget Sound recovery efforts (Noufi and Sheikh 2022) by elevating the human wellbeing of Black, African American, Asian American, and Pacific Islander (AAPI) residents of Puget Sound. These communities (Box 3) are particularly pertinent due to the shared, yet distinct, environmental injustices experienced by these resident groups, including inequitable risks and exposures to toxics or pollutants and even lack of a sense of belonging in nature (Hines 2001; Sechena 2003; Abel and White 2011; Grineski, Collins, and Morales 2017; Nay and others 2022). Both communities reside in the City of Tacoma, located in Pierce County, WA and in South Puget Sound. Tacoma has one of the largest Black and African American populations and AAPI populations in WA, including

a notably larger Black and African American population than Pierce County and WA overall.[8] Tacoma is also home to a historic predominantly Black and African American neighborhood known as Hilltop (Figure 4), located in central Tacoma above downtown, which is currently experiencing rapid gentrification and resident displacement (Williams 2018). Working in close collaboration from 2021-2023 with the Asia Pacific Cultural Center (APCC) and Empowering People in Communities (EPIC), two community-based nonprofit organizations located in Tacoma, WA (Figure 3), including one in Hilltop (EPIC), this project focused on two distinct regional communities through a community-based participatory research (CBPR) approach, a highly collaborative approach to research (see Approach and Appendix C) (Leavy 2017; Wilson and others 2018). The two distinct regional communities included (1) Black and African American residents in the Hilltop neighborhood of Tacoma, WA (Figure 4), and (2) Asian American and Pacific Islander (AAPI) residents in the greater Tacoma (Pierce County) area. While this project sought to focus on racial and ethnolinguistic place-based communities, the project also recognized and observed the interplay of intersectionality, or the simultaneously combined identities (e.g., race, ethnicity, linguistic, gender, migration status, and class, among others) and privileges/marginalities, among project participants (Crenshaw 1989; King 2022).
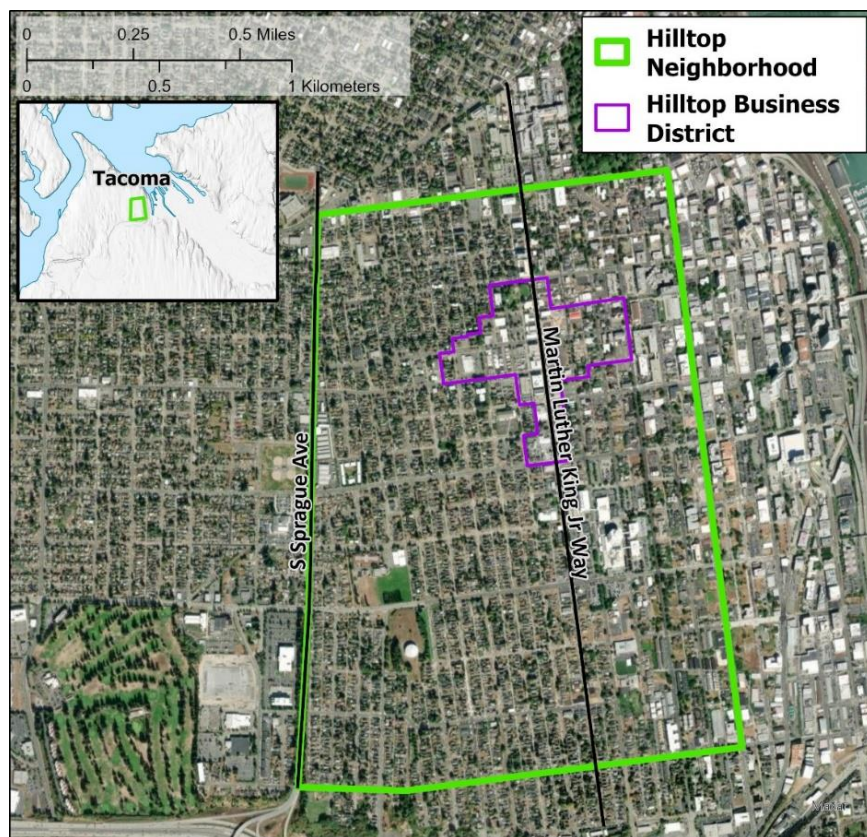
Figure 4. Hilltop Neighborhood Map

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[8] Based on WA Office of Financial Management's Estimates of April 1 population by age, sex, race and Hispanic origin dataset (Estimates of April 1 population by age, sex, race and Hispanic origin | Office of Financial Management (wa.gov)) and 2019 City of Tacoma report (Young and Tytos Consulting 2019).

Working closely with APCC and EPIC through a CBPR approach, that included co-created facilitated dialogues and optional Human Wellbeing Survey, the project sought to accomplish the following key objectives:

1. enhance knowledge of underrepresented communities' human wellbeing in the Puget Sound region;

2. expand HWB Vital Sign data, information, and messaging;

3. build new community relationships for sustainable long-term collaboration; and

4. create a protocol detailing how the work, if successful, can be sustained with an agency, program, or other durable funding source.

These objectives were achieved because of the CBPR approach undertaken with APCC, EPIC, and broader participating community members. These achieved objectives are captured throughout this report and in the ongoing community relationships with key project collaborators. The CBPR approach is outlined in the following section in a high level summary and described in greater detail with examples in the Appendices (Appendix C.).

Approach
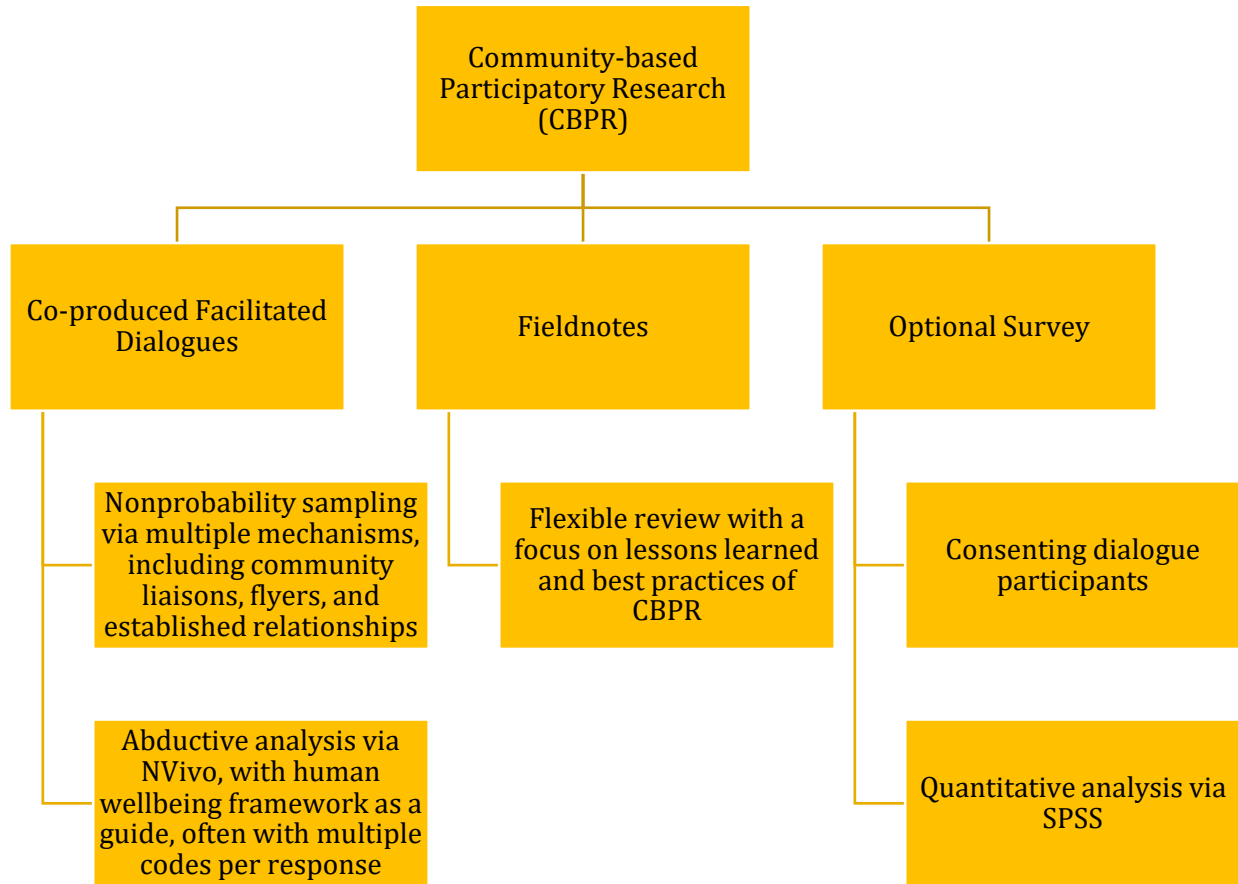
Figure 5. Project Approach

This project integrated a community-based participatory research (CBPR) (Box 4) approach (Figure 5) 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, African American, Asian American, and Pacific Islander communities in the Puget Sound region (Figures 3-4), specifically in the Tacoma, WA area. 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

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Box 4. Community-based Participatory Research (CBPR)

Community-based participatory research (CBPR) refers to a collaborative approach to social science research that aims to equitably engage communities, including researchers, organizational representatives, and/or individual community members in some or all elements of the research process, including by providing expertise and participating in shared decision-making and research responsibilities (Israel and others 1998, 2005; Leavy 2017).

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.
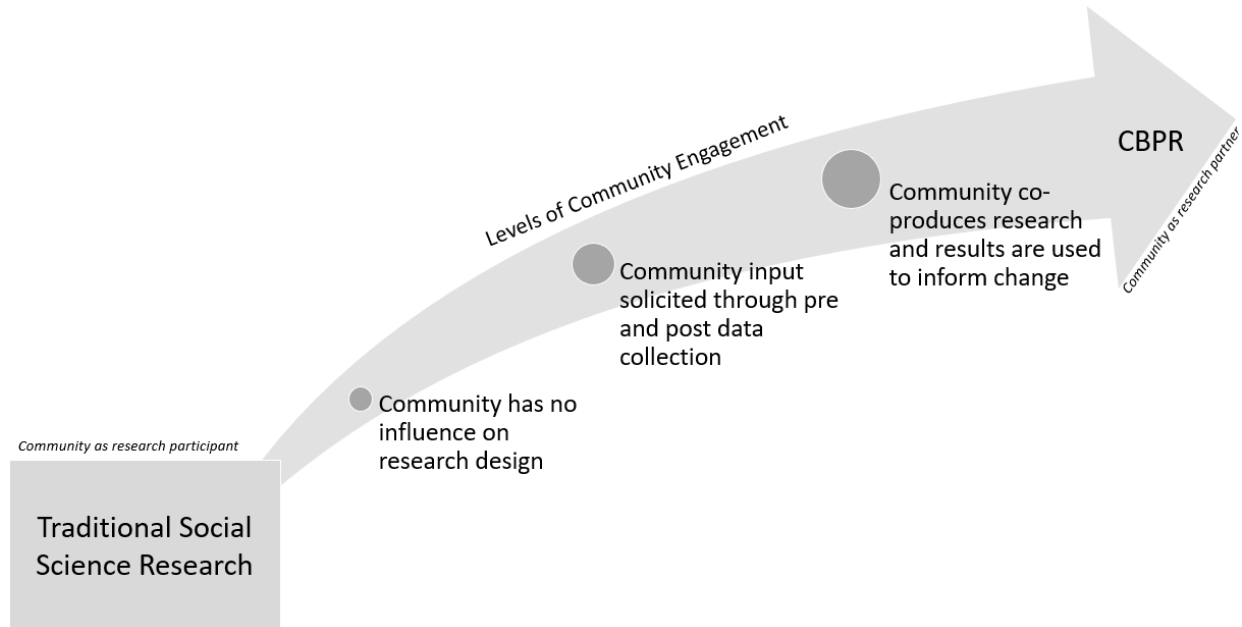

Figure 6. Levels of Community Engagement within Social Science Research (Modified from Michalak and others 2016)

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, underrepresented, 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 6). Through CBPR, community collaborators (e.g., APCC and 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. APCC and EPIC are frequently referred to as partners or collaborators, 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 AAPI and Hilltop residents are often referred to as community members or community participants; although there may be some variation.

Figure 7. General Process Diagram

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Box 5. Facilitated Dialogues
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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).

communities.

With CBPR as the overarching approach, the project included: the co-development of facilitated dialogues (referred to as FD in Figure 7) (Box 5), 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) (Figure 7). Given that this project is connected to nature and elements associated with WDFW, the researcher's agency, project follow-up actions are already being planned in order to address items that emerged from the workshops, including community and culturally relevant wildlife education/outreach events for partners and

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. Project partners included a diverse range of community organizations affiliated with Black, African American, Asian American, and Pacific Islander residents in Puget Sound. The researcher communicated and engaged both APCC and EPIC throughout this process, with some partial assistance from Communities for a Healthy Bay, a Tacoma-based environmental organization and the City of Tacoma's Office of Equity and Human Rights. Although the researcher formed an initial project concept and design, project partners 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 APCC and EPIC through a CBPR approach (outlined in greater detail in Appendix C), co-created a series of facilitated dialogues. Although CBPR was applied with APCC and EPIC, both partner-affiliated communities were distinct and contextually different; thus, while this project is written up (in this approach section and Appendix C) as if it was one large project, it was approached and implemented as two parallel simultaneous CBPR projects with different key partners and target communities, including for the facilitated dialogues.

The facilitated dialogues were co-created with project partners 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 Black, African American, and AAPI 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 Black, African American, and AAPI 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 project partners through extensive planning meetings (APCC: 10; 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: health (e.g., What is health (including as it relates to nature)?) or wellbeing (e.g., What is wellbeing (including as it relates to nature)?), contributions (e.g., How does nature contribute to your health or wellbeing?), climate change (e.g., How does climate change impact your health or wellbeing?), and place (e.g., What places (in nature) contribute to your health or wellbeing? Why?). Each paralleled project actually focused on either health (Asian American and Pacific Islander residents) or wellbeing (Hilltop residents). This was intentional after careful discussion of language and appropriate terms to use during the workshops. Thus, during the APCC facilitated dialogues, health was used exclusively and during the

EPIC facilitated dialogues, wellbeing was used exclusively. Also, during the EPIC workshop, an additional topic/question was discussed: community (e.g., What is community?). 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.

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 co-created with the researcher and in some circumstances a WDFW graphic designer (all 2023 outreach flyers; Figure 8). Given the reliance on community partners and their relational networks, including ethnolinguistic community liaisons (APCC), 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 within the AAPI context, which entailed the selection of specific ethnolinguistic communities (large and small) to ensure greater internal AAPI diversity. While referral sampling has its strengths, it also faces limitations like potential sample bias (e.g., self-selection bias). This engagement was done via multiple mechanisms, including specific community liaisons (APCC liaisons for the Thai, Korean, and Vietnamese communities), community partner social media, co-created flyers (often shared via social media), WDFW social media outlets (for selected EPIC workshops), and WDFW outreach staff (who placed hardcopy flyers around Tacoma for selected EPIC workshops). All outreach and facilitated dialogue materials (e.g., agendas, surveys, presentations, consent forms, workshop materials, etc.) were translated into other languages, as needed (e.g., Thai, Korean, and Vietnamese workshops). All materials were also shared with APCC before the workshops to ensure translations were accurate (although some issues did emerge later).

Figure 8. Flyer Example

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). For those workshops conducted with Thai, Korean, and Vietnamese residents, live in-person interpretation was provided with APCC's assistance and coordination. When appropriate, all presentations (e.g., slides) were also translated beforehand. Participants were provided sticky notes to write their listed responses with provided

writing utensils. Participants were given 5-10 minutes 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(s) on a shared blank poster board in the workshop space 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 factors. 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 (Appendix C). 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 Survey and Latinx HWB project. A total of 126 (Asian American and Pacific Islander Residents, n=76; Hilltop Residents, n=50) workshop participants completed the optional survey. 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/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 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 Appendix B. Given that the project priority was the facilitated dialogues and relatively low sample size among workshop participants per overarching group (n=76 and 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 per community in the following sections. The overarching CBPR approach with lessons learned, examples, and recommendations are outlined in Appendix C.

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 hiring of a research assistant, which impacted the division of labor for this project, notably the analysis and dissemination components.

Asian American & Pacific Islander Residents' Health & Nature

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). This particular project focused on enhancing inclusive engagement among Asian American and Pacific Islander (AAPI) community members in the Puget Sound region, a community underrepresented within current human wellbeing monitoring efforts. This project focused on enhancing inclusive engagement among Asian American and Pacific Islander (AAPI) community members in the Puget Sound region, a community underrepresented within current human wellbeing monitoring efforts. This project included establishing new sustainable community partnerships, co-creating knowledge with community partners, 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 the Asia Pacific Cultural Center (APCC) located in Tacoma, WA. This approach included the co-creation of facilitated dialogues (community workshops) (n=166) and implementation of an optional Human Wellbeing Vital Signs Survey (n=76).

Healthy Human Population	Vibrant Human Quality of Life
Air Quality	Cultural Wellbeing
Drinking Water[9]	Economic Vitality
Local Foods	Good Governance
Outdoor Activity	Sense of Place
Shellfish Beds	Sound Stewardship

Table 5. Human Wellbeing Vital Signs

Asian American & Pacific Islander Residents' Health (n=166)
Physical Health
Plants and Trees
Place and Landscape
Fish and Wildlife
Environmental Condition

Table 6. Community Dimensions of Health

Overall, the facilitated dialogues demonstrated that the Human Wellbeing Vital Signs were relevant and resonated among participating AAPI community members (Table 5). This was reflected in the workshop responses. For example, Air Quality, Water Quality (includes Drinking, Fresh, and Marine),

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[9] The Human Wellbeing Vital Signs include Drinking Water and the biophysical Vital Signs include Freshwater and Marine Water Quality; however, many community members mentioned "water" in various forms and iterations, so for the purpose of this project these three Vital Signs have been merged into one (Water Quality).

Local Foods, Outdoor Activity, Sense of Place, and Cultural Wellbeing were common themes among participating AAPI community members' responses. New Community Dimensions of human health[10] also emerged during the workshops (Table 6). For example, Physical Health, Plants and Trees, Place and Landscape, Fish and Wildlife, and Environmental Condition (general) were common themes among participating AAPI residents' responses. Many of these new Community Dimensions largely demonstrated cultural, aesthetic, existence, inherent, and recreational values associated with nature's contributions to human health (Chan and others 2012; Belaire and others 2015; Dickinson and Hobbs 2017; 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 health (Bieling and others 2014; Jones and others 2019).

Asian American & Pacific Islander Residents' Human Wellbeing Survey Results (n=76)
Good Governance: 5.19 on a 1-7 scale (strongly disagree to strongly agree). On average, participants largely responded between "somewhat agree" and "agree."
Local Foods: 1.41 on a 1-5 scale (never to frequently). On average, participants largely responded between "never" and "rarely" (1-2 times a season).
Sound Stewardship: 2.95 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: 3.66 on a 1-6 scale (dissatisfied to satisfied). On average, participants largely scored between "neither satisfied nor dissatisfied" and "somewhat satisfied."
Sense of Place: 5.58 on a 1-7 scale (strongly disagree to strongly agree). On average, participants largely scored between "somewhat agree" and "agree."   **Psychological Wellbeing: 3.40** 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: 4.47** on a 1-5 scale (dissatisfied to satisfied). On average, participants largely responded between "somewhat satisfied" and "satisfied."
Outdoor Activity   **Outdoor Recreation:** Most frequently engaged in recreational activities included: gardening/yard work, and use of paved trails or paths.   **Nature-based Work:** 33% of respondents engaged in nature-based work with 20% engaging in such work 5 hours a week or more.[11]

Table 7. Human Wellbeing Survey Results Summary

Regional & Latinx Human Wellbeing Survey Results (2018-2022)[12]				
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

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

[11] Note that translations of "work" in natural environments may have varied contributing to alternative interpretations of the question, notably among Korean speaking community members.

[12] 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).

Cultural Wellbeing	Not Applicable due to survey modifications between 2018 and 2020	3.64	3.81	3.73
Sense of Place • Psychological Wellbeing • Life Satisfaction	5.66 • 3.94 • Not available	5.57 • 4.01 • Not available	5.49 • 3.98 • 4.41	5.02 • 3.64 • 3.98
Outdoor Activity • Outdoor Recreation • 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 • 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 • 12% engaged in nature-based work • 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 • 14% engaged in nature-based work • 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 • 36% engaged in nature-based work • More than 70% worked more than 5 hours a week

Table 8. Regional & Latinx Human Wellbeing Vital Signs Survey Results

Overall, the AAPI survey respondents demonstrated similar patterns of human wellbeing as it relates to the health of Puget Sound when compared to findings from other Human Wellbeing Vital Signs Surveys (Tables 7-8). Participating AAPI community members had similar average responses to most VS questions. For example, AAPI respondents had similar average responses to Local Foods (1.41), Cultural Wellbeing (3.66), and Sense of Place (5.19). Community members' Cultural Wellbeing was frequently discussed during the facilitated dialogues, notably outdoor community, spiritual/church, and family activities. While largely similar, some stark differences did emerge compared to the other survey findings. For example, AAPI respondents had higher average responses to Good Governance (5.19) and lower average responses to Sound Stewardship (2.95). For example, governance was not a frequently mentioned topic or theme, illustrating (by omission) that governance or lack thereof was

not a major environmental topic of concern. All detailed findings and corresponding data visualizations are outlined in the following sections.

Introduction

Figure 9. "Shellfish Gathering with Outdoor Asian"[13]

Working in close collaboration with the Asia Pacific Cultural Center (APCC) located in Tacoma, WA, notably Executive Director Faaluaina (Lua) Pritchard (co-author), 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 largely 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 6). 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

> **Box 6.** 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

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[13] Figure was sourced from WDFW's Photo and Media Gallery. Photo originally taken by Diane Tilton (WDFW).

changes to the monitoring of human wellbeing coordinated by the Puget Sound Partnership and its diverse network of partners.

The researcher reached out to APCC during the project proposal development process with the intention of co-developing the project and co-creating new knowledge to enhance the Puget Sound Partnership's Human Wellbeing Vital Signs. Once APCC approved and consented to participating in the project, the project proposal was submitted and eventually funded. Although the researcher formed an initial project concept and design, APCC 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 10 project planning meetings and 4 community workshops. The workshops themselves ranged from 1.5-2.5 hours in length. Each workshop took place at APCC located in South Tacoma, which includes a large community center with varying types and sizes of community gathering spaces. The facilitated dialogues attracted 166 (n) community participants. The workshops were intentionally organized to include the following groups: (1) local AAPI community leaders; (2) Thai community members, including Thai speakers; (3) Korean community members, including Korean speakers; and (4) Vietnamese community members, including Vietnamese speakers. These groups were selected largely based on engagement feasibility, local presence, local knowledge, and relationships of APCC, including APCC community liaisons. While each workshop focused on a different group, each workshop included identical agendas that included: ice breaker activity (nature bingo social activity), 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 Vital Signs Survey (2020 version). A total of 76 (n) workshop participants completed the optional survey instrument. For three of the workshops, all materials (handouts, presentation, and survey) were translated in the respective languages of the target communities (e.g., Thai, Korean, and Vietnamese) and interpretation was also provided in-person during the workshops. 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

Workshop (#)	Participants (#)	Surveys Completed (#)	Survey Response Rate (%)	Date	Location	Target Audience
1	21	17	81%	4/14/2022	Asia Pacific Cultural Center, Tacoma, WA	AAPI community leaders
2	12	11	92%	4/4/2023	Asia Pacific Cultural Center, Tacoma, WA	Thai residents
3	32	30	96%	4/18/2023	Asia Pacific Cultural Center, Tacoma, WA	Korean residents
4	101	18	18%	4/26/2023	Asia Pacific Cultural Center, Tacoma, WA	Vietnamese residents
Totals:	**166**	**76**	**46%**			

Table 9. Facilitated Dialogue Information

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 AAPI community members?); (3) variations of human wellbeing, including interpretations, perspectives, and values (Are there variations in human wellbeing among Puget Sound communities, notably AAPI community members?); (4) climate change impact's on human wellbeing (How does climate change impact AAPI community members' human wellbeing?); (5) places that contribute to human wellbeing (What places contribute to AAPI 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) health; (2) nature's contributions to health; (3) climate change impacts on health; and (4) places that contribute to health. Each theme was oriented with an emphasis on nature and Puget Sound.

Between 2022-2023, 4 community workshops were held at APCC in Tacoma, WA (Table 9). Each workshop intentionally focused on a different AAPI audience or population. The workshops included culturally and community appropriate refreshments organized by APCC for all participants. The final workshop was organized and integrated into a community event (wedding anniversary for a well-known couple, who also prepared food for the workshop). Table 9 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 participants. 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 (typically after 5-10 minutes, depending), 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) (Figure 10) and workshop audio (partial due to varying room and group sizes and logistics). For the purpose of this report, the written responses were the primary source of data, other than fieldnotes, used and analyzed for this project. For all written responses in Thai, Korean, or Vietnamese, those were externally translated. 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 water-based wellbeing and biophysical indicators) and Air Quality. Or if participants mentioned "healthy food" or "eating well," those responses were flexibly coded to Local Foods, even if no specific local foods were explicitly mentioned; although in some cases local foods were explicitly mentioned, like seaweed or clams. 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 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

Figure 10. Facilitated Dialogue Question Example with Responses ("What is health?") from Korean Community Workshop

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 to gauge their feedback and approval. If any codes or theme was 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 Appendix B. The overarching themes (e.g. Health) and associated codes (e.g., Physical Health) are outlined in the following sections. Each section includes the number of participants (n=166) and number of responses per theme (e.g., responses: 121). 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%, but rather aim to reflect code frequency, with codes representing workshop participants' responses. Although limited, some sections may also include some limited interpretation with links to relevant research.

Health (n=166; responses: 121)
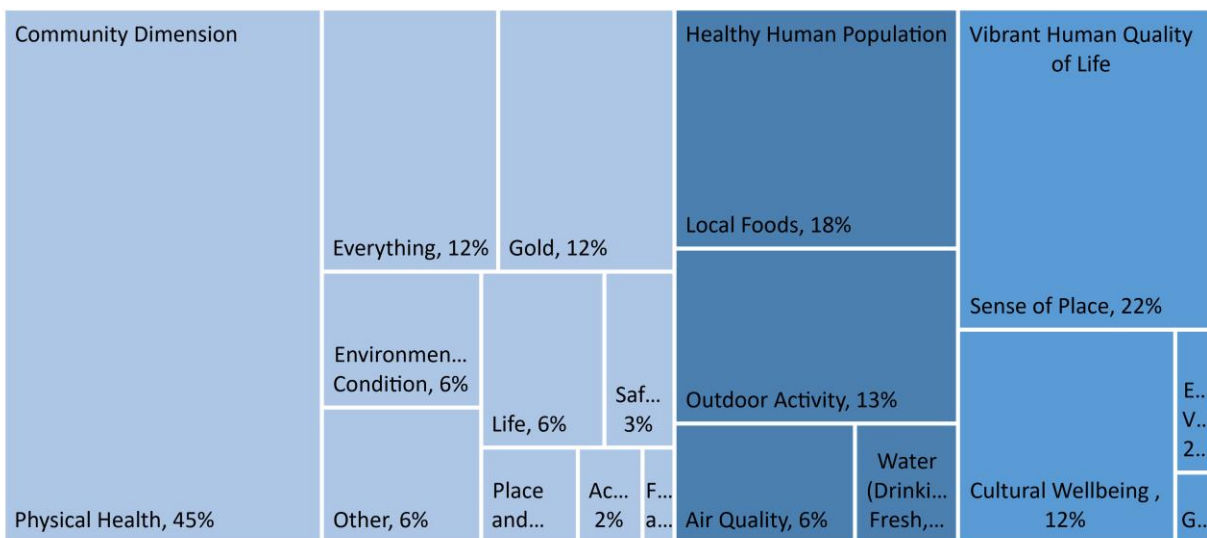
Figure 11. Community Members' Dimensions of Health[14]

When asked to define health (e.g., what is health?), including nature's linkages to health, respondents largely responded with community-based dimensions of health (Community Dimension), notably Physical Health (45%). For example, one participant responded with "nutrition," (Workshop #1 Participant, 4/14/2022). Numerous participants mentioned multiple types of health, that included physical health in their responses. For example, one participant responded with "To live a healthy life physically, mentally, and spiritually," (Workshop #3 Participant, 4/18/2023). Participants also often responded with words or phrases, often verbatim, associated with gold, everything, and life. Gold and everything in particular were frequently observed among the responses, notably during Workshop #4 among Vietnamese speakers. According to the Workshop #4 interpreter, connections between gold and health are often well-used among Vietnamese speakers, and was actually noted in

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[14] For those Community Dimensions that are difficult to see due to Figure 11 limitations, see Appendix B for facilitated dialogue theme and response tables. Please use this guidance for all report Figures, as not all response themes or percentages may be easily visible due to space issues in the report. Also note, that % outlined in the report Figures are rounded, while the tables located in the Appendices include the original percentages.

research elsewhere (McPhee and others 1996). Participants also shared responses that aligned with the Human Wellbeing Vital Signs, notably Sense of Place (22%) (includes references to Psychological Wellbeing and Life Satisfaction) and Local Foods (18%). For example, one participant mentioned that "long healthy life, use nature to calm down my complicated mind," was a part of health (Workshop #3 Participant, 4/18/2023).

Contributions (n=166; responses: 130)

Healthy Human Population		Community Dimension		Vibrant Human Quality of Life	
Air Quality, 44%	Water (Drinking, Fresh, Marine), 29%	Place and Landscape, 27%	Plants and Trees, 26%	Sense of Place, 29%	
Outdoor Activity, 25%	Local Foods, 12%	Environ… Condition, 10%	Fish and Wildlif… 8% / Physical Health, 7% / Sa… 2% E… 2% A… 2%	Cultural Wellbeing, 18% / Sound Stewardship, 12%	
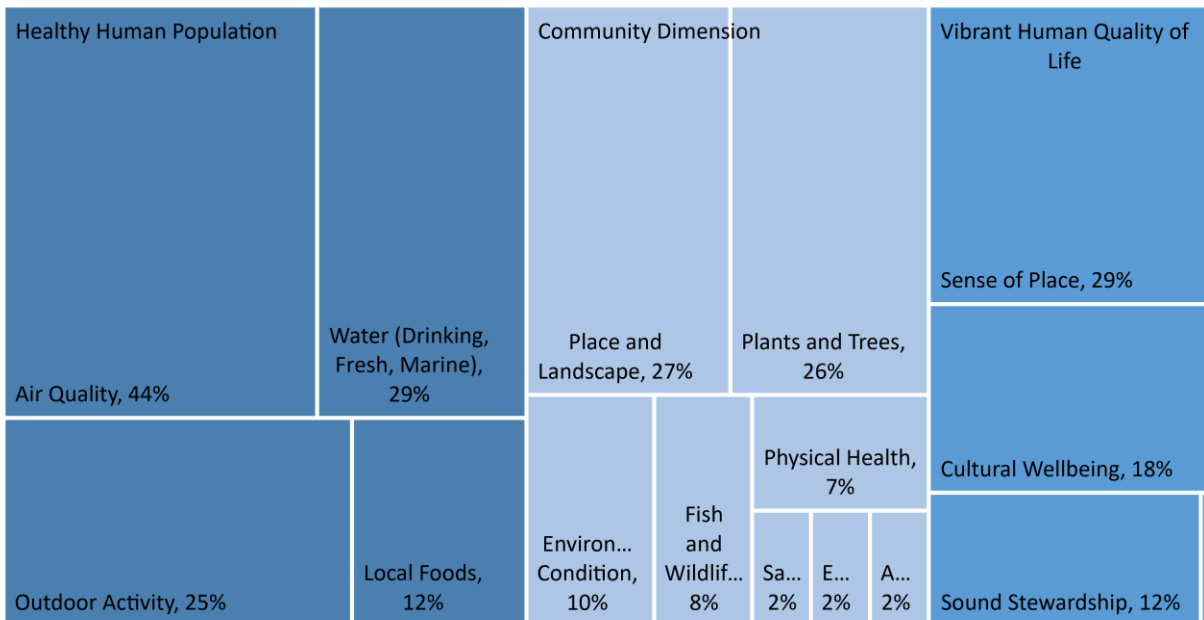
Figure 12. Nature's Contributions to Community Members' Health

When asked to define how Puget Sound's natural environment contributes to peoples' health (e.g., how does nature contribute to your health?), respondents largely responded with dimensions aligned with the Healthy Human Population Vital Signs, notably Air Quality (44%) and Water (or Water Quality) (inclusive of Drinking, Fresh, and Marine) (29%). For example, one participant stated, "air clean, clean water," (Workshop #1 Participant, 4/14/2022). Participants also shared responses aligned with the Vibrant Human Quality of Life Vital Signs, including Sense of Place (29%). For example, one respondent shared that "we watch the birds activities at home or the parks and they connect us to the rest of the environment," demonstrating not only Sense of Place, but how Outdoor Activity (e.g., wildlife viewing/bird watching) contributes to their Sense of Place (Workshop #1 Participant, 4/14/2022), as noted elsewhere (Wilkinson and others 2014). Participants also shared responses that did not necessarily reflect the Human Wellbeing Vital Signs. Of these emergent alternative Community Dimensions, Place and Landscape (27%) and Plants and Trees (26%) were the most frequently coded responses. Often these responses demonstrated some connected use relational, intrinsic, or inherent value. For example, one respondent shared that nature contributes to their health by providing opportunities to "walk on the beach at the Puget Sound" (Workshop #1 Participant, 4/14/2022). Another participant mentioned that "trees that help air quality," were important contributors to their health (Workshop #2 Participant, 4/4/2023). Such linkages between place, landscape, and their natural attributes (e.g., trees and plants) have been highlighted elsewhere (Bieling and others 2014; Turner-Skoff and Cavender 2019). Such connections may partly

(indirectly) be linked to some of the Vital Sign's biophysical indicators and greater health of Puget Sound.

Climate Change (n=166; responses: 125)
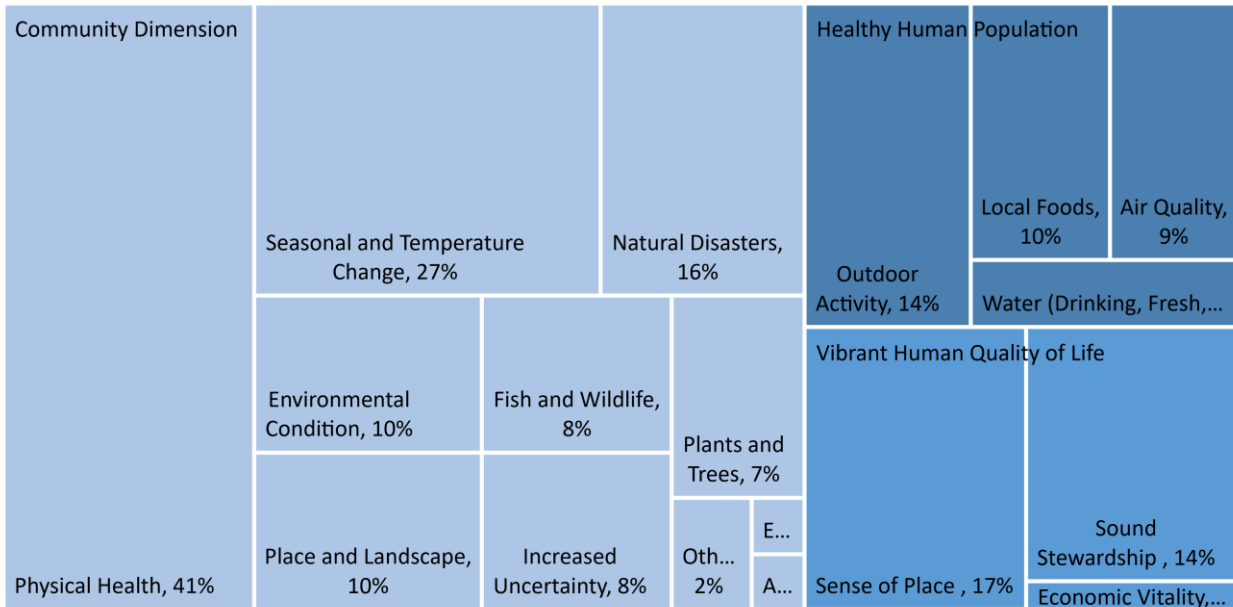
Figure 13. Climate Change Impacts on Community Members' Health

When asked to identify how climate change impacts peoples' health (e.g., how does climate change impact your health?), workshop participants largely shared responses reflecting new Community Dimensions of health, notably Physical Health (41%), Seasonal and Temperature Change (27%) (examples), and Natural Disasters (16%). For example, one respondent shared that climate change impacts have triggered "allergy reaction more often," (Workshop #1 Participant, 4/14/2022), while another stated that climate change impacts people getting "more sick, many people get more sick," (Workshop #2 Participant, 4/4/2023). Some participants also shared responses reflecting the Human Wellbeing Vital Signs, notably Sense of Place (17%) (largely related to Psychological Wellbeing) and Outdoor Activity (14%) (typically the prevention of engaging in recreational activities). For example, one participant shared that climate change impacts their health, including by causing them "stress," (Workshop #1 Participant, 4/14/2022).

Place (n=166; responses: 119[15])

The final theme/question of the workshops focused on place, notably what (natural) places contribute to AAPI residents' health. Place and landscape have been noted to contribute to peoples'

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[15] Note that when asked about Place (in general), community members provided 119 total responses. Out of those 119 responses, 98 places were identified, including 47 specific places and 51 broadly defined places. Thus, the total responses listed (98) 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.

health and wellbeing (Bieling and others 2014; Dalglish and others 2017; Egoz and De Nardi 2017; Garcia and others 2020), 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 as many may be new residents), the activity was integrated into the free-listing sticky note exercise near the end of each facilitated dialogue. Given that this was not a participatory mapping exercise, participants were given the ability to answer openly (Biedenweg and others 2021). Participants were asked to identify places that contribute to their health 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 participants. 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. The responses are outlined below and include figures and corresponding maps.

Where? (n=166; responses: 51 (Broad), 47 (Specific))
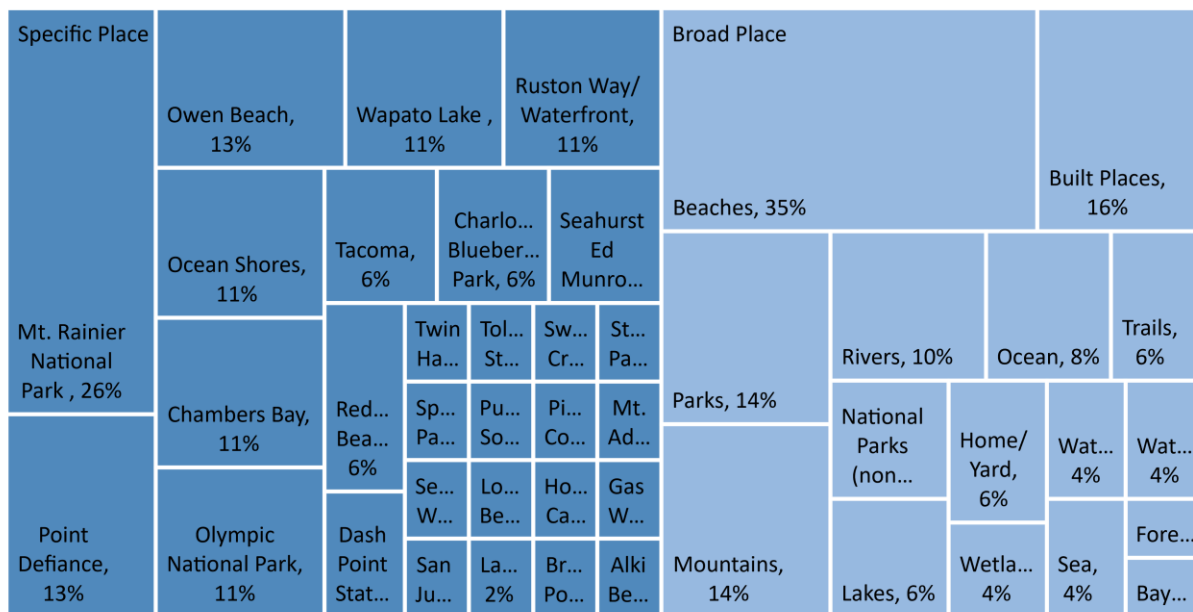
Figure 14. Places that Contribute to Community Members' Health

When participants were asked to identify places in Puget Sound that contributed to their health, respondents provided both broadly defined (52%) and specific (48%) places (Figure 14). The most frequently shared broadly defined places included beaches (35%), built places (16%), parks (14%), and mountains (14%). These broad responses were aligned with and reflected the specific places shared. The most frequently shared specific places included Mt. Rainer National Park (26%) (located in Pierce County, WA), Point Defiance Park (13%) (Tacoma, WA), and Owen Beach (13%) (part of Point Defiance Park in Tacoma, WA). While respondents shared places both outside and inside the

greater Puget Sound region (Figure 15), the vast majority of places were highly local to Tacoma, WA (Figure 16).
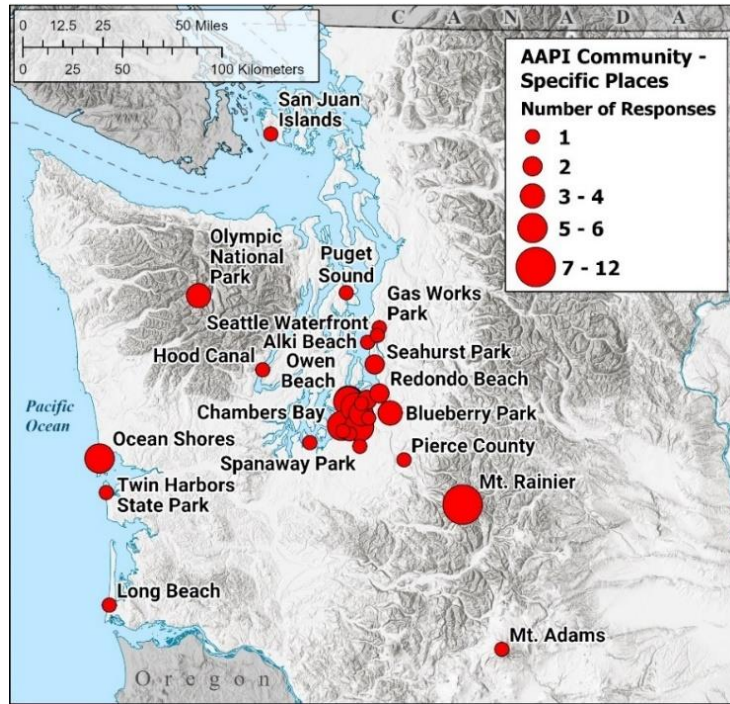
Figure 15. Regional Map of Places that Contribute to Community Members' Health
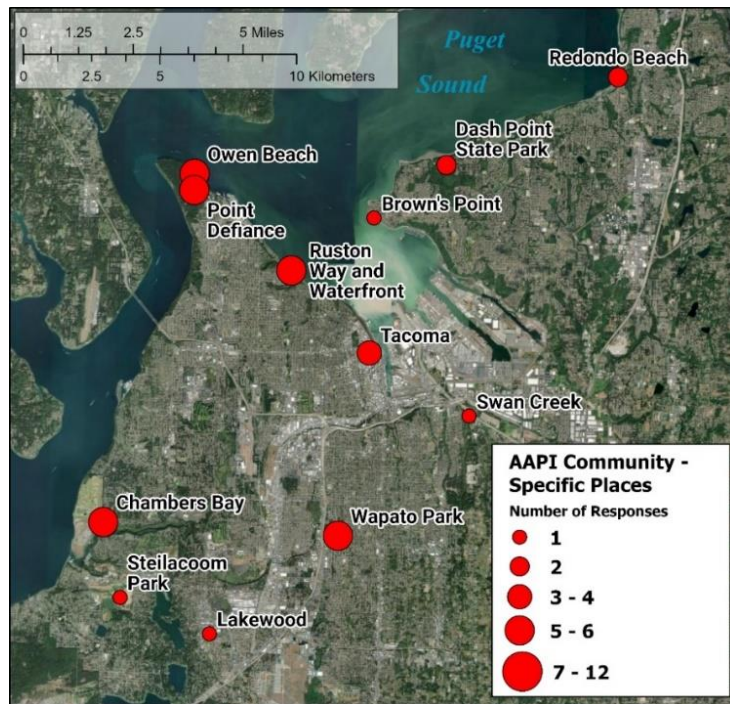
Figure 16. Local Map of Places that Contribute to Community Members' Health

Why? (n=166; responses: 65)
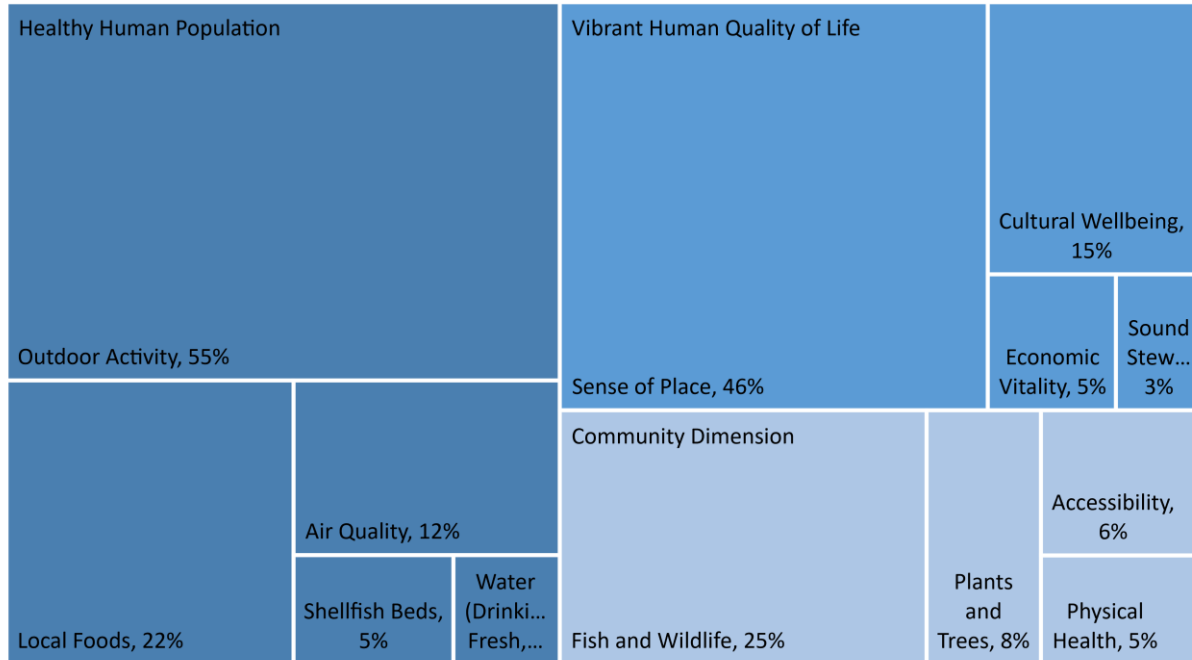
Figure 17. Places' Contributions to Community Members' Health

When asked to explain how or why the aforementioned places contributed to community members' health, respondents largely shared responses aligned with the Human Wellbeing Vital Signs (Figure 17). The most frequently shared responses were coded to Outdoor Activity (55%), Sense of Place (46%), and Local Foods (22%), and Cultural Wellbeing (15%). For example, one respondent shared "Mt. Rainer," as it provides opportunities "for camping," (Workshop #3 Participant, 4/18/2023). Another participant shared that "Tolmie State Park," (near Tacoma, WA) because it provides opportunities for "walking, clam digging, and picnic,"(Workshop #3 Participant, 4/18/2023). While the majority of responses reflected the Human Wellbeing Vital Signs, some participants shared new Community Dimensions, including Fish and Wildlife (25%), Plants and Trees (8%), and Accessibility (6%). For example, one participant shared "Point Defiance Park," because it offers opportunities to "enjoy walking, see the plants and trees, [and] wildlife," (Workshop #2 Participant, 4/4/2023).

Conclusions and Recommendations

Asian American & Pacific Islander Residents' Health (n=166)
Physical Health
Plants and Trees
Place and Landscape
Fish and Wildlife
Environmental Condition

Table 10. Community Dimensions of Health

Through the co-created facilitated dialogues, AAPI community participants (n=166) shared a diverse range of responses that reflected the Human Wellbeing Vital Signs and emergent Community

Dimensions of human health. The workshops revealed that when asked to discuss health, nature's contributions to health, climate change impacts on health, and places' contributions to health, workshop participants largely shared responses reflecting Outdoor Activity, Local Foods, Sense of Place, Cultural Wellbeing, Air Quality, and Water (or Water Quality) (Drinking, Fresh, Marine). While these were the most frequently coded Human Wellbeing Vital Signs-aligned responses, all other already established Vital Signs were also reflected in the responses, including Economic Vitality, Sound Stewardship, Shellfish Beds, and Good Governance. Thus, participants shared responses that reflected all 10 Human Wellbeing Vital Signs, notably those monitored through the regional Human Wellbeing Vital Signs Survey. This response pattern demonstrated that the Vital Signs in their current iteration were relevant and resonated with AAPI workshop participants. The frequency of various Vital Signs during the discussions and emergence of new community-derived Community Dimensions reflected variations in how communities interpret health and the health-nature nexus. The most frequently coded Community Dimensions responses reflected Physical Health, Place and Landscape, Plants and Trees, Fish and Wildlife, and Environmental Condition (Table 10). These particular coded responses demonstrated that participating community members directly connected nature to their physical health, specific places or landscapes, and place-based attributes or non-human beings, like plants, trees, fish, and wildlife. These coded responses also illustrated alternative understandings of how nature more directly impacts peoples' health and the inherent, intrinsic, relational, existence, and/or use values associated with places, landscapes, and the fish or wildlife that reside in those places or landscapes. These linkages have been demonstrated elsewhere, as place, landscape, trees, plants, fish, and wildlife have been observed to contribute to human health and wellbeing (Chan and others 2012; Bieling and others 2014; Turner-Skoff and Cavender 2019). Such linkages were also reflected in the climate change and place discussions; however, participants did face challenges connecting climate change to health, as many referred to examples of climate change during the discussion (e.g., seasonal or temperature changes, natural disasters, and impacts of place, landscape, fish, wildlife, and general environmental conditions) rather than directly or explicitly linking climate change impacts to their health.

Based on the results of the discussion, the workshop results illustrate potential alternatives and recommendations for the Human Wellbeing Vital Signs. Recommendations include exploring potential indicators that focus more on (1) physical health (e.g., available data from WA Department of Health, like those captured by the Environmental Health Disparities Map), (2) 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), (3) place and landscape (e.g., could be integrated into the Human Wellbeing Survey as part of Sense of Place, as done by the Baltic Sea Health Index (Blenckner and others 2021)), and (4) fish and wildlife (e.g., available data on fish and wildlife abundance or recreational opportunities from the WA Department of Fish and Wildlife or could be integrated into the Human Wellbeing Survey as part of Outdoor Activity, Local Foods, Sense of Place, or may be partly captured by some of the biophysical indicators already). While Environmental Condition was also fairly prominent among participants, this was a fairly general or generic code and likely already corresponds to other Vital Signs focused on ecological system improvement. 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 fleshing out 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 and among non-traditional monitoring or environmental partners, and the potential use of community workshops or community events (likely with some sort of participant incentive) 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 community, variations in priorities between researcher and partners, shifting workshop dates, and language-related issues (e.g., Korean language Human Wellbeing Survey faced some translation issues with some survey questions).

Human Wellbeing Vital Signs Survey

The Human Wellbeing Vital Signs Survey was also conducted as part of the facilitated dialogues. All facilitated dialogue participants 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 participant incentives; however, individual workshop attendees were not denied an incentive if they decided not to complete the survey. Surveys were distributed in hard copy form to all participants. Surveys were also translated into appropriate workshop community languages, specifically Thai, Korean, and Vietnamese. It should be noted that while the translated surveys were provided to the Asia Pacific Cultural Center for review prior to the workshops, some participants did note that the Korean translated surveys were not entirely accurate and may have caused some confusion for respondents (only for some questions and not all). Participating community members were provided writing utensils to complete the surveys 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 46%, with notable variations per workshop, for example only 18% completed the surveys during the Vietnamese community workshop, which was the largest in size, while 96% of Korean community workshop participants completed the survey.

A Cronbach's alpha reliability estimate was 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 score 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 AAPI community members who willingly participated in the facilitated dialogues and optional survey (n=76).

Good Governance

Good Governance reflects peoples' level of agreement with how Puget Sound's natural environment is 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.
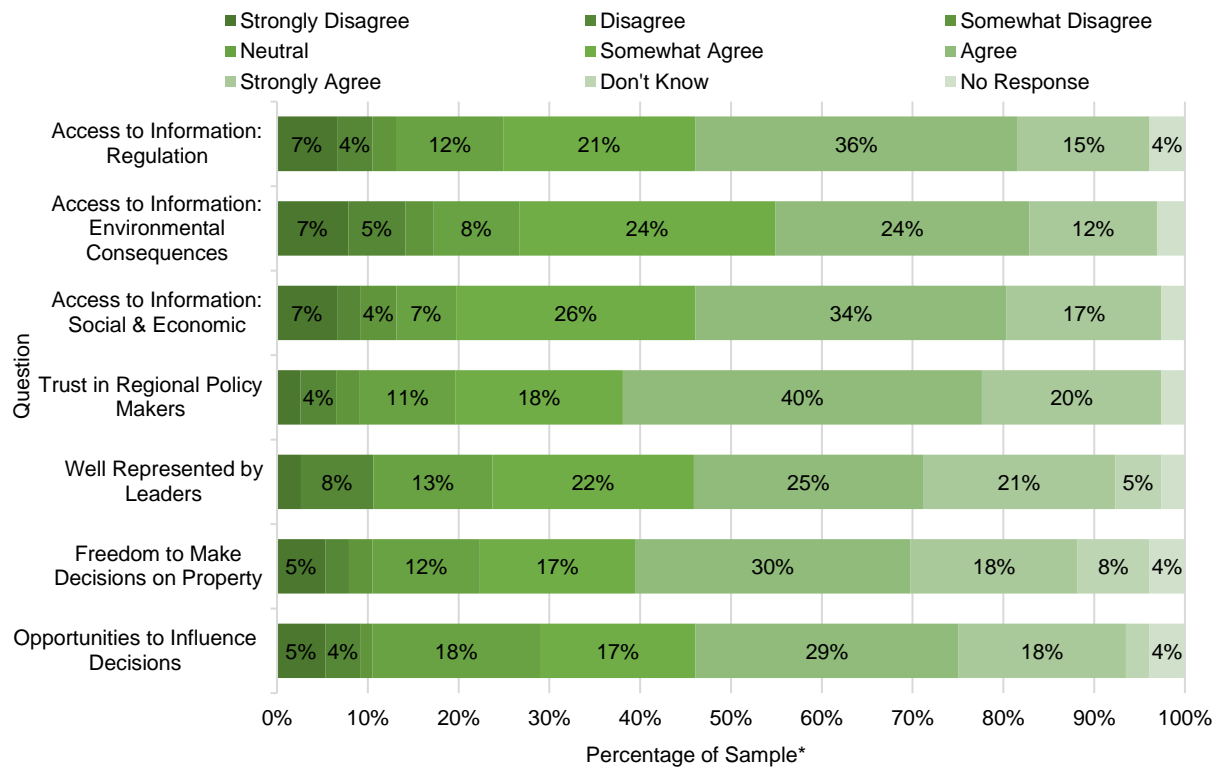
Figure 18. Good Governance Results

5.19 was the average response among AAPI survey respondents (n=76), which equates to being between "somewhat agree" and "agree". This is higher 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 the lack of discussion around issues of governance or equity within environmental decision-making during the workshops.

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

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.
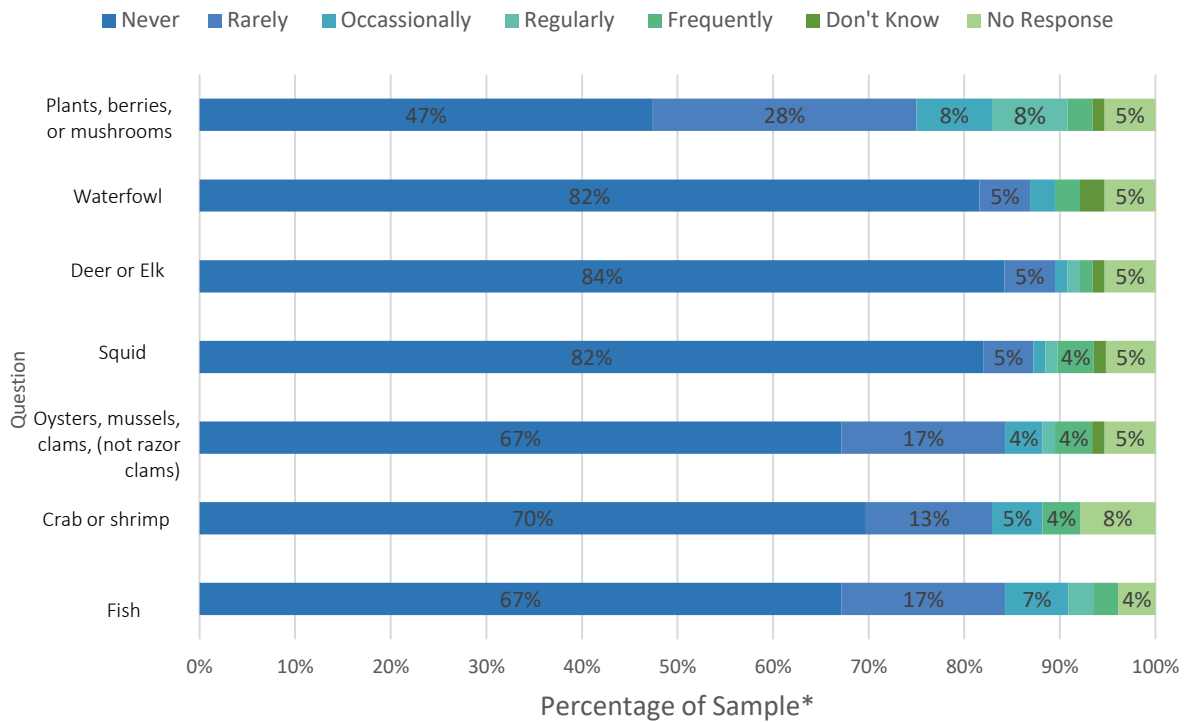
Figure 19. Local Foods Results

1.41 was the average response among respondents (n=76), which equates to community members "never" to "rarely" collecting and/or harvesting local foods. 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. Respondents did discuss local foods during the workshops, including the harvesting of fish, shellfish, seaweed, and bracken. The most frequently harvested foods included plants, berries, or mushrooms, fish, and oysters, mussels, clams (not razor clams), while the least frequently harvested foods were deer or elk.

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 activities on a 1-5 point Likert scale.
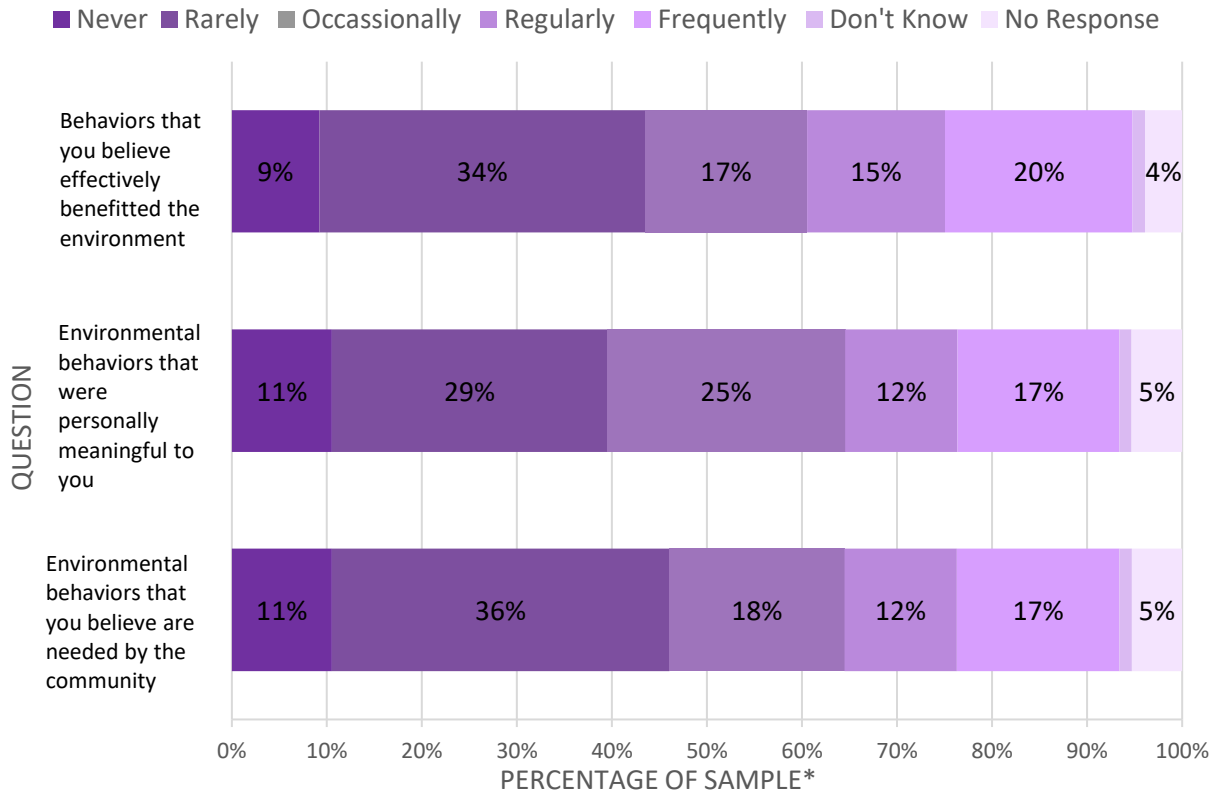
Figure 20. Sound Stewardship Results

2.95 was the average response among respondents (n=76), which equates to community members "rarely" to "occasionally" engaging in stewardship activities. This score is slightly lower than regional averages from 2018 (3.47), 2020 (3.14), and 2022 (3.36).

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

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.
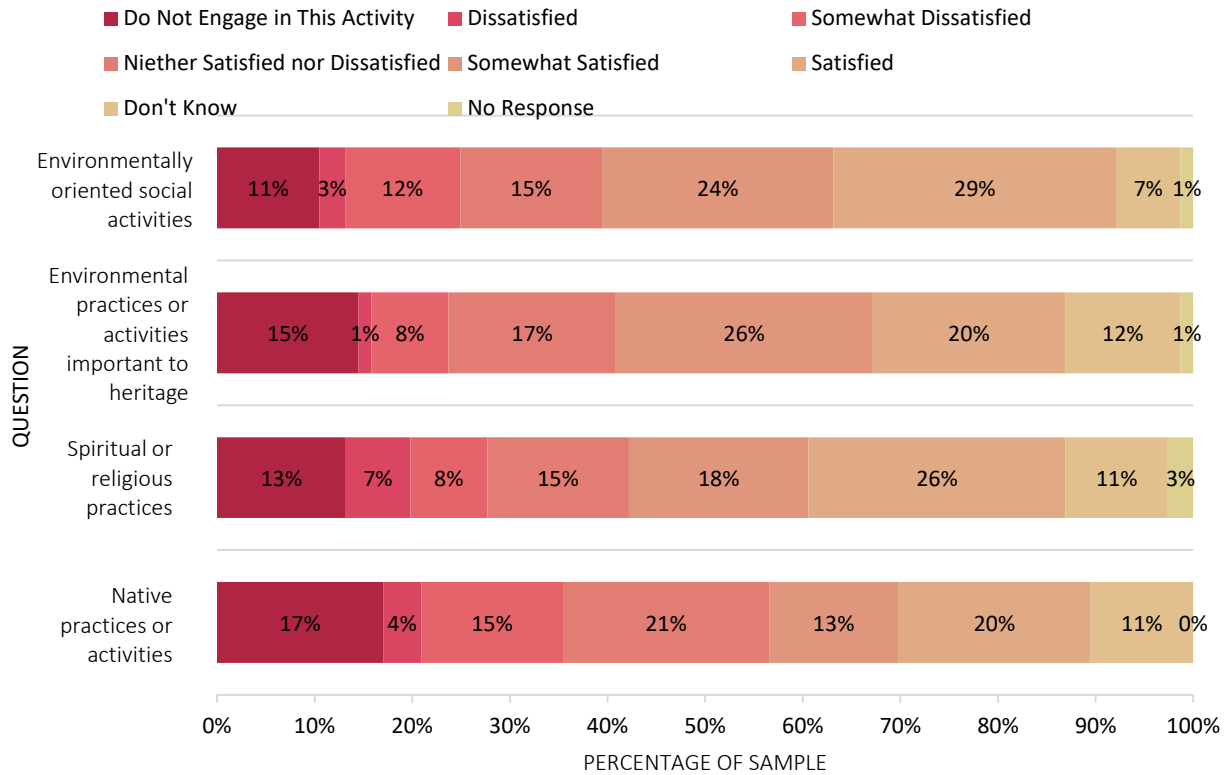
Figure 21. Sound Stewardship Results

3.66 was the average response among participating AAPI residents (n=76), which equates to community members having largely felt "neither satisfied nor dissatisfied" to "somewhat satisfied" with their participation in cultural activities. 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 activities or practices, notably those associated with their religious/spiritual communities, families, or even specific cultural practices (e.g., hula).

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.
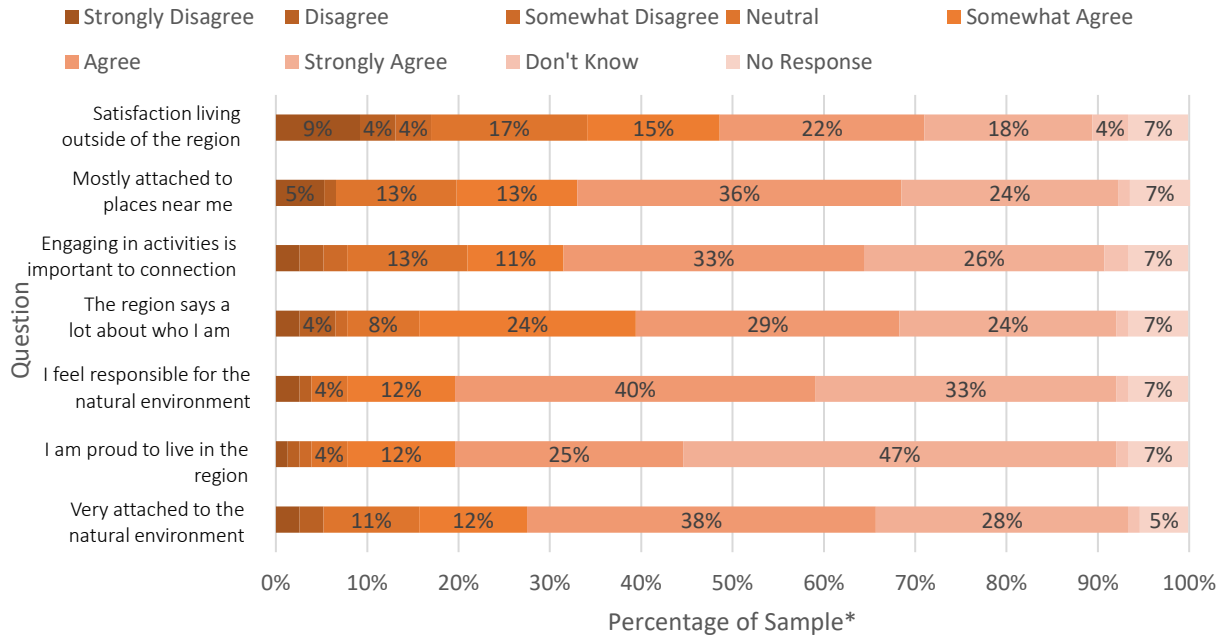
Figure 22. Sense of Place Results

5.58 was the average response among respondents (n=76), which equates to community members largely feeling like they "somewhat agree" to "agree" to having a sense of place of Puget Sound's natural's environment. This is consistent with 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.
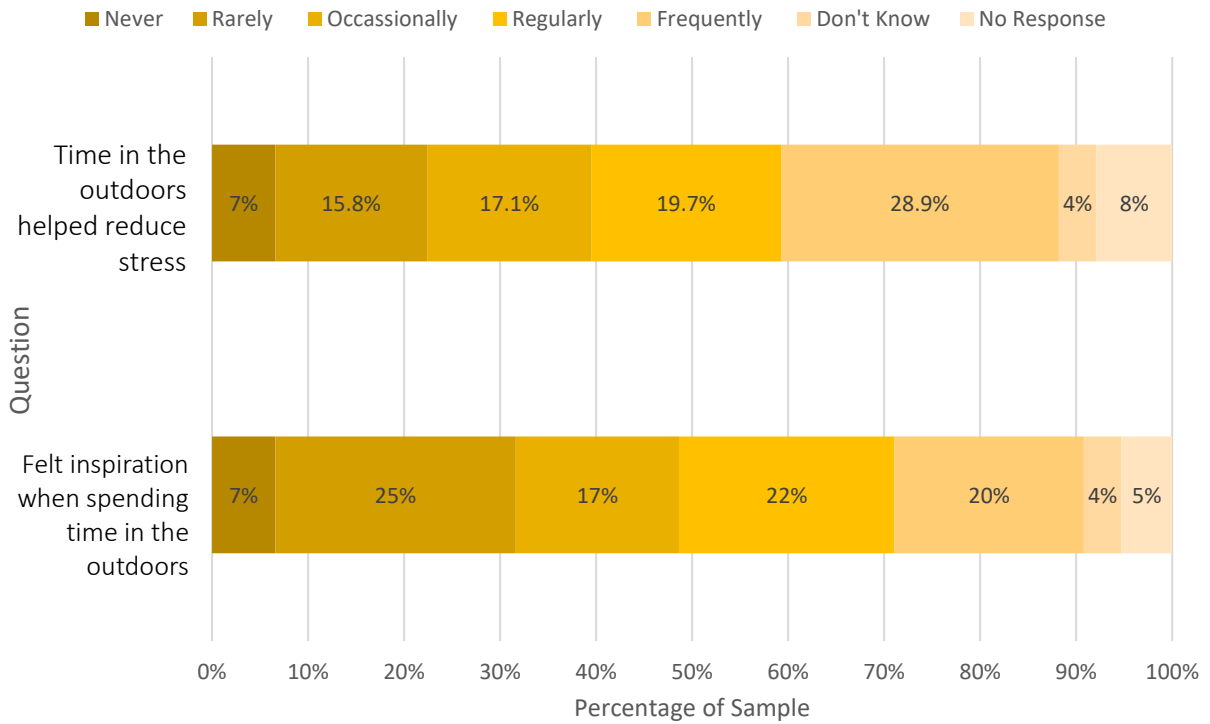
Figure 23. Psychological Wellbeing Results

3.40 was the average response among respondents (n=76), which equates to participants "occasionally" to "regularly" experiencing inspiration or stress reduction from the outdoors. This average is 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 and code.

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.
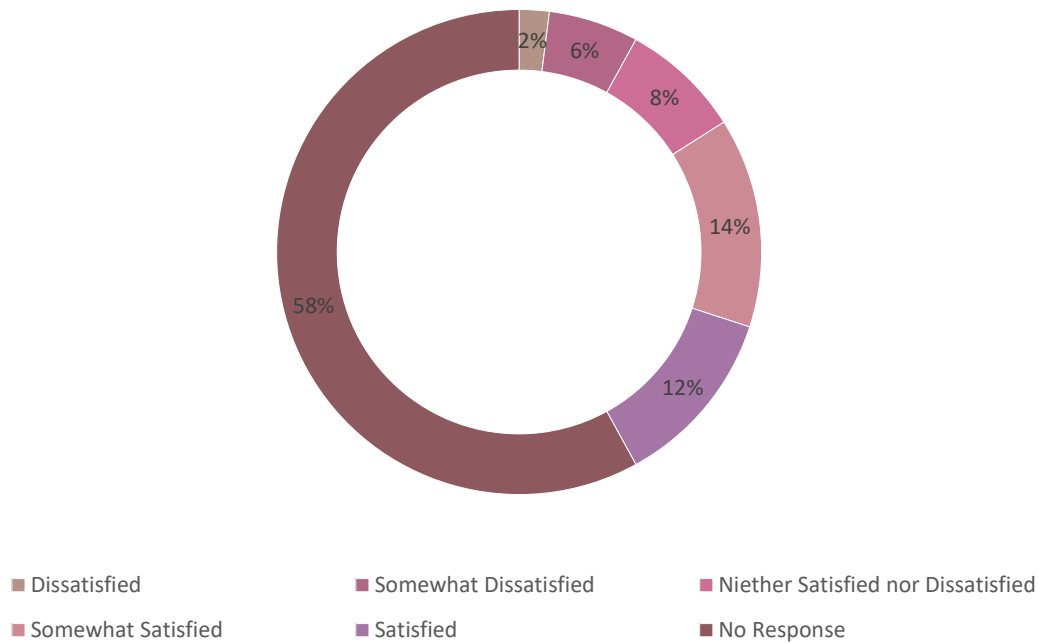
Figure 24. Life Satisfaction Results

4.47 was the average response among respondents (n=76), which equates to participants feeling between "somewhat satisfied" and "satisfied" with their lives. Participants' average responses were consistent with 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)
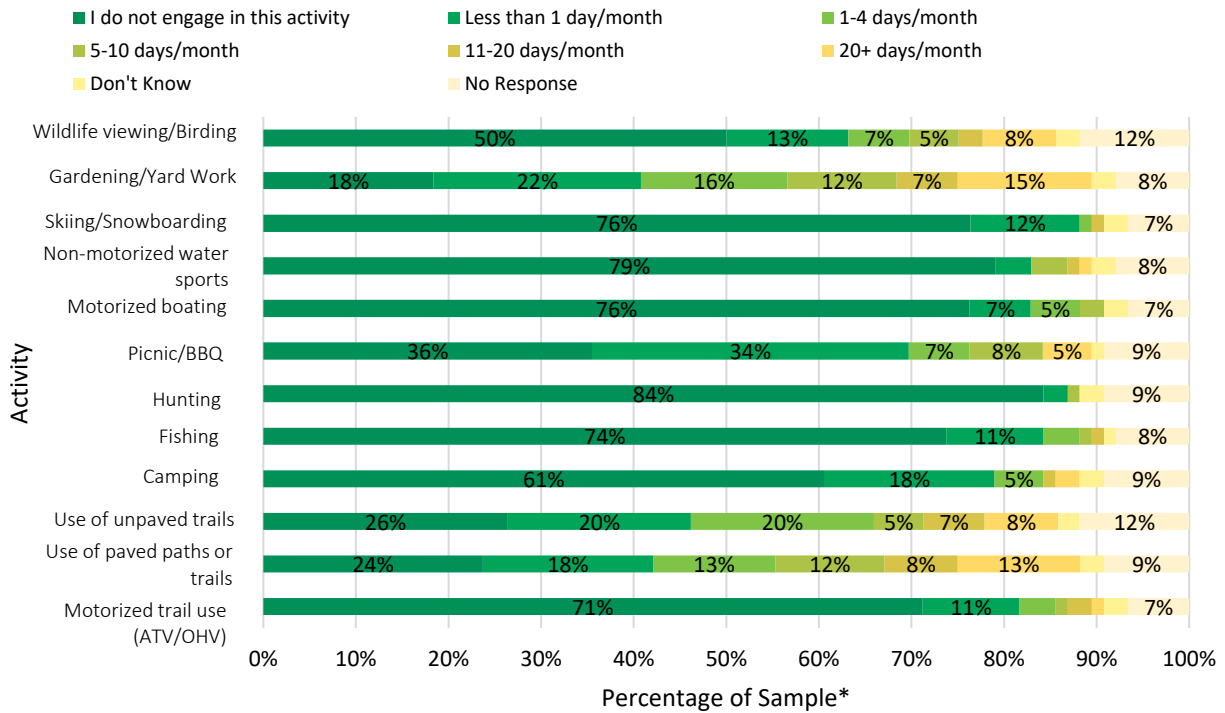
Figure 25. Outdoor Activity Results

Participating community members engaged in gardening/yard work, the use of paved paths or trails, the use of unpaved paths or trails, and picnics/bbqs most frequently in the fall months. The activities that participants engaged with the least were hunting and non-motorized water sports.

Note: Percentages less than 5% are not labeled for visibility.

Nature-based Recreation (Spring, about March-May)
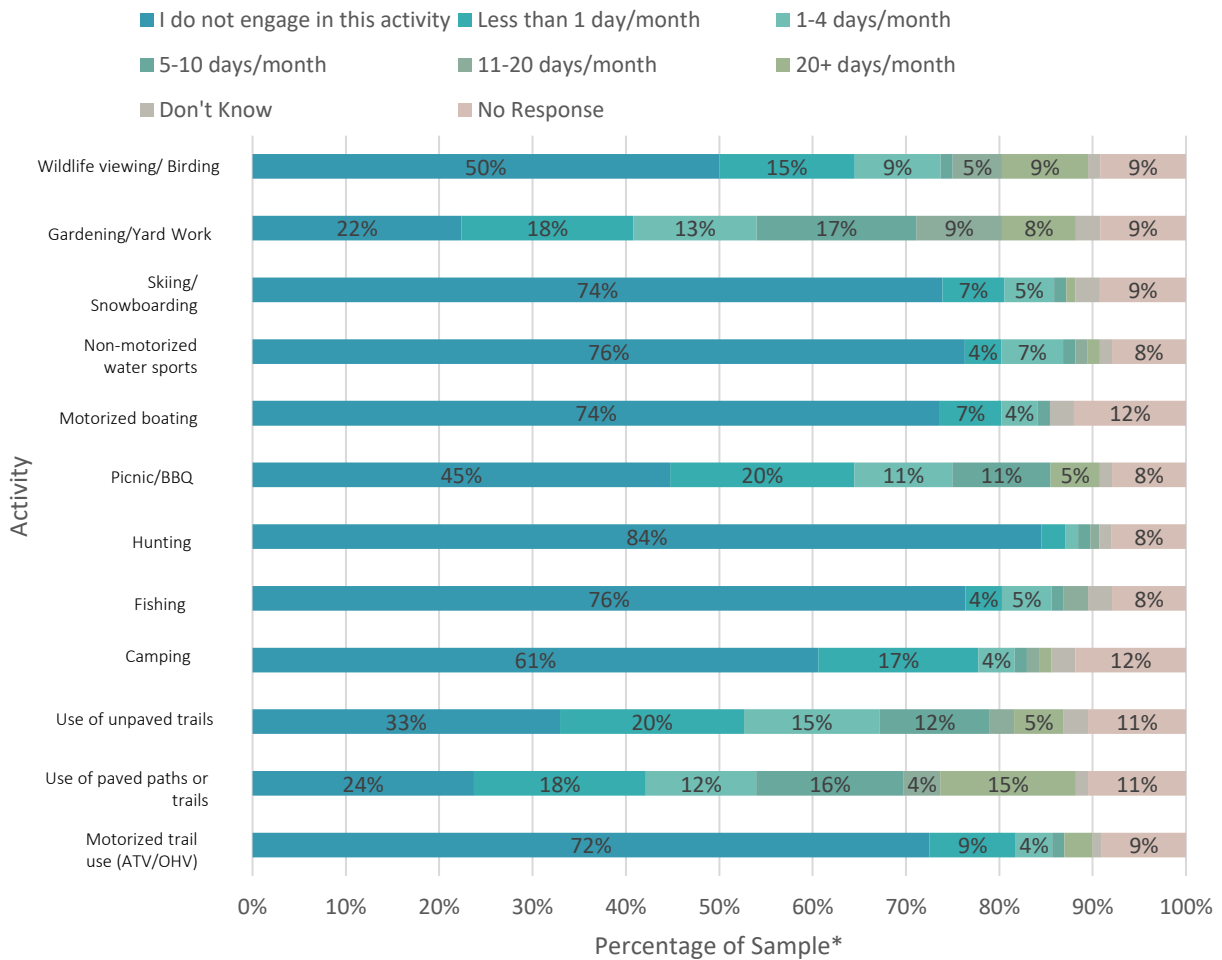
Figure 26. Nature-based Recreation Results

Participating community members engaged in gardening/yard work, the use of paved paths or trails, the use of unpaved paths or trails, and picnics/bbqs most frequently in the spring months. The activity that participants engaged with the least was hunting. This was a consistent response pattern with those outdoor activities engaged in by the same sample during the fall months.

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.
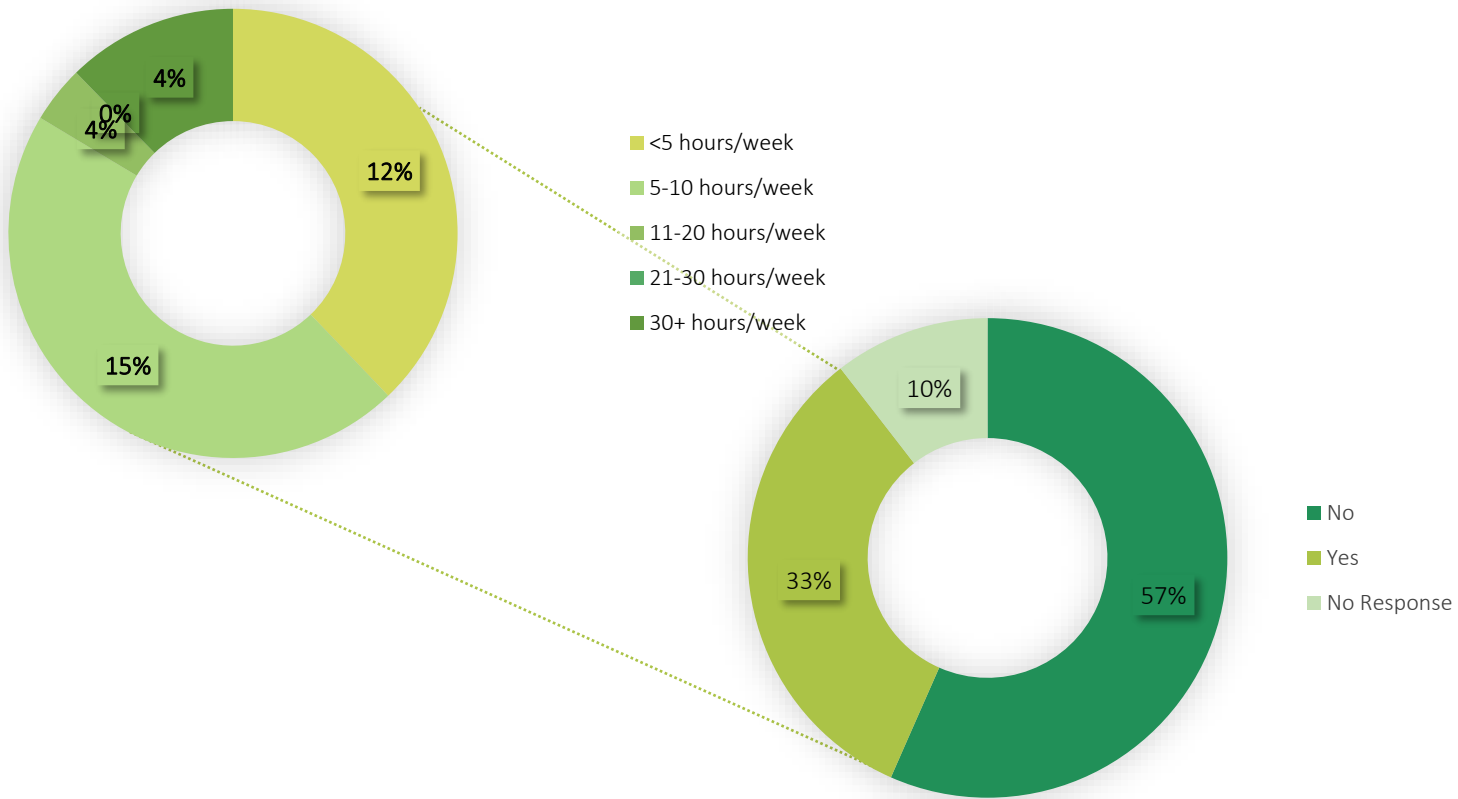
Figure 27. Nature-based Work Results

33% of community members said their work involved spending time in the outdoors. Of these respondents, 20% work 5 hours or more a week outdoors. This response was more than the regional '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=76; mean: 23.9 years)
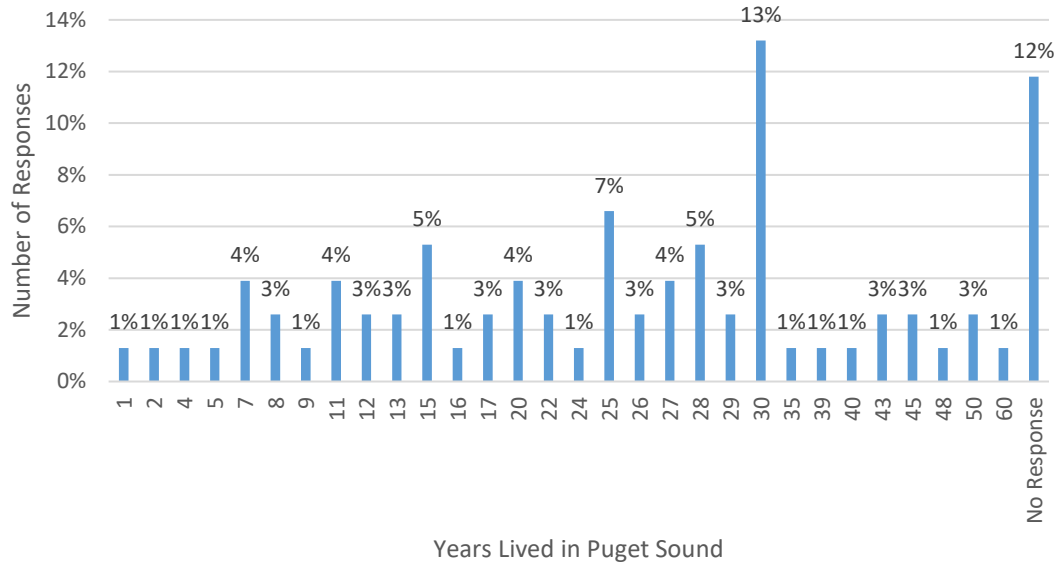
Figure 28. Years Lived in Puget Sound Results

The majority of survey respondents stated that they have lived in Puget Sound for 20 years or more with the average being 23.9. This is lower to regional survey respondents, including those who responded to the 2022 survey (mean: 34.9 years). This partly reflects the partial intention of the project to engage new residents, notably residents who were not born in the United States and who migrated to the region from abroad, including from Thailand, South Korea, and Vietnam.

Sex
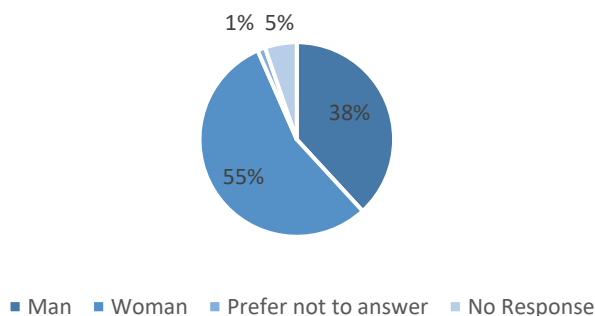
Figure 29. Respondents' Sex

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.

Area Type

The majority of survey respondents lived in urban (34%) and suburban (25%) areas. This reflects the urban location and focus of the project. This differs from regional survey respondents (2022), who largely comprised rural (38%) and suburban (23%) residents. This pattern is also reflected in the place-based question responses from the facilitated dialogues, which included places that were largely located urban Tacoma and its surrounding suburban areas.

Figure 30. Respondents' Area Type

Figure 31. Respondents' Education
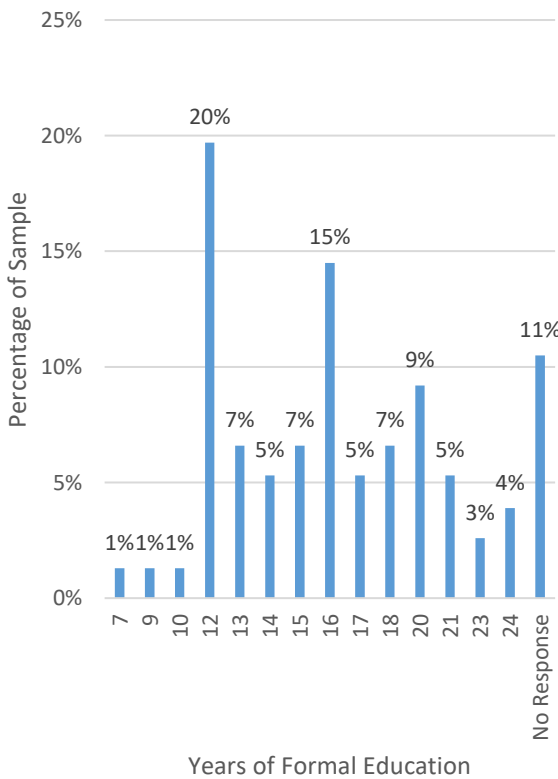
Figure 32. Respondents' Income
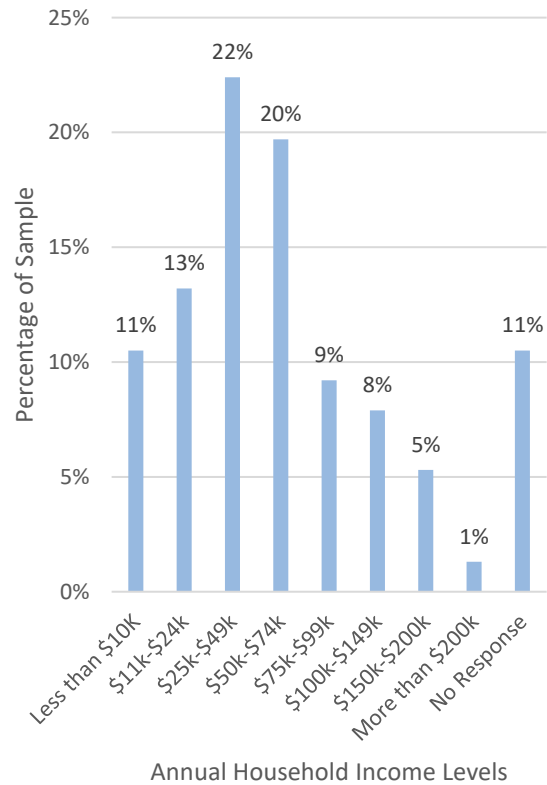
Race and Ethnicity
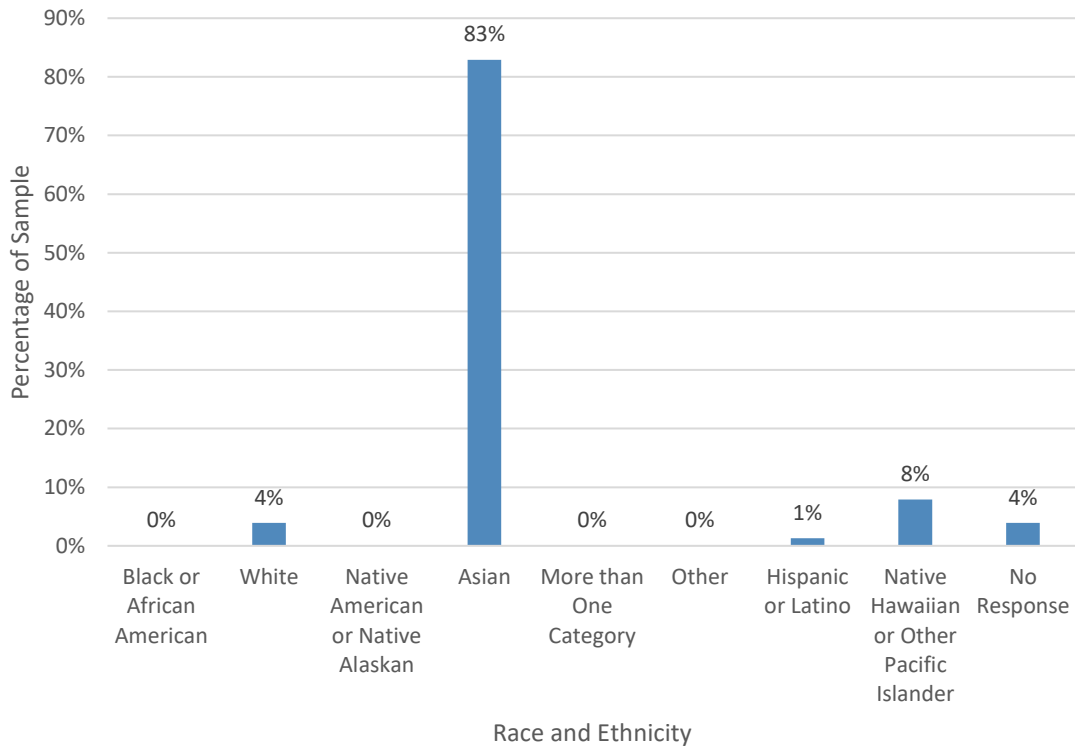
Figure 33. Respondents' Race and Ethnicity

The majority of survey respondents self-identified at Asian (83%) and Native Hawaiian or Other Pacific Islander (8%). This response pattern was intentional and was embedded in project design and outreach efforts, including efforts that benefitted from community liaisons and outreach materials translated into Thai, Korean, and Vietnamese languages. This varies from the regional survey, including 2022 (3.1% Asian and 0.5% Native Hawaiian or other Pacific Islander respondents). While Asian, Native Hawaiian, or other Pacific Islander (or Asian American and Pacific Islander, AAPI) residents were a key demographic for this project, it should be emphasized that AAPI residents, like Puget Sound residents more broadly embody multiple simultaneous intersectional identities and/or are not solely part of one or another racial or ethnic (or other form of) community.

Age (n=76; mean age: 63 years old)
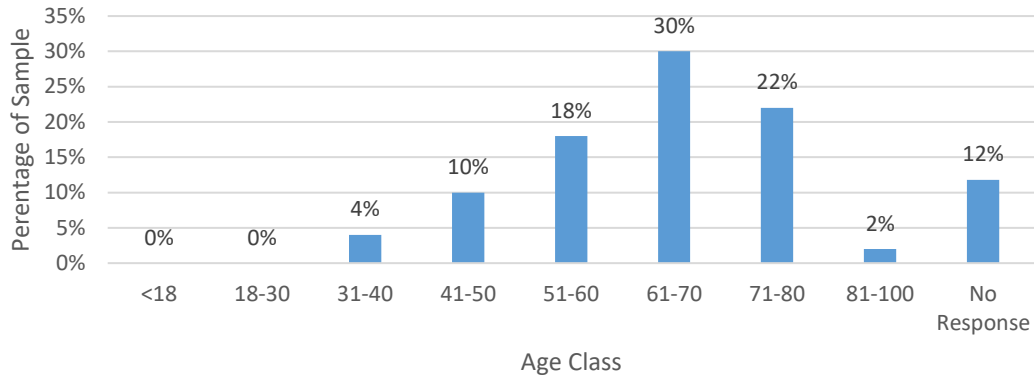
Figure 34. Respondents' Age

The majority of survey respondents from the workshops were in the "61-70 years" age class. This majority age class was identical to the majority age class from the regional survey (2022). This pattern likely reflected the workshop times, location, and outreach conducted, among other factors informing workshop participation. This is not reflective of the AAPI population at large in the region, as approximately 21% comprise individuals 60 and over.[16]

Political Ideology
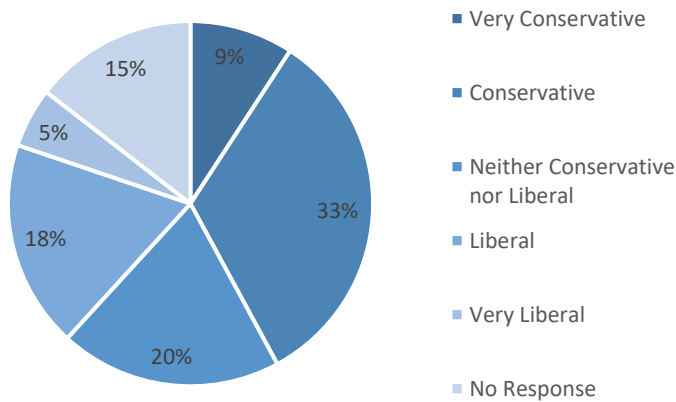
2.73 was the average response among workshop participants who completed the survey. This average response equates to "Conservative," which is more "Conservative" than the regional survey average response in 2022 (3.32).

Figure 35. Respondents' Political Ideology

Conclusions and Recommendations

During the facilitated dialogues, AAPI community members were provided an optional opportunity to complete the Human Wellbeing Survey. Out of a total of 166 community members participating in the workshops, 76 completed the survey (46% response rate). Interest and response rates varied by workshop and community, with the higher response rates representing the smaller workshops, including a 96% response rate from the Korean community workshop. This finding demonstrated 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 demonstrated the potential of greater community collaborator engagement in monitoring (and recovery more broadly) and the benefit of incentives for participation among community members, as all workshop participants were provided a $50 gift card for their engagement, regardless of their optional survey completion. This blending of approaches in turn could make the survey and its findings (and larger monitoring effort) more inclusive and representative of AAPI community members.

Asian American & Pacific Islander Residents' Human Wellbeing Survey Results (n=76)
Good Governance: 5.19 on a 1-7 scale (strongly disagree to strongly agree). On average, participants largely responded between "somewhat agree" and "agree."
Local Foods: 1.41 on a 1-5 scale (never to frequently). On average, participants largely responded between "never" "rarely" (1-2 times a season).
Sound Stewardship: 2.94 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: 3.66 on a 1-6 scale (dissatisfied to satisfied). On average, participants largely scored between "neither satisfied nor dissatisfied" and "somewhat satisfied."
Sense of Place: 5.58 on a 1-7 scale (strongly disagree to strongly agree). On average, participants largely scored between "somewhat agree" and "agree." • *Psychological Wellbeing: 3.40* 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: 4.47* on a 1-5 scale (dissatisfied to satisfied). On average, participants largely responded between "somewhat satisfied" and "satisfied."
Outdoor Activity • *Outdoor Recreation:* Most frequently engaged in recreational activities included: gardening/yard work and use of paved trails or paths. • *Nature-based Work:* 33% of respondents engaged in nature-based work with 20% engaging in such work 5 hours a week or more.[17]

Table 11. Human Wellbeing Survey Results Summary

The survey findings reflect that the AAPI survey respondents demonstrated similar patterns of human wellbeing as it relates to the health of Puget Sound compared to the regional survey respondents (Table 11). AAPI community members had similar average responses to most Human Wellbeing Vital Signs. For example, AAPI respondents had roughly similar average responses to Sense of Place (5.58) (compared to 5.49 (2022)), Cultural Wellbeing (3.66) (compared to 3.81 (2022)), and Life Satisfaction (4.47) (compared to 4.41 (2022)). While largely similar, some stark variations emerged compared to the regional survey findings. For example, AAPI respondents had

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[17] Note that translations of "work" in natural environments may have varied contributing to alternative interpretations of the question.

higher average responses to Good Governance (5.19) (compared to 4.05 (2022)) and Sound Stewardship (2.94) (compared to 3.36 (2022)). This variation illustrates potential community-based differences in human health as it relates to nature among 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 and further demonstrates the need to potentially modify the Human Wellbeing Vital Signs with workshop-derived Community Dimensions of health.

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. Given that the survey was implemented during community workshops with self-selected participating community members via nonprobability sampling, sampling errors likely exist, producing a sample not representative of the Asian American and Pacific Islander community in Tacoma, Pierce County, or Puget Sound as a whole. While the sample was somewhat representative with regards to sex (local and regional AAPI community members are comprised of more female members than male), the sample was comprised of slightly more older residents; although approximately 34-40% of AAPI residents locally and regionally are over the age of 50. 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. One technical limitation that emerged was that the regional Human Wellbeing Survey was updated since the 2020 survey of which this is based, making some comparisons to the 2022 survey somewhat challenging.

Hilltop Residents' Wellbeing & Nature

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). This collaborative project focused on enhancing inclusive engagement among Hilltop community members in the Puget Sound region, notably those self-identifying as Black or African American, 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 located in Tacoma. The CBPR approach included the co-creation of facilitated dialogues (community workshops) (n=52) and implementation of an optional Human Wellbeing Vital Signs Survey (n=50).

Healthy Human Population	Vibrant Human Quality of Life
Air Quality	Cultural Wellbeing
Drinking Water[18]	Economic Vitality
Local Foods	Good Governance
Outdoor Activity	Sense of Place
Shellfish Beds	Sound Stewardship

Table 12. Human Wellbeing Vital Signs

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

Table 13. Community Dimensions of Wellbeing

Overall, the facilitated dialogues demonstrated that the Human Wellbeing Vital Signs (Table 12) 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

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[18] 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 have been merged into one (Water or Water Quality) in much of this report.

of human wellbeing[19] also emerged during the workshops (Table 13). 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, relational, intrinsic, existence, inherent, 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."   *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 14. Human Wellbeing Survey Results Summary

Regional & Latinx Human Wellbeing Survey Results (2018-2022)[20]				
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	3.64	3.81	3.73

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[19] 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.

[20] 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).

	between 2018 and 2020			
Sense of Place • Psychological Wellbeing • Life Satisfaction	5.66 • 3.94 • Not available	5.57 • 4.01 • Not available	5.49 • 3.98 • 4.41	5.02 • 3.64 • 3.98
Outdoor Activity • Outdoor Recreation • 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 • 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 • 12.42% engaged in nature-based work • 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 • 14% engaged in nature-based work • 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 • 36% engaged in nature-based work • More than 70% worked more than 5 hours a week

Table 15. 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 14-15). Hilltop community members had similar average responses to many 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 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 (poor or a lack

of) good governance and negatively perceived governing institutions. All detailed findings and corresponding data visualizations are outlined in the following sections.

Introduction

Figure 36. "A Dream Coming True" Hilltop Neighborhood mural by Bob Henry[21]

Working in close collaboration with Empowering People in Communities (EPIC), specifically Executive Director Brendan Nelson, a series of facilitated dialogues (also referred to as workshops) were co-created in order to accomplish the project's overarching objectives (Box 7). 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, a WA state agency tasked with coordinating the recovery of Puget Sound with a diverse network of partners. 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. EPIC was then engaged during the project proposal development process with the intention of co-developing the project and co-creating new knowledge to enhance the Puget Sound

> **Box 7.** 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

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

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. Workshops 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, following the initial workshop, 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 16. Facilitated Dialogue Information

Between 2022-2023, 3 community workshops were held in the Hilltop neighborhood in Tacoma (Table 16). 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 16 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).
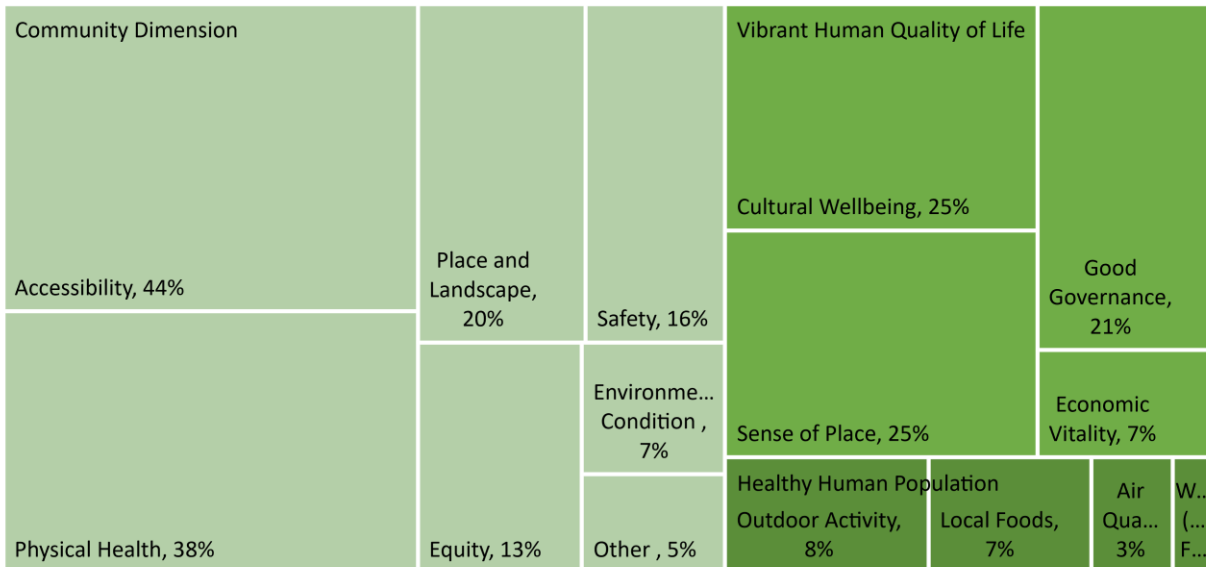
Figure 37. Participants' Dimensions of Wellbeing

Community (n=52; responses: 34)
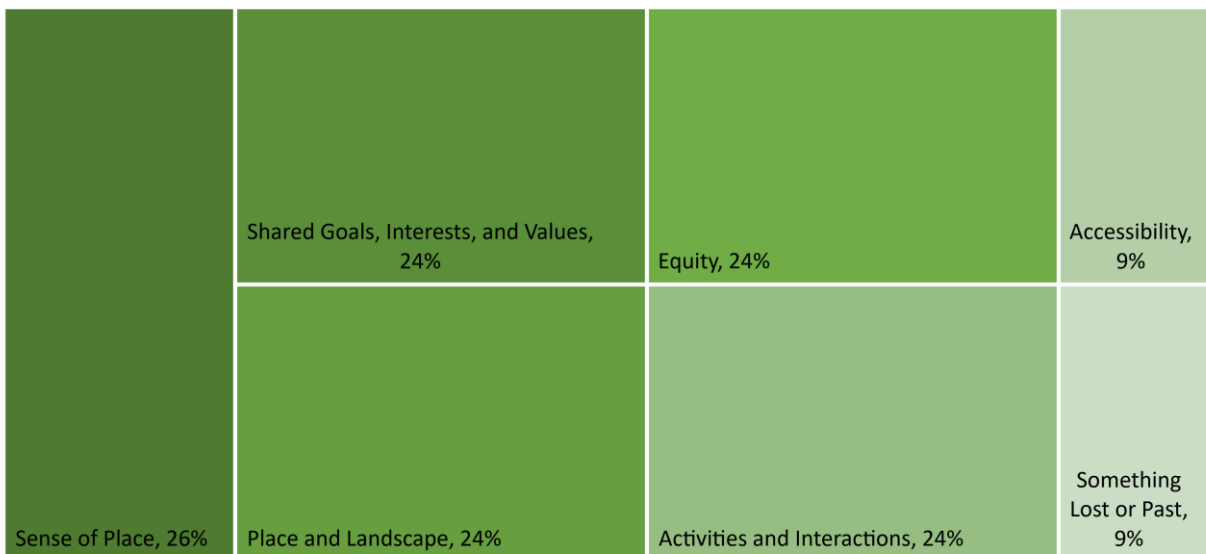
Figure 38. Participants' Dimensions of Community

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).

Contributions (n=52; responses: 57)
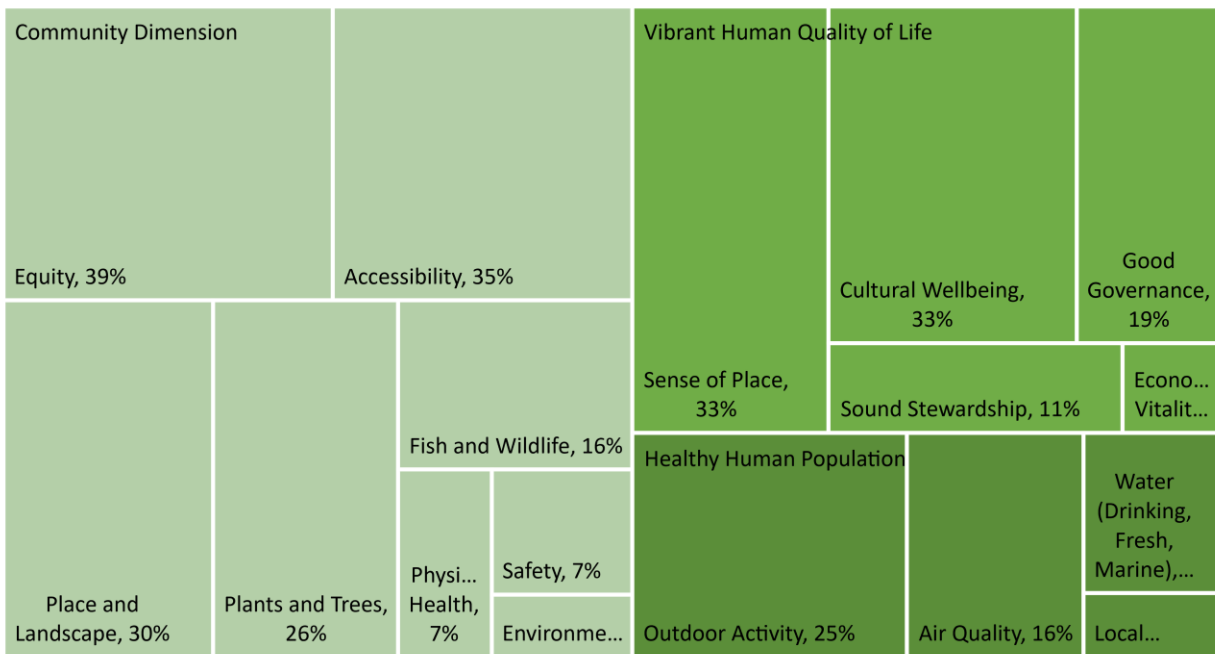
Figure 39. Community Dimensions of Nature's Contributions to Wellbeing

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).

Climate Change (n=52; responses: 39)
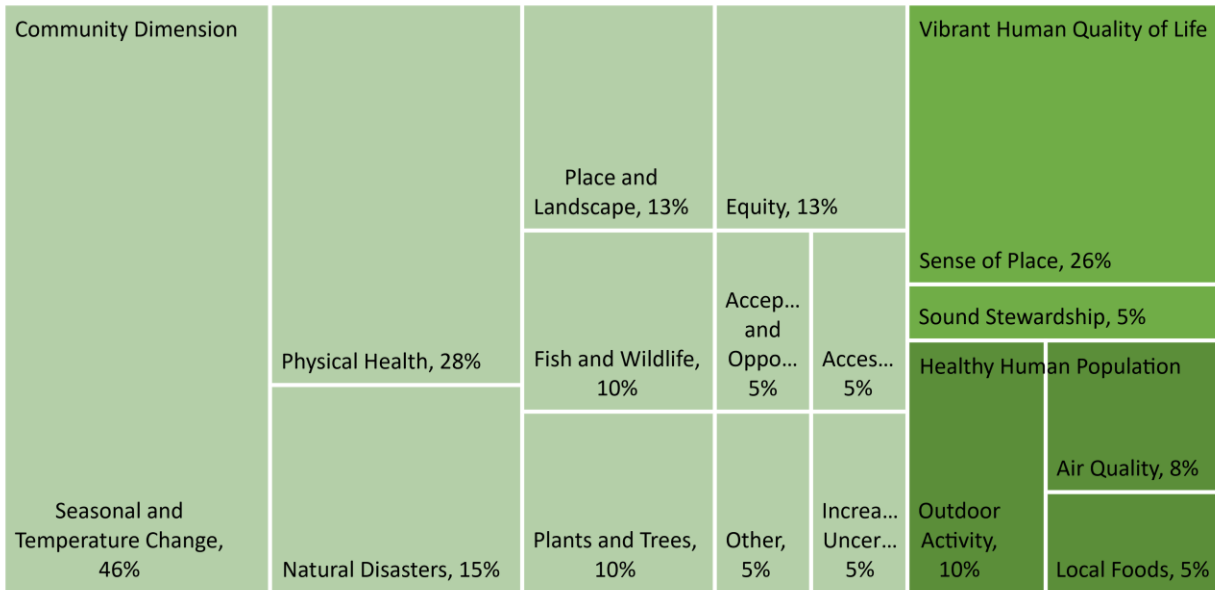
Figure 40. Climate Change Impacts on Participants' Wellbeing

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 "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).

Place (n=40; responses: 46[22])

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 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 (n=40) are included below. The responses are outlined below and include figures and corresponding maps.

Place: Where? (n=40; responses: 27 (Specific) and 19 (Broad))

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 41). 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%), Ruston Way/Waterfront (22%), and Wright Park (15%) (all located in the Tacoma area). While respondents shared places both outside and inside the greater Puget Sound region (Figures 42), the vast majority of places were highly local to Tacoma (Figure 43).

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[22] 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. Also, please note that only participants from Workshops 1-2 answered the place-specific questions (n=40). Please take these distinctions into consideration when reviewing the Place findings.
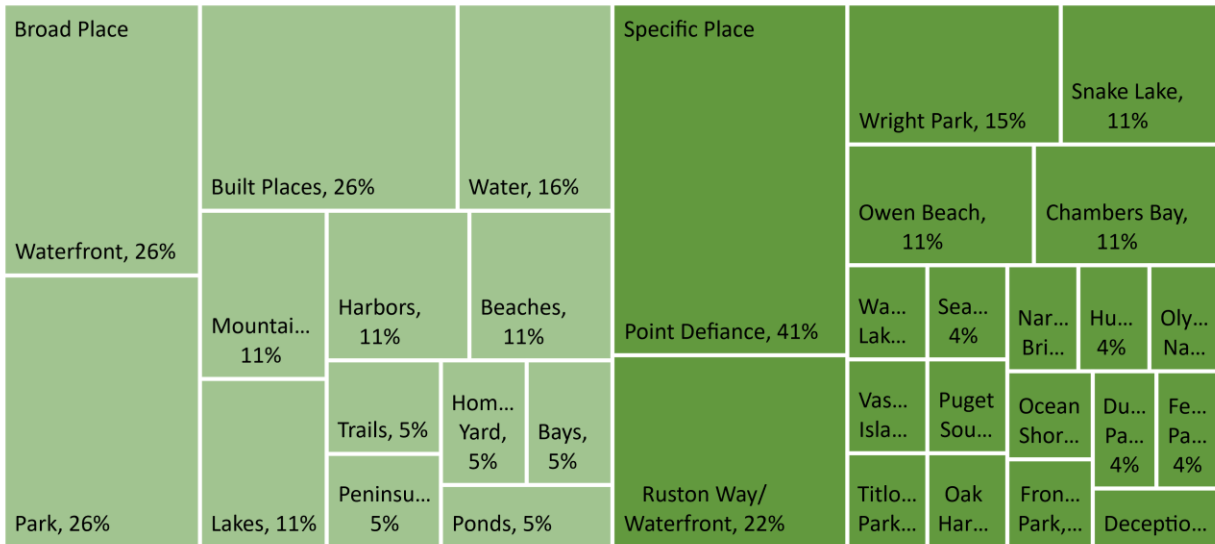
Figure 41. Participants' Places that Contribute to Wellbeing[23]
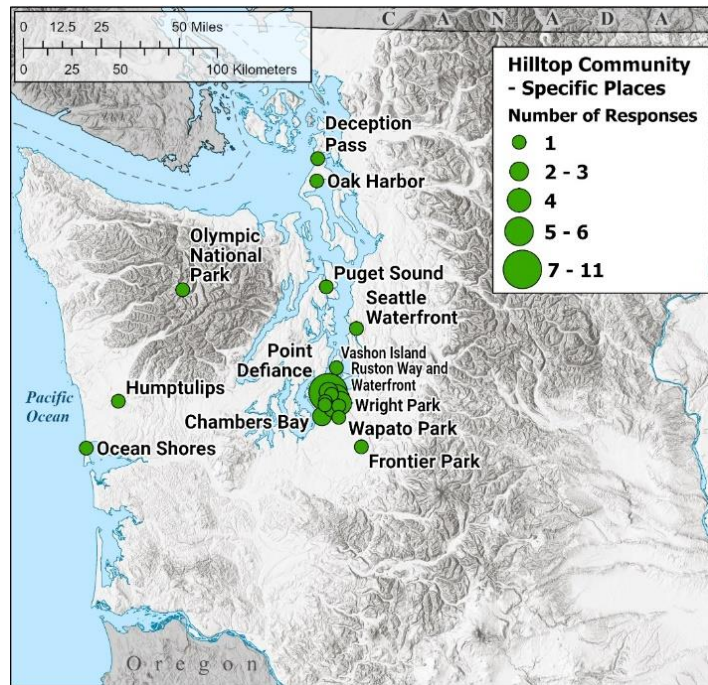
Figure 42. Regional Map of Places that Contribute to Community Members'

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[23] 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.
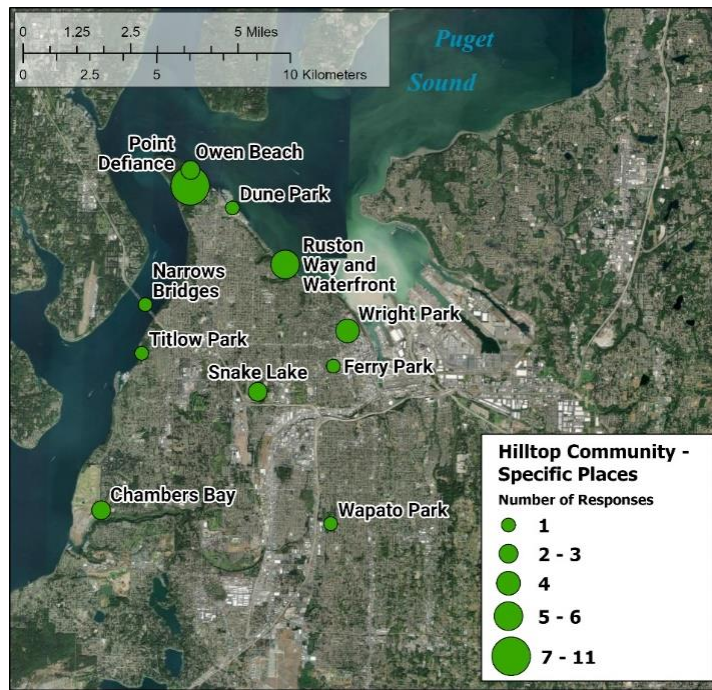
Figure 43. Local Map of Places that Contribute to Community Members' Wellbeing

Place: Why? (n=40; responses: 14)

Figure 44. 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 44). 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 17. 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 17) 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 illustrated 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.
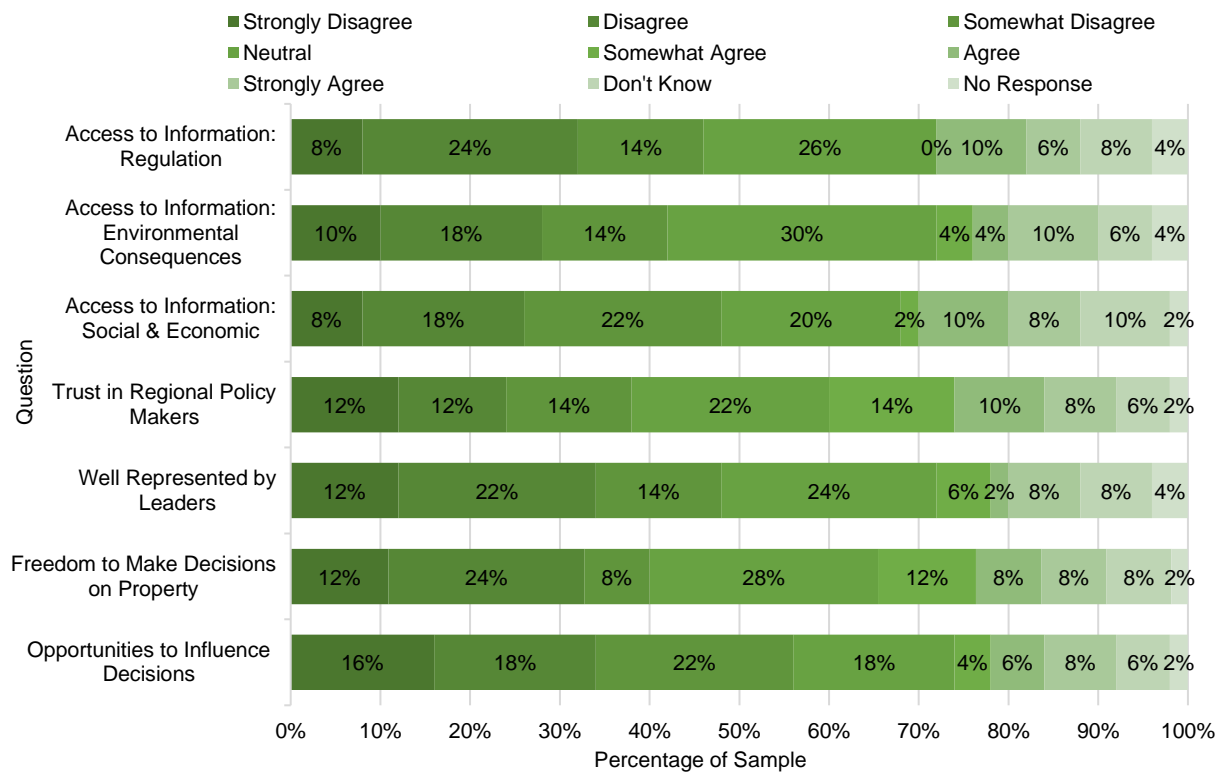
Figure 45. Good Governance Results

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.
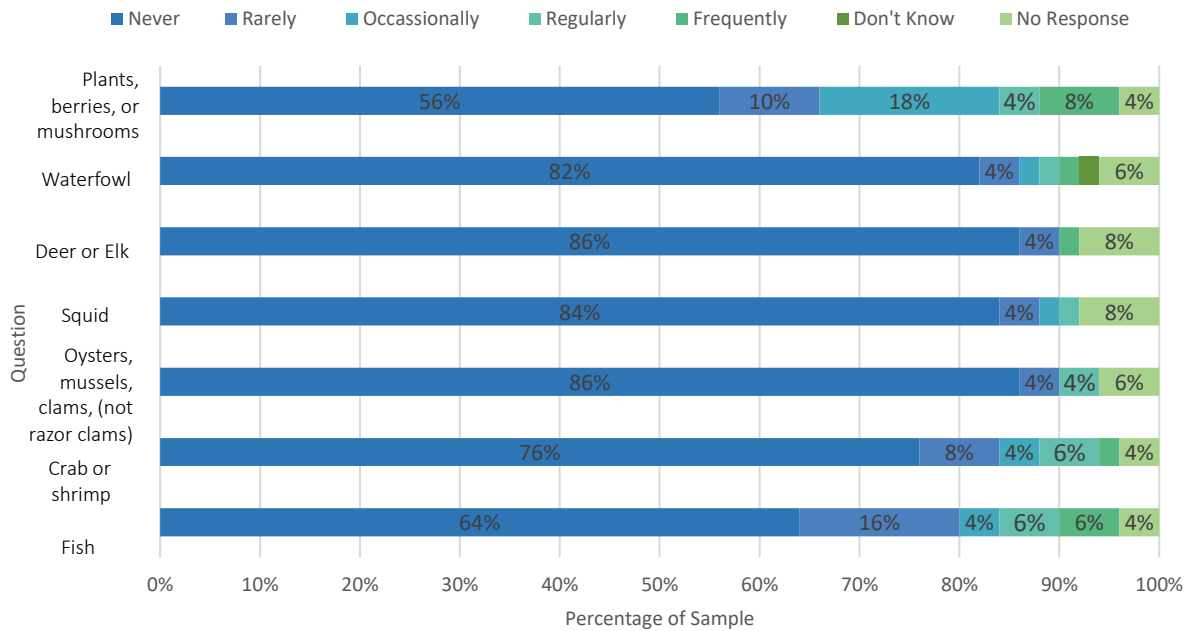
Figure 46. Local Foods Results

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.
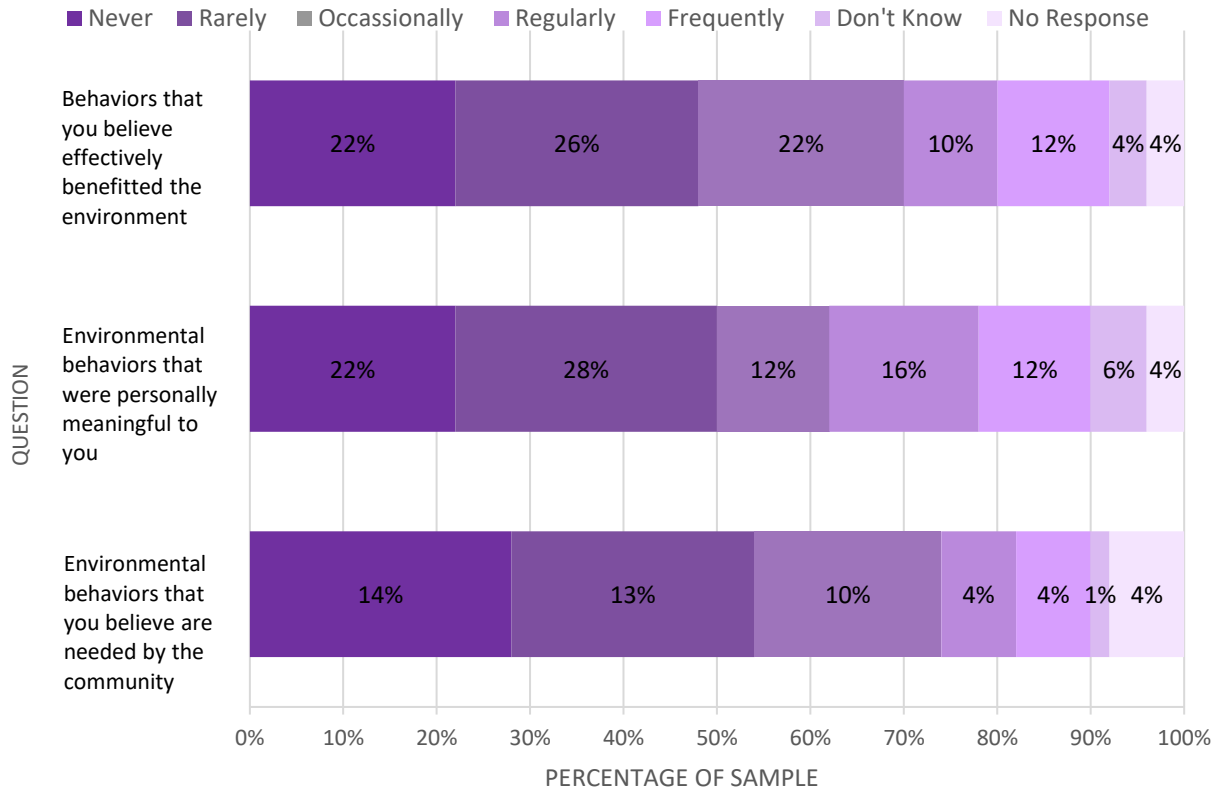
Figure 47. Sound Stewardship Results

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.
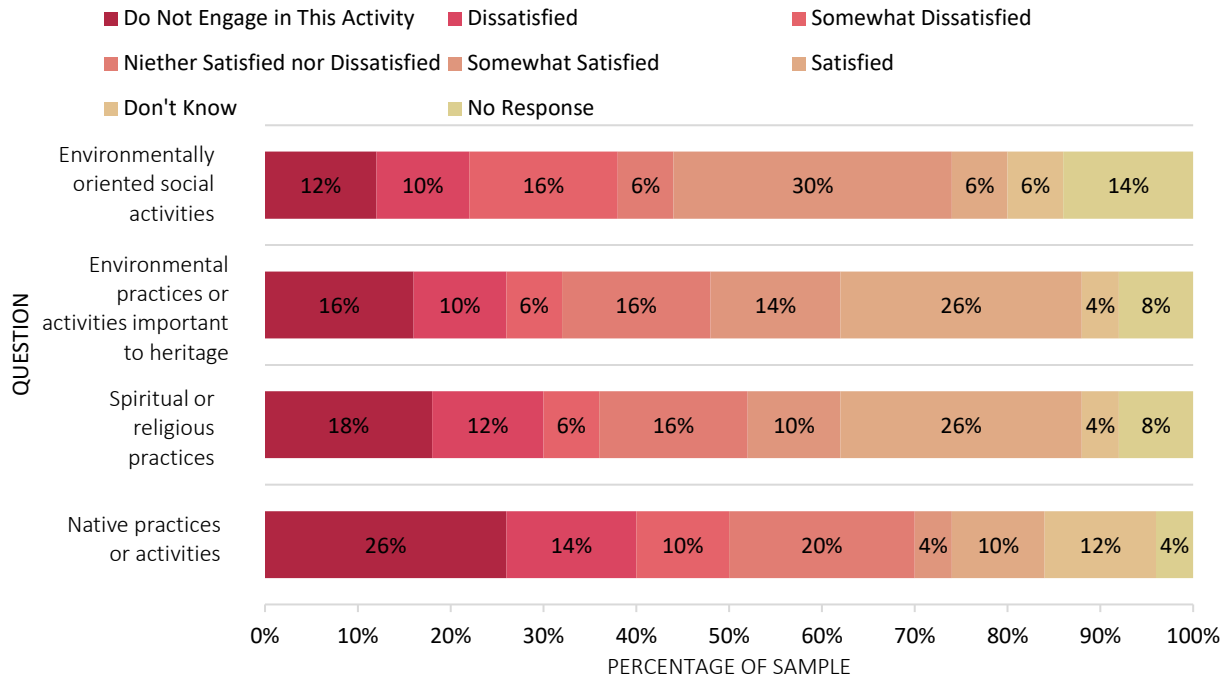
Figure 48. Cultural Wellbeing Results

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.
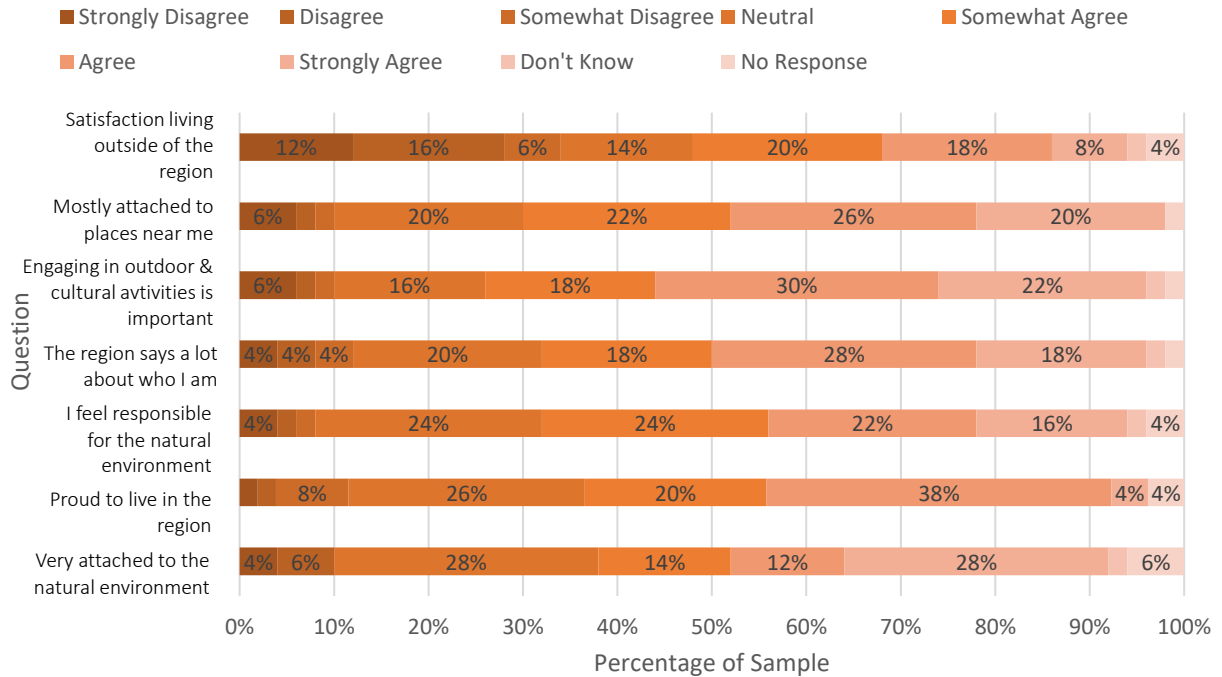
Figure 49. Sense of Place Results

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.
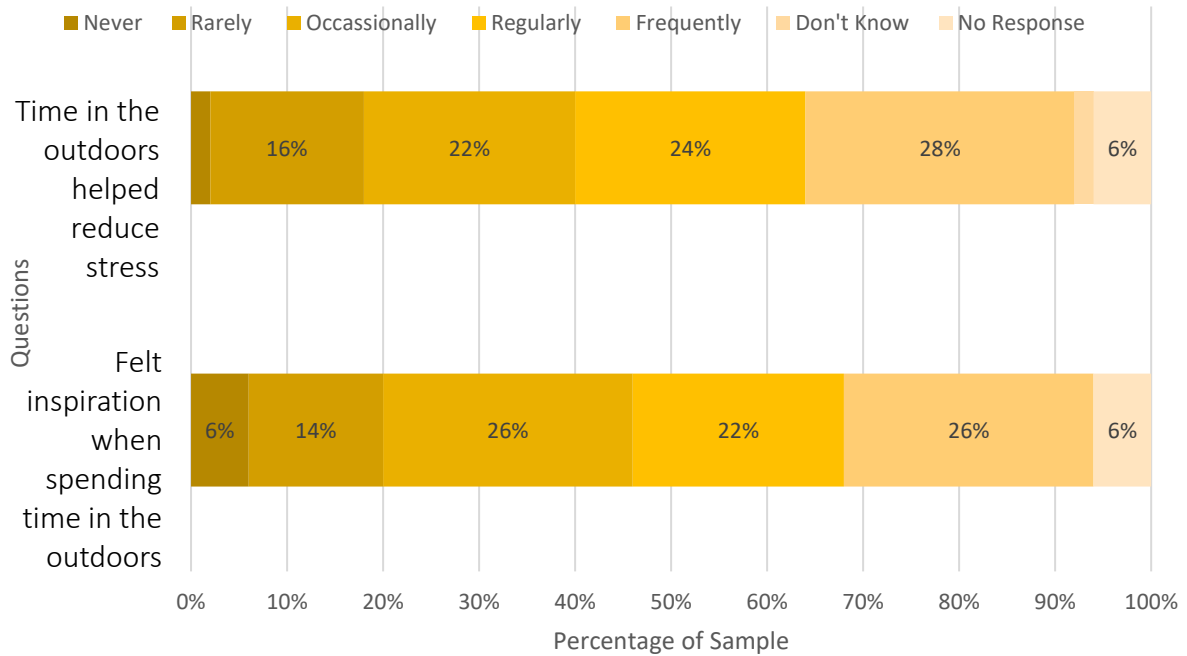
Figure 50. Psychological Wellbeing Results

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.
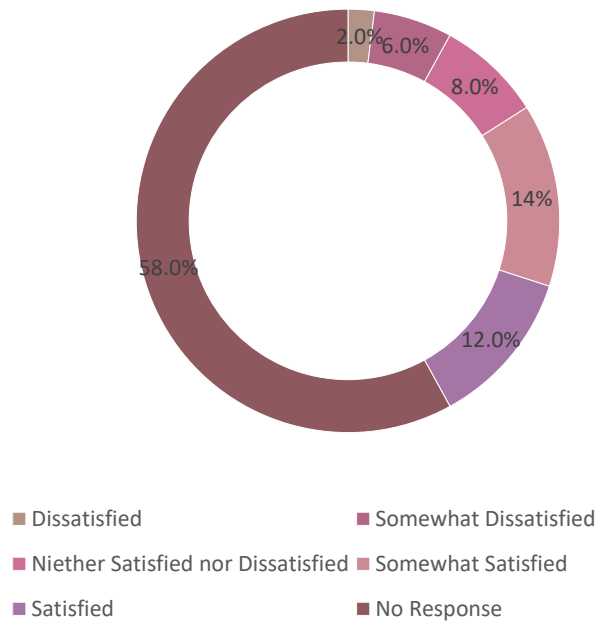
Figure 51. Life Satisfaction

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)
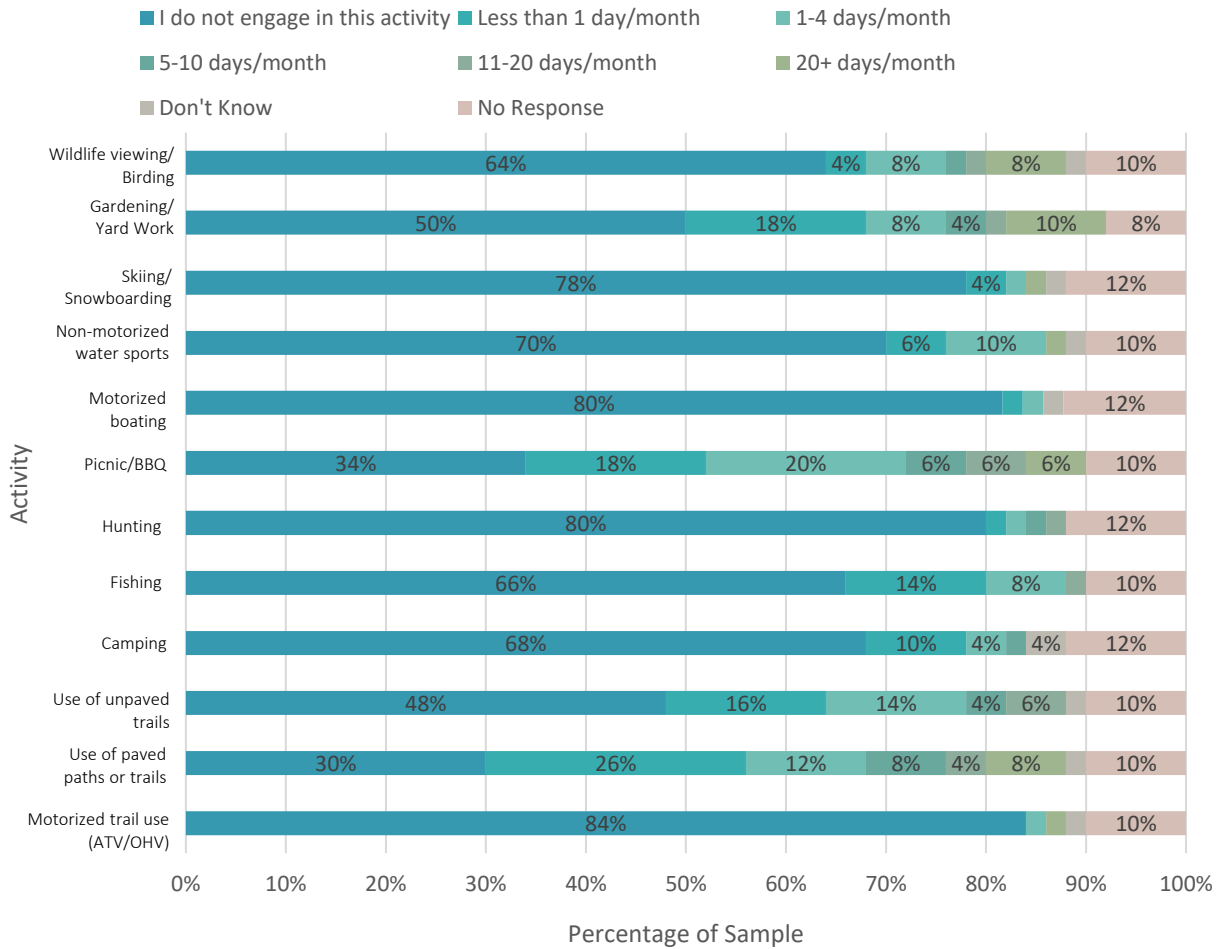
Figure 53. Nature-based Recreation Results

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.
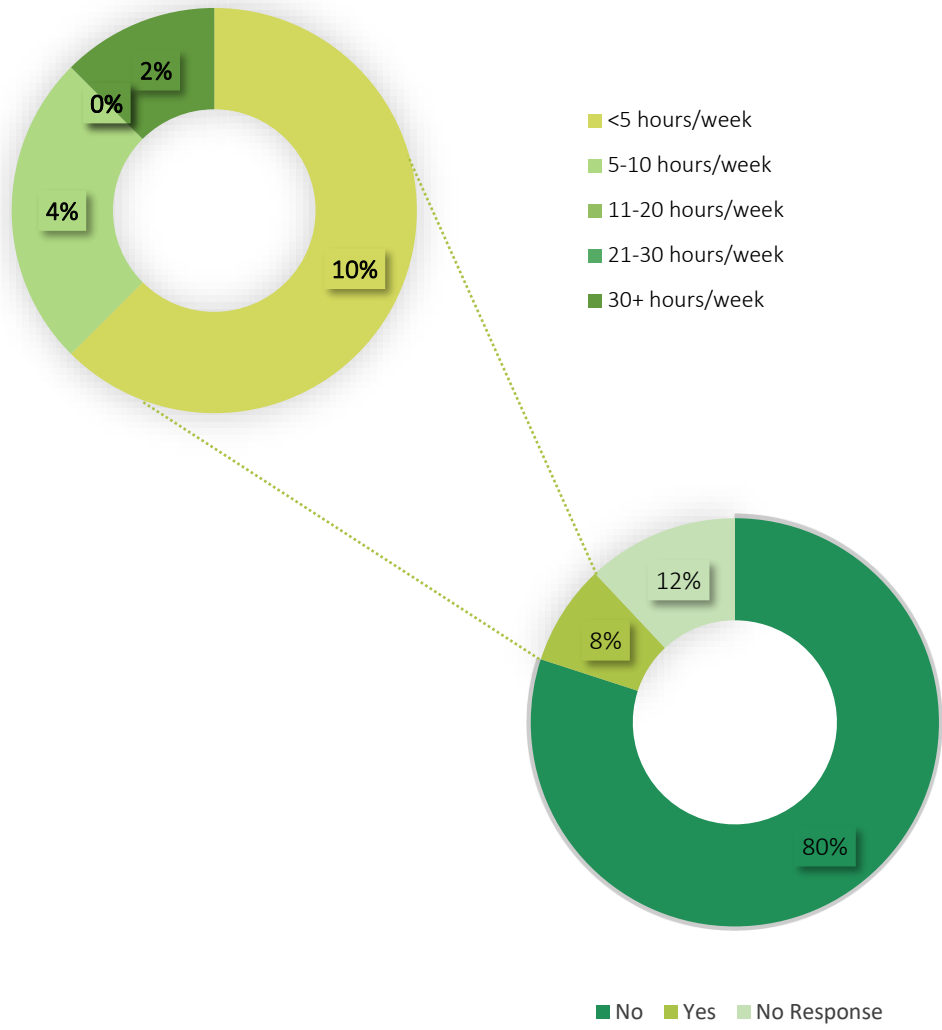
Figure 54. Nature-based Work Results

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).
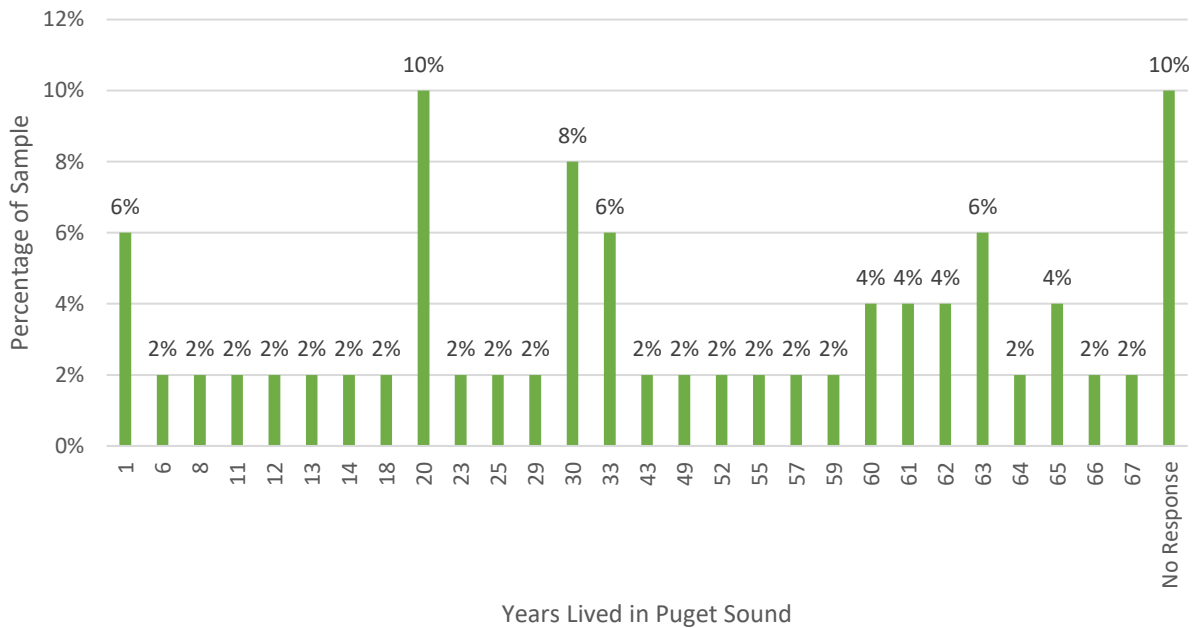
Figure 55. Years Lived in Puget Sound Results

Sex
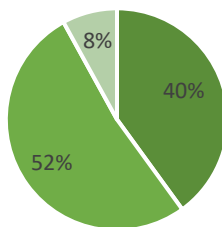
Figure 56. Respondents' Sex

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.

Area Type

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.
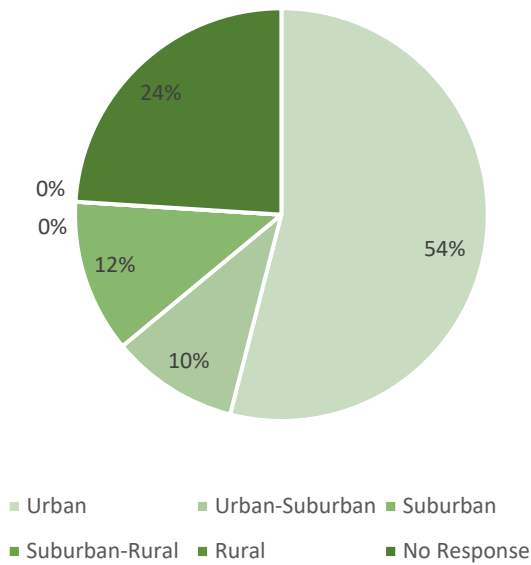
Figure 57. Area Type Results

Figure 58. Education (n=50; mean: 14.45 years)
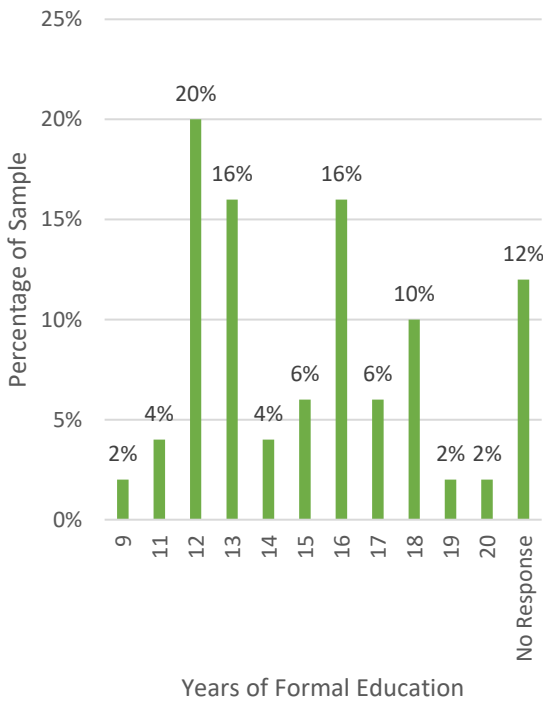
Figure 59. Income
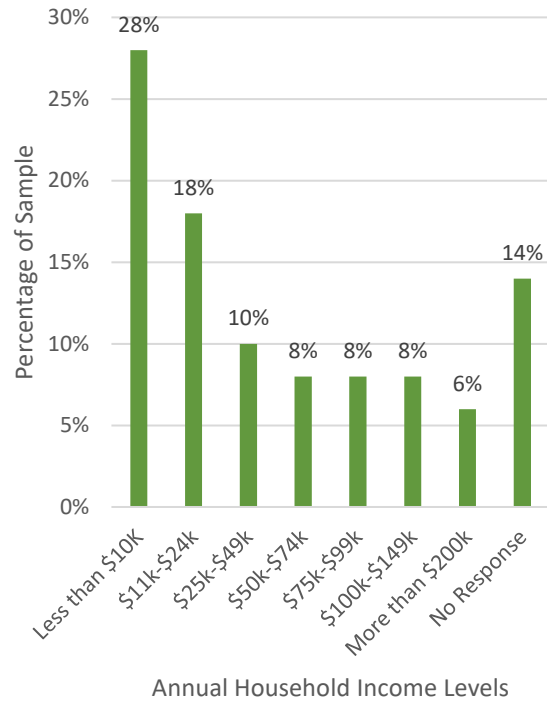
Race and Ethnicity

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.
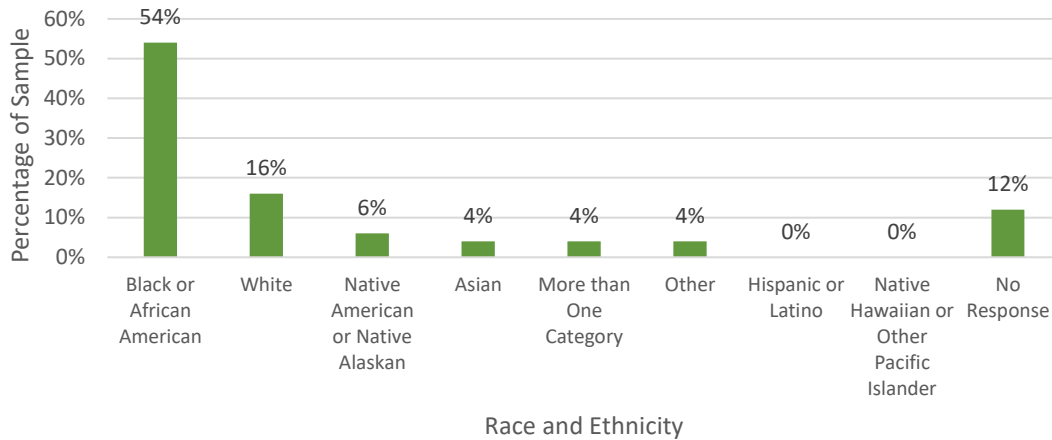
Figure 60. Respondents' Race and Ethnicity Results

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).
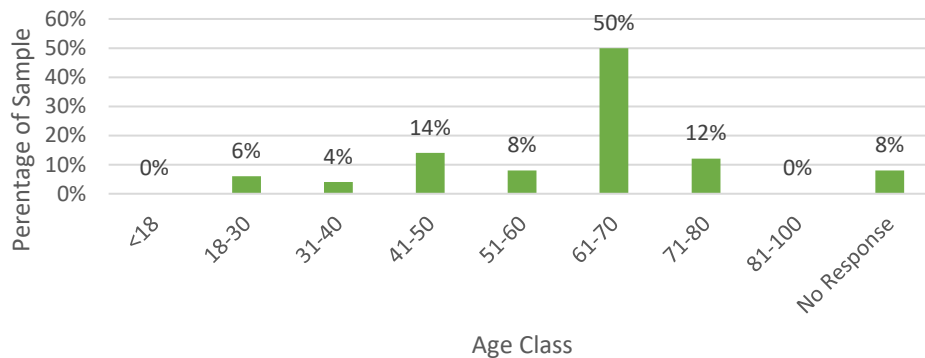
Figure 61. Respondents' Age Results

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).
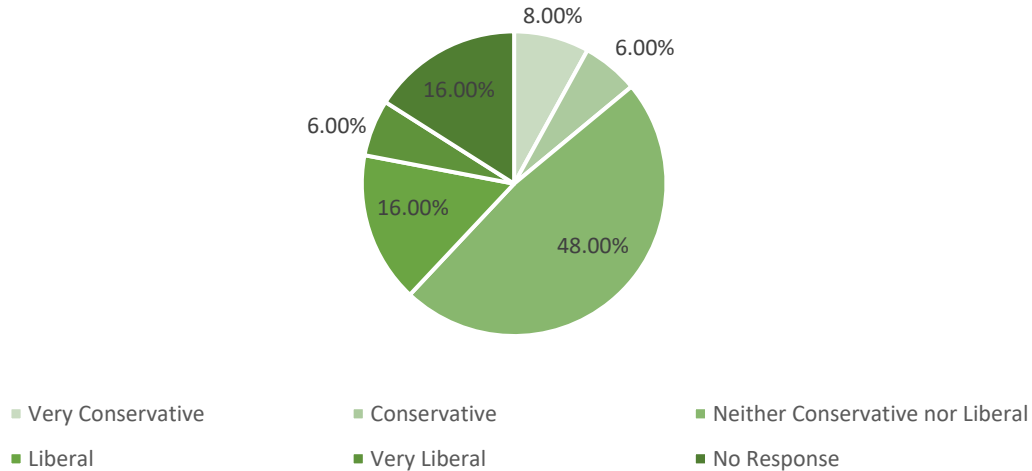
Figure 62. Respondents' Political Ideology Results

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."

Table 18. Hilltop Community Human Wellbeing Survey Results

Regional & Latinx Human Wellbeing Survey Results (2018-2022)[24]				
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 • Psychological Wellbeing • Life Satisfaction	5.66 • 3.94 • Not available	5.57 • 4.01 • Not available	5.49 • 3.98 • 4.41	5.02 • 3.64 • 3.98
Outdoor Activity • Outdoor Recreation • 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 • 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 • 12.42% engaged in nature-based work • 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	• Paved paths or trails, picnic/bbq, and unpaved trails in Fall and Spring were the most frequently engaged activities • 36% engaged in nature-based work • More than 70% worked more than 5 hours a week

[24] 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).

			• activities in Summer and Winter • 14% engaged in nature-based work • 77% worked more than 5 hours a week	

Table 19. 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 18-19). Hilltop community members had similar average responses to many Human Wellbeing Vital Signs (Tables 18-19). 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. Given that 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 those same individuals or groups 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. One additional 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.

Conclusions & Recommendations

This project aimed to achieve the following objectives: (1) enhance knowledge of minority communities' human wellbeing in the Puget Sound region; (2) expand HWB Vital Sign data, information, and messaging; (3) build new community relationships for sustainable long-term collaboration: and (4) create a protocol detailing how the work, if successful, can be sustained with an agency, program, or other durable funding source. Over the course of two years (2021-2023) and through close collaboration among all project collaborators, these project objectives were achieved. Their achievement is captured in this report and the new community relationships developed through this project's activities. Their achievement was facilitated through the intentional and strategic application of a community-based participatory research approach (CBPR), consisting of co-created facilitated dialogues and the optional Human Wellbeing Vital Signs Survey. This application was accomplished in close partnership among a researcher (and lead author), community collaborators (APCC and EPIC), and Asian American, Pacific Islander (AAPI), and Hilltop (largely Black and African American) community members.

Through the community facilitated dialogues, the findings reveal that the current iteration of the Human Wellbeing Vital Signs both resonated and were relevant among participating community members. Notable Vital Signs of resonance and relevance included: Outdoor Activity, Cultural Wellbeing, Sense of Place (including Psychological Wellbeing and Life Satisfaction), Local Foods, Air Quality, and Water Quality (includes Drinking, Fresh, and Marine). All Human Wellbeing Vital Signs were referenced through community members' coded responses, with some variation among the two participating communities. For example, AAPI community members' responses referenced Shellfish Beds, while Hilltop community members' responses did not. AAPI community members mentioned Air Quality and Water Quality more than Hilltop community members, while Hilltop community members discussed Good Governance (often within the context of environmental justice) more than AAPI community members.

While, the Human Wellbeing Vital Signs both resonated and were relevant among participating community members, new alternative Community Dimensions of human health (AAPI) and wellbeing (Hilltop) also emerged during the facilitated dialogues. Salient Community Dimensions of human health and wellbeing included: Accessibility, Equity, Physical Health, Place and Landscape, Fish and Wildlife, Trees and Plants, and Safety (Table 20). Two of these Community Dimensions, Accessibility and (Physical) Health, were also highlighted by the Partnership's Equity Guidebook (Noufi & Sheikh 2022). The project's findings support the application of those themes as guiding concepts for monitoring, given their local resonance and salience, while also demonstrating their potential integration as Human Wellbeing Vital Signs or indicators in future iterations of the Vital Signs. These emergent Community Dimensions are identified with recommendations and potential next steps in the table below (Table 20). Recommendations are intended to be non-prescriptive and aimed to provide a pathway to potentially recognize and integrate the Community Dimensions into the human wellbeing monitoring system. Potential next steps are intended to provide guidance on how the Community Dimensions and recommendations could be achieved in the near future.

Community Dimensions	Recommendations	Potential Next Steps
Accessibility	Explore accessibility as a potential measure of human wellbeing. This could be approached through multiple pathways, including: • further explore accessibility within a human wellbeing or environmental justice (and monitoring) working group, perhaps as part of the Human Wellbeing Vital Sign updates; • create and integrate Accessibility as a standalone measure; • create and integrate Accessibility as part of an Environmental Justice Index; and • create and integrate Accessibility as an indicator for Good Governance.	Explore available data to produce spatial overlays (or analyses) of publicly accessible natural areas (including parks) and diverse populations in region. Could include the following resources: • EnviroAtlas Interactive Map, U.S. Environmental Protection Agency; and • Environmental Health Disparities Map, WA Department of Health. Explore other examples of creating such indicators or monitoring resources, like those created by the following entities: • EJ & Supplemental Indexes, U.S. Environmental Protection Agency; and • Environmental Justice Index, U.S. Centers for Disease Control and Prevention. Partnership's Equity Guide also includes numerous pertinent resources and examples (Noufi & Sheikh 2022). Explore the integration of accessibility question(s) as part of a future iteration of the Human Wellbeing Vital Signs Survey. Could include multiple forms of accessibility, including: mobility, resource/amenity access, and proximity (all of which were discussed during the workshops).
Equity	Explore Equity as a potential measure of human wellbeing. This could be approached through multiple pathways, including: • further explore Equity within a human wellbeing or environmental justice (and monitoring) working group, perhaps as part of the Human Wellbeing Vital Sign updates; • create and integrate Equity as a standalone measure; • create and integrate Equity as part of an Environmental Justice Index; and	Explore available data to produce spatial overlays related to equity-related factors and diverse populations in region to gauge areas of (in)equity. Could include the following resources: • EnviroAtlas Interactive Map, U.S. Environmental Protection Agency; • Environmental Health Disparities Map, WA Department of Health; and • Washington Tracking Network, WA Department of Health.

	• create and integrate Equity as an indicator for Good Governance.	Explore other examples of creating such indicators or monitoring resources, like those created by the following entities: • EJ & Supplemental Indexes, U.S. Environmental Protection Agency; and • Environmental Justice Index, U.S. Centers for Disease Control and Prevention. Partnership's Equity Guide also includes numerous pertinent resources and examples (Noufi & Sheikh 2022). Explore the integration of equity question(s) as part of a future iteration of the Human Wellbeing Vital Signs Survey. Could include multiple forms of equity or could be merged with accessibility (e.g., equitable access to natural resources or areas).
Safety	Explore Safety as a measure of human wellbeing. This could be approached through multiple pathways, including: • further explore Safety within a human wellbeing or environmental justice (and monitoring) working group, perhaps as part of the Human Wellbeing Vital Sign updates; • create and integrate Safety as a standalone measure; • create and integrate Safety as part of an Environmental Justice Index; • create and integrate Safety as an indicator for Sense of Place (e.g., negative sense of place and/or fear of place); and • create and integrate Safety as an indicator of Good Governance.	Explore the integration of Safety question(s) as part of a future iteration of the Human Wellbeing Vital Signs Survey.
Physical Health	Explore Physical Health as a measure of human wellbeing. This could be approached through multiple pathways, including: • further explore Physical Health (beyond current measures) within a human health and wellbeing working group, perhaps as part of the Human Wellbeing Vital Sign updates;	Explore available data on public health in the region. Could include the following resources: • Environmental Justice Index, U.S. Centers for Disease Control and Prevention; • Environmental Health Disparities Map, WA Department of Health; and

	• create and integrate Physical Health as an index with multiple measures; • create and integrate Physical Health as part of an Environmental Justice Index.	• Washington Tracking Network, WA Department of Health. Partnership's Equity Guide also includes numerous pertinent resources and examples (Noufi & Sheikh 2022). Increase collaboration and data sharing partnerships with WA Department of Health and WA Department of Social and Human Services.
Place and Landscape	Explore Place and Landscape as a measure of human wellbeing. This could be approached through multiple pathways, including: • further explore Place and Landscape and wellbeing among Puget Sound residents through a working group, perhaps as part of the Human Wellbeing Vital Sign updates; • create and integrate Place and Landscape as an indicator (or more) of Sense of Place; and • identify and prioritize (using experts, communities, and/or a working group) meaningful or valuable places in the region, establish new indicator(s), and monitor their health/recovery using available data.	Explore the integration of Place and Landscape as part of a future iteration of Sense of Place, whether as part of the Human Wellbeing Vital Sign Survey or as an additional available data-based measure. Examples of the latter, can be found in the Baltic Health Index (see Sense of Place, Lasting Special Places) and Ocean Health Index (see Sense of Place, Lasting Special Places).
Fish and Wildlife	Explore Fish and Wildlife as a measure of human wellbeing separate from Local Foods, Outdoor Activity, and/or the biophysical Vital Signs. While the other Vital Signs likely address Fish and Wildlife, it is possible that some nuance or distinction exists that may warrant further exploration. This could be approached through multiple pathways, including: • further explore Fish and Wildlife, as having inherent and existence value or benefits beyond those associated with instrumental, cultural, or use benefits with a working group, perhaps as part of the Human Wellbeing Vital Sign updates; and • create and integrate Fish and Wildlife as an indicator(s), perhaps associated with inherent, intrinsic, and existence	Explore the integration of Fish and Wildlife as having inherent, intrinsic, and existence value and benefit to human wellbeing (beyond current Vital Signs linked to fish and wildlife). Explore the integration of Fish and Wildlife as part of a future iteration of Sense of Place, whether as part of the Human Wellbeing Vital Signs Survey or as an additional available data-based measure. Examples of the latter can be found in the Baltic Health Index (see Sense of Place, Iconic Species) and Ocean Health Index (see Sense of Place, Iconic Species).

	value and benefits (e.g., species abundance or richness); • identify and prioritize (using experts, communities, and/or a working group) meaningful or valuable fish and wildlife (beyond those species already prioritized and monitored) in the region, establish new indicator(s), and monitor their health/recovery using available data; and • create and integrate Fish and Wildlife as an indicator (or more) of Sense of Place.	
Plants and Trees	Explore Plants and Trees as a potential measure of human wellbeing. This could be approached through multiple pathways, including: • further explore Plants and Trees within a human wellbeing or environmental justice (and monitoring) working group, perhaps as part of the Human Wellbeing Vital Sign updates (trees often came up as part of an environmental justice or equity discussion in the Hilltop community); • create and integrate Plants and Trees as a standalone measure or set of measures; and • create and integrate Plants and Trees as part of an Environmental Justice Index.	Explore available data on plants and trees in the region. Could include the following resources: • EnviroAtlas Interactive Map, U.S. Environmental Protection Agency; and • Landscape Ecology, Modeling, Mapping & Analysis (LEMMA), Oregon State University. Explore linkages between plants and trees, including tree canopy, and environmental justice. Explore linkages between plants and trees and physical or public health.
Family Activities as a form of Outdoor Activity or Cultural Wellbeing	Consider Family Activities as a potential indicator of the Outdoor Activity or Cultural Wellbeing Human Wellbeing Vital Signs.	Explore linkages among Family Activities and Outdoor Activity and Cultural Wellbeing. Consider integrating Family Activities in a future iteration of the Human Wellbeing Vital Sign Survey.
Seaweed as a form of Local Foods	Consider Seaweed as a potential indicator of Local Foods.	Consider integrating Seaweed harvesting in a future iteration of the Human Wellbeing Vital Signs Survey, as part of Local Foods. Explore the potential use of available data on seaweed harvesting license from the WA Department of Fish and Wildlife (seaweed is linked to shellfish harvesting and licensing).

Bracken (type of fern) as a form of Local Foods	Consider Bracken as a potential indicator of Local Foods.	Consider integrating Bracken harvesting in a future iteration of the Human Wellbeing Vital Sign Survey, as part of Local Foods.

Table 20. Community-based Human Wellbeing Vital Sign Recommendations

Participating community members also linked both already established (VS) and emergent Community Dimensions of health and wellbeing to climate change impacts and meaningful places in the Puget Sound region. For example, workshop participants connected climate change impacts to Outdoor Activity, Sense of Place, and Physical Health; although many community members faced challenges explicitly and directly connecting climate change impacts to their health and wellbeing, with many solely providing examples of climate change impacts, like Seasonal and Temperature Change. This observation warrants further exploration into the linkages between climate change and residents' wellbeing in the region, including among minority communities. Workshop participants also identified meaningful places, both broad and specific, that contribute to their wellbeing. Places were highly local, primarily located in the greater Tacoma area, and contributed to community members' health and wellbeing through Sense of Place, Outdoor Activity, Local Foods, Fish and Wildlife, and Accessibility. Workshop participants' responses to the place prompts/questions demonstrated that residents engage with and benefit from nature in place and often among specific landscape features. This warrants further examination into what types of places or landscapes contribute to or are valued among Puget Sound residents. This latter finding further supports the potential integration of more explicit place and/or landscape indicators or information within human wellbeing monitoring.

The survey further supports the findings from the facilitated dialogues. Given that the survey responses partly mirrored those of other Human Wellbeing Vital Sign Surveys conducted in the region, this demonstrated that the already established Vital Signs resonated and reflected how the region's diverse communities engage with and benefit from Puget Sound's natural environment. Variations in the survey responses and findings also support the findings from the facilitated dialogues. These community variations, notably for Good Governance and Sound Stewardship, demonstrated that more could be done to further understand Good Governance and Sound Stewardship among various communities in the region. For example, average response variations for Good Governance among participants (Hilltop residents and AAPI participants) and regional survey respondents, highlighted differing experiences with natural resource governance in the region and environmental (in)justice in the region, as participating community members experienced governance and governing institutions (and their decisions) differently. Additionally, varying average responses to Sound Stewardship demonstrated differing experiences with directly engaging in pro-environmental stewardship behaviors, illustrating a potential inequity within the broader environmental community, notably among those organizations or groups coordinating or organizing environmental stewardship campaigns or activities in the region. Given the strong linkages between pro-environmental stewardship behaviors and other Vital Signs, like Sense of Place (Trimbach and others 2022b), more could be done to ensure stewardship opportunities (e.g., outreach, education, communications, and on-the-ground stewardship programs) are more inclusive in the region. This insight furthers the recommendation to explore, if not establish, more inclusive mechanisms within

the Puget Sound monitoring (and broader environmental) community and an Environmental Justice Index that includes the Community Dimensions of Accessibility, Equity, and Safety (among other potential indicators).

Limitations

This project faced multiple limitations, both with the facilitated dialogues and surveys. These limitations directly or indirectly informed the project and likely its development, implementation, analysis, and results. Limitations included a notable 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 because new subcontracts had to be established with all partners and a student research assistant could not be hired to assist with the project. This lack of a research assistant caused a shift in the anticipated division of labor with the lead researcher taking on the research, analysis, and write-up activities, which was not expected or part of the initial project plan. This also caused logistical issues and additional administrative work on the part of the researcher, collaborators, and funder. Other potential limitations included variations in workshop dates/times, variations in outreach efforts per workshop, variations in priorities between researcher and collaborators, shifting workshop dates, and broader community or contextual issues.

The survey instrument also 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, decision-making, and scientific purposes, like those associated with monitoring human wellbeing. This is not to say that the survey results are not reflective of communities or residents of Puget Sound, as they are. One limitation that emerged after the project started implementing the survey was that the regional Human Wellbeing Vital Signs Survey was updated, making exact comparisons to the 2022 survey somewhat challenging. Also since 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 AAPI and Hilltop (notably Black and African American) communities in Tacoma, Pierce County, or Puget Sound as a whole. Sampling errors likely include nonresponse error and measurement error. Such limitations should be considered when interpretating and using the results of this study.

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Appendix A. Facilitated Dialogues Codebook

This codebook (Table 21) 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. 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. Keywords: air, fresh air, air quality, breathing, clean air Example: "air quality, bad air makes it harder to breathe" 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. Keywords: water, water quality, clean water, fresh water, drinking water, waterways Example: "water quality" 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.

		Keywords: food, fish, shellfish, clams, seafood, mushrooms, seaweed, vegetables, fruits, locally grown produce, produce, farms, gardening, harvest (and other references to food or eating) Example: "Different vegetables seem to grow better or worse" 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. Keywords: recreation, outdoor recreation, outdoor activities, recreational activities, fishing, gardening, skiing, hiking, walking, biking, shellfish harvest, camping, exercise (and other examples of recreation) Example: "climate change has made it difficult to participate in more outdoor activities due to hail and snow" 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. Keywords: shellfish, shellfish harvest, clams, clam digging Example: "Tolmie State Park, walking, clam digging, picnic" 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. 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 Example: "the community connects with nature by utilizing it in to describe its sheer amazing in dances (hula)" 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. Keywords: economy, work, jobs, financial, products

		Example: "economy"
		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.

Keywords: laws, policy, government, decision making, and (examples of) good governance or the lack thereof

Example: "agency in decision making"

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.

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

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"

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.

Keywords: cleaning, litter, trash, taking care, help, save

Example: "picking up litter, saving trees, mountains, waterways, and wetlands"

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. |

		Keywords: access, accessibility, transportation, transit, amenities, proximity, mobility, ability, (examples of) all of the aforementioned keywords Example: "good transit system to get people to parks" 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. Keywords: equity, fairness, equal, consideration, and (examples of) the aforementioned keywords Example: "low income should not equal low standards (e.g., having parking)" Code Type: Inductive
Community Dimension	Physical Health	Definition: All references to physical health, including any references to the physical body. Keywords: physical health, bodily health, sick, pain, disease, medicine, nutrition, body, and (examples of) physical health or ill health Example: "body composition" 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. Keywords: fish, wildlife, birds, animals, insects, ducks, turtles, squirrels, bees, dogs, cats, chickens, fauna, shellfish, clams Example: "the sound of the birds" 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. Keywords: trees, plants, flowers, flora, moss, and (other examples of non-tree) plants Example: "trees, plants"

		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. 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 Example: "parks and nature" Code Type: Inductive
Community Dimension	Safety	Definition: All references to safety and security. Keywords: safety, security, danger, police Example: "clean park to be safe, to walk the street make safe for kids" 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. Keywords: environment, clean, good, pollution, destruction, negative, loss, and (generic example of) the environmental condition Example: "environment" 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. No keywords included. Example: "wellbeing lasting transformation" 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. Keywords: everything Example: "health is everything"

		Code Type: Inductive
Community Dimension	Gold[25]	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. Keywords: gold Example: "health is gold" 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. Keywords: life Example: "life" 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. Keywords: uncertainty, unknown, unpredictable Example: "climate change is unpredictable and can be extreme at times" 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. Keywords: happy, glad, (examples of) new opportunities or experiences Example: "warmer winters, more recreation time outside"

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[25] 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.

		Code Type: Inductive
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. Keywords: natural disaster, flood, heat waves, fire, sea level rise, storms, tornados, hurricanes, draught Example: "hurricanes, tornadoes, snow, rain, flooding, fires, and draught" 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. Keywords: temperature, season, winter, summer, weather, heat, cold, Example: "4 seasons are not clear" 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. Keywords: (examples of) loss or past Example: "back in the 60 and 70 was a community on the hilltop" 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. Keywords: (common or shared, including examples of) goals, values, solutions, memories, interests, care, church Example: "common goals" 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.

| | | Keywords: coming together, gathering, events, collaboration, interactions, culture, and (examples of) specific activities or interactions, like political/coalition building

Example: "events, genuine/nice interactions with people, integrating cultures, relationship with police"

Code Type: Inductive |
|---|---|---|

Table 21. Codebook

Appendix B. Workshop Codes, Responses, and Examples

Asian American and Pacific Islander Residents' Workshops

This table (Table 22) includes codes solely linked to the facilitated dialogues. This table includes codes applied to the Asian American and Pacific Islander Residents' Workshops co-created and conducted with the Asia Pacific Cultural Center. The table is organized by facilitated dialogues theme or question (in bold and highlighted with a bright color), including: health (e.g., What is health (including as it relates to nature)?), contributions (e.g., How does nature contribute to your health?), climate change (e.g., How does climate change impact your health?), and place (e.g., What places (in nature) contribute to your health? Why?). Each theme (associated with the noted questions) is bolded and includes the number of responses (#) and sample (number of people who responded) (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 (Puget Sound Partnership's indicators of ecosystem health and recovery of Puget Sound) and the bolder or darker shade illustrating emergent codes derived from the community participants. For more information about the codes and their definitions, see Appendix A.

Themes and Codes	Responses[26]	Precent	Examples
Health (n=166)	**121**		
Physical Health	55	45.45%	"nutrition"
Sense of Place	27	22.31%	"conditions of wellbeing consist of physical and mental condition, environment"
Local Foods	22	18.18%	"nature, food, trees, water, mountain, air"
Outdoor Activity	16	13.22%	"what is health? exercise, walk"
Everything	15	12.39%	"health is everything"
Gold	15	12.39%	"health is gold"
Cultural Wellbeing	15	12.39%	"culture"
Other	7	05.78%	"world"
Air Quality	7	05.78%	"air quality"
Environmental Condition	7	05.78%	"health definition - physically, mentally, socially (family and

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[26] 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., Health, Responses: 121), nor will the percentages add up to 100% (with limited exceptions, like for some place-based codes). This is intentional and part of the abductive analysis.

			community relationship), environmental health (it influences physical and mental health)"
Life	7	05.78%	"life"
Safety	4	03.30%	"clean air, clean water, safe/healthy food, safe environment for outdoor activities"
Water (Drinking, Fresh, Marine)	4	03.30%	"water quality"
Place and Landscape	3	02.47%	"nature, food, trees, water, mountain, air"
Economic Vitality	2	01.65%	"economy"
Accessibility	2	01.65%	"being able to do things you would like to do, walking upstairs to running marathons"
Good Governance	1	00.82%	"government"
Fish and Wildlife	1	00.82%	"healthy animals"
Contributions (n=166)	**130**		
Air Quality	57	43.84%	"fresh air"
Water (Drinking, Fresh, Marine)	38	29.23%	"fresh clean everything - water, air, plants, ocean"
Sense of Place	38	29.23%	"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"
Place and Landscape	35	26.92%	"park"
Plants and Trees	34	26.15%	"trees, plants"
Outdoor Activity	32	24.61%	"swimming, fishing, and enjoying the Puget Sound"
Cultural Wellbeing	24	18.46%	"the community connects with nature by utilizing it in to describe its sheer amazing in dances (hula)"
Local Foods	16	12.30%	"forest, air, ocean, park (national), seaweed, fish"
Sound Stewardship	16	12.30%	"picking up litter, saving trees, mountains, waterways, and wetlands"
Environmental Condition	13	10%	"clean and nice looking"
Fish and Wildlife	10	07.69%	"we watch the birds activities at home or the parks and they connect us to the rest of the environment"
Physical Health	9	06.92%	"health, clean water and air, beautiful forest and sea/life, physical/mental health, forest provides walking trail, peace, health"
Safety	3	02.30%	"dangerous because of dogs in streets often, hoping there should be strict rules concerning cats and dogs to be kept well by their owners"

Energy	3	02.30%	"I value nature: nature gives us clean energy, water, nature gives us entertainment"
Accessibility	3	02.30%	"educational experiences, outdoor safe access, water sports/activities, animal sightings all allow a break from the normal grind"
Good Governance	1	00.76%	"laws"
Climate Change (n=166)	**125**		
Physical Health	51	40.80%	"more sickness"
Seasonal and Temperature Change	34	27.20%	"Temperature way too high and low, more fire, animal extinction"
Sense of Place	21	16.80%	"angry, sad, hopeful, desperate"
Natural Disasters	20	16.00%	"hurricanes, tornadoes, snow, rain, flooding, fires, and draught"
Sound Stewardship	18	14.44%	"I feel we need to take care of environment"
Outdoor Activity	18	14.44%	"climate change has made it difficult to participate in more outdoor activities due to hail and snow"
Environmental Condition	12	09.60%	"It destroying the whole earth" everywhere"
Place and Landscape	12	09.60%	"impact many parks"
Local Foods	12	09.60%	"Different vegetables seem to grow better or worse"
Air Quality	11	08.80%	"Poor air quality, sets limitations, changes need to be turned around"
Fish and Wildlife	10	08.00%	"It has impacted growing seasons, it is impacting sea life due to the rise in the water temperature"
Increased Uncertainty	10	08.00%	"climate change is unpredictable and can be extreme at times"
Plants and Trees	9	7.20%	"plants, trees, homes"
Water (Drinking, Fresh, Marine)	6	04.80%	"warmer water effects fishes"
Other	3	02.40%	"human"
Economic Vitality	2	01.60%	"problems caused by severe drought (no farming products), severe flooding in the region (economic and health problems for the vulnerable)"
Acceptance and Opportunity	1	00.80%	"concern about our next generations, happy to see more snow"
Equity	1	00.80%	"too hot cause beathing problem, too cold cause pain for old people"

Place (n=166; all Place responses: 199)	98[27]		
Specific	**47**	**47.95%**	
Mt. Rainier National Park	12	25.53%	"Mt. Rainer, for camping"
Point Defiance	6	12.76%	"point defiance forest, beaches, parks, water"
Owen Beach	6	12.76%	"mt. rainier, point defiance, owen beach"
Wapato Lake	5	10.63%	"take a walk, wapato park, they have everything like bird, duck, swim, lake"
Ruston Way/Waterfront	5	10.63%	"ruston way, mt rainier, hood canal, lakes, rivers"
Ocean Shores	5	10.63%	"steilacoom park, ruston way, long beach, ocean shores, clean air and escape from urban life"
Chambers Bay	5	10.63%	"chambers bay, ruston beach, dash point"
Olympic National Park	5	10.63%	"olympic national park"
Tacoma	3	06.38%	"tacoma, lakewood, pierce county"
Charlotte's Blueberry Park	3	06.38%	"blueberry park"
Seahurst Ed Munro Park	3	06.38%	"seahurst park, redondo beach, our back yard"
Redondo Beach	3	06.38%	"redondo beach, seahurst park"
Dash Point State Park	2	04.25%	"ocean shores and dash point"
Twin Harbors State Park	1	02.12%	"swan creek (near my house), ocean (owen beach, twin harbor)"
Tolmie State Park	1	02.12%	"Tolmie State Park, walking, clam digging, picnic"
Swan Creek	1	02.12%	"swan creek (near my house), ocean (owen beach, twin harbor)"
Steilacoom Park	1	02.12%	"steilacoom park, ruston way, long beach, ocean shores, clean air and escape from urban life"
Spanaway Park	1	02.12%	"national park, chambers bay (walking, fishing), restaurant (many country food), mt rainier, point defiance park…spanaway park, golf course, wapato park"
Seattle Waterfront	1	02.12%	"wapato park, waterfront in seattle, the mountains"
San Juan Islands	1	02.12%	"san juan islands"
Puget Sound	1	02.12%	"mountain lake, river, I mostly value above all puget sound it the best place for me"

[27] Note that when asked about Place (in general), community members provided 199 responses. Out of those 199 responses, 98 places were identified, including 47 specific places and 51 broadly defined places. Please take this distinction into consideration when interpreting the Place findings.

Pierce County	1	02.12%	"tacoma, lakewood, pierce county"
Mt. Adams	1	02.12%	"Mt. rainier, mt adams, enjoy ski, good to hiking"
Long Beach	1	02.12%	"steilacoom park, ruston way, long beach, ocean shores, clean air and escape from urban life"
Lakewood	1	02.12%	"tacoma, lakewood, pierce county"
Hood Canal	1	02.12%	"ruston way, mt rainier, hood canal, lakes, rivers"
Gas Works Park	1	02.12%	"gas work park"
Brown's Point	1	02.12%	"brown point"
Alki Beach	1	02.12%	"alki beach"
Broad	**51**	**52.04%**	
Beaches	18	35.29%	"point defiance forest, beaches, parks, water"
Built Places	8	15.68%	"schools, churches, government offices"
Parks	17	13.72%	"park and ocean"
Mountains	7	13.72%	"mountain lake, river, I mostly value above all puget sound it the best place for me"
Rivers	5	09.80%	"ocean, rivers"
Ocean	4	07.84%	"park, beaches, olympic park, mount rainier, oceans"
Trails	3	05.88%	"foothills trail"
National Parks (non-specific)	3	05.88%	"national parks"
Lakes	3	05.88%	"ruston way, mt rainier, hood canal, lakes, rivers"
Home/Yard	3	05.88%	"Seahurst park, redondo beach, our back yard"
Wetlands	2	03.92%	"rivers, wetlands"
Waterfront	2	03.92%	"waterfront"
Water	2	03.92%	"point defiance forest, beaches, parks, water"
Sea	2	03.92%	"I like the sea, the zoo, walking along the beach"
Forests	1	01.96%	"point defiance forest, beaches, parks, water"
Bays	1	01.96%	"I like wapato park because it have a lake a lot of tree, grass and important near my house, point defiance because have a bay"
Why	**65**		
Outdoor Activity	36	55.38%	"mt rainer for hiking"
Sense of Place	30	46.15%	"It's our home, wouldn't want to live anywhere else"
Fish and Wildlife	16	24.61%	"enjoy walking, see the plants and trees, wildlife"

Local Foods	14	21.53%	"fishing, shellfish harvest, beautiful, good air, relaxing"
Cultural Wellbeing	10	15.38%	"where I live, where I work, where I go to church"
Air Quality	8	12.30%	"clean air, fresh air, wild animals"
Plants and Trees	5	07.69%	"I like wapato park because it have a lake a lot of tree, grass and important near my house, point defiance because have a bay"
Accessibility	4	06.15%	"access to nature that is close by"
Economic Vitality	3	04.61%	"near chambers seaside fish area, sometimes work and fishing, walking"
Physical Health	3	04.61%	"I can breathe, I can relax, I can enjoy photos"
Shellfish Beds	3	04.61%	"Tolmie State Park, walking, clam digging, picnic"
Sound Stewardship	2	03.07%	"rivers, wetlands, protect fish, keep clean water, prevent flooding"
Water (Drinking, Fresh, Marine)	2	03.07%	"animals, clean water and air, protected environment"

Table 22. Codes, Responses, and Examples (Asian American and Pacific Islander Residents Only)

Hilltop Residents' Workshops

This table (Table 23) 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 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[28]	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"
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"

[28] 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.

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=40; all Place responses: 37)	**46[29]**		
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"
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

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[29] 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. Also note that respondents from 2 workshops answered the place-focused questions, so the total number of participants is lower (n=40). Please take these notes into consideration when interpreting the Place findings.

			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 23. Codes, Responses, and Examples (Hilltop Residents Only)

Appendix C. Engagement Protocol

Introduction

Inclusive community engagement in research or monitoring is a distinct form of engagement and collaboration. The purpose of this protocol is to outline the community engagement process used for the "Enhancing the Human Wellbeing Vital Signs through Inclusive Engagement," project. This protocol intends to illustrate potential future actions to be taken by the Puget Sound Partnership and its ecosystem recovery partners, and to outline lessons learned from this project. While this protocol is presented as an appendix, this document is intended to be an extractable, accessible, and usable resource for other contexts. Many of the lessons learned align with key principles or best practices observed from community-based participatory research (CBPR) and complementary forms of research or engagement (Israel and others 1998; Israel and others 2005; Unertl and others 2015; Leavy 2017; Wilson and others 2018; Trimbach and others 2022a). Community-based or -engaged research is not new (Israel and others 1998; Wallerstein and others 2020), including within environmental fields (Minkler and others 2008; Wilson and others 2018); however, calls for greater diversity, equity, inclusivity, and justice within environmental fields and decision-making, has only necessitated more intentional engagement with communities and the careful application of community-based research approaches or methods (Finney 2014; Law and others 2017; 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). Community-based or -engaged environmental research takes many forms, including through community science, participatory mapping, and photovoice, among others (Wilson and others 2018; Trimbach and others 2022a).
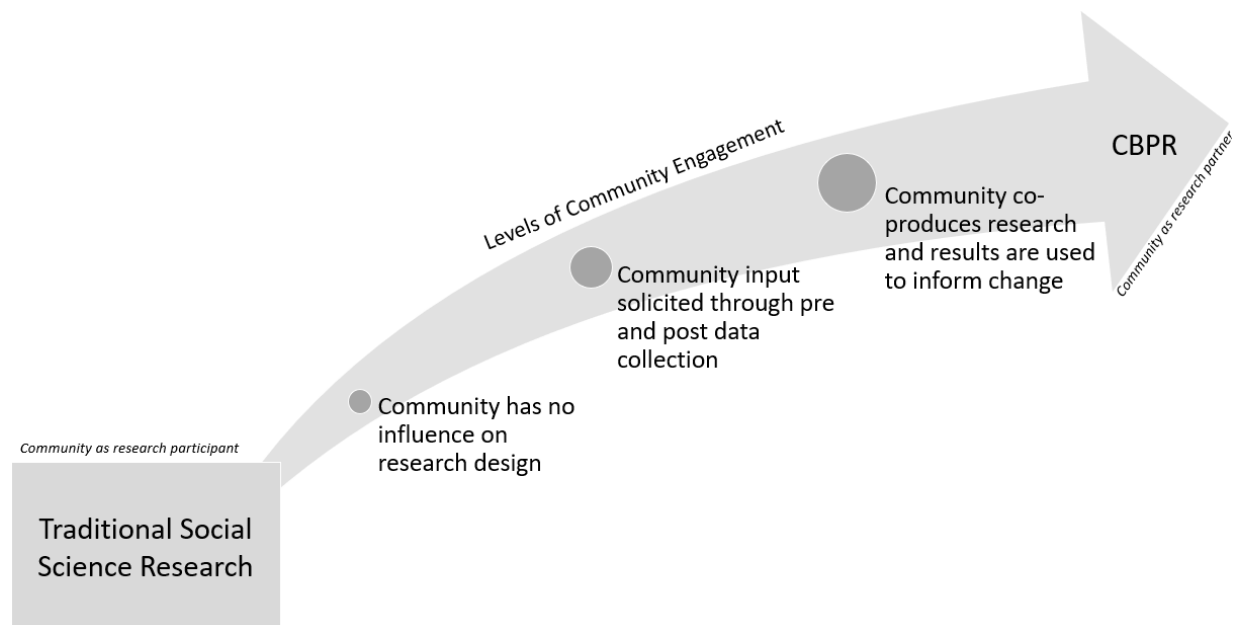
Figure 1. Levels of Community Engagement within Social Science Research (Modified from Michalak and others 2016)

Such efforts are not uniform and involve a spectrum of community engagement, that varies within social science research (Figure 1). CBPR in particular is highly individualized to fit and address the particular problem or issue in question, making general guidance or templates challenging to create (Leavy 2017); however, CBPR has been used for well over two-decades within public health, a leading field in CBPR, offering numerous of lessons learned and best practices (Wallerstein and others 2020). This protocol outlines the application of CBPR to enhance the monitoring of human wellbeing for the Puget Sound Partnership and its regional recovery network. While this protocol illustrates CBPR and its application within a human wellbeing monitoring context, the process, examples, principles, and recommendations may have wider applicability for the agency or its partners; however, given the integral role of context within CBPR efforts, the context of this process should be considered when attempting to apply this protocol.

Community-based Participatory Research (CBPR): What is it?

Community-based Participatory Research (CBPR) refers to a collaborative approach to social science research that aims to equitably engage communities, including researchers, organizational representatives, and/or individual community members in any or all elements of the research process, including by providing expertise and participating in shared decision-making and research responsibilities (Israel and others 1998, 2005; Leavy 2017). CBPR is recognized as a potential approach to achieving environmental justice and addressing inequitable environmental disparities (Israel and others 2005; Minkler and others 2008; Wilson and others 2018). CBPR emerged from and is informed by a transformative or emancipatory paradigm, that aims to ensure that those historically excluded or marginalized within research (or monitoring) are actively engaged and included in the process (Leavy 2017). Informed by critical, feminist, indigenous, and action-oriented scholarship, a transformative paradigm focuses on human rights, social justice, empowerment, emancipation, transformation, power-reflexivity, action-orientation, and participation (Israel and others 2005; Leavy 2017; Wilson and others 2018). CBPR is highly individualized to fit and address an identified problem or issue. As such, CBPR can take many forms and the accompanying tools, strategies, and/or frameworks used tend to be selected for their abilities to address the identified problem.

Unlike traditional social science research, the researcher and community, including community representatives or partners, are engaged more as collaborators rather than researcher vs. research participants or subjects (Figure 1). Given CBPR's emphasis on communities, it is integral to define and clarify what a community means. Community is a complex and dynamic concept that entails many competing definitions and understandings (Day 2006). Within CBPR, community refers to a unit of identity as defined by a sense of connection and identification to other people, common values or norms, shared interests, symbols, and/or mutual needs (Israel and others 1998; Israel and others 2005). Communities may include geographically bounded or place-based groups and/or those who share a common identity, like a racial, ethnic, sexual, or other form of identity (Israel and others 2005). While defining and clarifying community is integral to CBPR, it is also helpful to acknowledge the role of intersectionality, or the simultaneously combined identities (e.g., race, ethnicity, linguistic, gender, migration status, and class, among others) and privileges/marginalities, among people, as individuals embody, experience, and identify with a multiplicity of intersecting communities in society (Crenshaw 1989; King 2022).

CBPR Principles: What does it typically look like?

CBPR approaches, while part of a spectrum and not a monolithic form of collaborative research, do tend to share key principles and characteristics (Israel and others 1998; Israel and others 2005; Minkler and others 2008; Unertl and others 2015; Leavy 2017; Wilson and others 2018; Trimbach and others 2022a), that include the following:

1. **Community is a unit of identity:** Communities and defined communities are integral to CBPR.
2. **Problem-centered:** CBPR is tailored to address a shared problem, often requiring the specific processes or tools embedded within CBPR, including responsive or flexible research designs. CBPR emphasizes social action, justice, and is intended to be used to help address an identified problem.
3. **Community strengths and resources:** Communities and community partners are integral to CBPR. Communities and community partners are considered active and equal partners in a project. Strengths and resources may vary depending on context or community; however, some potential strengths and resources may include local community knowledge and the ability to engage in culturally competent recruitment and retention strategies to acquire broader community engagement in a project.
4. **Cultural and community sensitivity:** CBPR must be sensitive to a community's cultural understandings, practices, and definitions. By being culturally and community sensitive, the research approach and overall project, including engagement strategies, can be determined to be most relevant (and effective) to the community.
5. **Collaboration:** CBPR requires deep collaboration and partnerships. Collaboration should ideally be an aspect of every project phase or component. Collaboration should also entail an agreed upon division of labor, mutually beneficial outcomes, and an understanding of power sharing.
6. **Co-learning and knowledge co-production:** CBPR involves a co-learning and knowledge co-production process. CBPR includes and emphasizes multiple forms of knowledge, whether local, indigenous, or western scientific. Knowledge co-production informs actions and is considered mutually beneficial among collaborators.
7. **Cyclical and iterative:** CBPR is cyclical and iterative, reflecting the responsive or recursiveness of the approach. Collaborators often review, critique, repeat, and adapt to new information or insights.
8. **Trust and rapport:** CBPR is relationship-dependent necessitating trusting and equitable relationships. Relationships should not be approached as short-term, but with a long-term mindset that emphasizes care and intention. Relationships should be built upon genuine interest, transparency, equity, and power-sharing.
9. **Shared findings and knowledge:** CBPR necessitates the sharing of research findings and knowledge with all project collaborators, including targeted communities. Findings can be reviewed, and products can be co-created and co-disseminated.
10. **Diverse researcher skillset:** CBPR requires a researcher that has more than a standard researcher or scientist skillset. Not all researchers are well-suited or trained to engage in CBPR, particularly as it often necessitates a more transformative or pragmatic approach (and

research paradigm) and community collaboration experience, rather than a fixed traditional western scientific (positivist-empiricist paradigmatic) approach and technical mindset. CBPR may require a researcher to also have relational, organizational, and facilitation skills.

Benefits of CBPR: Why do this?

There are many potential benefits to CBPR. Such identified potential CBPR benefits include:

1. research comes from, is informed by, and reflects topics or concerns from communities;
2. ensures relevance and application of research and findings to all partners or communities;
3. ensures wider research impact and solutions to problem(s);
4. builds relationships and collaborations;
5. integrates diverse forms of knowledge, skills, experiences, and expertise to address complex problems;
6. produces effective engagement, recruitment, and retention among diverse communities within a research process;
7. contributes to the validity, practicality, quality, and sensitivity of research by including local community knowledge;
8. enhances trust of research and findings among communities that have traditionally been approached solely as research subjects; and
9. emphasizes the improvement of community health and wellbeing (Israel and others 2005; Minkler and others 2005; Leavy 2017; Unertl and others 2015; Wilson and others 2018).

CBPR Process: What does this look like in practice?

CBPR is designed to address individualized problems. As such, CBPR takes many forms and can be conducted in many ways, while also adhering to the aforementioned principles. In this section, CBPR is outlined as a process based on the "Enhancing the Human Wellbeing Vital Signs through Inclusive Engagement," project. While providing templates and guides to CBPR can be problematic and challenging because of the context-, community-, and problem-dependent nature of the approach, this section aims to provide a process case study that could be applied as a resource to help with future CBPR applications, particularly within a monitoring setting. The process outlined in this section partly builds upon processes and process steps applied or discussed elsewhere (Hull and others 2010; Unertl and others 2015; Leavy 2017; Wallerstein and others 2020). In the process diagram (Figure 2), each process step is mentioned in brief. Attached to each process step is an example as to how that process step was enacted in practice for this project. Please note that each step is part of an iterative and cyclical process that is intended to be adaptable and flexible. Also, given that this presents a process case study, all process steps could be modified, including when it comes to project partner roles and activities. Within CBPR, the researcher, collaborators (in this case representatives of community organizations), and participating community members can take on various roles and responsibilities, thus, any of the outlined process steps could be taken by the researcher, collaborators, and/or other engaged community members, depending on the project, problem, and relational arrangement.

Researcher identified the problem based on prior research, professional background, professional network, funding, and concept timeliness (e.g., lack of inclusion and engagement of local communities in human wellbeing data and monitoring). These factors are common with CBPR.

With external assistance, relevant partners and communities were identified. Online community organization directories and resources, local outreach to organizations, and local networks, assisted with partner identification.

Collaborators continued to communicate in order to maintain relationships and to ensure project impact. Based on project findings, researcher began to organize new WDFW-led outreach events focused on nature and wildlife for collaborators and communities to be held in 2023-2024. Collaborators also plan on hosting follow-up presentations on project findings with communities.

Researcher wrote-up products (e.g., presentations, report), collaborators were provided opportunities to review (if/when able), and products were disseminated. Research was presented at a conference.

Potential collaborators met to discuss problem relevance, prioritization, modification, and community impacts. Communities were also identified and refined with partners. Project concept, potential design, and partner compensation were also discussed. Community partners consented to collaborate on the mutually beneficial project.

Collaborators agreed on a division of labor and planning schedule (e.g., once every two weeks) for project co-development. Project was co-developed over multiple months. This project relied on key partners with strong networks. Collaborators also helped approve facilitator and (initial) student research assistant.

Researcher conducted data analysis for workshop (qualitative) and survey (quantitative) data. Frequent updates were provided to collaborators.

Researcher shared selected workshop data (codes) and findings with some interpretation to collaborators for review, questions, and input.

Project was co-implemented among collaborators, including outreach, material co-creation, translation/interpretation, and workshop holding/hosting.

Phase 1. Problem identification by researcher

Phase 2. Partner and community identification

Phase 3. Problem relevance, prioritization, and modification

Phase 4. Project co-development

Phase 5. Project co-implementation*

Phase 6. Data analysis

Phase 7. Data review and interpretation

Phase 8. Project write-up, review, and dissemination

Phase 9. Establish mechanisms for sustainability and impact

Figure 2. CBPR Process

*Phase 5. Project co-implementation: community engagement process

During Phase 5 of the project, community outreach was conducted. This process took many forms to recruit project participants. This varied by community and required culturally and community

Figure 3. Workshop Flyer

relevant knowledge and relationships. During Phase 4 of the project, outreach and project materials were co-created, including outreach flyers (Figure 3), workshop plans, agendas, consent forms, sign-up sheets, presentations, and other handouts. When appropriate, all materials were translated (e.g., Thai, Korean, and Vietnamese) and reviewed prior to the workshops. Outreach materials were initially (2022) co-created and co-designed by project collaborators, but subsequently co-created with the assistance of a graphic designer (WDFW, 2023). Material co-creation took much time and communication to ensure all materials were culturally and community relevant prior to translation, including even discussing font color, font size, images, and word selection. Once collectively approved, outreach largely was the responsibility of community partners and their respective networks. This was conducted via multiple mechanisms, including: leveraging community relationships, community liaisons (APCC), flyers (online and hardcopies), and online tools (e.g., email and social media). Due to some recruitment

issues for the Hilltop workshops, WDFW public engagement staff also provided some assistance, including via social media and posting flyers around Tacoma. Additionally, due to an ever-changing community context and engagement process, some workshops' dates/times were changed (requiring all materials to be changed) and one workshop was cancelled entirely.

CBPR Lessons Learned and Recommendations

In this section, CBPR lessons learned and recommendations are outlined. These lessons learned and recommendations (or best practices) are derived from the researcher's experience with this project (and previously CBPR projects) and relevant CBPR (and complementary research approaches) literature (Israel and others 2005; Minkler and others 2008; Unertl and others 2015; Leavy 2017; Wilson and others 2018; Chazan and Baldwin 2021; Ardoin and others 2022; Trimbach and others 2022a). Each lesson learned is highlighted, described in more detail, articulated as a recommendation, and outlined with a project-specific example. All lessons learned and recommendations are described below.

Recognize your own positionality within your project or context

1. **Lesson:** Positionality recognizes how researchers actively engage, experience, and interpret the world around them, including their own research. Positionality generally refers to a researcher's position or situatedness within the social world and field of inquiry, which can impact a

researcher's approach, relational dynamics with communities or partners, and interpretation of their research results (England 1994; Crang 2002; King 2022).

Recommendation: When engaging partners or communities through a CBPR approach, all leading and participating individuals[30], including the researcher or agency partner(s), should actively recognize their own positionality within the context of the project. Individuals could self-reflect and interrogate their own position and situatedness within the project, including recognizing their own identities, expertise, and experiences and how those might collectively impact or have impacted the project. One potential mechanism is to write up a positionality statement, like the example below written by the researcher.

Example: Throughout the study, the researcher actively recognized their own positionality, as it informed the project. The researcher is a social scientist, trained in human geography and interdisciplinary conservation social sciences, including CBPR approaches (Trimbach and others 2022a; Trimbach 2022). The researcher identifies as a White male (he/him) largely of European descent, who does not identify as Black or African American, Asian American, or Pacific Islander. The researcher also does not live in the Hilltop neighborhood. The researcher has extensive knowledge and experience working with minority communities in an advocacy and research capacity, notably immigrant, refugee, and indigenous communities in the United States and abroad, including in non-English language environments. For example, the researcher has extensive experience working closely with Slavic and Eastern European immigrant communities (Trimbach 2016; Trimbach 2022), including communities experiencing institutional discrimination (Trimbach 2017). The researcher does live in Tacoma, WA and has conducted research in the Puget Sound region since 2017, including on human wellbeing (Biedenweg and Trimbach 2021). The researcher acknowledges that their personal experiences are not directly included in the data outlined in this report, but does acknowledge that their own previous research experiences and expertise did inform the research topic, questions, and interactions with partners and participating community members. Given that the researcher primarily came from a government agency and was a White male in the project's research spaces, their identity, including being in an out- or external group, and associated relational power dynamics, may have influenced partner or community engagement in the project, including the types of participants who attended the facilitated dialogues, and the types of experiences or perspectives shared during project.

2. **Recognize power dynamics and relations**

Lesson: Power dynamics and relations are inherently part of research (Leavy 2017); however, are often taken-for-granted or actively ignored during a research process. CBPR offers a power-sensitive and reflexive approach to research that aims to be transformative, empowering, and

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[30] By "leading and participating individuals," the authors mean those individuals leading or participating in the CBPR process, whether they are an internal or external researcher (or individual solely managing the relational components of the CBPR process) of the Puget Sound Partnership or its monitoring partners.

emancipatory by design. Power dynamics and relations are a part of positionality (above), but also a part of other dynamics associated with research and projects.

Recommendation: When engaging with partners or communities through a CBPR approach, all leading and participating individuals should actively acknowledge, if not research (before and/or during) the power dynamics and relations that are observable within their particular context. For example, if planning on working with a particular community organization, as they are perceived to be a leader and representative of a particular group or community, conduct research on that group to gauge how they interact with others, including the communities they represent. If possible, a social network analysis could also be conducted prior or during (perhaps an early phase) the project in order to better understand and visualize the power relations among a particular group (e.g., network of nonprofit organizations, public agencies, volunteer or community groups, or community leaders).

Example: Prior to starting the project, the researcher conducted preliminary research on their potential project partners. This was not done with malintent, but with the aim to understand the organizations and organizational leads, in order to better gauge their roles in their respective communities and their broader relationships with other organizations or institutions.

3. **Recognize differing or non-aligned priorities**

   Lesson: Collaborators often have differing and non-aligned priorities. Priorities and needs change overtime among collaborators. CBPR allows collaborators to observe, discuss, and modify projects or collaborations based on changing or non-aligned priorities.

   Recommendation: When engaging with partners and communities through CBPR, all leading and participating individuals should recognize and be aware that their priorities may not be aligned with project collaborators or that collaborators' priorities may change during the CBPR process. If priorities seem to change, collaborators should discuss and adapt.

   Example: During the workshop implementation phase, project partners had multiple priorities and often the workshops themselves needed to be de-prioritized depending on the week. Planning meetings changed and workshop dates/times changed sometimes because of changing priorities. Or when a project presentation would pop up and collaborators were asked to review, provide input, and engage, such activities were not viewed as priorities, often with partners opting out.

4. **Be open to change and adaptability**

   Lesson: Collaborators often face change, whether related to changing collaborator priorities, community emergencies, organizational dynamics, collaborators' shifting positions or institutions, or broader contextual factors.

   Recommendation: CBPR requires a high level of openness, flexibility, and adaptability among all collaborators. Such openness and adaptability can be challenging for individuals working in government agencies with fixed systems or structures; however, some degree of openness and adaptability is integral, given the potential for change.

Example: During the project, the researcher changed institutions and positions. This caused a major change in the project requiring all collaborators to be on pause until the project could be restarted at a new institution. During the workshops, one workshop was cancelled and rescheduled because of a violent and tragic crime that occurred in the community, that impacted both the community partner and broader community. This crime and major community emergency impacted the project and led to a subsequent project reorganization meeting in order to appropriately move forward.

5. **Be open to co-leadership and co-creation**

   Lesson: CBPR emphasizes equitable partnerships with collaborators. That does not necessarily mean that each collaborator is engaged in every aspect of the project in the same way (as there is often a set division or labor), but it does mean that collaborators have a co-leadership and knowledge co-creation role.

   Recommendation: Collaborators, including researcher or researcher, should be open to all collaborators having a co-leadership and co-creation role.

   Example: During the workshop material co-creation process, often there were differences in perspectives with regards to wording/phrasing of content, images, and even design of materials. During one particular project meeting, one collaborator disregarded multiple project materials as they thought the materials should be completely recreated based on their perspective and input. Since community and cultural relevance are integral to CBR, their perspective and input were considered crucial for material development. Given the collaborators' co-creation role, the materials were recreated and discussed at the following meeting.

6. **Be open to multiple forms of knowledge and ways of knowing**

   Lesson: CBPR emphasizes diverse collaborations, the blending of different forms of knowledge, and knowledge co-creation. Some forms of knowledge may not equate to western social or natural scientific understandings or paradigms associated with the natural environment or human wellbeing.

   Recommendation: Researcher or agency partner needs to be reflexive and open to multiple forms of knowledge and ways of knowing. Diverse forms of knowledge or ways of knowing that are shared among collaborators or community members should not be ignored, dismissed, or approached using any sort of a priori value-laden mindset.

   Example: During one workshop (Korean community) many community members voiced disagreement with how nature and health were being discussed within the workshop format. Many participants mentioned that nature and human health are part of the same system and cannot be understood as separate, as humans are a part of nature, and a healthy natural environment reflects or equals healthy human populations. This was a welcomed interpretation and perspective and reflected a difference from the largely western scientific approach taken with human wellbeing monitoring.

7. **Be open to critique and challenges (from communities and partners)**

Lesson: CBPR is highly collaborative, involves co-leadership and knowledge co-creation, and often intense community engagement activities. Often these engagement activities can be fairly intimate and sensitive, while also taking place in contexts, places, or communities that have experienced societal (cultural, political, and/or economic) othering, negative research impacts or interactions, institutional discrimination, and government neglect, among other issues. Given the role of a researcher and/or government representative, including any potential societal or governmental strings-attached that come with those roles, a researcher (or agency partner) needs to be humble, reflexive, and open to critique and challenges both from their collaborating partners and engaged communities.

Recommendation: Researcher or agency partner needs to be humble, reflexive, and open to critique and challenges from collaborators and communities. This is not necessarily an easy disposition or set of behaviors for any individual, particularly for researchers who may have been trained and socialized to be the confident expert or the primary leader in a given field or area of inquiry.

Example: During some of the community workshops, community members engaging in discussions were openly critical of the project, questions being asked, and government's involvement in local community affairs. Sometimes these critiques or challenges cascaded into larger multi-person challenges, often with heated remarks. This took up much workshop time and in one case led to one of the workshop questions/topics not being addressed. While this open critique and challenge occurred, it was deemed as fruitful for the project, particularly as it provided community members an opportunity to voice their own concerns and issues with the project and government agencies. This provided room for open dialogue and further illustrated some workshop findings, notably the salience of accessibility, equity, and safety among Hilltop residents.

8. **Be open to intersectionality and different understandings of what community means or looks like**

    Lesson: CBPR prioritizes defining communities as part of its design and principles. While communities can be defined and identified, communities are not monolithic, and individuals embody and identify with multiple communities and identities. Being open to intersectionality and different understandings of what community means and looks like are integral to CBPR.

    Recommendation: Researchers and agency partners should be open to intersectionality and different understandings of what community means and looks like. What a researcher or agency partner may initially envision or imagine what a community means or looks like may not equate to what their collaborators or participating community members envision or bring to the project.

    Example: While the community workshops aimed to recruit specific communities, notably Asian American, Pacific Islander, Black, and African American residents in the Tacoma area of Puget Sound, including through highly targeted outreach, oftentimes community members would arrive who did not necessarily reflect what was initially envisioned. This was partly because communities are not monolithic, include multiple intersecting identities, and internal diversity. For example, many individuals are married to or have close friends and colleagues that do not

necessarily align with all of their identities, so workshop participants often included individuals of different ethnolinguistic or racial identities (based on external observation, which is biased, and participant shared demographic data collected through the survey). This was the case for both series of workshops, notably in the Hilltop community. Hilltop in particular is a rapidly changing place-based community, which was reflected during the workshops. This observation and collaborator input led the workshops to shift and be more flexible to include non-Black and non-African American residents who self-identified as being part of the Hilltop community.

9. **Make science and monitoring translatable and accessible, including in other languages and via culturally or community relevant lenses**

Lesson: Science and monitoring often require highly specialized or technical language and expertise. As such, science and monitoring may not be easily translatable and accessible among non-scientists or those not engaged in a monitoring process. Science and monitoring should adapt and be flexible to ensure it is translatable, understandable, and accessible to others, particularly if science and monitoring seeks to be more inclusive and engaging.

Recommendation: Science and monitoring should be translatable and accessible, including by making science and monitoring language, communications, or content more understandable for other audiences. This includes modifying content and communications for diverse audiences, translating materials into other languages, and using culturally or community relevant lenses to frame scientific or monitoring content.

Figure 4. Vietnamese HWB Survey

Example: Early on during the project co-creation process, it became apparent that the Human Wellbeing Vital Signs and Vital Signs more broadly were not easily understandable or accessible among collaborators or broader communities. This led to discussions about whether or not the Vital Signs (even just the figure) should be included at all during the workshops because of their inherent complexity and the potential communication challenges that might emerge during the workshops. One major step was to have all materials translated, when needed. This included all workshop materials, like presentations, handouts, and even the optional survey (Figure 4). It also was decided to largely frame the Vital Signs at a high level rather than go into any substantive details, as the details made them more confusing or challenging to discuss. This was partly done by framing the workshop discussions as opportunities for communities to inform government nature-based decision-making rather than monitoring, as "monitoring" also caused some confusion among community members.

Another strategy was to frame the Vital Signs with local community or culturally relevant examples, like air quality or shellfish harvesting activities, which made them more tangible.

10. Context matters and informs the collaboration

Lesson: Context, including place-based contextual factors, are integral to CBPR. Context informs relationships and collaboration among all partners.

Recommendation: Researchers and agency partners should consider the complex contextual factors that inform the problem, communities, collaborators, and overall project. Researchers and leading agency partners should do preliminary research on the context prior to initiating the project, as contextual factors may hinder any project from forming in the early phases. Researchers and leading agency partners should also keep informed about key contextual factors taking place associated with the problem, communities, partners, and project. As contextual factors can change, which can impact the communities, collaborators, and project.

Example: Hilltop is a rapidly changing neighborhood and community. Hilltop is experiencing rapid gentrification, resident displacement, houselessness, and housing affordability issues. These issues impacted Hilltop project partner and community members. In order to better understand and keep informed about various contextual factors in the Hilltop community, context was a prioritized topic of discussion during all project meetings. This was extremely helpful as the project evolved and workshops were planned and implemented.

11. Be open to transnational and transcultural stories and interpretations

Lesson: CBPR is often conducted with diverse communities, including new residents (e.g., immigrants or refugees) and individuals with distinct cultural backgrounds. CBPR often requires being open to transnational and transcultural stories, interpretations, and experiences. Openness to such stories, interpretations, and experiences can further understanding of communities and the knowledge they share during the project.

Recommendation: Researchers and agency partners should be open to transnational and transcultural stories, interpretations, and experiences, even when they may initially appear to be unnecessary or not connected to the primary topic or question.

Example: During one of the APCC workshops, workshop participants had a difficult time thinking about and discussing climate change in Puget Sound and its potential impacts on their health. The interpreter helped brainstorm alternative ways of thinking about climate change and health by integrating shared transnational and transcultural stories (from Thailand). This helped workshop participants better connect climate change through Thailand-based examples or observations to their health and subsequently connect them to examples from Puget Sound.

12. Be open to being part of something bigger, like a community event or cultural experience

Lesson: CBPR is highly collaborative and community-based. This often requires for the researcher or project to be integrated into community events or cultural experiences. This can help more seamlessly integrate the project or research effort into the community without causing any community disruption or burden.

Recommendation: When or if possible, researchers or agency partners should work with collaborators or community partners to integrate the project into community events or cultural experiences. This may take a lot of intentional strategic planning and engagement.

Example: One of the community workshops (Vietnamese community) was seamlessly integrated into a wider community event. This event focused on celebrating a well-known couple's wedding anniversary. This included celebratory activities and the standard workshop activities that were blended together. This integration resulted in a very high community member turnout for the workshop.

13. Compensate for peoples' knowledge and contributions

Lesson: CBPR relies heavily on peoples' knowledge and contributions, whether they are key collaborators representing community organizations or community members. Given that CBPR recognizes and emphasizes inclusivity, justice, and equity, individuals involved in the CBPR process should be compensated for their knowledge and contributions.

Recommendation: Collaborators and communities should be compensated for their knowledge and contributions. Funding should be prioritized and allocated for collaborators and participating community members in CBPR projects. Compensation should also be discussed with collaborators and/or communities to ensure compensation is mutually understood and agreed upon.

Example: The researcher initially proposed a specific compensation limit for community members in the workshops. This limit was based on previous experience and applied best practices conducting CBPR with communities. The researcher discussed the initial compensation plan with their collaborators and based on their input it was determined that the compensation limit needed to change. Through those discussions the compensation limit was changed and implemented for the workshops. It is possible that this change increased community member recruitment.

14. Food is important and a community activity

Lesson: CBPR is collaborative, relational, and community-based. Food is a big part of communities and is often a mechanism to create activities or bring people together. If communities or collaborators prioritize or emphasize food or refreshments as part of community engagement, then food should be integrated into the project.

Recommendation: When appropriate and possible, researchers and agency partners should prioritize foods or refreshments when using CBPR to engage communities. Food selection should be conducted with the assistance of collaborators or community partners, given that food is often community or culturally relevant.

Example: All community workshops included food as a central component of their structure. Community collaborators were responsible for food selection and/or acquirement for the workshops. This included finding culturally and community relevant food for the workshops. During one of the workshop (Vietnamese community), well-known community members (and

cooks) were asked to prepare culturally relevant food for the workshop. This was partly an incentive for some community participants.

15. **Meet people where they are, including literally**

Lesson: CBPR is often highly local and embedded within local communities, including place-based communities. CBPR can require conducting various project activities in local communities, including at locations that make sense for those communities.

Recommendation: Researchers and agency partners should prioritize meeting local communities where they are, including literally. If CBPR in being conducted with a particular place-based community or ethnolinguistic community, prioritize identifying and selecting project locations, notably for community engagement, that meet communities where they are, whether they be community centers or even housing facilities.

Example: One of the community workshops (Hilltop community) prioritized community elders. In order to ensure the workshop was accessible, the workshop was planned for and implemented in collaboration with an affordable resident housing facility for elderly residents. This greatly made the workshop more accessible and ended up leading to a very high turnout (standing room only).

16. **Be open to refusal**

Lesson: CBPR relies on trust, rapport, relationship building, and community engagement. As such, communities should be engaged with care and intention, including by relinquishing any a priori expectations or assumptions. CBPR provides room for collaborators and community members to refuse to engage or participate in any aspect of the CBPR process or research project.

Recommendation: Researchers and agency partners should be open to collaborator and community member refusal. Researchers and agency partners should not have any fixed expectations or assumptions, as collaborators, communities, and contextual factors change. While rules of engagement and collaboration can be established among collaborators, that does not mean that collaborators cannot revoke consent or refuse to participate in the project. Thus, researchers and agency partners should remain open to the potential for collaborator or community refusal to engage in any form.

Example: During some community workshops, participants did not always actively engage or provide input when provided questions, prompts, or opportunities for discussion. This was particularly striking when a long pause would emerge during a workshop or when a particular area of a room was largely quiet. Even though community participants are present and being compensated for their input and contributions, it was important to remember that communities have a right and should be able to refuse to engage at any time.

Appendix D. Selected Facilitated Dialogue Content

Asian American and Pacific Islander Facilitated Dialogues
Nature and Health Workshop Agenda, English Version[31]
Organized by: the Asia Pacific Cultural Center, Washington Department of Fish and Wildlife, and Cascadia Consulting Group
Funded by: the Puget Sound Partnership

- **Ice Breaker Activity (5 minutes) (Lua lead)**

- **Introductions (5 minutes) (Lua start)**

- **Why this project? What are the Vital Signs? (5 minutes) (David lead)**

- **Workshop Activity and Discussions (45-60 minutes) (Cascadia lead)**

  - Respond to the following questions in groups or as individuals
    - Also, use as many or as little sticky-notes as you'd like. Please feel free to ask questions and/or discuss your responses with others, including the organizers.

    - Health: What does the Puget Sound's environment contribute to your health?

    - Connection: How does your community connect to nature?

    - Values: What do you value in nature?

    - Climate Change: Based on your experience, how has climate change impacted nature? Based on your experiences, how has climate change impacted your health? How do you feel about these changes?

    - Place: What places (in Puget Sound) do you value? Why do you value them? Use the interactive map provided to respond to this question.

    - Vital Signs: Do the Vital Signs reflect your responses? Do the Vital Signs reflect your values? Do the Vital Signs reflect your community?

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[31] Agendas were selected because their content mirrors the presentations that were also visually used to structure the workshops and discussions. Notable content includes the series of discussion topics/questions listed under "Workshop Activity and Discussions," per workshop agenda.

      o   Large Group Discussion

- **Wrap-Up and Survey Opportunity (15 minutes) (Cascadia lead wrap-up, David lead survey)**

- **Thank you!** If you have any follow-up questions related to the workshop and workshop next steps, please contact Dr. David Trimbach from the Washington Department of Fish and Wildlife at David.Trimbach@dfw.wa.gov.

Hilltop Community Facilitated Dialogues

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)**

  o 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.

  o Nature and Health: What is wellbeing? How would you define wellbeing? What is community? How would you define community? Let's discuss together.

  o 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.

  o Climate Change: What is climate change? How has climate change impacted nature? How has climate change impacted your wellbeing? Discuss examples. Use sticky-notes.

  o 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.

  o 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.

Appendix E. Human Wellbeing Surveys

Thai Version

แบบสำรวจสวัสดิภาพของมนุษย์ในพิวเจ็ตซาวด์ (PUGET SOUND)
คำถามสำคัญเพื่อเข้าใจถึงประสบการณ์ของท่าน

การศึกษาวิจัยเสร็จสมบูรณ์โดยความร่วมมือของ:

PUGET SOUND PARTNERSHIP
326 East D Street
Tacoma, WA 98421

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

ขอบคุณสำหรับการเข้าร่วมในแบบสำรวจสวัสดิภาพของมนุษย์ในพิวเจ็ตซาวด์ (Puget Sound) นี้ ซึ่งได้เงินสนับสนุนจาก Puget Sound Partnership แบบสำรวจนี้จะใช้เวลาของท่านน้อยกว่า 10 นาที กรุณาตอบแบบสำรวจสั้น ๆ นี้ให้สมบูรณ์และจัดส่งคืนไปยังนักวิจัยโดยใช้ของจดหมายที่ชำระค่าฝากส่งล่วงหน้าไว้แล้ว การเข้าร่วมเป็นไปโดยสมัครใจ และคำตอบของท่านเป็นความลับอย่างสมบูรณ์

หากท่านมีข้อสงสัยเกี่ยวกับแบบสำรวจ กรุณาติดต่อผู้ตรวจสอบหลัก Kelly Biedenweg ได้ทางอีเมลที่ Kelly.biedenweg@oregonstate.edu

ผลลัพธ์ของแบบสำรวจจะถูกรายงานไว้ใน *State of the Sound Report* ของ Puget Sound Partnership ในปี 2021 กรุณาเข้าไปที่เว็บไซต์ต่อไปนี้สำหรับรายละเอียดเพิ่มเติม: http://www.psp.wa.gov/vitalsigns/

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1. ท่านเห็นด้วยหรือไม่เห็นด้วยกับข้อความต่อไปนี้เกี่ยวกับภูมิภาคพิวเจ็ตซาวด์ (Puget Sound Region) เพียงใด? กรุณาวงรอบหมายเลขหนึ่งเดียวสำหรับแต่ละคำถาม:

ข้อความ	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ค่อนข้างไม่เห็นด้วย	เฉย ๆ	ค่อนข้างเห็นด้วย	เห็นด้วย	เห็นด้วยอย่างยิ่ง	ไม่ทราบ
ข้าพเจ้ามีโอกาสสนทนากับผู้ที่จะนำไปสู่การตัดสินใจเรื่องทรัพยากรธรรมชาติในภูมิภาคพิวเจ็ตซาวด์ (Puget Sound) หากต้องการ	1	2	3	4	5	6	7	☐
ข้าพเจ้ามีอิสระภาพที่จะทำการตัดสินใจร่วมกับคนอื่นเกี่ยวกับการบริหารจัดการทรัพยากรธรรมชาติในที่ซึ่งฉันอาศัยอยู่ทำเนิน	1	2	3	4	5	6	7	☐
ข้าพเจ้ามีส่วนร่วมในกระบวนการบริหารจัดการทรัพยากรธรรมชาติของพิวเจ็ตซาวด์ (Puget Sound) เป็นผู้แทนที่ซื่อสองของพวกเขา	1	2	3	4	5	6	7	☐
ข้าพเจ้ามีโอกาสในการกำหนดนโยบายในการกำหนดนโยบายของทรัพยากรธรรมชาติของพิวเจ็ตซาวด์ (Puget Sound)	1	2	3	4	5	6	7	☐
ข้าพเจ้าสามารถเข้าถึงข้อมูลที่เพียงพอเกี่ยวกับผลลัพธ์เนื่องทางเศรษฐกิจและส่งผลของผู้บริหารจัดการทรัพยากรธรรมชาติในพิวเจ็ตซาวด์ (Puget Sound)	1	2	3	4	5	6	7	☐
ข้าพเจ้าสามารถเข้าถึงข้อมูลที่เพียงพอเกี่ยวกับผลลัพธ์เนื่องทางสิ่งแวดล้อมของผู้บริหารจัดการทรัพยากรธรรมชาติในพิวเจ็ตซาวด์ (Puget Sound)	1	2	3	4	5	6	7	☐
ข้าพเจ้าสามารถเข้าถึงข้อมูลที่เพียงพอเกี่ยวกับกระบวนการทางกฎหมายของผู้บริหารจัดการทรัพยากรธรรมชาติในพิวเจ็ตซาวด์ (Puget Sound)	1	2	3	4	5	6	7	☐

หน่วยงาน ผู้กำหนดนโยบาย หรือ สถาบันใดที่ท่านนึกถึงเมื่อตอบคำถามข้างต้น?: _____

2. ในปีที่ผ่านมา ท่านได้ล่าสัตว์ เก็บเกี่ยว รบรวม หรือ หาอาหารต่อไปในภูมิภาคพิวเจ็ตซาวด์ (Puget Sound Region) บ่อยเพียงใด? กรุณาวงรอบหมายเลขหนึ่งเดียวสำหรับแต่ละรายการ:

อาหารท้องถิ่น	ไม่เคย	นาน ๆ ครั้ง (1-2 ครั้งในแต่ละฤดูกาล)	เป็นครั้งคราว (3-5 ครั้งในแต่ละฤดูกาล)	เป็นประจำ (6-8 ครั้งในแต่ละฤดูกาล)	บ่อย (มากกว่า 10 ครั้งในแต่ละฤดูกาล)	ไม่ทราบ
ปลา	1	2	3	4	5	☐
ปู หรือ กุ้ง	1	2	3	4	5	☐
หอยกาน (หอยวางช่างหอยนางรม หรือ หอยแมลงภู่ (ไม่ใช่หอยตลอด))	1	2	3	4	5	☐
ปลาหมึก	1	2	3	4	5	☐
กวาง หรือ กวางเอลค์	1	2	3	4	5	☐
นกน้ำ	1	2	3	4	5	☐
พืช เบอร์รี่ หรือ เห็ด	1	2	3	4	5	☐

3. ในปีที่ผ่านมา ท่านได้มีส่วนร่วมในพฤติกรรม/กิจกรรมการพิทักษ์รักษาต่าง ๆ ที่ท่านเชื่อว่าเป็นประโยชน์ต่อสิ่งแวดล้อมบ่อยเพียงใด? กรุณาวงรอบหมายเลขหนึ่งเดียวสำหรับแต่ละคำถาม:

พฤติกรรม/กิจกรรม	ไม่เคย	นาน ๆ ครั้ง (1-4 ครั้งในแต่ละปี)	เป็นครั้งคราว (เดือนละครั้ง)	เป็นประจำ (สัปดาห์ละครั้ง)	บ่อย (เกือบทุกวัน)	ไม่ทราบ
พฤติกรรมที่ท่านเชื่อว่าเป็นประโยชน์ต่อสิ่งแวดล้อมอย่างมีประสิทธิภาพ	1	2	3	4	5	☐
พฤติกรรมด้านสิ่งแวดล้อมซึ่งมีความหมายต่อท่านเป็นการเฉพาะ	1	2	3	4	5	☐
พฤติกรรมด้านสิ่งแวดล้อมที่ท่านเชื่อว่าจำเป็นต่อสุขภาพ	1	2	3	4	5	☐

4. งานของท่านเกี่ยวข้องกับการใช้เวลาในสภาพแวดล้อมตามธรรมชาติ (อาทิ การตกปลาเชิงพาณิชย์หรือแบบเข้าเหมาลำ การทำฟาร์ม การทำป่าไม้ การบูรณะที่อยู่อาศัย หรือ งานนำทางการกลางแจ้ง) ใช่หรือไม่?
☐ ไม่ใช่   ☐ ใช่

หากใช่:
ท่าน*ปฏิบัติ*งานที่เกี่ยวข้องกับการใช้เวลาในสภาพแวดล้อมตามธรรมชาติประมาณกี่ชั่วโมงต่อสัปดาห์?
☐ น้อยกว่า 5 ชั่วโมง/สัปดาห์   ☐ 5-10 ชั่วโมง/สัปดาห์   ☐ 11-20 ชั่วโมง/สัปดาห์
☐ 21-30 ชั่วโมง/สัปดาห์   ☐ มากกว่า 30 ชั่วโมง/สัปดาห์

5. ในปีที่ผ่านมา ท่านรู้สึกว่าได้*แรงบันดาลใจ*ในขณะที่ใช้เวลากลางแจ้งในภูมิภาคพิวเจ็ตซาวด์ (Puget Sound) บ่อยเพียงใด? กรุณาวงรอบหมายเลขหนึ่งเดียว:

ไม่เคย	นาน ๆ ครั้ง (1-4 ครั้งในแต่ละปี)	เป็นครั้งคราว (เดือนละครั้ง)	เป็นประจำ (สัปดาห์ละครั้ง)	บ่อย (เกือบทุกวัน)	ไม่ทราบ
1	2	3	4	5	☐

6. ในปีที่ผ่านมา การใช้เวลาอยู่กลางแจ้งในภูมิภาคพิวเจ็ตซาวด์ (Puget Sound) ได้ช่วยให้*ความเครียด*ของท่านลดลงเพียงใด? กรุณาวงรอบหมายเลขหนึ่งเดียว:

ไม่เคย	นาน ๆ ครั้ง (1-4 ครั้งในแต่ละปี)	เป็นครั้งคราว (เดือนละครั้ง)	เป็นประจำ (สัปดาห์ละครั้ง)	บ่อย (เกือบทุกวัน)	ไม่ทราบ
1	2	3	4	5	☐

7. ในปีที่ผ่าน ท่านมีความพึงพอใจต่อระดับการเข้าร่วมในกิจกรรมทางวัฒนธรรมหรือประเพณี*เกี่ยวกับสิ่งแวดล้อม*เพียงใด? กรุณาวงรอบหมายเลขหนึ่งเดียวสำหรับแต่ละคำถาม:

กิจกรรมทางวัฒนธรรมหรือประเพณีเกี่ยวกับสิ่งแวดล้อม	ไม่พึงพอใจ	ค่อนข้างไม่พึงพอใจ	เฉย ๆ	ค่อนข้างพึงพอใจ	พึงพอใจ	ข้าพเจ้าไม่ได้มีส่วนร่วมในกิจกรรมหรือประเพณีดังกล่าว	ไม่ทราบ
แนวปฏิบัติหรือกิจกรรมทั่วเนื่อง (กิจกรรมการเต้นตามโดยเรื่องตามฤดู กิจกรรมของชุมชนตามประเพณีพื้นธออแลททร์ เป็นต้น)	1	2	3	4	5	☐	☐
แนวปฏิบัติทางจิตวิญญาณตามเรื่องทางสถานเกี่ยวกับสิ่งแวดล้อม (การทำมาชี การสวดอ้อนวอนที่เกี่ยวตามวัน (solstice observance) เป็นต้น)	1	2	3	4	5	☐	☐
แนวปฏิบัติหรือเรื่องทางด้านสิ่งแวดล้อมซึ่งมีความสำคัญต่อประเพณีที่สืบทอดมาของท่าน (กิจกรรมการครอบครัวเรื่องชุมชนที่เป็นจากการหรือเป็นทางการ เป็นต้น)	1	2	3	4	5	☐	☐
กิจกรรมทางสังคมเฉพาะสิ่งแวดล้อม (สโมสร เทศกาล กิจกรรมกลางแจ้งด้านสิ่งแวดล้อม เป็นต้น)	1	2	3	4	5	☐	☐

8. ท่านได้เข้าร่วมในกิจกรรมนันทนาการต่อไปนี้โดยเฉลี่ยประมาณกี่*วัน*ต่อเดือน*ในภูมิภาคพิวเจ็ตซาวด์ (Puget Sound) ในฤดูใบไม้ร่วงที่ผ่านมานี้* (ประมาณเดือนกันยายน - เดือนพฤศจิกายน) กรุณาวงรอบหมายเลขหนึ่งเดียวสำหรับและแต่ละคำถาม:

กิจกรรมกลางแจ้ง	ข้าพเจ้าไม่ได้มีส่วนร่วมในกิจกรรม ดังกล่าว	น้อยกว่า 1 วันต่อเดือน	1-4 วันต่อเดือน	5-10 วันต่อเดือน	11-20 วันต่อเดือน	มากกว่า 20 วันต่อเดือน	ไม่ทราบ
การใช้มอเตอร์เหรอ (อาทิ การขี่ ATV หรือ OHV)	1	2	3	4	5	6	☐
การใช้เส้นทางหรือถนนลาดยางสำหรับเดิน วิ่ง ขี่จักรยาน	1	2	3	4	5	6	☐
การใช้ทางที่ไม่ได้ลาดยางสำหรับเดิน วิ่ง ขี่จักรยาน ขี่ม้า ไต่เขา เต้นทางท่องเที่ยวแบบแบกเป้แพ็ก	1	2	3	4	5	6	☐
แคมป์ปิ้ง (รถยนต์ หรือ พื้นที่ทุรกันดาร)	1	2	3	4	5	6	☐
การตกปลา	1	2	3	4	5	6	☐
ล่าสัตว์	1	2	3	4	5	6	☐
ปิกนิก หรือ BBQ	1	2	3	4	5	6	☐
ล่องเรือยนต์	1	2	3	4	5	6	☐
กีฬาทางน้ำแบบไม่ใช้เครื่องยนต์ (อาทิ การพายเรือคายัค การโต้คลื่น การล่องเรือใบ การว่ายน้ำ การทำนำแบบสูญๆ)	1	2	3	4	5	6	☐
การเล่นสกี/สโนว์บอร์ด หรือ การเดินทอมัละ	1	2	3	4	5	6	☐
การทำสวน หรือ งานในลานหน้าบ้าน	1	2	3	4	5	6	☐
การดูสัตว์ป่า/การดูนก	1	2	3	4	5	6	☐

9. ท่านได้เข้าร่วมในกิจกรรมนันทนาการต่อไปนี้โดยเฉลี่ยประมาณกี่*วัน*ต่อเดือน*ในภูมิภาคพิวเจ็ตซาวด์ (Puget Sound) ในฤดูใบไม้ผลิที่ผ่านมานี้* (ประมาณเดือนมีนาคม - เดือนพฤษภาคม) กรุณาที่แครื่องหมายที่*หนึ่งเดียว*สำหรับแต่ละคำถาม:

กิจกรรมกลางแจ้ง	ข้าพเจ้าไม่ได้มีส่วนร่วมในกิจกรรม ดังกล่าว	น้อยกว่า 1 วันต่อเดือน	1-4 วันต่อเดือน	5-10 วันต่อเดือน	11-20 วันต่อเดือน	มากกว่า 20 วันต่อเดือน	ไม่ทราบ
การใช้มอเตอร์เหรอ (อาทิ การขี่ ATV หรือ OHV)	1	2	3	4	5	6	☐
การใช้เส้นทางหรือถนนลาดยางสำหรับเดิน วิ่ง ขี่จักรยาน	1	2	3	4	5	6	☐
การใช้ทางที่ไม่ได้ลาดยางสำหรับเดิน วิ่ง ขี่จักรยาน ขี่ม้า ไต่เขา เต้นทางท่องเที่ยวแบบแบกเป้แพ็ก	1	2	3	4	5	6	☐
แคมป์ปิ้ง (รถยนต์ หรือ พื้นที่ทุรกันดาร)	1	2	3	4	5	6	☐
การตกปลา	1	2	3	4	5	6	☐
ล่าสัตว์	1	2	3	4	5	6	☐
ปิกนิก หรือ BBQ	1	2	3	4	5	6	☐
ล่องเรือยนต์	1	2	3	4	5	6	☐
กีฬาทางน้ำแบบไม่ใช้เครื่องยนต์ (อาทิ การพายเรือคายัค การโต้คลื่น การล่องเรือใบ การว่ายน้ำ การทำนำแบบสูญๆ)	1	2	3	4	5	6	☐
การเล่นสกี/สโนว์บอร์ด หรือ การเดินทอมัละ	1	2	3	4	5	6	☐
การทำสวน หรือ งานในลานหน้าบ้าน	1	2	3	4	5	6	☐
การดูสัตว์ป่า/การดูนก	1	2	3	4	5	6	☐

โดยทั่วไป ท่านพึงพอใจหรือไม่พึงพอใจกับชีวิตของท่านโดยรวมเพียงใด? กรุณาวงกลม<u>หมายเลขเดียว</u>:

10. ท่านเห็นด้วยหรือไม่เห็นด้วยกับข้อความต่อไปนี้เกี่ยวกับภูมิภาคพิวเจ็ตซาวด์ (Puget Sound Region) เพียงใด?
กรุณาวงกลม<u>หมายเลขเดียว</u>สำหรับข้อความแต่ละอัน:

ข้อความ	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ค่อนข้างไม่เห็นด้วย	เฉย ๆ	ค่อนข้างเห็นด้วย	เห็นด้วย	เห็นด้วยอย่างยิ่ง	ไม่ทราบ
ข้าพเจ้ามีความผูกพันอย่างมากกับสภาพแวดล้อมทางธรรมชาติในภูมิภาคพิวเจ็ตซาวด์ (Puget Sound)	1	2	3	4	5	6	7	☐
ข้าพเจ้าภูมิใจที่ได้อาศัยอยู่ภูมิภาคพิวเจ็ตซาวด์ (Puget Sound)	1	2	3	4	5	6	7	☐
ข้าพเจ้ารู้สึกว่ามีความรับผิดชอบในการดูแลสภาพแวดล้อมทางธรรมชาติของพิวเจ็ตซาวด์ (Puget Sound)	1	2	3	4	5	6	7	☐
การอาศัยอยู่ในภูมิภาคพิวเจ็ตซาวด์ (Puget Sound) สามารถบอกได้มากมายว่าข้าพเจ้าเป็นใคร	1	2	3	4	5	6	7	☐
การสามารถมีส่วนร่วมในกิจกรรมกลางแจ้งหรือแนวปฏิบัติด้านวัฒนธรรมมีความสำคัญสำหรับการเชื่อมต่อระหว่างข้าพเจ้าและพิวเจ็ตซาวด์ (Puget Sound)	1	2	3	4	5	6	7	☐
โดยส่วนใหญ่ ข้าพเจ้ามีความผูกพันกับส่วนต่าง ๆ ของพิวเจ็ตซาวด์ (Puget Sound) ที่อยู่ใกล้ตัวข้าพเจ้ามากที่สุด	1	2	3	4	5	6	7	☐
ข้าพเจ้าท่านจะพึงพอใจในการอาศัยอยู่ที่อื่นนอกพิวเจ็ตซาวด์ (Puget Sound)	1	2	3	4	5	6	7	☐

ไม่พึงพอใจ	ค่อนข้างไม่พึงพอใจ		เฉย ๆ		ค่อนข้างพึงพอใจ	พึงพอใจ
1	2		3		4	5

11. ท่านอาศัยอยู่ในพิวเจ็ตซาวด์ (Puget Sound) เป็นเวลากี่ปีแล้ว? _____

12. ท่านเพศใด?
☐ ชาย ☐ หญิง ☐ อื่น ๆ ☐ ขอไม่ตอบ

13. ข้อความใดต่อไปนี้อธิบายถึงพื้นที่ที่ท่านอาศัยอยู่ได้ดีที่สุด? กรุณาวงกลม<u>หมายเลขเดียว</u>:

ในเมือง		ชานเมือง		ชนบท
1		3		5

14. ท่านสำเร็จการศึกษาสูงสุดในระดับใด? กรุณาวงกลม<u>หมายเลขเดียว</u>:

	ประถมและมัธยมปลาย											วิทยาลัยหรือโรงเรียนเทคนิค				ปริญญาตรีหรือสถานศึกษาวิชาชีพหลังปริญญาตรี (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+

15. ครัวเรือนของท่านมีรายได้ต่อปีจำนวนเท่าไร?
☐ ต่ำกว่า $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 ☐ สูงกว่า $200,000

16. ท่านเชื้อชาติใด? ทำเครื่องหมายทุกข้อที่เกี่ยวข้อง
☐ อเมริกันผิวดำ หรือ แอฟริกันอเมริกัน ☐ พื้นเมืองอเมริกัน หรือ พื้นเมืองอลาสกา ☐ พื้นเมืองฮาวาย หรือ เกาะอื่น ๆ ในแปซิฟิก
☐ เอเชีย ☐ ผิวขาว ☐ ฮิสแปนิก หรือ ละติน ☐ อื่น ๆ

17. ท่านอายุเท่าไร? _____

อนุรักษ์นิยมอย่างมาก	อนุรักษ์นิยม	ไม่ใช่ทั้งอนุรักษ์นิยมและเสรีนิยม	เสรีนิยม	เสรีนิยมอย่างมาก

18. ท่านพิจารณาว่าตนเองอยู่ในประเภทใดต่อไปนี้? กรุณาวงกลม<u>หมายเลขเดียว</u>:

สำหรับสำหรับการทำแบบสำรวจนี้เสร็จสมบูรณ์ หากท่านมีความคิดเห็นเพิ่มเติมเกี่ยวกับสวัสดิภาพของมนุษย์ในพื้นที่ของท่าน ท่านสามารถเขียนความคิดเห็นของท่านได้ที่นี่ หากท่านต้องการ

Korean Version

PUGET SOUND 인간 복지 설문조사
귀하의 경험을 이해하기 위한 중요한 질문

연구 협력:

PUGET SOUND PARTNERSHIP
326 East D Street
Tacoma, WA 98421

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

PUGET SOUND VITAL SIGNS
UNDERSTANDING ECOSYSTEM HEALTH

Puget Sound Partnership 이 후원한 Puget Sound 인간복지 설문조사에 참여해 주셔서 감사합니다. 조사에 걸리는 시간은 10 분 미만입니다. 간략한 설문조사를 작성하신 다음 요금 선불 우편 봉투를 이용하여 조사원에게 보내주십시오. 설문조사 참여 여부는 자발적으로 결정하시게 되며 귀하의 답변은 전적으로 기밀로 유지됩니다.

설문조사에 대한 질문이 있으시면 조사 책임자(Principal Investigator) Kelly Biedenweg Kelly.biedenweg@oregonstate.edu 에게 문의해주십시오.

이 설문조사의 결과는 Puget Sound Partnership 의 2021 년 *State of the Sound Report* 에 보고됩니다. 자세한 내용은 다음 웹사이트를 방문하여 확인해주십시오. http://www.psp.wa.gov/vitalsigns/

1. 귀하는 Puget Sound Region 와 관련된 다음 설명에 대해 얼마나 동의하거나 동의하지 않으십니까? 각 질문에 대해 한 개의 번호에 원을 그려주십시오.

설명	전혀 동의하지 않음	동의하지 않음	다소 동의하지 않음	중간임	어느 정도 동의함	동의함	매우 동의함	모름
나는 내가 원할 경우 Puget Sound 지역 천연자원 결정에 영향을 미칠 수 있는 기회를 많이 갖고 있다.	1	2	3	4	5	6	7	☐
나는 내 부동산의 천연자원 관리 방법을 개인적으로 결정할 수 있는 자유가 있다고 믿고 있다.	1	2	3	4	5	6	7	☐
Puget Sound 천연자원 관리 절차 지도자들이 나를 잘 대표하고 있다고 생각한다.	1	2	3	4	5	6	7	☐
나는 지역 정책입안자들의 Puget Sound 천연자원 보호를 신뢰한다.	1	2	3	4	5	6	7	☐
나는 Puget Sound 의 천연자원 관리에 따른 사회적, 경제적 결과에 관한 정보를 충분히 이용할 수 있다.	1	2	3	4	5	6	7	☐
나는 Puget Sound 의 천연자원 관리에 따른 환경적 결과에 관한 정보를 충분히 이용할 수 있다.	1	2	3	4	5	6	7	☐
나는 Puget Sound 천연자원 관리 방법의 규제적 측면에 관한 정보를 충분히 이용할 수 있다.	1	2	3	4	5	6	7	☐

위 질문에 답변하실 때 어떤 기관, 정책입안자, 협회를 생각하셨습니까?

2. Puget Sound 지역에서 작년에 얼마나 자주 다음과 같은 식량을 사냥, 수확, 수집하셨습니까? 각 항목에서 한 개의 번호에 원을 그려주십시오.

지역 식량	전혀 없음	드물게(한 계절 동안 1-2 회)	가끔(한 계절 동안 3-5 회)	정기적으로(한 계절 동안 6-8 회)	자주(한 계절 동안 10 회 이상)	모름
물고기	1	2	3	4	5	☐
게 또는 새우	1	2	3	4	5	☐
조개(코커리조개, 굴 또는 홍합(맛조개 제외))	1	2	3	4	5	☐
오징어	1	2	3	4	5	☐
사슴 또는 엘크	1	2	3	4	5	☐
물새	1	2	3	4	5	☐
식물, 베리 또는 버섯	1	2	3	4	5	☐

3. 귀하는 작년에 환경에 유익하다고 생각하는 스튜어드십 행동/활동에 얼마나 자주 참여하셨습니까? 각 질문에 대해 한 개의 번호에 원을 그려주십시오.

행동/활동	전혀 없음	드물게 (1 년에 1-4 회)	가끔 (한 달에 한 번)	정기적으로 (1 주일에 한 번)	자주 (거의 매일)	모름
귀하께서 환경에 실질적으로 유익하다고 생각하시는 활동	1	2	3	4	5	☐
귀하에게 개인적으로 의미 있는 환경 활동	1	2	3	4	5	☐
지역사회에 필요하다고 생각하시는 환경 활동	1	2	3	4	5	☐

4. 귀하의 일에는 자연 환경에서 시간을 보내는 일(예: 상업적 어업 또는 전세 어업, 농업, 임업, 서식지 복구 또는 야외 레크리에이션)이 포함됩니까?
☐ 아니요 ☐ 예

예라고 답한 경우: 귀하는 일주일에 몇 시간이나 자연 환경에서 일을 하십니까?
☐ 1 주일에 5 시간 미만 ☐ 1 주일에 5-10 시간 ☐ 1 주일에 11-20 시간
☐ 1 주일에 21-30 시간 ☐ 1 주일에 30 시간 이상

5. 작년에 Puget Sound 지역 야외에서 시간을 보내시는 동안 얼마나 자주 영감을 받으셨습니까? 한 개의 번호에 원을 그려주십시오.

전혀 없음	드물게 (1 년에 1-4 회)	가끔 (한 달에 한 번)	정기적으로 (1 주일에 한 번)	자주 (거의 매일)	모름
1	2	3	4	5	☐

6. 작년에 했던 Puget Sound 지역 야외 활동이 스트레스를 줄이는데 얼마나 자주 도움을 주었습니까? 한 개의 번호에 원을 그려주십시오.

전혀 없음	드물게 (1 년에 1-4 회)	가끔 (한 달에 한 번)	정기적으로 (1 주일에 한 번)	자주 (거의 매일)	모름
1	2	3	4	5	☐

7. 작년 한 해 동안 귀하의 다음 환경 관련 문화 활동 또는 전통 행사 참여에 얼마나 만족하십니까? 각 질문에 대해 한 개의 번호에 원을 그려주십시오.

환경 문화 활동 또는 전통 행사	불만	다소 불만	만족하지도, 불만이 있지도 않음	어느 정도 만족함	만족함	이 활동이나 전통 행사에 참여하지 않음	모름
원주민 전통 또는 활동(카누 여행, 부족 센터 행사, 포틀래치 등)	1	2	3	4	5	☐	☐
환경과 관련된 영적 또는 종교적 전통(명상, 기도, 동지/하지 종교 의식 등)	1	2	3	4	5	☐	☐
귀하의 문화유산에 중요한 환경 행사 또는 활동(공식 또는 비공식적인 가족이나 지역사회 행사 등)	1	2	3	4	5	☐	☐
환경 지향적인 사회 활동(환경 클럽, 페스티벌, 야외 행사 등)	1	2	3	4	5	☐	☐

8. 귀하는 지난 가을(대략 9 월 - 11 월) Puget Sound 지역의 다음 레크리에이션 활동에 한 달에 몇 번 정도 참여하셨습니까? 각 질문에 대해 한 개의 번호에 원을 그려주십시오.

야외 활동	이 활동에 참여하지 않음	한 달에 1 일 미만	한 달에 1-4 일	한 달에 5-10 일	한 달에 11-20 일	한 달에 20 일 초과	모름
동력 트레일 이동수단 이용(예: ATV 또는 OHV 타기)	1	2	3	4	5	6	☐
포장 도로 또는 트레일 걷기, 달리기, 자전거 타기	1	2	3	4	5	6	☐
비포장 트레일 걷기, 달리기, 자전거 타기, 승마, 하이킹, 백패킹	1	2	3	4	5	6	☐
캠핑(자동차 캠핑 또는 백 컨트리)	1	2	3	4	5	6	☐
낚시	1	2	3	4	5	6	☐
사냥	1	2	3	4	5	6	☐
소풍 또는 BBQ	1	2	3	4	5	6	☐
동력 보트	1	2	3	4	5	6	☐
비동력식 수상 스포츠(예: 카약, 서핑, 보드, 수영, 스쿠버)	1	2	3	4	5	6	☐
스키/스노우보드 또는 스노우슈잉	1	2	3	4	5	6	☐
원예 또는 경원 가꾸기	1	2	3	4	5	6	☐
야생동물 관찰/탐조	1	2	3	4	5	6	☐

9. 귀하는 지난 봄(대략 3 월 - 5 월) Puget Sound 지역의 다음 레크리에이션 활동에 한 달에 몇 번 정도 참여하셨습니까? 각 질문에 대해 한 개의 상자에 체크해주십시오.

야외 활동	이 활동에 참여하지 않음	한 달에 1 일 미만	한 달에 1-4 일	한 달에 5-10 일	한 달에 11-20 일	한 달에 20 일 초과	모름
동력 트레일 이동수단 이용(예: ATV 또는 OHV 타기)	1	2	3	4	5	6	☐
포장 도로 또는 트레일 걷기, 달리기, 자전거 타기	1	2	3	4	5	6	☐
비포장 트레일 걷기, 달리기, 자전거 타기, 승마, 하이킹, 백패킹	1	2	3	4	5	6	☐
캠핑(자동차 캠핑 또는 백 컨트리)	1	2	3	4	5	6	☐
낚시	1	2	3	4	5	6	☐
사냥	1	2	3	4	5	6	☐
소풍 또는 BBQ	1	2	3	4	5	6	☐
동력 보트	1	2	3	4	5	6	☐
비동력식 수상 스포츠(예: 카약, 서핑, 보드, 수영, 스쿠버)	1	2	3	4	5	6	☐
스키/스노우보드 또는 스노우슈잉	1	2	3	4	5	6	☐
원예 또는 경원 가꾸기	1	2	3	4	5	6	☐
야생동물 관찰/탐조	1	2	3	4	5	6	☐

10. 귀하는 Puget Sound Region 와 관련된 다음 설명에 대해 얼마나 동의하거나 동의하지 않으십니까? 각 질문에 대해 한 개의 번호에 원을 그려주십시오.

설명	전혀 동의하지 않음	동의하지 않음	다소 동의하지 않음	중간임	어느 정도 동의함	동의함	매우 동의함	모름
나는 Puget Sound 지역 자연 환경에 큰 애착을 갖고 있다	1	2	3	4	5	6	7	☐
나는 Puget Sound 지역에서 사는 것을 자랑스럽게 생각한다	1	2	3	4	5	6	7	☐
나는 Puget Sound 자연 환경을 돌보는데 책임감을 갖고 있다	1	2	3	4	5	6	7	☐
Puget Sound 지역에서 산다는 것은 내가 어떤 사람인지 잘 말해준다	1	2	3	4	5	6	7	☐
야외 활동이나 문화 행사에 참여하는 것은 나와 Puget Sound 와의 관계에 중요하다	1	2	3	4	5	6	7	☐
나는 Puget Sound 에서 나에게 가장 가까운 부분에 큰 애착을 갖고 있다	1	2	3	4	5	6	7	☐
나는 Puget Sound 외 다른 지역 생활에 만족할 수 있다	1	2	3	4	5	6	7	☐

11. 전체적으로 귀하의 생활에 얼마나 만족하거나 만족하지 않으십니까? 한 개의 번호에 원을 그려주십시오.

불만	다소 불만	만족하지도, 불만이 있지도 않음	어느 정도 만족함	만족함
1	2	3	4	5

12. 귀하는 Puget Sound 에서 얼마나 오래 사셨습니까? _____

13. 귀하의 성별은 무엇입니까?
☐ 남성 ☐ 여성 ☐ 기타 ☐ 답변을 원하지 않음

14. 다음 중 귀하께서 거주하시는 곳을 가장 잘 설명한 것은 무엇입니까? 한 개의 번호에 원을 그려주십시오.

도시		교외		농촌
1	2	3	4	5

15. 귀하의 최종 학력은 무엇입니까? 한 개의 번호에 원을 그려주십시오.

초등학교 및 고등학교												칼리지 또는 기술학교				대학원 또는 전문 대학원							
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. 귀하의 연 가계소득은 얼마입니까?
☐ $10,000 미만 ☐ $10,000-$24,999 ☐ $25,000-$49,999 ☐ $50,000-$74,999
☐ $75,000-$99,999 ☐ $100,000-$149,999 ☐ $150,000-$200,000 ☐ $200,000 초과

17. 귀하의 인종은 무엇입니까? 해당하는 항목을 모두 표시하십시오.
☐ 흑인 또는 아프리카계 미국인 ☐ 아메리카 원주민 또는 알래스카 원주민 ☐ 하와이 원주민 또는 기타 태평양 섬 주민
☐ 아시아인 ☐ 백인 ☐ 히스패닉 또는 라티노 ☐ 기타

18. 귀하의 연령은 몇 살입니까? _____

19. 귀하는 본인의 성향이 어디에 해당한다고 생각하십니까? 한 개의 번호에 원을 그려주십시오.

매우 보수적임	보수적임	보수적이지도 진보적이지도 않음	진보적임	매우 진보적임
1	2	3	4	5

설문 조사에 응해 주셔서 감사합니다. 귀하의 지역 내 인간 복지에 대한 생각이 더 있으시다면, 여기에 적어주십시오.

Vietnamese Version

KHẢO SÁT VỀ PHÚC LỢI CON NGƯỜI Ở PUGET SOUND
CÁC CÂU HỎI QUAN TRỌNG ĐỂ HIỂU BIẾT VỀ KINH NGHIỆM CỦA QUÝ VỊ
CUỘC NGHIÊN CỨU ĐƯỢC CÔNG TÁC HOÀN TẤT BỞI:

PUGET SOUND PARTNERSHIP — 326 East D Street, Tacoma, WA 98421
Oregon State University — 204 Hoveland Hall, 2700 SW Campus Way, Corvallis, OR 97331

PUGET SOUND **VITAL SIGNS** — UNDERSTANDING ECOSYSTEM HEALTH

Cảm ơn quý vị đã tham gia khảo sát về phúc lợi con người ở Puget Sound, được tài trợ bởi Puget Sound Partnership. Khảo sát này được thực hiện chưa đến 10 phút của quý vị. Vui lòng hoàn tất khảo sát ngắn và gởi lại cho chuyên gia nghiên cứu bằng cách sử dụng bao thư đã trả bưu phí trước. Việc tham gia là tự nguyện và các câu trả lời của quý vị hoàn toàn được bảo mật.

Nếu quý vị có bất kỳ thắc mắc nào về khảo sát, vui lòng liên hệ với Nhà Nghiên Cứu Chính Kelly Biedenweg bằng e-mail tại Kelly.biedenweg@oregonstate.edu.

Các kết quả khảo sát sẽ được báo cáo trong *State of the Sound Report* của Puget Sound Partnership năm 2021. Xin truy cập trang web sau đây để biết thêm chi tiết: http://www.psp.wa.gov/vitalsigns/

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1. Quý vị đồng ý hay không đồng ý tới mức nào với các nhận định sau đây liên quan đến Vùng Puget Sound? Xin khoanh tròn một số cho mỗi câu hỏi:

Nhận Định	Hoàn Toàn Không Đồng Ý	Không Đồng Ý	Phần Nào Không Đồng Ý	Trung Lập	Phần Nào Đồng Ý	Đồng Ý	Hoàn Toàn Đồng Ý	Không Biết
Tôi có nhiều cơ hội để tác động đến các quyết định về tài nguyên thiên nhiên ở vùng Puget Sound nếu tôi muốn	1	2	3	4	5	6	7	☐
Tôi có quyền tự do đưa ra các quyết định cá nhân về cách thức quản lý tài nguyên thiên nhiên trên bất động sản của mình	1	2	3	4	5	6	7	☐
Tôi cảm thấy hợp lý khi những nhà lãnh đạo trình bày các quy trình quản lý tài nguyên thiên nhiên ở Puget Sound	1	2	3	4	5	6	7	☐
Tôi tin tưởng các nhà hoạch định chính sách vùng sẽ bảo vệ tài nguyên thiên nhiên ở Puget Sound	1	2	3	4	5	6	7	☐
Tôi có quyền truy cập đủ thông tin liên quan đến hậu quả kinh tế và xã hội của cách thức quản lý tài nguyên thiên nhiên ở Puget Sound	1	2	3	4	5	6	7	☐
Tôi có quyền truy cập đủ thông tin liên quan đến hậu quả môi trường của cách thức quản lý tài nguyên thiên nhiên ở Puget Sound	1	2	3	4	5	6	7	☐
Tôi có quyền truy cập đủ thông tin liên quan đến khía cạnh quy định của cách thức quản lý tài nguyên thiên nhiên ở Puget Sound	1	2	3	4	5	6	7	☐

Quý vị đã nghĩ đến cơ quan, nhà hoạch định chính sách hoặc tổ chức nào khi trả lời các câu hỏi trên đây?:

2. Trong năm qua, quý vị đã có thường xuyên săn bắn, thu hoạch, hái lượm hoặc tìm kiếm thức ăn sau đây ở Vùng Puget Sound không? Xin khoanh tròn một số cho mỗi mục:

Thức Ăn Địa Phương	Không bao giờ	Hiếm khi (1-2 lần mỗi mùa)	Thỉnh thoảng (3-5 lần mỗi mùa)	Thông thường (6-8 lần mỗi mùa)	Thường xuyên (Từ 10 lần trở lên mỗi mùa)	Không Biết
Cá	1	2	3	4	5	☐
Cua hoặc Tôm	1	2	3	4	5	☐
Nghêu (ốc vòi voi, hàu hoặc hến (không phải ốc móng tay))	1	2	3	4	5	☐
Mực ống	1	2	3	4	5	☐
Hươu hoặc Nai sừng tấm	1	2	3	4	5	☐
Chim ở nước	1	2	3	4	5	☐
Thực vật, Quả mọng hoặc Nấm	1	2	3	4	5	☐

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3. Trong năm qua, gần như quý vị có thường xuyên tham gia vào các hành vi/hoạt động quản lý mà quý vị cho rằng mang lại lợi ích cho môi trường không? Xin khoanh tròn một số cho mỗi câu hỏi:

Hành vi/Hoạt động	Không bao giờ	Hiếm khi (1-4 lần mỗi năm)	Thỉnh thoảng (Một lần mỗi tháng)	Thông thường (Một lần mỗi tuần)	Thường xuyên (Hầu hết mỗi ngày)	Không Biết
Hành vi mà quý vị cho rằng mang lại lợi ích có hiệu quả cho môi trường	1	2	3	4	5	☐
Hành vi môi trường có ý nghĩa cá nhân đối với quý vị	1	2	3	4	5	☐
Hành vi môi trường mà quý vị cho rằng cần thiết cho cộng đồng	1	2	3	4	5	☐

4. Công việc của quý vị có liên quan đến việc dành thời gian trong môi trường tự nhiên (ví dụ: đánh bắt cá thương mại hoặc cho thuê, trồng trọt, quản lý rừng, phục hồi môi trường sống hoặc các công việc giải trí ngoài trời không?
☐ Không ☐ Có

Nếu Có: Khoảng bao nhiêu giờ mỗi tuần quý vị thực hiện công việc liên quan đến việc dành thời gian trong môi trường tự nhiên?
☐ Ít hơn 5 giờ/tuần ☐ 5-10 giờ/tuần ☐ 11-20 giờ/tuần ☐ 21-30 giờ/tuần ☐ Nhiều hơn 30 giờ/tuần

5. Trong năm qua, gần như quý vị có thường xuyên cảm thấy được truyền cảm hứng khi dành thời gian ở ngoài trời vùng Puget Sound không? Xin khoanh tròn một số:

Không bao giờ	Hiếm khi (1-4 lần mỗi năm)	Thỉnh thoảng (Một lần mỗi tháng)	Thông thường (Một lần mỗi tuần)	Thường xuyên (Hầu hết mỗi ngày)	Không Biết
1	2	3	4	5	☐

6. Trong năm qua, gần như quý vị có thường xuyên dành thời gian ở ngoài trời vùng Puget Sound đã giúp quý vị giảm bớt căng thẳng không? Xin khoanh tròn một số:

Không bao giờ	Hiếm khi (1-4 lần mỗi năm)	Thỉnh thoảng (Một lần mỗi tháng)	Thông thường (Một lần mỗi tuần)	Thường xuyên (Hầu hết mỗi ngày)	Không Biết
1	2	3	4	5	☐

7. Trong năm qua, quý vị hài lòng như thế nào về mức độ tham gia của mình vào bất kỳ hoạt động hay truyền thống văn hóa nào sau đây liên quan đến môi trường không? Xin khoanh tròn một số cho mỗi câu hỏi:

Hoạt Động hoặc Truyền Thống Văn Hóa Môi Trường	Không Hài Lòng	Phần Nào Không Hài Lòng	Không Hài Lòng Mà Không Bất Mãn	Phần Nào Hài Lòng	Hài Lòng	Tôi không tham gia hoạt động hoặc truyền thống này	Không Biết
Thông Lệ hoặc Hoạt Động Bản Địa (hành trình bằng ca nô, sự kiện trung tâm của Bộ Lạc, hội tặng phẩm, v.v.)	1	2	3	4	5	☐	☐
Thông Lệ Tâm Linh hoặc Tôn Giáo liên quan đến môi trường (thiền định, cầu nguyện, quan sát điềm chí, v.v.)	1	2	3	4	5	☐	☐
Thông Lệ hoặc Hoạt Động Môi Trường Quan Trọng đối với Di Sản của quý vị (các sự kiện gia đình hoặc cộng đồng chính thức hoặc không chính thức, v.v.)	1	2	3	4	5	☐	☐
Hoạt Động Xã Hội hướng tới Môi Trường (câu lạc bộ môi trường, lễ hội, sự kiện ngoài trời, v.v.)	1	2	3	4	5	☐	☐

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8. Trung bình khoảng bao nhiêu ngày mỗi tháng quý vị đã tham gia các hoạt động giải trí sau đây ở vùng Puget Sound vào mùa thu vừa qua này (khoảng Tháng Chín - Tháng Mười Một). Xin khoanh tròn một số cho mỗi câu hỏi:

Hoạt Động Ngoài Trời	Tôi không tham gia hoạt động này	Ít hơn 1 ngày mỗi tháng	1-4 ngày mỗi tháng	5-10 ngày mỗi tháng	11-20 ngày mỗi tháng	Nhiều hơn 20 ngày mỗi tháng	Không Biết
Sử Dụng Đường Mòn Dành Cho Xe Cơ Giới (ví dụ: Đi Xe ATV hoặc OHV)	1	2	3	4	5	6	☐
Sử Dụng Lối Đi Lát Đá hoặc Đường Mòn để Đi Bộ, Chạy Bộ, Đạp Xe Đạp	1	2	3	4	5	6	☐
Sử Dụng Đường Mòn Không Lát Đá để Đi Bộ, Chạy Bộ, Đạp Xe, Cưỡi Ngựa, Đi Bộ Đường Dài, Du Lịch Bụi	1	2	3	4	5	6	☐
Cắm Trại (Xe Hơi hoặc Về Nước)	1	2	3	4	5	6	☐
Câu Cá	1	2	3	4	5	6	☐
Săn Bắn	1	2	3	4	5	6	☐
Đi picnic hoặc BBQ	1	2	3	4	5	6	☐
Chèo Thuyền Có Động Cơ	1	2	3	4	5	6	☐
Môn Thể Thao Dưới Nước Không Có Động Cơ (ví dụ: Chèo Thuyền Kayak, Lướt Sóng, Chèo Thuyền, Bơi Lội, Lặn Biển)	1	2	3	4	5	6	☐
Trượt Tuyết/Trượt Tuyết Bằng Ván hoặc Trượt Tuyết Bằng Giày	1	2	3	4	5	6	☐
Trồng Vườn hoặc Làm Vườn	1	2	3	4	5	6	☐
Xem/Ngắm Động Vật Hoang Dã	1	2	3	4	5	6	☐

9. Trung bình khoảng bao nhiêu ngày mỗi tháng quý vị đã tham gia các hoạt động giải trí sau đây ở vùng Puget Sound vào Mùa Xuân vừa qua này (khoảng Tháng Ba - Tháng Năm). Xin đánh dấu một ô cho mỗi câu hỏi:

Hoạt Động Ngoài Trời	Tôi không tham gia hoạt động này	Ít hơn 1 ngày mỗi tháng	1-4 ngày mỗi tháng	5-10 ngày mỗi tháng	11-20 ngày mỗi tháng	Nhiều hơn 20 ngày mỗi tháng	Không Biết
Sử Dụng Đường Mòn Dành Cho Xe Cơ Giới (ví dụ: Đi Xe ATV hoặc OHV)	1	2	3	4	5	6	☐
Sử Dụng Lối Đi Lát Đá hoặc Đường Mòn để Đi Bộ, Chạy Bộ, Đạp Xe Đạp	1	2	3	4	5	6	☐
Sử Dụng Đường Mòn Không Lát Đá để Đi Bộ, Chạy Bộ, Đạp Xe, Cưỡi Ngựa, Đi Bộ Đường Dài, Du Lịch Bụi	1	2	3	4	5	6	☐
Cắm Trại (Xe Hơi hoặc Về Nước)	1	2	3	4	5	6	☐
Câu Cá	1	2	3	4	5	6	☐
Săn Bắn	1	2	3	4	5	6	☐
Đi picnic hoặc BBQ	1	2	3	4	5	6	☐
Chèo Thuyền Có Động Cơ	1	2	3	4	5	6	☐
Môn Thể Thao Dưới Nước Không Có Động Cơ (ví dụ: Chèo Thuyền Kayak, Lướt Sóng, Chèo Thuyền, Bơi Lội, Lặn Biển)	1	2	3	4	5	6	☐
Trượt Tuyết/Trượt Tuyết Bằng Ván hoặc Trượt Tuyết Bằng Giày	1	2	3	4	5	6	☐
Trồng Vườn hoặc Làm Vườn	1	2	3	4	5	6	☐
Xem/Ngắm Động Vật Hoang Dã	1	2	3	4	5	6	☐

10. Quý vị đồng ý hay không đồng ý tới mức độ nào với các nhận định sau đây liên quan đến Vùng Puget Sound?
Xin khoanh tròn <u>một số</u> cho mỗi câu hỏi:

Nhận Định	Hoàn Toàn Không Đồng Ý	Không Đồng Ý	Phần Nào Không Đồng Ý	Trung Lập	Phần Nào Đồng Ý	Đồng Ý	Hoàn Toàn Đồng Ý	Không biết
Tôi rất gắn bó với môi trường tự nhiên ở vùng Puget Sound	1	2	3	4	5	6	7	☐
Tôi tự hào khi sống ở vùng Puget Sound	1	2	3	4	5	6	7	☐
Tôi cảm thấy có trách nhiệm chăm sóc môi trường tự nhiên của Puget Sound	1	2	3	4	5	6	7	☐
Sống ở vùng Puget Sound nói lên rất nhiều điều về bản thân tôi	1	2	3	4	5	6	7	☐
Có thể tham gia hoạt động ngoài trời hoặc thông lệ văn hóa là điều quan trọng để tôi kết nối với Puget Sound	1	2	3	4	5	6	7	☐
Chủ yếu là tôi gắn bó với các nơi của Puget Sound ở gần tôi nhất	1	2	3	4	5	6	7	☐
Tôi có thể hài lòng khi sống ở các nơi khác ngoài Puget Sound	1	2	3	4	5	6	7	☐

11. Nói chung, quý vị hài lòng hay không hài lòng với toàn bộ cuộc sống của mình ở mức độ nào? Xin khoanh tròn <u>một số</u>:

Không Hài Lòng	Phần Nào Không Hài Lòng	Không Hài Lòng Mà Không Bất Mãn	Phần Nào Hài Lòng	Hài Lòng
1	2	3	4	5

12. Quý vị đã sống bao nhiêu năm ở Puget Sound? _____

13. Giới tính của quý vị là gì?
☐ Nam   ☐ Nữ   ☐ Khác   ☐ Không muốn trả lời

14. Câu nào sau đây mô tả đúng nhất về khu vực quý vị đang sống? Xin khoanh tròn <u>một số</u>:

Thành Phố		Ngoại Ô		Nông Thôn
1	2	3	4	5

15. Trình độ học vấn cao nhất nào mà quý vị đã hoàn tất? Xin khoanh tròn <u>một số</u>:

Tiểu Học và Trung Học	Cao Đẳng hoặc Trường Kỹ Thuật	Đại Học hoặc Trường Chuyên Nghiệp
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. Thu nhập hộ gia đình hàng năm của quý vị là bao nhiêu?
☐ Ít hơn $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   ☐ Nhiều hơn $200,000

17. Chủng tộc của quý vị là gì? Đánh dấu tất cả mục áp dụng.
☐ Da Đen hay Mỹ Phi Châu   ☐ Thổ Dân Mỹ hoặc Thổ Dân Alaska   ☐ Thổ Dân Hawai hoặc Dân Đảo Thái Bình Dương Khác
☐ Châu Á   ☐ Da Trắng   ☐ La tinh và Tây Ban Nha hoặc La tinh   ☐ Khác

18. Quý vị bao nhiêu tuổi? _____

19. Quý vị coi mình thuộc kiểu người như thế nào sau đây? Xin khoanh tròn <u>một số</u>:

Rất Bảo Thủ	Bảo Thủ	Không Bảo Thủ Mà Cũng Không Tự Do	Tự Do	Rất Tự Do
1	2	3	4	5

Cảm ơn quý vị đã hoàn tất khảo sát này. Nếu quý vị có bất kỳ suy nghĩ bổ sung nào về phúc lợi con người trong khu vực của mình, vui lòng viết các suy nghĩ đó ở đây, nếu cần.

English Version

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

PUGET SOUND
VITAL SIGNS
UNDERSTANDING ECOSYSTEM HEALTH

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 <u>one number</u> 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 <u>one number</u> 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.