Appendix 2: Racial Equity Impact Analysis, Equity-focused Community Outreach and Public Engagement

This appendix provides detailed information on the following aspects of racial equity impact analysis and equity-focused community engagement prepared for the Makah Tribe PIPD Grant Application Project Narrative, including:

1) an overview of the proposed project;

2) identification of Environmental Justice Census Tracts within the project area;

3) identification of specific project elements that support our Environmental Justice (EJ) populations with improved access to safe alternative transportation options such as transit and multi-modal non-motorized options;

4) detailed community outreach and public engagement; and

5) identification of the project elements that do not harm to our EJ population but instead provide better access for non-motorized bicycles and pedestrians, improved transit service, and better access to services and commercial areas for our underserved population.

Equitable Project Analysis

The Makah Tribe and Port of Neah Bay has prepared the following analysis of the Makah Tribe Oil Spill Response Access Dock Project (Project) to evaluate equitable distribution of project benefits and to identify any inequities that can be mitigated with the Project.

This analysis focuses on past inequities by addressing both Climate change and Environmental Justice during the planning, design and construction of the projects. The project sponsors have used environmental justice tools such as EJSCREEN, Washington Environmental Health Disparities Map and other mapping programs and reports to identify the Environmental Justice (EJ) populations adjacent to the Project and to evaluate any disproportionate effects on such populations and neighborhoods.

The project team also aligned these projects with Governor Inslee's Climate Commitment and DNR's Plan for Climate Resilience which both give guidance on lowering greenhouse gas emissions. The planning and selection of the components align directly with these Climate Action Plans. identify inequities in our community that extends to climate, and pollution risks.

1. Project Overview

The Makah Tribe is preparing to construct a dedicated dock at the Port of Neah Bay, Washington (the Port) for homeporting Emergency Response Towing Vessels (ERTVs) and oil spill response vessels.

The project will enhance and optimize the emergency response operations currently located at the Port of Neah Bay, Washington to address the increasing potential risk of marine accidents and spills as vessel traffic through the Strait of Juan de Fuca (Straits) grows. The dock will be constructed as an extension to the existing Makah Tribe Commercial Fishing Dock. The project creates new maritime infrastructure to improve emergency vessel safety response and oil spill prevention, containment, and cleanup, for

vessels traversing the Straits to the Puget Sound and southern British Columbia ports. The new dock will provide berths for additional spill prevention and response vessels including the addition of oil storage barges to address vessel spills within 100 miles of Neah Bay. The combined vessel traffic is made up of freighters, bulk carries, tug and barges and cruise ships that collectively carry millions of gallons of diesel fuel supply for the vessels to transit in addition to the tankers carrying petroleum products as cargo.

2. Environmental Justice Analysis

It should be noted that this Project is not a traditional transportation project so is not listed in the TIP. The TIP evaluation process is presented here as a framework for such an analysis whether it be conducted at the County or local level.

Equity within Clallam County

Best practices requires a review of the Equity in the distribution of benefits and impacts within the Transportation Improvements included in a Transportation Improvement Plan (TIP).
The region must ensure that federal funds programmed in the TIP avoid disproportionate negative impacts or denial of benefits to disadvantaged populations. This finding is made on the program as a whole, and with the understanding that individual transportation improvements may result in negative impacts to disadvantaged populations given proper review, avoidance and mitigation of environmental impacts through the National Environmental Policy Act (NEPA) process.

The Equity methodology displayed in the matrix below can be used to review projects:

- IMPACTS +		
Negative Impacts Have Proportionate Impact at Community or Regional Scale	Direct Benefits to Disadvantaged Populations	+
Disproportionate Negative Impacts to Disadvantaged Populations	Benefits Limited to Non-Disadvantaged Populations	BENEFITS -

The overall results of the TIP are evaluated through an environmental justice framework, and can also be individually evaluated in more detail prior to implementation.

Among the broad range of investment categories and transportation improvements, four specific categories of projects are automatically considered equitable based on the following types:

- Preservation & Maintenance projects that are prioritized based on empirical data that maximizes the lifespan of the transportation system as a whole.
- Safety improvements that are prioritized by empirical data that maximizes the reduction of risk factors and potential for injury or fatality on the transportation system as a whole, and at locations with a high frequency or severity of crashes.
- Accessibility improvements that are necessary for regulatory compliance and not in locations based on open discretion.
- Public Transportation formula funding utilized to sustain operations and asset management on a systemwide basis.

TIP projects that do not meet the criteria to automatically be deemed equitable are further reviewed. The projects are therefore evaluated on their individual merits according to the following equity considerations:

- ✓ Project directly benefits disadvantaged populations
- ✓ Project indirectly benefits disadvantaged populations
- ✓ Project benefits and/or impacts are proportionately distributed across the community or region.
- ✘ Project benefits are limited to non-disadvantaged populations
- ✘ Project results in disproportionate negative impacts to disadvantaged populations.

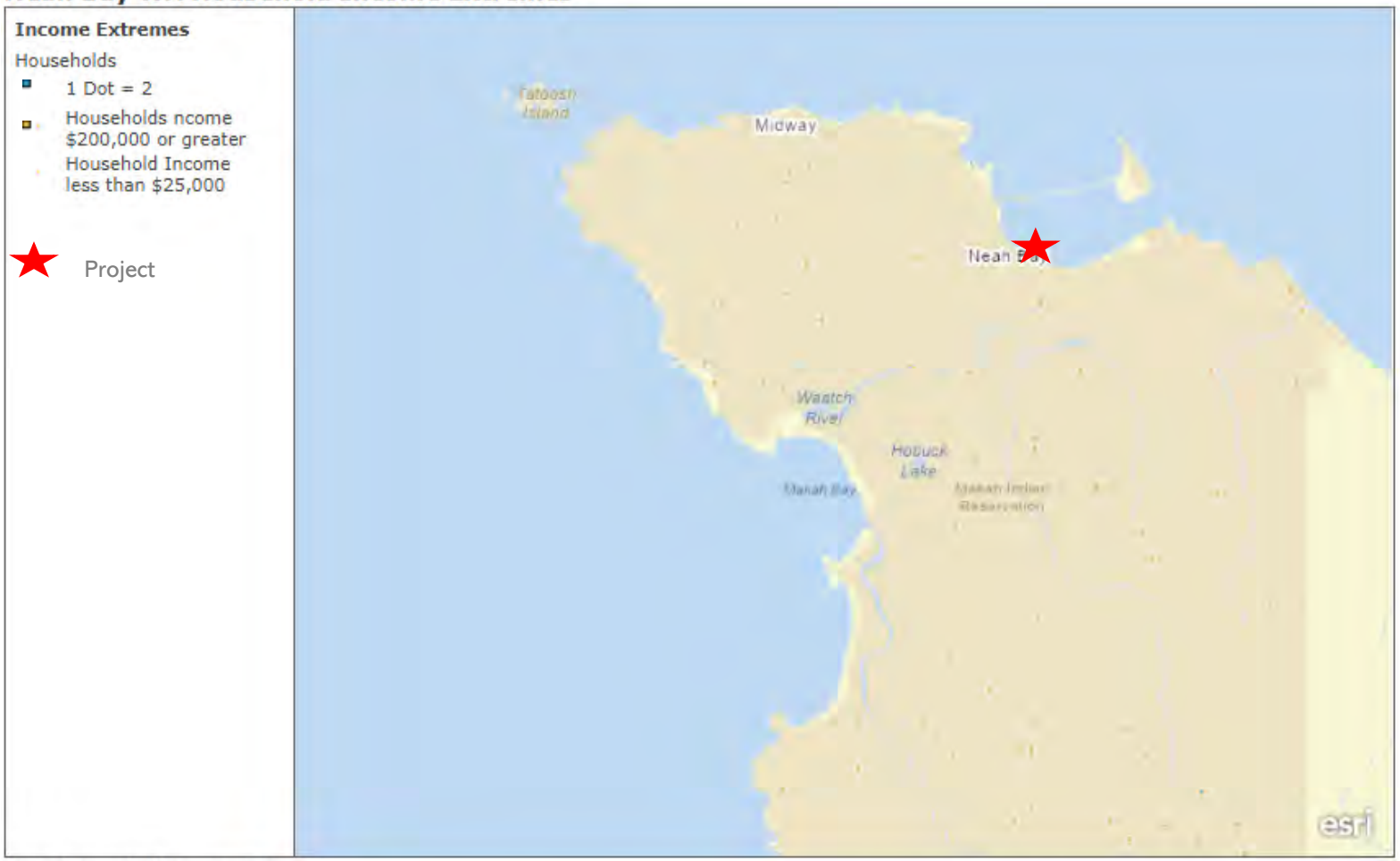
Methodology used in the Neah Bay Oil Spill Response Access Dock Project Analysis

The Project was analyzed for the Affected Environment using multiple mapping websites as well as generic mapping software such as ARCGIS On-line that can display data such as the map below that shows counts of households within the highest and lowest income ranges. Dot density is used to fill in census tracts to show where the richest and poorest households live in the U.S. The highest income range covers households which make $200,000 or more a year. The lowest income range shows households making less than $25,000 a year.

All of these tools presented in this analysis are very helpful in understanding the demographics and community elements. The maps should be used as reference only due to the scale and projection of the maps..

The following graphic of the Makah Tribal Reservation shows very few high income households and a large number of Households with income less than $25,000 per year

Neah Bay WA Household Income Extremes



Map of Household Income Extremes

Access to a Supermarket

Map of Household Income Extremes

WA State Parks GIS, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, USDA, NRCan, Parks Canada | Esri | ©2012 Esri, infoUSA, U.S. Census Bureau

The three Environmental Justice Mapping Tools reviewed for this analysis include:

- EJSCREEN
- The Washington Environmental Health Disparities Map
- Neighborhoods at Risk

The following is a summary of the comparable data found using the Neighborhoods at Risk Tool. This is tool appears to provide the best downloadable reports for each of the project areas.

Summary of Mapping Tools:

EJSCREEN - EPA

EJSCREEN provides the same data as the other two tools with different downloadable standard reports based upon how the user describes the investment using the drawing tool on the map. For example, the Project site can be drawn on the EJSCREEN mapping tool and a buffer around the polygon can be added. For this report, the Project was added to the map. The standard reports were run for a buffer of 1 mile around the center of the Project area.

EJSCREEN uses maps and reports to present three kinds of information: Environmental indicators, demographic indicators and EJ Indexes. An EJ Index summarizes how an environmental indicator and demographics come together in the same location.

An EJSCREEN map can display one indicator at a time. An EJSCREEN standard report which is attached to this narrative, presents all of the indicators in a single, printable report that covers any area you have selected. To understand EJSCREEN's reports and maps, it is helpful to learn more about the EJ Indexes, environmental indicators, demographic indicators as well as how they are presented in the standard report.

Purposes and Uses of EJSCREEN

EJSCREEN allows users to access high-resolution environmental and demographic information for locations in the United States, and compare their selected locations to the rest of the state, EPA region, or the nation. The tool may help users identify areas with:

- Minority and/or low-income populations
- Potential environmental quality issues
- A combination of environmental and demographic indicators that is greater than usual
- Other factors that may be of interest

The EJ index is a combination of environmental and demographic information. There are eleven EJ Indexes in EJSCREEN reflecting the 11 environmental indicators. The 11 EJ Index names are:

1. National Scale Air Toxics Assessment Air Toxics Cancer Risk
2. National Scale Air Toxics Assessment Respiratory Hazard Index
3. National Scale Air Toxics Assessment Diesel PM (DPM)
4. Particulate Matter (PM2.5)
5. Ozone
6. Lead Paint Indicator
7. Traffic Proximity and Volume
8. Proximity to Risk Management Plan Sites
9. Proximity to Treatment Storage and Disposal Facilities
10. Proximity to National Priorities List Sites
11. Wastewater Discharge Indicator

To calculate a single EJ Index, EJSCREEN uses a formula to combine a single environmental factor with the demographic indicator. It considers how much the local demographics are above the national average. It does this by looking at the difference between the demographic composition of the block group, as measured by the Demographic Index, and the national average (which is approximately 35%). It also considers the population size of the block group, although most block groups are similar in population size.

EJSCREEN calculates the EJ Index by multiplying together three items:

EJ Index =

(The Environmental Indicator)

X (Demographic Index for Block Group – Demographic Index for US)

X (Population count for Block Group)

Demographics in the EJ Index

The demographic portions of the EJ Index can be thought of as the additional number of susceptible individuals in the block group, beyond what you would expect for a block group with this size total population. The terms "susceptible" or "potentially susceptible individuals" are used informally in these examples, as a way to think of the Demographic Index times the population count in a block group. This is essentially the average of the count of minorities and count of low-income individuals1[i]. It is easiest to think of the average of these counts as "the susceptible individuals" in these examples.

The number of potentially susceptible individuals (Demographic Index times population count) is typically less than the actual number who are minority, low-income or both. The demographic breakdown is not reported by block group –the ACS does not provide that level of resolution on the overlaps.

Overview of Demographic Indicators in EJSCREEN

EJSCREEN uses demographic factors as very general indicators of a community's potential susceptibility to the types of environmental factors included in this screening tool, as explained further in the EJSCREEN Technical Documentation. EJSCREEN has been designed in the context of EPA's EJ policies, including EPA's Final Guidance on Considering Environmental Justice During the Development of an Action (U.S. EPA, 2010). That guidance document explained EPA's focus on demographics as an indicator of potential susceptibility to environmental pollution.

There are six demographic indicators:

Percent Low-Income:

The percent of a block group's population in households where the household income is less than or equal to twice the federal "poverty level."

Percent People of Color:

The percent of individuals in a block group who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino. That is, all people other than non-Hispanic white-alone individuals. The word "alone" in this case indicates that the person is of a single race, not multiracial.

Less than high school education:

Percent of people age 25 or older in a block group whose education is short of a high school diploma.

Linguistic isolation:

Percent of people in a block group living in linguistically isolated households. A household in which all members age 14 years and over speak a non-English language and also speak English less than "very well" (have difficulty with English) is linguistically isolated.

Individuals under age 5:

Percent of people in a block group under the age of 5.

Individuals over age 64:

Percent of people in a block group over the age of 64.

EJSCREEN includes an index that is based on the above demographic indicators:

A Demographic Index is based on the average of two demographic indicators; Percent Low-Income and Percent Minority.

Excess Risk

The EJ Index uses the concept of "excess risk" by looking at how far above the national average the block group's demographics are. For example, assume a block group with 1000 people in it. In that block group, one would expect 350 potentially susceptible individuals (1000 people here x US average of 35%). However, if the Demographic Index for that block group is 75%, well above the US average, then there are the equivalent of 750 potentially susceptible people in that block group, or 400 more than expected for a block group with a population of 1000.

This formula for the EJ Index is useful because for each environmental factor it finds the block groups that contribute the most toward the national disparity in that environmental factor. It can highlight which locations are driving the overall net disparity. By "disparity" in this case we mean the difference between the environmental indicator's average value among certain demographic groups and the average in the rest of the US population.

Minority and low-income individuals live in older housing more often than the rest of the US population, for example. The EJ Index for lead paint (pre-1960 housing) tells us how much each block group contributes toward this "excess population risk" or "excess number" of people in older housing, for potentially susceptible individuals. "Excess" here simply means the number of potentially susceptible individuals in older housing is above what it would be if they were in older housing at the same rate as the rest of the U.S. population.

It should be noted that the EJ Index raw value itself is not reported in EJSCREEN reports– it is reported in percentile terms, to make the results easier to interpret. If one is calculating the actual raw values using the formula, it is clear that the EJ Index value can be a positive or negative number.

A positive number occurs where the local Demographic Index is above the US average, and this means the location adds to any excess in environmental indicator values among the specified populations (minority and low-income) nationwide.

A negative value occurs where the local Demographic Index is below the US average, and it means the location offsets the other locations, reducing any excess in nationwide average environmental indicator values among minority and low-income populations relative to others.

Most EJSCREEN users will not work directly with EJ Index raw values, however, and positive raw values for an EJ Index will be presented as higher percentiles and negative raw values will appear as lower percentiles.

How to Interpret a Standard Report in EJSCREEN

Block Groups

One key output from EJSCREEN is a standard printed report that describes a selected location. Sometimes the report might focus on a single Census "block group." A block group is an area defined by the Census Bureau that usually has in the range of 600-3,000 people living in it. The US is divided into more than 200,000 block groups.

Buffers

More typically, though, an EJSCREEN report will cover a "buffer" area, an area on the map that includes everyone who lives within a certain distance of a point, line or polygon. A point might be a factory seeking an emissions permit, for example, and the report could focus on the demographics and environmental conditions within approximately 1 mile of that factory.

In EJSCREEN, buffers can be drawn up to 10 miles around a point, line or polygon. If you have selected a geographic point, the tool will apply a buffer around that point. The buffer ring will aggregate appropriate portions of the intersecting block groups, weighted by population, to create a representative set of data for the entire ring area, honoring variation and dispersion of the population in the block groups within it. For each indicator, the result is a population-weighted average, which equals the block group indicator values averaged over all residents who are estimated to be inside the buffer.

EJSCREEN's report shows:

All 11 of the EJ Indexes

All 11 of the environmental indicators

The Demographic Index

All six of the demographic indicators

The first page of EJSCREEN’s report shows the state, regional and national EJ Indexes for the selected area in tabular form and in a bar chart. "Percentiles" are an important part of EJSCREEN. Every indicator in EJSCREEN is put into perspective by showing its associated percentiles.

The second page shows a map of the selected area and the third page shows:

- 11 environmental indicators
- Demographic Index
- six demographic indicators

The report includes the state, regional and national percentiles for each of the environmental and demographic indicators and for the demographic index. The state, regional and national averages for each of the environmental indicators and demographic indicators are also included as a reference point.

11 Environmental Indicators

As can be seen in the EJScreen report below, the area in the 2 mile buffer around the center of the Project when compared to the 11 EJ Environmental Indexes exceeds all USA Percentiles, and exceeds the State Percentile in all categories except Wastewater Discharge Indicator

Demographic Index

The area within the 1-mile buffer with an Demographic Index of 73% is in the 98 percentile of the State of WA and in the 98 percentile in the EPA Region and the 92 percentile of the US.

People of Color Index at 91% is in the 99 percentile for the State, 99 percentile for the EPA Region and 91 percentile for the US.

For low income, this area of 55% is in the 91 percentile of the State of WA and in the 90 percentile in the EPA Region and the 84 percentile of the US.

Based upon these observations, it will be important to consider any elements of the Project that will have an undue impact on the area's minority and low income population.

Comparison	**Census Tract 9400 Data**		**Area within 1 mile Buffer**	
		USA Percentile		**USA Percentile**
Demographic Index	72%	91	73%	92
% minority	92%	91	91%	91
% low income	51%	80	55%	84
% linguistic isolation	0%	45	0%	45
% less than high school	16%	72	15%	68
% under age 5	9%	82	10%	84
% over age 64	10%	31	12%	41

Based upon this data, the Population surrounding the Project has a Demographic Index between 72-73%, which equates to a USA Percentile between 91-92. The population in the area is over 90% minority which falls in the 91 US Percentile. Residents qualifying as Low Income represent between 51-55% of the area, which equates to over the 80 percentile in the US. The population speaks English well although between 15-16 % have less then a high school degree. It represents a younger population than in the US as a whole both with a 9-10% (82-84 percentile of the US) of the population under the age of 5 and between 10-12% (31-41 US percentile) of the population over the age of 64.

EJSCREEN Report (Version 2020)

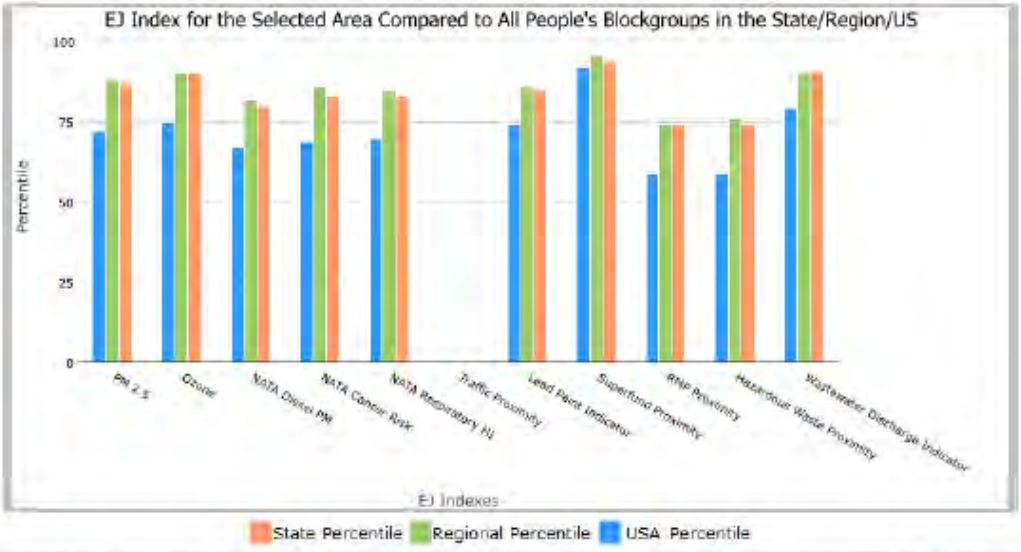
1 mile Ring Centered at 48.366612,-124.614068, WASHINGTON, EPA Region 10

Approximate Population: 969

Input Area (sq. miles): 3.14

Makah Tribal Commercial Dock (The study area contains 1 blockgroup(s) with zero population.)

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	87	88	72
EJ Index for Ozone	90	90	75
EJ Index for NATA* Diesel PM	80	82	67
EJ Index for NATA* Air Toxics Cancer Risk	83	86	69
EJ Index for NATA* Respiratory Hazard Index	83	85	70
EJ Index for Traffic Proximity and Volume	N/A	N/A	N/A
EJ Index for Lead Paint Indicator	85	86	74
EJ Index for Superfund Proximity	94	96	92
EJ Index for RMP Proximity	74	74	59
EJ Index for Hazardous Waste Proximity	74	76	59
EJ Index for Wastewater Discharge Indicator	91	90	79



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

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The buffered 1 mile area exceeds all USA Percentiles, and is above the State 90th percentile in 3 areas: Ozone, Superfund Proximity and Wastewater Discharge Indicator.

EJSCREEN Report (Version 2020)

1 mile Ring Centered at 48.366612,-124.614068, WASHINGTON, EPA Region 10

Approximate Population: 969

Input Area (sq. miles): 3.14

Makah Tribal Commercial Dock (The study area contains 1 blockgroup(s) with zero population.)

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

Although, there are no Superfund NPL sites within 1 mile of the Project, there is a Superfund site on the Makah Reservation. The site includes a former open dump on top of a ridge about three miles northwest of Neah Bay, and two streams that originate within the dump and flow to East Beach and Warmhouse Beach.

For more information on the MAKAH RESERVATION WARMHOUSE BEACH DUMP NEAH BAY, WA superfund site https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=1002857#Done

EJSCREEN Report (Version 2020)

1 mile Ring Centered at 48.366612,-124.614068, WASHINGTON, EPA Region 10

Approximate Population: 969

Input Area (sq. miles): 3.14

Makah Tribal Commercial Dock (The study area contains 1 blockgroup(s) with zero population.)

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	5.05	8.21	0	8.52	0	8.55	0
Ozone (ppb)	30.8	37.3	4	39.1	3	42.9	3
NATA* Diesel PM (µg/m³)	0.113	0.585	10	0.481	<50th	0.478	<50th
NATA* Cancer Risk (lifetime risk per million)	14	34	0	31	<50th	32	<50th
NATA* Respiratory Hazard Index	0.2	0.5	0	0.46	<50th	0.44	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	N/A	610	N/A	510	N/A	750	N/A
Lead Paint Indicator (% Pre-1960 Housing)	0.068	0.23	35	0.22	35	0.28	32
Superfund Proximity (site count/km distance)	0.26	0.19	82	0.13	89	0.13	89
RMP Proximity (facility count/km distance)	0.0073	0.63	0	0.65	0	0.74	0
Hazardous Waste Proximity (facility count/km distance)	0.012	1.9	0	1.5	1	5	0
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	2E-05	0.0091	74	3.1	66	9.4	47
Demographic Indicators							
Demographic Index	73%	29%	98	29%	98	36%	92
People of Color Population	91%	31%	99	28%	99	39%	91
Low Income Population	55%	27%	91	30%	90	33%	84
Linguistically Isolated Population	0%	4%	43	3%	47	4%	45
Population With Less Than High School Education	15%	9%	81	9%	80	13%	68
Population Under 5 years of age	10%	6%	84	6%	84	6%	84
Population over 64 years of age	12%	15%	44	15%	42	15%	41

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

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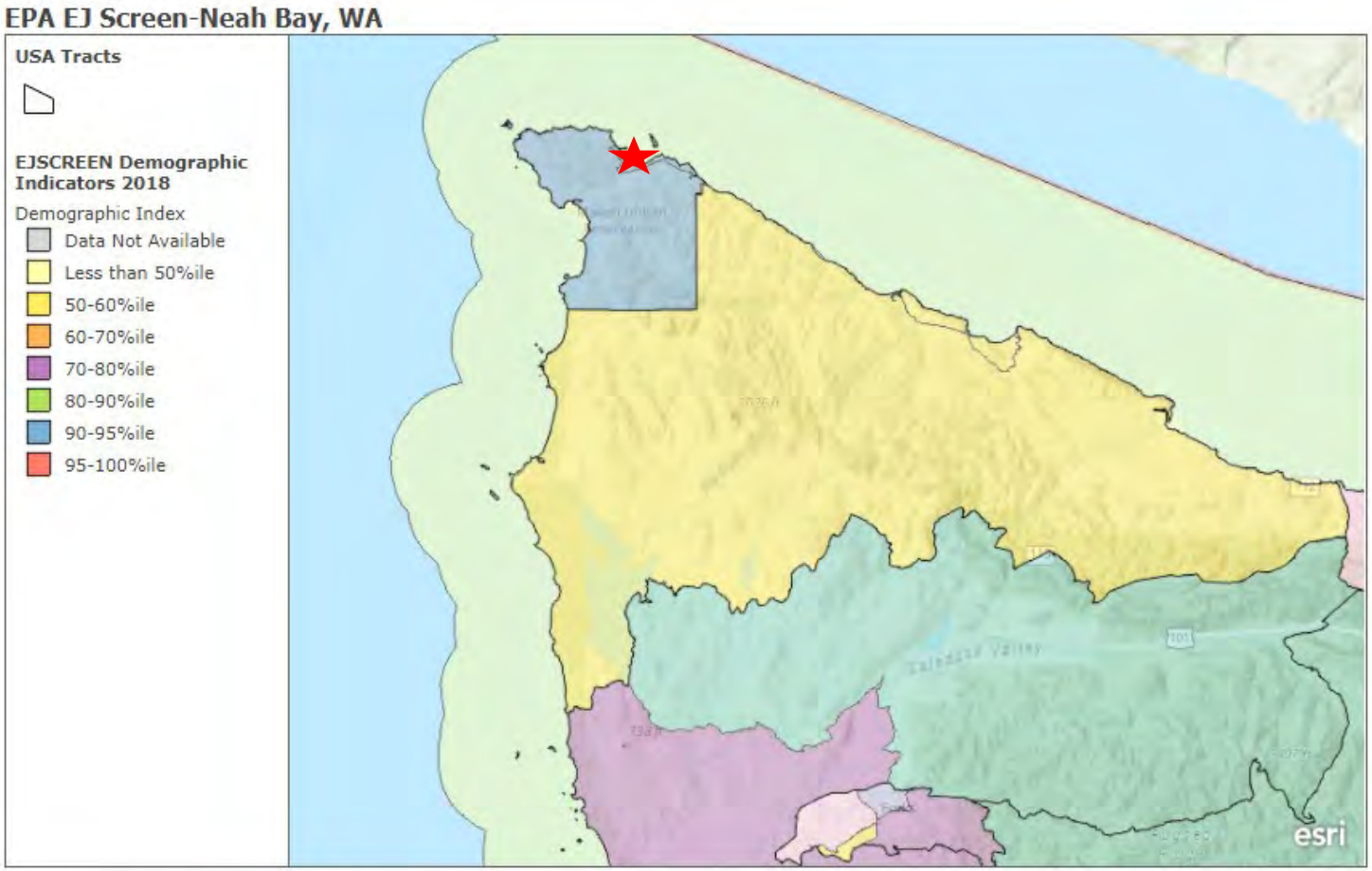
Demographic Index –

The Demographic Index in EJSCREEN is created using the two demographic indicators that were explicitly named in EO12898, low-income and minority. For each Census block group, these two indicators are simply averaged together: Demographic Index = (% minority + % low-income) / 2



EJ Low Income Index Factor

The majority of the Makah Reservation is in the 60-70 percentile, with the shore line along Neah Bay jumping into the 80-90 percentile for Low Income when compared to the US average.

Washington Environmental Health Disparities Map

The Washington Environmental Health Disparities Map evaluates environmental health risk factors in communities. The model was specifically adapted from CalEnviroScreen—a cumulative environmental impacts assessment mapping tool developed by CalEPA and used in California. —It estimates a cumulative environmental health impact score for each census tract reflecting pollutant exposures and factors that affect people's vulnerability to environmental pollution.

The model is based on a conceptual formula of Risk = Threat * Vulnerability, where threat and vulnerability are based on several indicators.

Threat is represented by indicators that account for pollution burden, which is a combination of environmental effects and environmental exposures in communities. Environmental effects include indicators that account for adverse environmental quality generally, even when population contact with an environmental hazard is unknown or uncertain. Environmental exposures include the levels of certain pollutants that populations come into contact with.

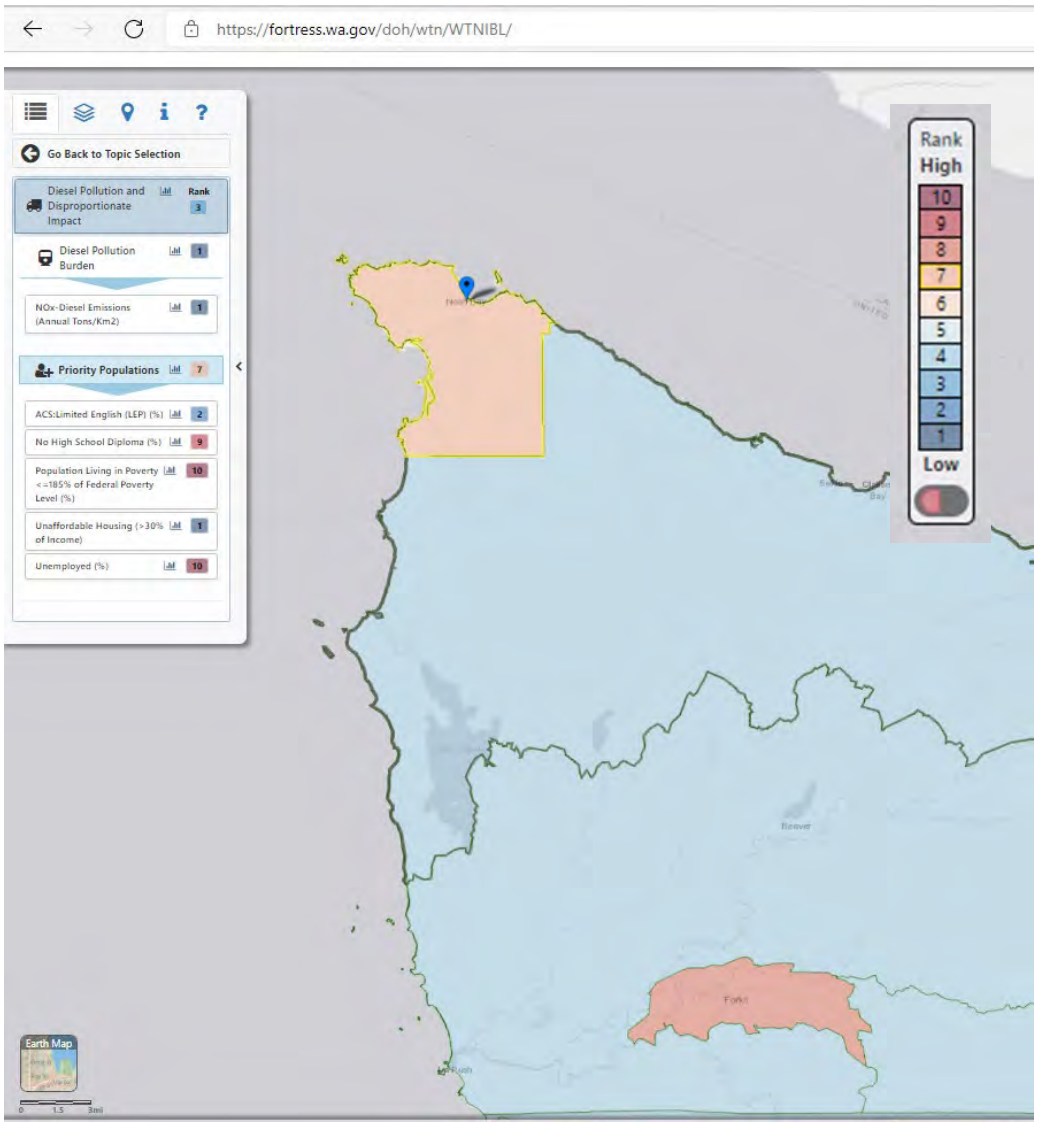
Vulnerability is represented by indicators of socioeconomic factors and sensitive populations for which there is clear evidence that they may affect susceptibility or vulnerability to an increased pollution burden. Indicators in socioeconomic factors measure population characteristics that modify the pollution burden itself. Sensitive populations refer to those who are at greater risk due to intrinsic biological vulnerability to environmental stressors.

In the model, threat is multiplied by vulnerability in order to reflect the scientific literature that indicates population characteristics often modify and amplify the impact of pollution exposures on certain vulnerable populations. The rankings help to compare health and social factors that may contribute to disparities in a community. You should not interpret rankings as absolute values. Do not use them to diagnose a community health issue or to label a community.

Version 1.0 Published January 2019

Version 1.1 Published December 2019 (updated measures from American Community Survey and Department of Health for 2013-2017) Did not update Threat indicators derived from EJSCREEN.

Example of mapping from Washington Environmental Health Disparities Map



This mapping tool is like EJSCREEN, although there is not an option to download a summary report for a Census Tract.

Neighborhoods at Risk Tool

Neighborhoods at Risk is designed to meet community planning needs to protect people and property from the impacts of climate change. Neighborhoods at Risk free web-based tool that generates customized, interactive maps and reports that describe characteristics of potentially vulnerable neighborhoods (by census tract). Additionally, Neighborhoods at Risk provides community-level climate projections for temperature and precipitation.

The Analysis below is divided into People and Climate Exposure:

Neighborhoods at Risk	Area		
	Tract 9400	Clallam County, WA	U.S.
# Selected Tracts	1		
Total Area Population (2019)	1,560	88,764	324,697,795
People			
People of color and Hispanics	93.9%	12.3%	27.5%
Households with no car	9.4%	6.3%	8.6%
People who don't speak English well	0.0%	0.7%	4.3%
People in poverty	24.6%	14.5%	13.4%
Families in poverty	18.9%	9.2%	9.5%
People with Disabilities	14.9%	13.3%	12.6%
Housing units that are rentals	29.1%	29.6%	36.0%
People under 5	9.6%	4.1%	6.1%
People over 65 years	11.2%	28.8%	15.6%
Educational Attainment- No High School Degree	16.6%	7.5%	12.0%
Climate Exposure			
Area lacking tree canopy	29.2%	29.6%	
Area of impervious surface	1.2%	6.9%	
Area in 500-yr floodplain	0%	5.8%	

Source: U.S. Department of Commerce. 2019. Census Bureau, American Community Survey Office, Washington, D.C., as reported by Headwaters Economics' Neighborhoods at Risk. Retrieved March 2021 from https://headwaterseconomics.org/apps/neighborhoods-at-risk/

Legend

	Below US Average
	Above US Average
	Double or more than the US Average

Neighborhoods at Risk can be used to prioritize capital improvements, conduct vulnerability assessments, inform land use and policy decisions, and support FEMA Hazard Mitigation Plans and Carbon Disclosure Project reporting.

Neighborhoods at Risk reports are based on data from the U.S. Census Bureau, FEMA, Multi-Resolution Land Characteristics Consortium, First Street Foundation, and the Northeast Regional Climate Center's Applied Climate Information System.

The following is a summary of the comparable data found using the Neighborhoods at Risk Tool. This is tool appears to provide the best downloadable reports for each of the project areas.

"**People**" in Neighborhoods at Risk are indicators of populations that are potentially more vulnerable to climate risk and climate-related disasters. Not all people who fit these criteria are more vulnerable, but research shows that these populations are, on average, more likely to experience difficulty during all phases of climate-related disasters including:

- Mitigation: reducing the potential risk
- Preparedness: getting plans and resources ready
- Response: protecting and rescuing
- Recovery: rebuilding

The downloadable Neighborhoods at Risk report provides detailed information and references documenting how each variable is associated with potentially higher risk to climate change.

The four characteristics and filters included under "**Climate Exposure**" in Neighborhoods at Risk are indicators of land area that may experience more significant impacts from climate change. These variables (hurricane flood zones, floodplains, impervious surface, and lack of tree canopy) represent characteristics of our physical environment that make us more or less vulnerable to climate change by affecting the likelihood of extreme heat and flood events.

Why is this measure important?

People

People of color and Hispanics

- Race and ethnicity are strongly correlated with disparities in health, exposure to environmental pollution, and vulnerability to natural hazards.
- Research consistently has found race-based environmental inequities, including the tendency for minority populations to live closer to noxious facilities and Superfund sites, and to be exposed to pollution at greater rates than whites.
- Many health outcomes are closely related to the local environment. Minority communities often have less access to parks and nutritious food, and are more likely to live in substandard housing.
- Minorities tend to be particularly vulnerable to disasters and extreme heat events. This is due to language skills, housing patterns, quality of housing, community isolation, and cultural barriers.
- Blacks and Hispanics, two segments of the population that are currently experiencing poorer health outcomes, are an increasing percentage of the US population.
- Research has identified measurable disparities in health outcomes between various minority and ethnic communities.
- Across races, the rates of preventable hospitalizations are highest among black and Hispanic populations. Preventable hospital visits often reflect inadequate access to primary care. These types of hospital visits are also costly and inefficient for the health care system.
- Relative to other ethnicities and races, Hispanics and blacks are less likely to have health insurance, but rates of uninsured are dropping for both groups.

- Compared to other races, blacks have higher rates of infant mortality, homicide, heart disease, stroke, and heat-related deaths.
- Hispanics have higher rates of diabetes and asthma.
- American Indians have a distinct pattern of health effects different from blacks and Hispanics. Native populations are less likely to have electricity than the general population. They have high rates of infant mortality, suicide and homicide, and nearly twice the rate of motor vehicle deaths than the U.S. average.

Households with no car

Access to a car is linked with higher wages and more financial stability, and can help families relocate or evacuate in the event of emergencies.

- People who own cars are more likely to be employed, work longer hours, and earn more than those who do not.
- Access to a car has measurable benefits for those receiving public assistance. Welfare recipients with access to a car were more likely to work more hours and get higher-paying jobs, and had a greater chance of leaving welfare.
- During emergencies, natural disasters, and extreme weather events, people who do not have a car are less likely to evacuate or have access to emergency response centers.
- During heat waves, people without a car are less able to go to community cooling centers or cooler areas.
- Pedestrian fatalities are more than twice as likely in poor urban neighborhoods than in wealthier parts of cities.

People who don't speak English well

- Many aspects of life in the US assume basic fluency in English. Thus, people with limited language skills are at risk for inadequate access to health care, social services, or emergency services.
- A person's ability to take action during an emergency is compromised by language and cultural barriers.
- Poor English skills can make it harder to follow directions or interact with agencies.
- Lack of language skills can also instill lack of trust for government agencies.
- In many industries, poor English skills can make it harder for people to get higher wage jobs.
- Language barriers make it harder to obtain medical or social services; and make it more difficult to interact with caregivers.
- Limited English skills may result in isolation from other segments of the US population, and social isolation is a health risk.
- However some minority communities can be very tightly-knit and not isolated, so this risk factor cannot be generalized across all populations.

Families in poverty

Families in poverty may lack the resources to meet their basic needs. Their challenges cross the spectrum of food, housing, healthcare, education, vulnerability to natural disasters, and emotional stress.

- To save money, families with low incomes often have to make lifestyle compromises such as unhealthy foods, less food, substandard housing, or delayed medical care.
- Lack of financial resources makes families in poverty more vulnerable to natural disasters. This is due to inadequate housing, social exclusion, and an inability to re-locate or evacuate.
- Inadequate shelter exposes occupants to increased risk from storms, floods, fire, and temperature extremes. Households with low incomes are more likely to have unhealthy housing such as leaks, mold, or rodents.
- The expense of running fans, air conditioners, and heaters makes low-income people hesitant to mitigate the temperature of their living spaces. Furthermore, those in high-crime areas may not want to open their windows.
- Families in poverty are disproportionately affected by higher food prices, which are expected to rise in response to climate change.
- Children in poor families, on average, receive fewer years of education compared to children in wealthier families.
- Low-income residents are less likely to have adequate property insurance, so they may bear an even greater burden from property damage due to natural hazards.
- Living in poverty can lead to a lack of personal control over potentially hazardous situations such as increased air pollution or flooding. Impoverished families may be less likely to take proactive measures to prevent harm.

People with Disabilities

Disabled people are subject to health complications that make environmental risks more consequential.

- Disabled people are less likely to have health insurance, compared to the non-disabled population.
- Being confined to a bed raises heat mortality.
- Extreme weather events or natural disasters may result in limited access to medical care. This is particularly consequential for those who already have compromised health.

People younger than 5 or over 65 years

Young children and older adults both are vulnerable segments of the population. Understanding the age profile of a community can help users determine the types of services likely to be needed.

Older adults also are at increased risk of compromised health related to environmental hazards and climate change.

- Age is the single greatest risk factor related to illness or death from extreme heat.
- The elderly are more likely to have pre-existing medical conditions or compromised mobility, which reduces their ability to respond to natural disasters.

- The likelihood of chronic disease increases with age.
- Older adults are more susceptible to air pollution such as ground level ozone, particulate matter, or dust. Increased dust is associated with drought, wildfires, and high wind events.

Educational Attainment- No High School Degree

High school completion is used as a proxy for overall socioeconomic circumstances. Lack of education is strongly correlated with poverty and poor health.

- People without a high school degree are more than twice as likely to live in inadequate housing compared to those with some college education.
- A study in California[1] found the lack of a high school degree was the factor most closely related to social vulnerability to climate change.
- Thirty-eight percent of Americans without a high school degree do not have health insurance, compared to 10 percent with a college degree.
- The rate of diabetes is much greater for those without a high school degree. Incidence of this disease is more than double the rate of those who attended education beyond high school.
- Binge drinking is most severe among those without a high school degree. This demographic group had the highest risk of binge drinking across all measured categories (such as income, race, ethnicity, or disability status).[2]

Climate Exposure

These three categories for the project area represent characteristics of the physical environment that make the population within the area more or less vulnerable to climate change by affecting the likelihood of extreme heat and flood events.

- Area lacking tree canopy-
- Area of impervious surface
- Area in 500-yr floodplain

Climate Exposure	Tract 9400	Clallam County
Area lacking tree canopy	29.2%	29.6%
Area of impervious surface	1.2%	6.9%
Area in 500-yr floodplain	0%	5.8%

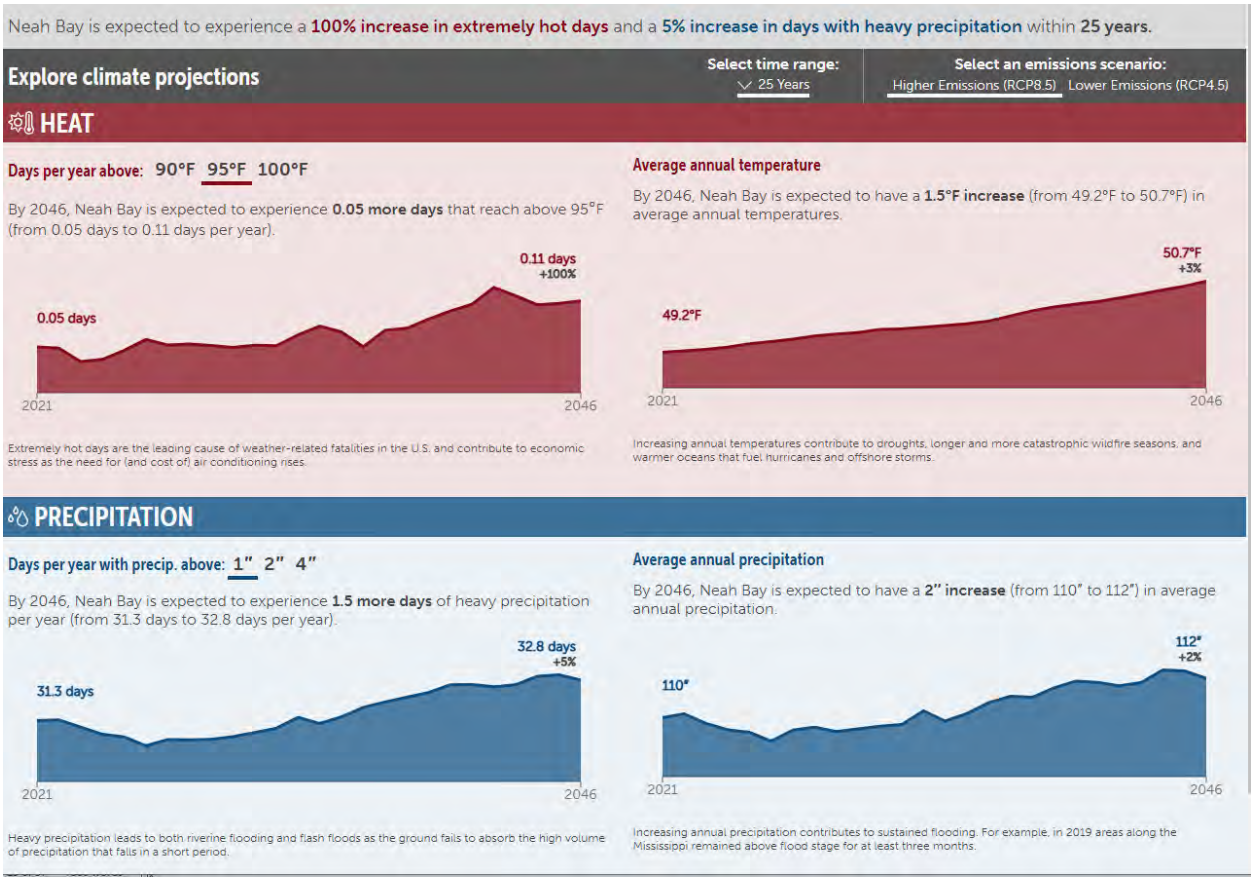
Note that since this is a Pacific Northwest location, the Climate Exposure characteristics only displays three of the four variables as hurricane flood zones, the fourth variable, is not applicable.

[1] Heather Cooley, Eli Moore, Matthew Heberger, and Lucy Allen, Social Vulnerability to Climate Change in California (California Energy Commission Pub. # CEC-500-2012-013, 2012).

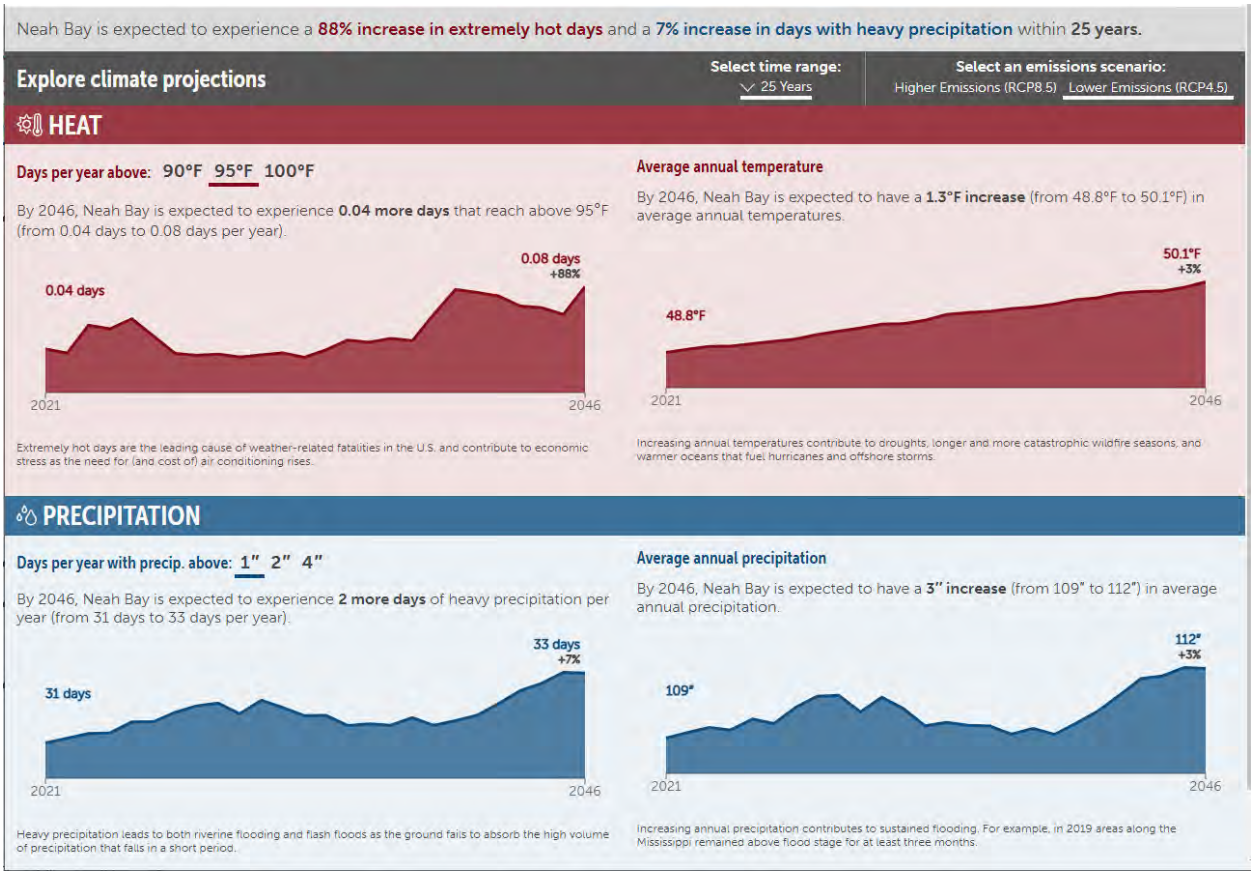
[2] Centers for Disease Control and Prevention, "CDC Health Disparities and Inequalities Report — United States, 2011," Morbidity and Mortality Weekly Report 60 Suppl. (January 14, 2011). http://www.cdc.gov/mmwr/pdf/other/su6001.pdf

Based upon these three characteristics as well as land use, etc. the Neighbors At Risk Model predicts that by 2046 Neah Bay is expected to experience a 100% increase in extremely hot days and an 5% increase in days with heavy precipitation within 25 years.

It is forecasted that Neah Bay and Clallam County will experience 0.05 more days that reach above 95°F than is expected in 2021. Average Annual Temperature by 2046 is anticipated to increase 1.5°F.



If emission can be lowered, then the projection is lowered to an 88% increase in extremely hot days and a 7% increase in days with heavy precipitation within 25 years.



Source: https://headwaterseconomics.org/apps/neighborhoods-at-risk/5300005280/explore/climate

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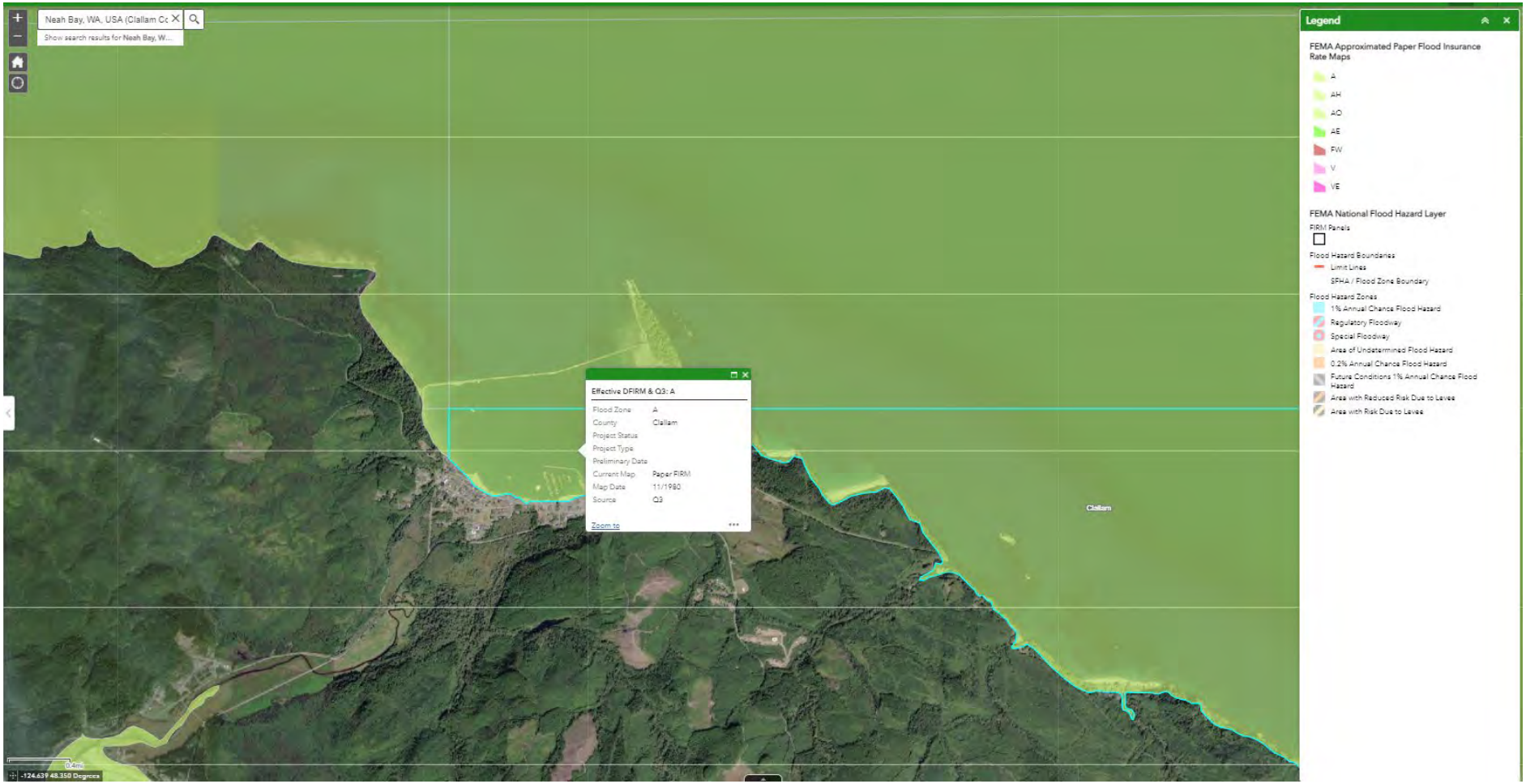
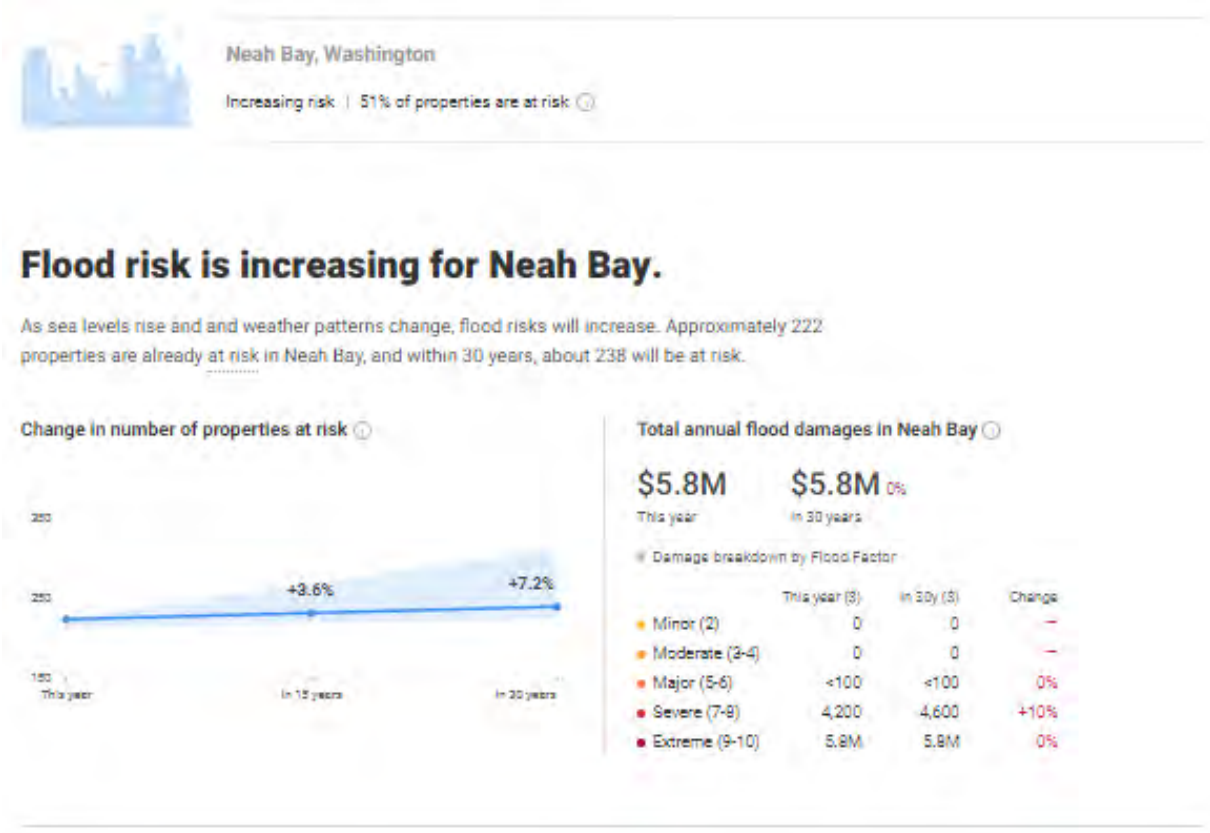
Current FEMA Flood Insurance Rate Map (FIRM) indicate that the shore line in Neah Bay is in or at the edge of the 100 year flood zone and rated as A



Source: https://waecy.maps.arcgis.com/apps/MapSeries/index.html?appid=8451cb0db0c4461182e592eb5a43400a

Further research shows that the flood predictions vary from researcher to researcher. The following shows that flood risk is rising in Neah Bay as expected. Although, the Port may not see water above the freeboard of the Dock as is indicated in the FEMA Flood maps. In either case, the engineers must take sea level and flood risk into consideration in their design of the proposed project.



FLOOD RISK EXPLORER

Flood risks vary by depth and likelihood

Deeper floods from major events, like hurricanes, are less likely to occur, but cause greater damage than more shallow flood events, like heavy rains.

This year | In 15 years | **In 30 years**

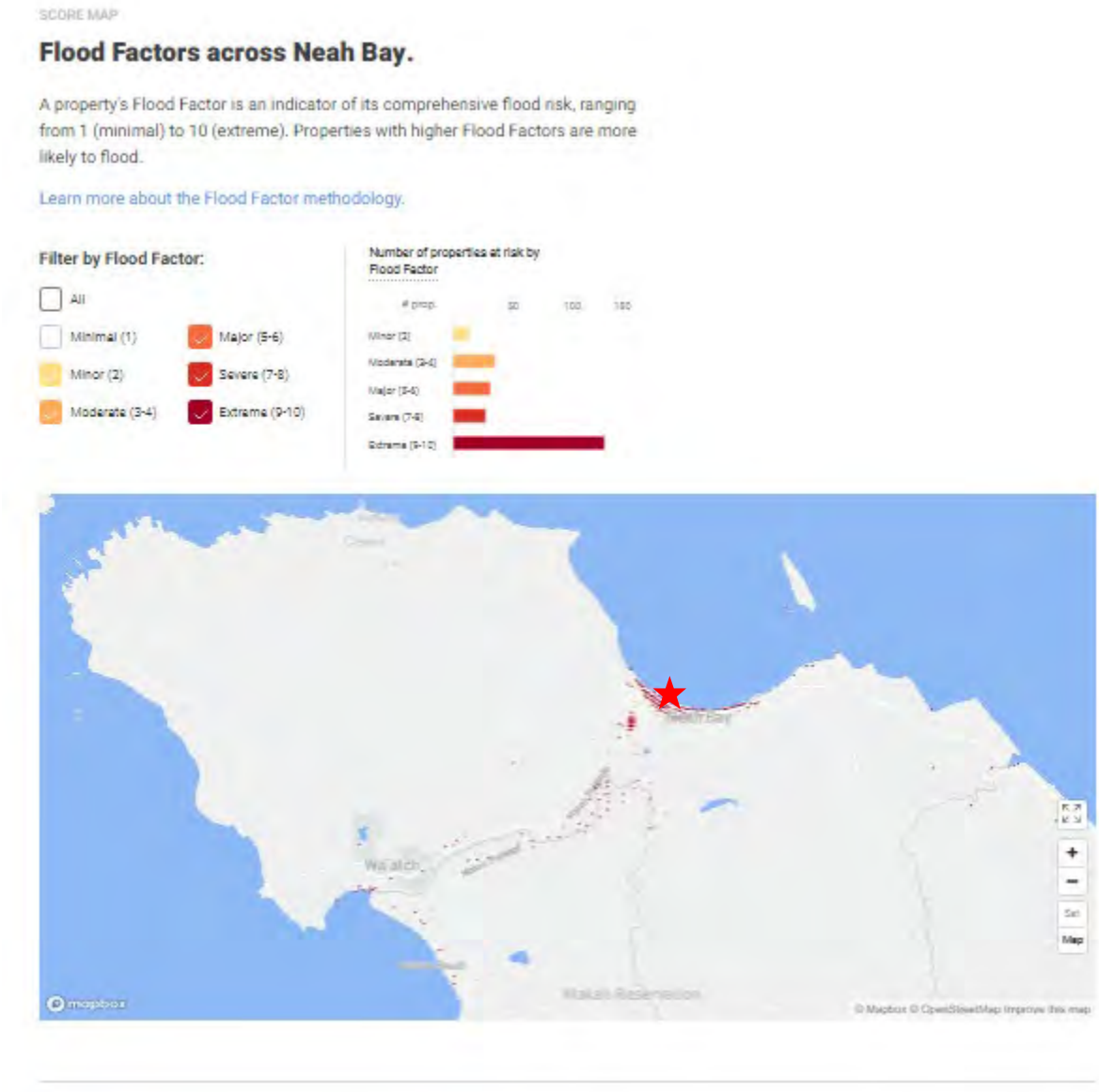
Select a projected flood risk:

More likely to occur →

Flooding likelihood	0.2%	**1%**	5%	20%	50%
Properties impacted	238	**199**	171	154	112

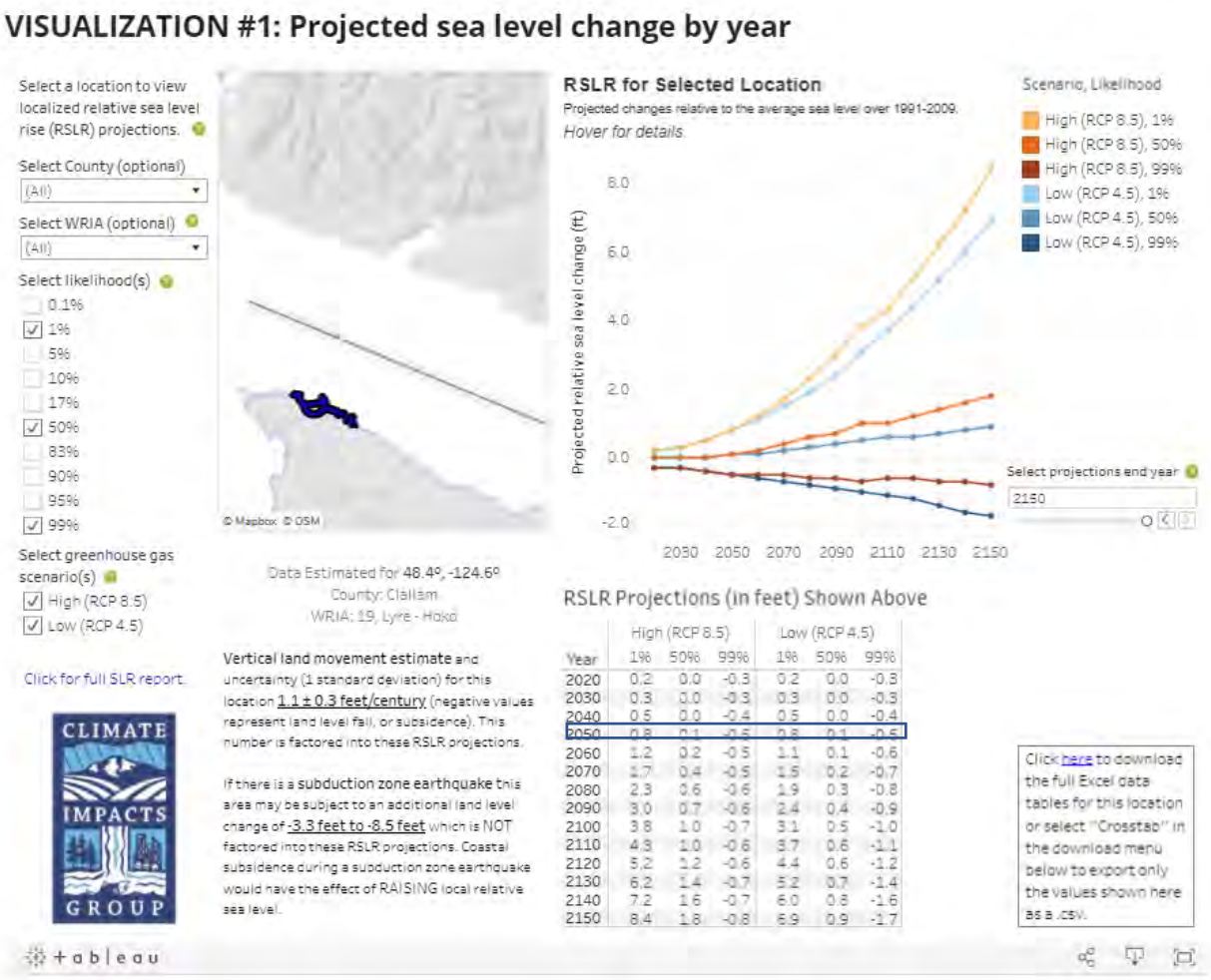
← More properties impacted

Approx. 199 properties have a 1% chance of some amount of water reaching their building in 2051.



Source: https://floodfactor.com/city/neah-bay-washington/5348295_fsid

University of Washington Studies provide additional information on Sea Level Rise Projections.



Source: https://cig.uw.edu/our-work/applied-research/wcrp/sea-level-rise-data-visualization/

The University of Washington Climate Impacts Group evaluated sea level rise using two greenhouse gas scenarios: 1) Low (RCP 4.5) and 2) High (RCP 8.5). This modeling shows that by 2050 there is a 50% chance that sea level will rise 0.1 feet, and a 99% chance it will be -0.5 feet due to the vertical land movement of -3.3 feet per century. In addition, the report Extreme Coastal Water Level in Washington State, Guidelines to Support Sea Level Rise Planning, prepared as part of the Washington Coastal Resilience Project, will be used to determine the appropriate freeboard of the Dock to address future sea level rise.

Washington Environmental Health Disparities Map Tool

Washington Tracking Network (WTN) developed the social vulnerability to hazards topic for Washington State Emergency Management Groups and groups working with vulnerable populations to use during, and for response planning of, emergencies.

All data are presented by five-year estimates at the census tract geography. In order to have census tract data on all 39 counties in Washington, ACS uses the five-year grouping. All measures are from the Census-American Community Survey (ACS).

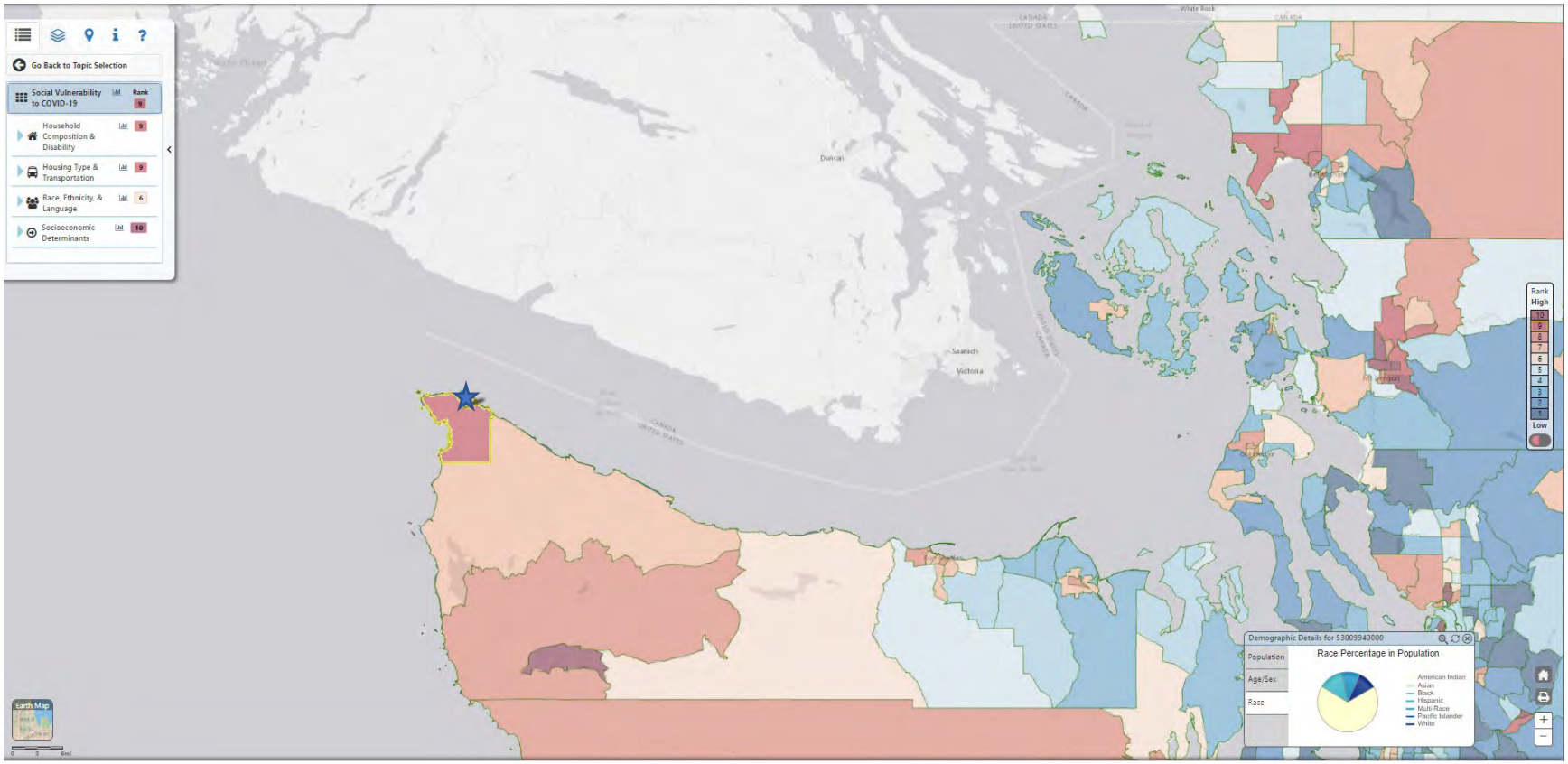
Vulnerability is based on a combination of 11 social and economic conditions such as limited English, crowded housing, or living in poverty.

Relative rankings of communities are a comparison between all communities in Washington State with 10 being the highest vulnerability and 1 being the lowest.

Demographic profile of sex, age, race, and population is shown once a user selects a community.

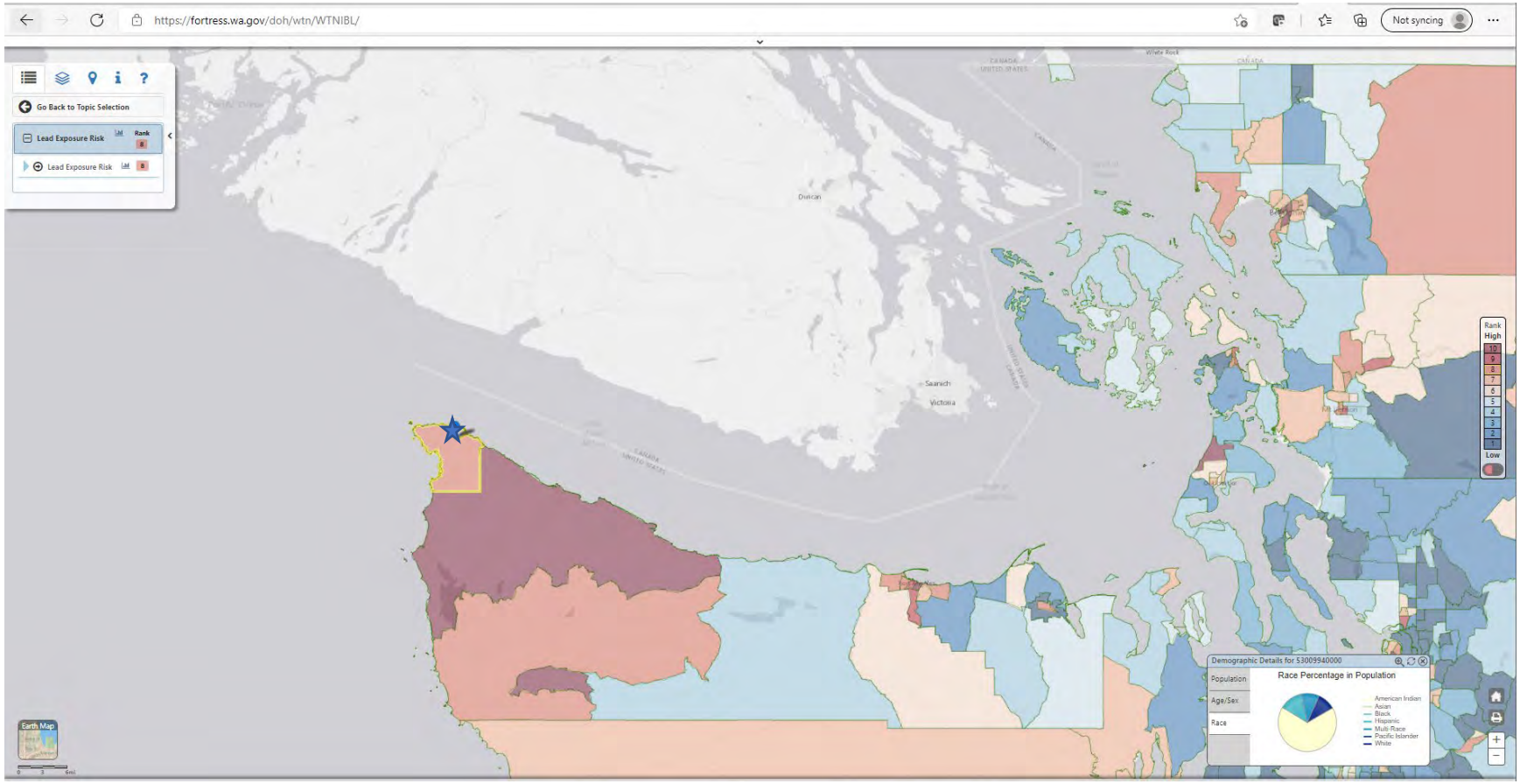
The following maps of Tract 9400 are a few of the vulnerability maps that can be created using the WA Environmental Health Disparity Tool Source: https://www.doh.wa.gov/DataandStatisticalReports/WashingtonTrackingNetworkWTN/InformationbyLocation/WashingtonEnvironmentalHealthDisparitiesMap

Social Vulnerability



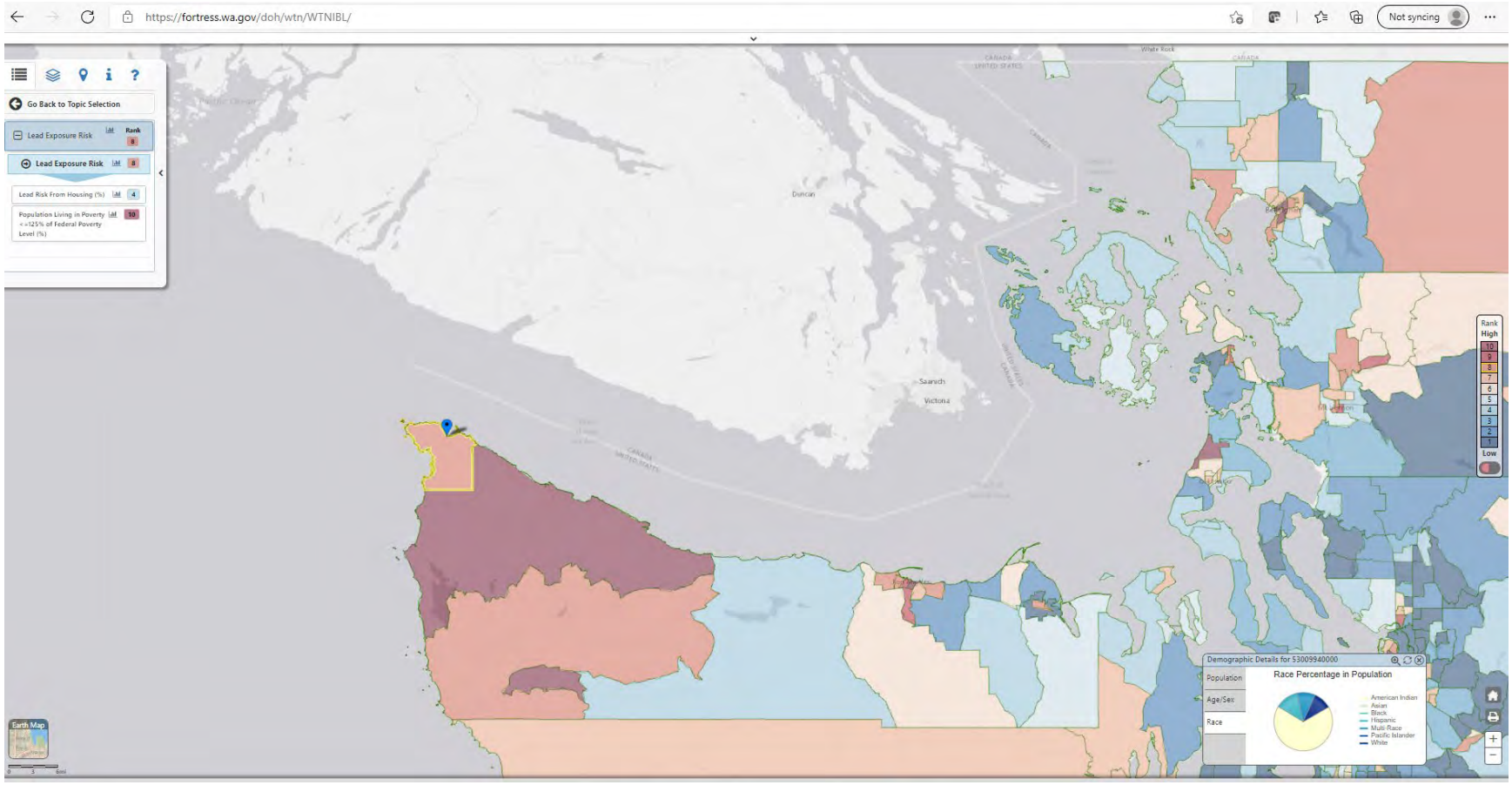
This tract is rated as 9 out of 10 for Social Vulnerability by the Washington Tracking Network.

Lead Exposure



This Census Tract is ranked as 8 out of 10 in Risk category scale for Overall Lead exposure in the area.

Lead Risk from Housing



Based upon the age of the Housing in the area, the tract is rated at a Higher Risk (8 out of 10). The residential areas in the tracts near the Project area have older homes which tend to have lead paint and possibly lead pipes as indicated by the higher rating for lead in those areas of Clallam County.

3. Specific Project Elements that support our Environmental Justice (EJ) populations

The Project does not harm nor disproportionately effect the Environmental Justice members of the community in a negative way. The Project will improve the response time to ships in distress by adding vessels to the location, which in turn will add jobs to the area. These jobs will be direct jobs, indirect and induced jobs. Although, direct jobs may be union or non-unionized jobs depending on the employer of the ship's crew, these jobs are good family wage jobs which provides family stability, which in turn generates free cash flow within the family budget to purchase goods and services within the local community and region.

To help protect the local economy from effects of Climate Change, adding this additional response capability will help reduce oil spills in the Straits. In addition, designing the Dock improvements to meet sea level change and other climate change related outcomes such as increased rain, GHG, etc. a priority to the Tribe. This can be addressed by designing modern storm water systems to catch and process the projected increase in rain, implementing Port policies that encourage the reduction of GHG through institutionalizing the use of low-energy / low emissions equipment such as electrified equipment in the port area.

Since this Project is a Dock expansion, pedestrian / bicycle transportation are not part of this project and have not been designed into the dock expansion project at this time.

4. Community Outreach and Public Engagement

Community Outreach

The Tribe and their partners began working with and providing ongoing outreach to agencies, tribes, businesses, and other community members in the early planning phases of the Project.

This Project's goal is to increase response time, reduce emissions of the response vessels and reduce oil spills in the waters within 100 miles of the Makah Reservation. With this in mind, the Project sponsor has engaged the community and the project stakeholders in the pre-design activities to ensure that the Project meets the Community's needs and expectations.

5. Conclusions and Next Steps

The Project area is located in census Tract 9400 which is identified by the U.S. Department of Transportation as an Area of Persistent Poverty. Throughout project development, the Port is committed to ensure that the Tribal members and their neighbors are treated fairly and are involved in a meaningful way during the development, implementation of the Project and enforcement of environmental laws, regulations and policies.

As can be seem from the results of the various EJ mapping tools and data collected, it is important to understand the Project and the potential impacts it may have on Reservation and its residents. Once those impacts are identified, then specific outreach can be designed to inform the affected populations and develop mitigation options as appropriate.

According to EJSCREEN, residential neighborhoods within a one-mile buffer of the project area include approximately 969 residents; (91%) are people of color, with a 0% of the residents speak English less than well. This neighborhood has a Demographic Index of 73 which equates to a 98 percentile in the State and a 92 percentile in the US.

The Public Engagement has informed the planning and design process and will enable the project to address past inequities relating to access and barriers to opportunity, as well as address any issue with the design as related to predicted effects of climate change.

The Project sponsors and partners will continue to support environmental justice populations and outreach through every stage of the planning, construction and maintenance processes. The Tribe will continue to build on the input received to date from the community that will help shape the design and implementation of this Project. Efforts are being made to avoid, minimize and mitigate any elements that are identifies as possibly disproportionately high or adverse to human health and the environment, including social and economic effects, on minority populations and low-income populations. The Project stakeholders are committed to: 1) Ensure the full and fair participation by all potentially affected communities in the decision-making process. 2) Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations by utilizing tools such as EJSCREEN to inform decisions that minimize the Project's impacts on EJ populations

Using the information gained through public outreach and the EJ Analysis, the Project sponsor made every effort to design and intends to implement the project so that it does not negatively impact the adjacent neighborhoods. This effort will ensure that the Project components addresses racial equity and reduces barriers to opportunity as the Tribe continues to work to bring more family wage jobs to the area.

Attachments:

Neighborhoods at Risk Tool Summary Reports

- Clallam County, Makah Indian Reservation and Neah Bay (Census Tract 9400)

EJSCREEN Reports

The following EJSCREEN reports were run for the Neah Bay Dock with a 1 mile buffer

- Standard Reports
  - EJSCREEN Report
  - ACS 2018 Report
  - Census 2010 sf Report

EJSCREEN Report (Version 2020)

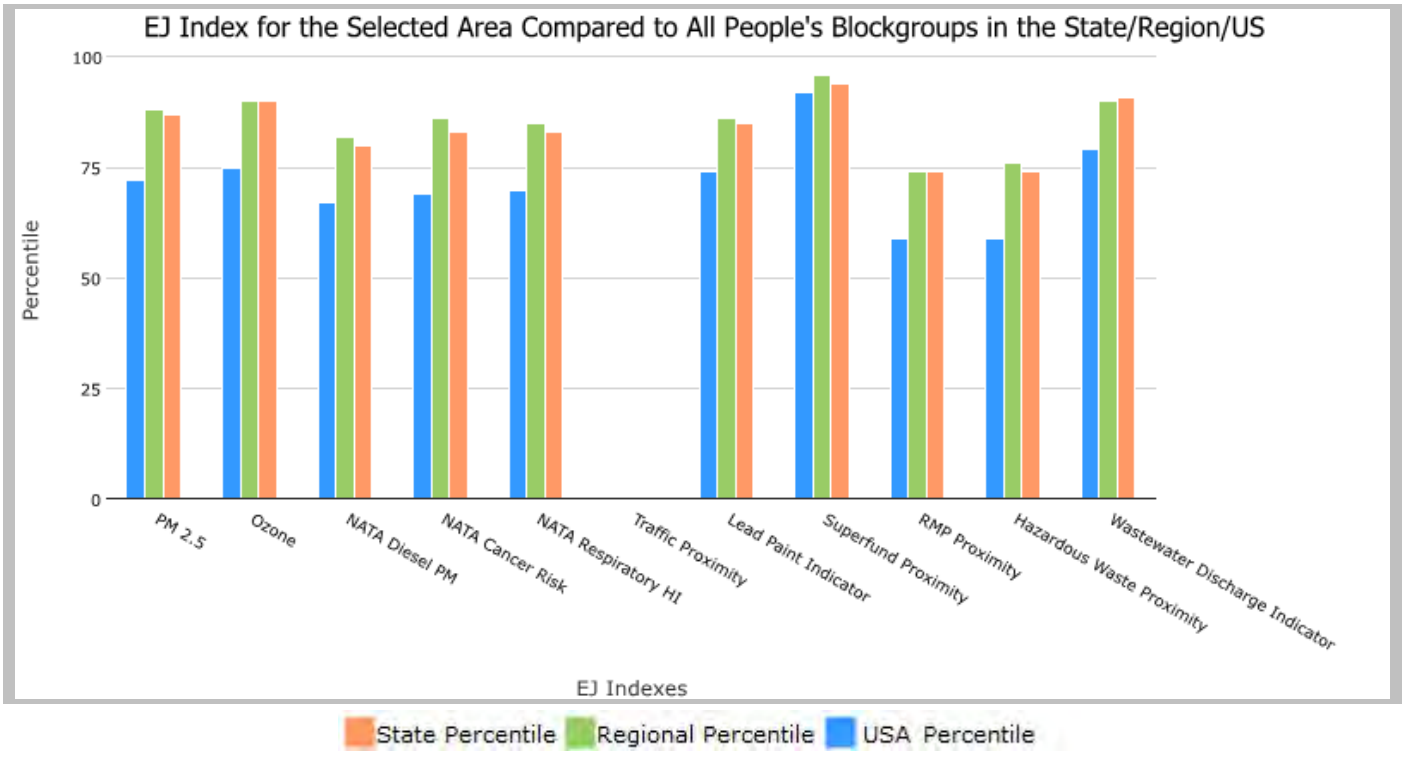
1 mile Ring Centered at 48.366612,-124.614068, WASHINGTON, EPA Region 10

Approximate Population: 969

Input Area (sq. miles): 3.14

Makah Tribal Commercial Dock (The study area contains 1 blockgroup(s) with zero population.)

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	87	88	72
EJ Index for Ozone	90	90	75
EJ Index for NATA* Diesel PM	80	82	67
EJ Index for NATA* Air Toxics Cancer Risk	83	86	69
EJ Index for NATA* Respiratory Hazard Index	83	85	70
EJ Index for Traffic Proximity and Volume	N/A	N/A	N/A
EJ Index for Lead Paint Indicator	85	86	74
EJ Index for Superfund Proximity	94	96	92
EJ Index for RMP Proximity	74	74	59
EJ Index for Hazardous Waste Proximity	74	76	59
EJ Index for Wastewater Discharge Indicator	91	90	79



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

EJSCREEN Report (Version 2020)

1 mile Ring Centered at 48.366612,-124.614068, WASHINGTON, EPA Region 10

Approximate Population: 969

Input Area (sq. miles): 3.14

Makah Tribal Commercial Dock (The study area contains 1 blockgroup(s) with zero population.)

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2020)

1 mile Ring Centered at 48.366612,-124.614068, WASHINGTON, EPA Region 10

Approximate Population: 969

Input Area (sq. miles): 3.14

Makah Tribal Commercial Dock (The study area contains 1 blockgroup(s) with zero population.)

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m^3)	5.05	8.21	0	8.52	0	8.55	0
Ozone (ppb)	30.8	37.3	4	39.1	3	42.9	3
NATA* Diesel PM (µg/m^3)	0.113	0.585	10	0.481	<50th	0.478	<50th
NATA* Cancer Risk (lifetime risk per million)	14	34	0	31	<50th	32	<50th
NATA* Respiratory Hazard Index	0.2	0.5	0	0.46	<50th	0.44	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	N/A	610	N/A	510	N/A	750	N/A
Lead Paint Indicator (% Pre-1960 Housing)	0.068	0.23	35	0.22	35	0.28	32
Superfund Proximity (site count/km distance)	0.26	0.19	82	0.13	89	0.13	89
RMP Proximity (facility count/km distance)	0.0073	0.63	0	0.65	0	0.74	0
Hazardous Waste Proximity (facility count/km distance)	0.012	1.9	0	1.5	1	5	0
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	2E-05	0.0091	74	3.1	66	9.4	47
Demographic Indicators							
Demographic Index	73%	29%	98	29%	98	36%	92
People of Color Population	91%	31%	99	28%	99	39%	91
Low Income Population	55%	27%	91	30%	90	33%	84
Linguistically Isolated Population	0%	4%	43	3%	47	4%	45
Population With Less Than High School Education	15%	9%	81	9%	80	13%	68
Population Under 5 years of age	10%	6%	84	6%	84	6%	84
Population over 64 years of age	12%	15%	44	15%	42	15%	41

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN ACS Summary Report

Location: User-specified point center at 48.366612, -124.614068
Ring (buffer): 1-miles radius
Description: Makah Tribal Commercial Dock

Summary of ACS Estimates	2014 - 2018
Population	969
Population Density (per sq. mile)	460
People of Color Population	884
% People of Color Population	91%
Households	313
Housing Units	350
Housing Units Built Before 1950	17
Per Capita Income	11,299
Land Area (sq. miles) (Source: SF1)	2.10
% Land Area	64%
Water Area (sq. miles) (Source: SF1)	1.17
% Water Area	36%

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	969	100%	126
Population Reporting One Race	869	90%	192
White	101	10%	32
Black	0	0%	12
American Indian	768	79%	112
Asian	0	0%	12
Pacific Islander	0	0%	12
Some Other Race	0	0%	12
Population Reporting Two or More Races	100	10%	56
Total Hispanic Population	50	5%	37
Total Non-Hispanic Population	919		
White Alone	85	9%	26
Black Alone	0	0%	12
American Indian Alone	734	76%	110
Non-Hispanic Asian Alone	0	0%	12
Pacific Islander Alone	0	0%	12
Other Race Alone	0	0%	12
Two or More Races Alone	100	10%	56
Population by Sex			
Male	501	52%	81
Female	468	48%	74
Population by Age			
Age 0-4	94	10%	30
Age 0-17	316	33%	57
Age 18+	653	67%	84
Age 65+	117	12%	35

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2014 - 2018 .

EJSCREEN ACS Summary Report

Location: User-specified point center at 48.366612, -124.614068
Ring (buffer): 1-miles radius
Description: Makah Tribal Commercial Dock

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	558	100%	72
Less than 9th Grade	25	4%	20
9th - 12th Grade, No Diploma	57	10%	28
High School Graduate	180	32%	43
Some College, No Degree	231	41%	56
Associate Degree	27	5%	17
Bachelor's Degree or more	66	12%	27
Population Age 5+ Years by Ability to Speak English			
Total	874	100%	114
Speak only English	842	96%	102
Non-English at Home[1+2+3+4]	32	4%	26
[1]Speak English "very well"	32	4%	25
[2]Speak English "well"	0	0%	13
[3]Speak English "not well"	0	0%	12
[4]Speak English "not at all"	0	0%	12
[3+4]Speak English "less than well"	0	0%	12
[2+3+4]Speak English "less than very well"	0	0%	13
Linguistically Isolated Households*			
Total	0	0%	12
Speak Spanish	0	0%	12
Speak Other Indo-European Languages	0	0%	12
Speak Asian-Pacific Island Languages	0	0%	12
Speak Other Languages	0	0%	12
Households by Household Income			
Household Income Base	313	100%	42
< $15,000	58	19%	21
$15,000 - $25,000	42	14%	19
$25,000 - $50,000	88	28%	29
$50,000 - $75,000	49	16%	22
$75,000 +	75	24%	27
Occupied Housing Units by Tenure			
Total	313	100%	42
Owner Occupied	209	67%	44
Renter Occupied	103	33%	26
Employed Population Age 16+ Years			
Total	676	100%	88
In Labor Force	414	61%	65
Civilian Unemployed in Labor Force	88	13%	35
Not In Labor Force	261	39%	55

Data Note: Datail may not sum to totals due to rounding. Hispanic population can be of anyrace.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS)
*Households in which no one 14 and over speaks English "very well" or speaks English only.

EJSCREEN ACS Summary Report

Location: User-specified point center at 48.366612, -124.614068
Ring (buffer): 1-miles radius
Description: Makah Tribal Commercial Dock

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	877	100%	155
English	831	95%	151
Spanish	5	1%	13
French	0	0%	12
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	2	0%	6
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	0	0%	12
Chinese	0	0%	12
Japanese	N/A	N/A	N/A
Korean	0	0%	12
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	0	0%	12
Other Asian	0	0%	12
Tagalog	0	0%	12
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	0	0%	12
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	39	4%	34
Total Non-English	46	5%	216

Data Note: Detail may not sum to totals due to rounding. Hispanic popultion can be of any race.
N/A meansnot available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2014 - 2018.
*Population by Language Spoken at Home is available at the census tract summary level and up.

EJSCREEN Census 2010 Summary Report

Location: User-specified point center at 48.366612, -124.614068
Ring (buffer): 1-miles radius
Description: Makah Tribal Commercial Dock

Summary	Census 2010
Population	816
Population Density (per sq. mile)	388
People of Color Population	717
% People of Color Population	88%
Households	294
Housing Units	336
Land Area (sq. miles)	2.10
% Land Area	64%
Water Area (sq. miles)	1.17
% Water Area	36%

Population by Race	Number	Percent
Total	816	-------
Population Reporting One Race	736	90%
White	101	12%
Black	2	0%
American Indian	625	77%
Asian	1	0%
Pacific Islander	0	0%
Some Other Race	6	1%
Population Reporting Two or More Races	80	10%
Total Hispanic Population	55	7%
Total Non-Hispanic Population	761	93%
White Alone	99	12%
Black Alone	2	0%
American Indian Alone	591	72%
Non-Hispanic Asian Alone	1	0%
Pacific Islander Alone	0	0%
Other Race Alone	0	0%
Two or More Races Alone	67	8%

Population by Sex	Number	Percent
Male	435	53%
Female	381	47%

Population by Age	Number	Percent
Age 0-4	67	8%
Age 0-17	238	29%
Age 18+	578	71%
Age 65+	93	11%

Households by Tenure	Number	Percent
Total	294	
Owner Occupied	206	70%
Renter Occupied	88	30%

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1.

HEADWATERS ECONOMICS

Neighborhoods at Risk

Selected Tracts

Selected Location(s):

Neah Bay, WA

Comparison Location:

U.S.

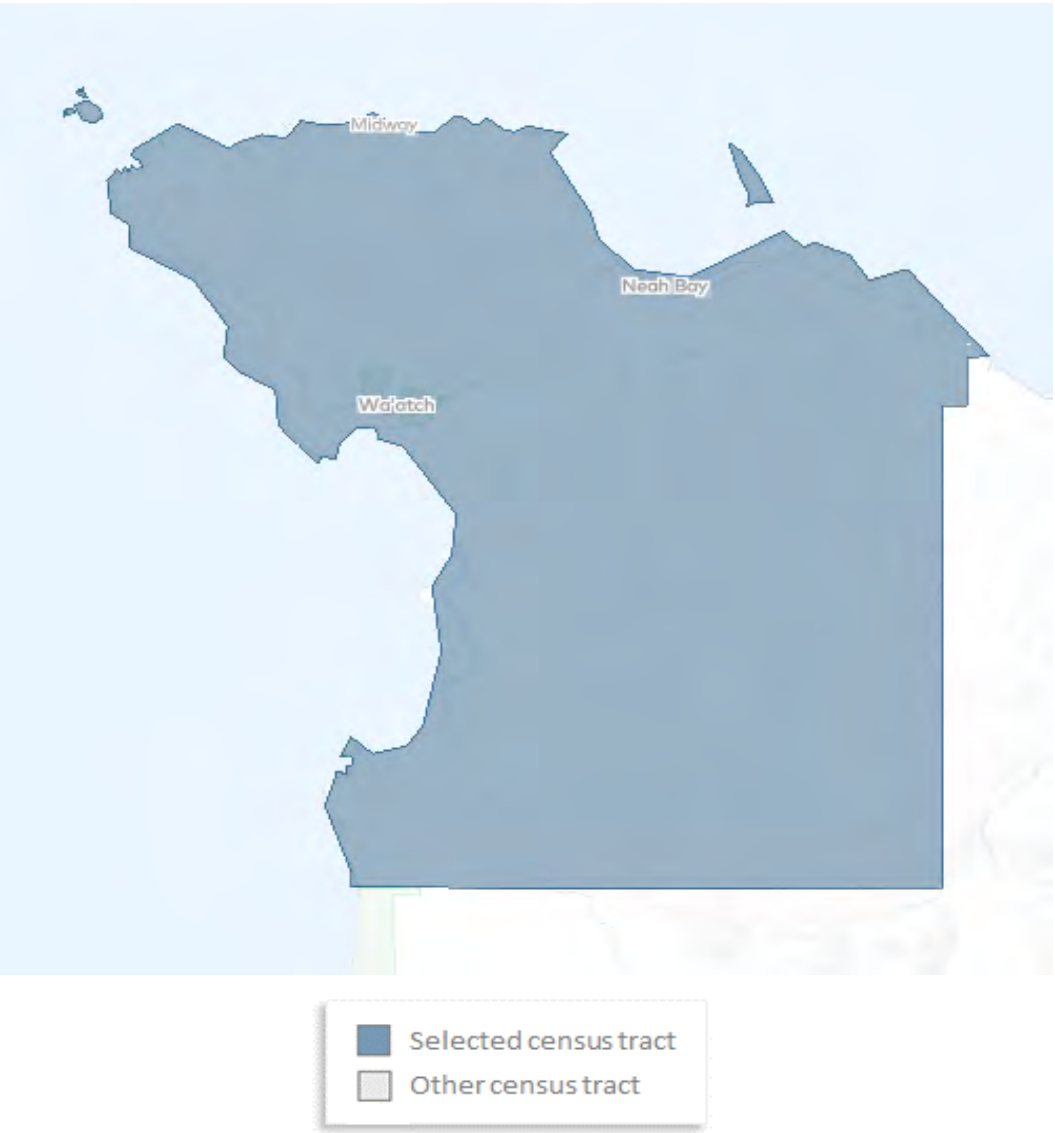
Produced by

Headwaters Economics'

Economic Profile System (EPS)

June 17, 2021

Area of Interest



Headwaters Economics

Headwaters Economics is an independent, nonprofit research group that works to improve community development and land management decisions: **headwaterseconomics.org**.

Neighborhoods at Risk

Neighborhoods at Risk is a free, web-based tool that provides cities with neighborhood-level information about at-risk populations and their vulnerability to the impacts of climate change.

Free and easy-to-use: Quickly create maps and reports of socioeconomic and climate data.

Available nation-wide: Explore socioeconomic and climate data for any community or county in the nation.

Updated continuously: Make use of the latest available, published government data.

headwaterseconomics.org/apps/neighborhoods-at-risk

Neighborhoods at Risk

Selected Tracts

Table of Contents

Summary: This front page shows a quick comparison for many of the indicators covered in this report.

Click the links above for quick access to report sections.

Neighborhoods at Risk

Selected Tracts

Summary

Indicators 2019*	Selected Tracts	U.S.	Percent Difference Selected Tracts vs. U.S.
People under 5 years	9.6%	6.1%	45%
People over 65 years	11.2%	15.6%	-33%
People of color (including Hispanic)	93.9%	39.3%	82%
People who don't speak English well	**0.0%**	4.3%	-200%
People without a high school degree	16.6%	12.0%	32%
Families in poverty	18.9%	9.5%	66%
Housing units that are rentals	29.1%	36.0%	-21%
Households with no car	9.4%	8.6%	9%
People with disabilities	14.9%	12.6%	17%
People without health insurance	21.1%	8.8%	82%

High Reliability: Data with coefficients of variation (CVs) < 12% are in black to show that the sampling error is small.
Medium Reliability: Data with CVs between 12 & 40% are in orange. These values should be interpreted with caution.
Low Reliability: Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

* ACS 5-year estimates: 2019 represents average characteristics from 2015-2019.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, headwaterseconomics.org/par.

Neighborhoods at Risk

Selected Tracts

Summary

What do we measure on this page?

This page shows a quick comparison for many of the indicators covered in this report to highlight how the selected tracts differ from the United States as a whole.

The percent, or relative, difference between the selected tracts and the U.S. is calculated by dividing the difference between the values by the arithmetic mean of the values.

Why is it important?

These indicators are all measures of a population more likely to experience adverse outcomes from disruptions due to extreme weather events, climate change, pollution, or limited health care access.

Particularly high percentages for any of these indicators may highlight populations that are at higher risk and in need of outreach from disaster planning, public health, or social service organizations.

CHANGES IN BOUNDARIES: Data describing change over time can be misleading when geographic boundaries have changed.
The Census provides documentation about changes in boundaries at this site: www.census.gov/geo/reference/boundary-changes.html

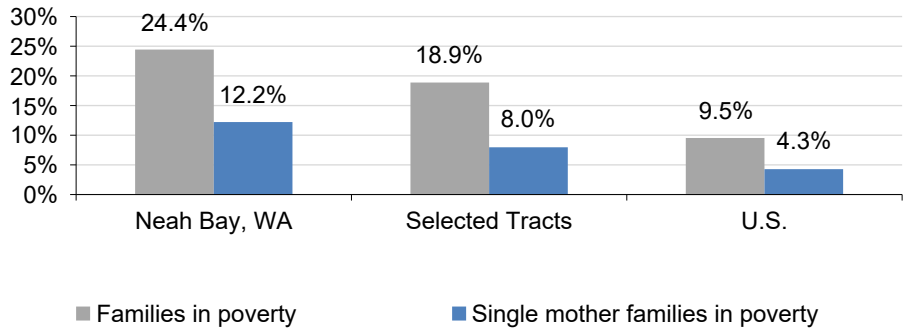
Families in Poverty

	Neah Bay, WA	Selected Tracts	U.S.
Total families for whom poverty status is determined, 2019*	221	339	79,114,031
Families in poverty	54	64	7,541,196
Families with children in poverty	39	45	5,581,063
Single mother families in poverty	27	27	3,385,236
Percent of Total, 2019*			
Families in poverty	24.4%	18.9%	9.5%
Families with children in poverty	17.6%	13.3%	7.1%
Single mother families in poverty	12.2%	8.0%	4.3%
Change in Percentage Points, 2010*-2019*			
For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.			
Families in poverty	9.5	-4.2	-0.5
Families with children in poverty	6.4	-6.7	-0.8
Single mother families in poverty	1.0	-12.0	-0.5

High Reliability: Data with coefficients of variation (CVs) < 12% are in black to indicate that the sampling error is relatively small.
Medium Reliability: Data with CVs between 12 & 40% are in orange to indicate that the values should be interpreted with caution.
Low Reliability: Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

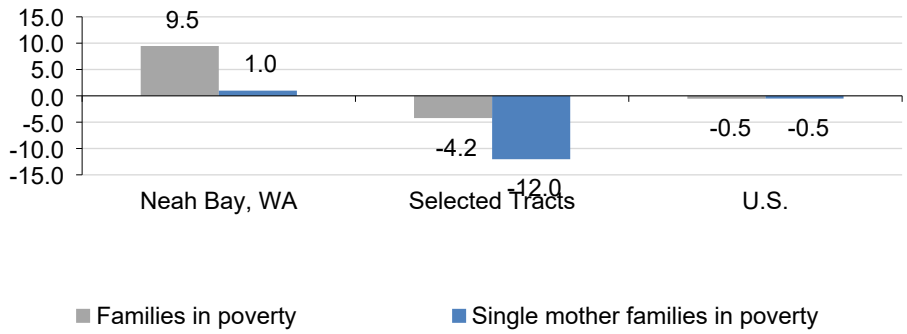
Families in Poverty, Percent of Total, 2019*

- Neah Bay, WA has the largest share of single mother families in poverty (12.2%).



Families in Poverty, Change in Percentage Points, 2010*-2019*

- The largest change in the share of single mother familes in poverty occurred in Selected Tracts, which went from 20.0% to 8.0%.



* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, headwaterseconomics.org/apps/neighborhoods-at-risk.

Families in Poverty

What do we measure on this page?

This page describes the number of families living below the poverty line, and separately reports families with children and single mother families with children.

The Census defines a family as a group of two or more people who reside together and who are related by birth, marriage, or adoption.

The Census Bureau uses a set of income thresholds that vary by family size and composition to define who is poor. If the total income for a family or an unrelated individual falls below the relevant poverty threshold, then the family or an unrelated individual is classified as being "below the poverty level."

Why is it important?

Families in poverty may lack the resources to meet their basic needs. Their challenges cross the spectrum of food, housing, health care, education, vulnerability to natural disasters, and emotional stress.

To save money, families with low incomes often have to make lifestyle compromises such as unhealthy foods, less food, substandard housing, or delayed medical care.[1]

Lack of financial resources makes families in poverty more vulnerable to natural disasters. This is due to inadequate housing, social exclusion, and an inability to re-locate or evacuate.[11, 2]

Inadequate shelter exposes occupants to increased risk from storms, floods, fire, and temperature extremes.[2] Households with low incomes are more likely to have unhealthy housing such as leaks, mold, or rodents.[5]

The expense of running fans, air conditioners, and heaters makes low-income people hesitant to mitigate the temperature of their living spaces.[1, 2] Furthermore, those in high-crime areas may not want to open their windows.[2]

Families in poverty are disproportionately affected by higher food prices, which are expected to rise in response to climate change.[1]

Children in poor families, on average, receive fewer years of education compared to children in wealthier families.[12]

Low-income residents are less likely to have adequate property insurance, so they may bear an even greater burden from property damage due to natural hazards.[2]

Living in poverty can lead to a lack of personal control over potentially hazardous situations such as increased air pollution or flooding. Impoverished families may be less likely to take proactive measures to prevent harm.[11]

Superscript numbers refer to references provided at the end of the report.

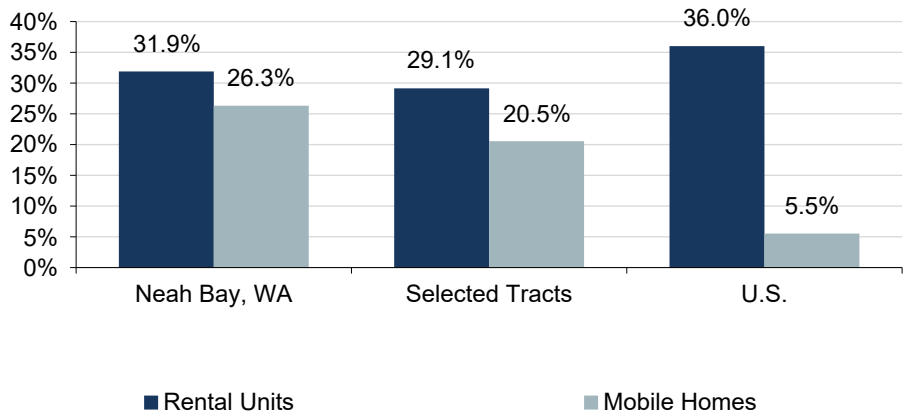
Rental & Mobile Homes

	Neah Bay, WA	Selected Tracts	U.S.
Total Occupied Housing Units, 2019*	323	477	120,756,048
Rental Units	103	139	43,481,667
Mobile Homes	85	98	6,681,368
Percent of Total, 2019*			
Rental Units	31.9%	29.1%	36.0%
Mobile Homes	26.3%	20.5%	5.5%
Change in Percentage Points, 2010*-2019*			
For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.			
Rental Units	11.5	-6.3	4.4
Mobile Homes	14.2	7.5	-0.3
Median Home Value (MHV), 2019* (2014 $s)	$84,300	$88,752	$220,110
Change in MHV, 2010*-2019* (2014 $s)	**-$46,151**	**-$24,963**	-$3,521

High Reliability: Data with coefficients of variation (CVs) < 12% are in black to indicate that the sampling error is relatively small.
Medium Reliability: Data with CVs between 12 & 40% are in orange to indicate that the values should be interpreted with caution.
Low Reliability: Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

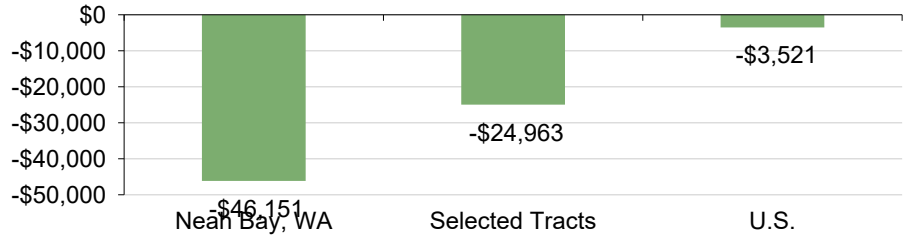
Rental Units and Mobile Homes as a Percent of Total Housing Units, 2019*

- The U.S. has the largest share of rental units (36.0%).
- Neah Bay, WA has the largest share of mobile homes (26.3%).



Change in Median Home Value, 2010*-2019* (2014 $s)

- The largest change in median home value occurred in Neah Bay, WA, which went from $130,451 to $84,300.



* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, headwaterseconomics.org/apps/neighborhoods-at-risk.

Rental & Mobile Homes

What do we measure on this page?

This page reports the numbers of housing units that are either rental units or mobile homes, and provides median home value.

Why is it important?

In general, home ownership contributes to well-being and stability. However, each type of living situation has its own risks and health concerns.

Home ownership is often associated with mental health benefits such as high self-esteem, a sense of control over one's living situation, and financial stability.[13]

The financial stress associated with losing one's home is heightened by people's emotional attachment to their home and their neighborhood.[14]

Homeowners typically pay a greater overall housing cost, but renters pay a larger proportion of their income. The high proportion of household costs for renters has further increased over the past 25 years.[15]

Rental homes are generally not maintained as well as those that are owned. Substandard housing conditions like dampness, mold, and exposure to toxic substances or allergens are linked with compromised health outcomes.[13]

Areas with high-density residences, such as urban areas, tend to have a greater proportion of renters.[1] High density living conditions and large, multistory apartment buildings exacerbate heat-related health stresses.[4]

Mobile homes are more likely to be damaged in extreme weather, which poses a risk for both the structure and the occupants.[4,11]

People of Color and Hispanics

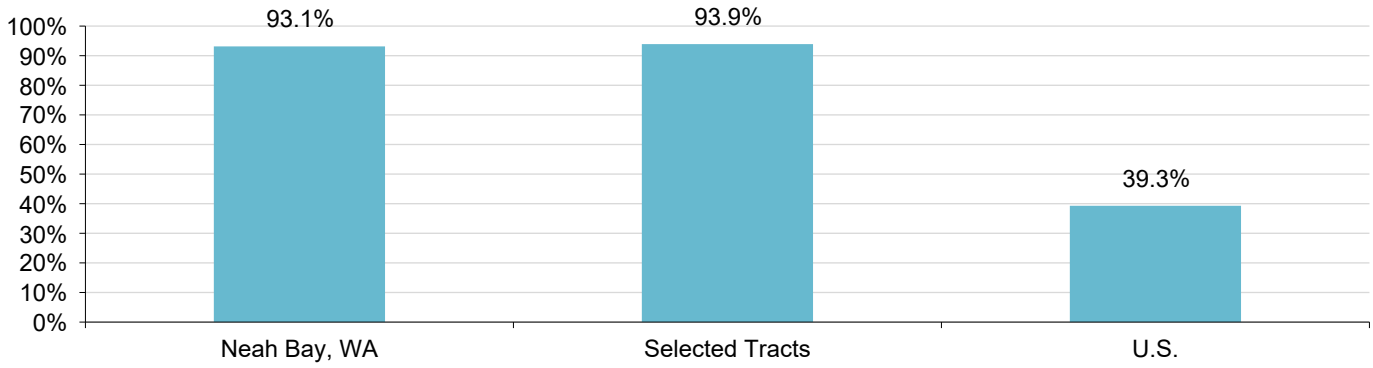
	Neah Bay, WA	Selected Tracts	U.S.
Total Population, 2019*	1,049	1,560	324,697,795
White alone	˙106	˙134	235,377,662
Black or African American alone	¨0	¨0	41,234,642
American Indian alone	861	1,334	2,750,143
Asian alone	¨0	¨0	17,924,209
Native Hawaii & Other Pacific Is. alone	¨0	¨0	599,868
Some other race alone	¨0	¨4	16,047,369
Two or more races	˙82	˙88	10,763,902
Hispanic or Latino (of any race)	72	81	58,479,370
Not Hispanic or Latino	977	1,479	266,218,425
Not Hispanic & White alone	72	95	197,100,373
People of Color and Hispanics	977	1,465	127,597,422

Percent of Total, 2019*

White alone	˙10.1%	˙8.6%	72.5%
Black or African American alone	¨0.0%	¨0.0%	12.7%
American Indian alone	82.1%	85.5%	0.8%
Asian alone	¨0.0%	¨0.0%	5.5%
Native Hawaii & Other Pacific Is. alone	¨0.0%	¨0.0%	0.2%
Some other race alone	¨0.0%	¨0.3%	4.9%
Two or more races	˙7.8%	˙5.6%	3.3%
Hispanic or Latino (of any race)	¨6.9%	¨5.2%	18.0%
Not Hispanic or Latino	93.1%	94.8%	82.0%
Not Hispanic & White alone	˙6.9%	˙6.1%	60.7%
People of Color and Hispanics	˙93.1%	˙93.9%	39.3%

High Reliability: Data with coefficients of variation (CVs) < 12% are in black to indicate that the sampling error is relatively small.
Medium Reliability: Data with CVs between 12 & 40% are in orange to indicate that the values should be interpreted with caution.
Low Reliability: Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

People of Color and Hispanics, Percent of Total, 2019*



* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, headwaterseconomics.org/apps/neighborhoods-at-risk.

People of Color and Hispanics

What do we measure on this page?

Race is self-identified by Census respondents who choose the race or races with which they most closely identify. Included in "Other Races" are "Asian," "Native Hawaiian or Other Pacific Islander," and respondents providing write-in entries such as multiracial, mixed, or interracial.

Ethnicity has two categories: Hispanic or Latino, and Non-Hispanic or Latino. The federal government considers race and Hispanic origin to be two separate and distinct concepts. Hispanics and Latinos may be of any race.

"People of Color and Hispanics" is calculated by subtracting those who identify as both "Not Hispanic or Latino" and "White alone" from “Total Population.”

Why is it important?

Race and ethnicity are strongly correlated with disparities in health, exposure to environmental pollution, and vulnerability to natural hazards.[1]

Research consistently has found race-based environmental inequities, including the tendency for minority populations to live closer to noxious facilities and Superfund sites, and to be exposed to pollution at greater rates than whites.[7, 1]

Many health outcomes are closely related to the local environment. Minority communities often have less access to parks and nutritious food, and are more likely to live in substandard housing.[1]

Minorities tend to be particularly vulnerable to disasters and extreme heat events. This is due to language skills, housing patterns, quality of housing, community isolation, and cultural barriers.[8, 4]

Blacks and Hispanics, two segments of the population that are currently experiencing poorer health outcomes, are an increasing percentage of the US population.[1,9]

Research has identified measurable disparities in health outcomes between various minority and ethnic communities.

Across races, the rates of preventable hospitalizations are highest among black and Hispanic populations. Preventable hospital visits often reflect inadequate access to primary care. These types of hospital visits are also costly and inefficient for the health care system.[5]

Relative to other ethnicities and races, Hispanics and blacks are less likely to have health insurance, but rates of uninsured are dropping for both groups.[10]

Compared to other races, blacks have higher rates of infant mortality, homicide, heart disease, stroke, and heat-related deaths.[5]

Hispanics have higher rates of diabetes and asthma.[5]

American Indians have a distinct pattern of health effects different from blacks and Hispanics. Native populations are less likely to have electricity than the general population.[2] They have high rates of infant mortality, suicide and homicide, and nearly twice the rate of motor vehicle deaths than the U.S. average.[5]

CHANGES IN BOUNDARIES: Data describing change over time can be misleading when geographic boundaries have changed.
The Census provides documentation about changes in boundaries at this site: www.census.gov/geo/reference/boundary-changes.html

Language Proficiency

	Neah Bay, WA	Selected Tracts	U.S.
Population 5 years or older, 2019*	934	1,410	304,930,125
Speak English "not well"***	**0**	**0**	13,193,113
Speak English "not well"***, percent	**0.0%**	**0.0%**	4.3%
Speak English "not well"***, change in percentage points**, 2010*-2019*	-1.8	-3.0	-0.4

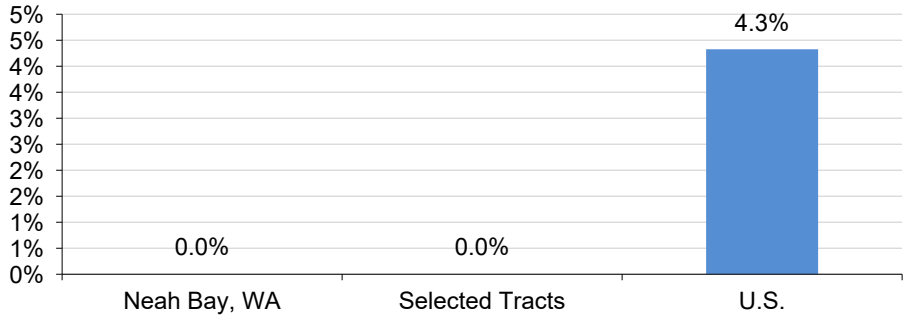
**For example, if the value is 3% in 2010* and 4.5% in 2015*, the reported change in percentage points is 1.5.

*** Includes "not well" and "not well at all".

High Reliability: Data with coefficients of variation (CVs) < 12% are in black to indicate that the sampling error is relatively small.
Medium Reliability: Data with CVs between 12 & 40% are in orange to indicate that the values should be interpreted with caution.
Low Reliability: Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

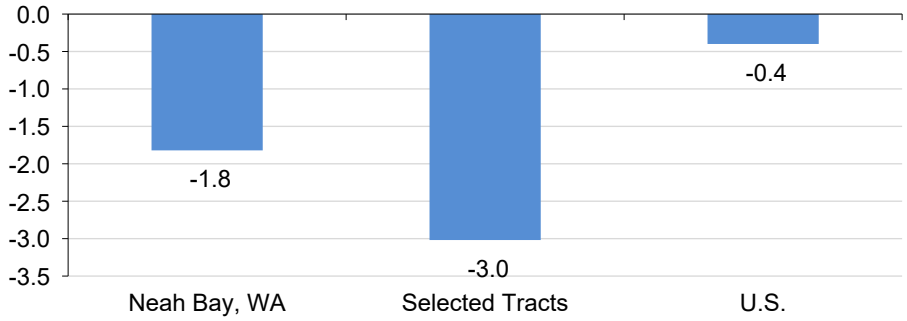
People Who Speak English "Not Well", Percent of Total, 2019*

- The U.S. has the largest share of people who speak English "not well" (4.3%).



People Who Speak English "Not Well", Change in Percentage Points, 2010*-2019*

- The largest change in the share of people who speak English "not well" occurred in Selected Tracts, which went from 3.0% to 0.0%.



* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, headwaterseconomics.org/apps/neighborhoods-at-risk.

Language Proficiency

What do we measure on this page?

This page reports the results of self-rated English-speaking ability questions in the American Community Survey.

Why is it important?

Many aspects of life in the US assume basic fluency in English. Thus, people with limited language skills are at risk for inadequate access to health care, social services, or emergency services.

A person's ability to take action during an emergency is compromised by language and cultural barriers.[4]

Poor English skills can make it harder to follow directions or interact with agencies.[4]

Lack of language skills can also instill lack of trust for government agencies.

In many industries, poor English skills can make it harder for people to get higher wage jobs.[1]

Language barriers make it harder to obtain medical or social services; and make it more difficult to interact with caregivers.[1]

Limited English skills may result in isolation from other segments of the US population, and social isolation is a health risk.[1] However some minority communities can be very tightly-knit and not isolated, so this risk factor cannot be generalized across all populations.

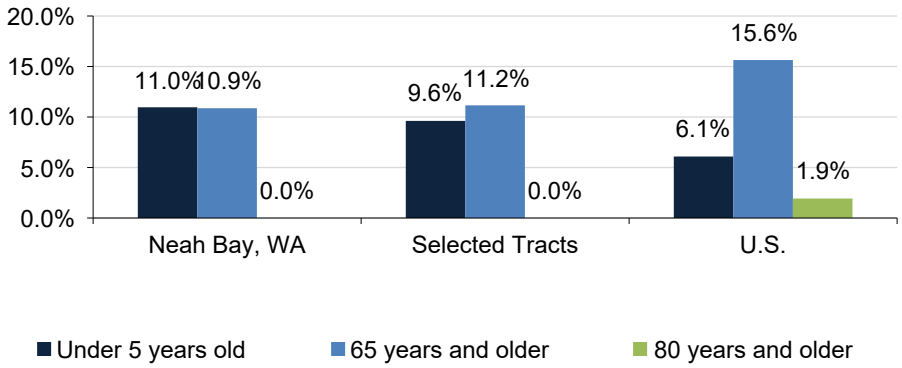
Young & Elderly Populations

	Neah Bay, WA	Selected Tracts	U.S.
Total Population, 2019*	1,049	1,560	324,697,795
Under 5 years old	115	150	19,767,670
65 years and older	114	174	50,783,796
80 years and older	0	0	6,269,017
Percent of Total, 2019*			
Under 5 years old	11.0%	9.6%	6.1%
65 years and older	10.9%	11.2%	15.6%
80 years and older	**0.0%**	**0.0%**	1.9%
Change in Percentage Points, 2010*-2019*			
For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.			
Under 5 years old	5.5	-0.3	-0.5
65 years and older	-3.9	1.4	2.9
80 years and older	**0.0**	**0.0**	0.2

High Reliability: Data with coefficients of variation (CVs) < 12% are in black to indicate that the sampling error is relatively small.
Medium Reliability: Data with CVs between 12 & 40% are in orange to indicate that the values should be interpreted with caution.
Low Reliability: Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

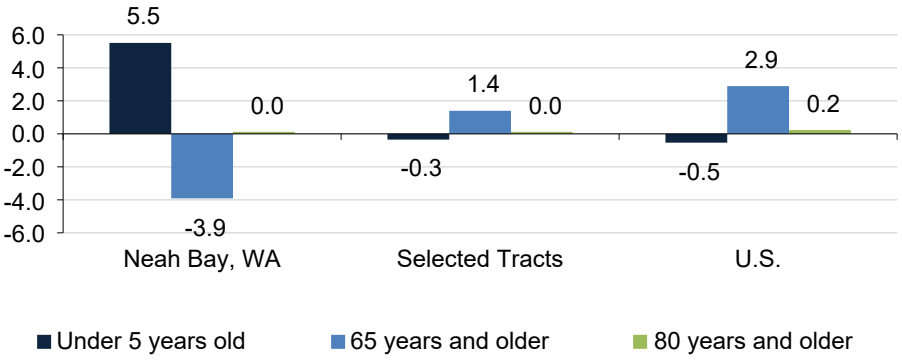
Population by Group, Percent of Total, 2019*

- Neah Bay, WA has the largest share of people under 5 years old (11.0%).
- The U.S. has the largest share of people 80 years and older (1.9%).



Population by Group, Change in Percentage Points, 2010*-2019*

- The largest change in the share of people under 5 years old occurred in Neah Bay, WA, which went from 5.5% to 6.1%.
- The largest change in the share of people 80 years and older occurred in the U.S., which went from 1.7% to 1.9%.



* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, headwaterseconomics.org/apps/neighborhoods-at-risk.

Young & Elderly Populations

What do we measure on this page?

This page describes the number of people by specific age category.

The "Under 5 years old" category includes individuals younger than 5 years old. The "65 years and older" category includes individuals age 65 and older and the "80 years and older" category includes individuals age 80 and older. The "80 years and older" category is a subset of the "65 years and older" category.

Why is it important?

Young children and older adults both are vulnerable segments of the population. Understanding the age profile of a community can help users determine the types of services likely to be needed.[1]

Children's developing bodies makes them particularly sensitive to health problems and environmental stresses.[1]

Childhood lays the foundations for lifelong health. Poor health during childhood increases the likelihood of problems throughout adulthood.[2]

Because so many factors of a child's life are determined during pregnancy, infancy, and early childhood, children in poverty are an especially vulnerable population. Lack of adequate care through the early phases of life is more prevalent in poor populations.[2]

Children spend more time outside and have a faster breathing rate than adults, so they are more at risk for respiratory problems related to ground level ozone, airborne particulates, wildfire smoke, and allergens. Allergens are associated with climate change due to changing plant communities and longer pollen seasons.[3, 4]

Because their immune systems are not fully developed, children are more sensitive to infectious diseases. Natural disasters can breach public water supplies, compromise sanitation, and spread illness. Children are more vulnerable to these hazards compared to adults.[3]

Older adults also are at increased risk of compromised health related to environmental hazards and climate change.

Age is the single greatest risk factor related to illness or death from extreme heat.[4]

The elderly are more likely to have pre-existing medical conditions or compromised mobility, which reduces their ability to respond to natural disasters.[3]

The likelihood of chronic disease increases with age.[1, 5]

Older adults are more susceptible to air pollution such as ground level ozone, particulate matter, or dust. Increased dust is associated with drought, wildfires, and high wind events.[3, 6]

Educational Attainment

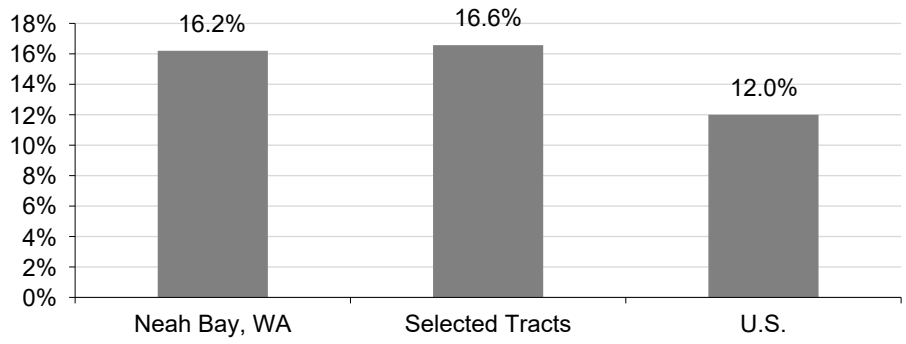
	Neah Bay, WA	Selected Tracts	U.S.
Total Population 25 years or older, 2019*	574	869	220,622,076
No high school degree	93	144	26,472,261
No high school degree, percent	16.2%	16.6%	12.0%
No high school degree, change in percentage points**, 2010*-2019*	-3.1	-3.2	-3.0

**For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.

High Reliability: Data with coefficients of variation (CVs) < 12% are in black to indicate that the sampling error is relatively small.
Medium Reliability: Data with CVs between 12 & 40% are in orange to indicate that the values should be interpreted with caution.
Low Reliability: Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

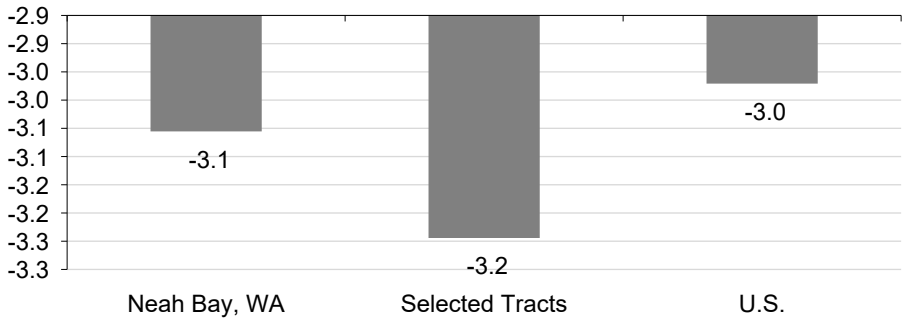
Population with Less than High School Education, Percent of Total, 2019*

- Selected Tracts has the largest share of people with less than a high school education (16.6%).



Population with Less than High School Education, Change in Percentage Points, 2010*-2019*

- The largest change in the share of people with less than a high school degree occurred in Selected Tracts, which went from 19.8% to 16.6%.



* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, headwaterseconomics.org/apps/neighborhoods-at-risk.

Educational Attainment

What do we measure on this page?

This page describes levels of educational attainment, which refers to the highest degree or level of schooling completed by people 25 years and over.

Why is it important?

High school completion is used as a proxy for overall socioeconomic circumstances. Lack of education is strongly correlated with poverty and poor health.

People without a high school degree are more than twice as likely to live in inadequate housing compared to those with some college education.[5]

A study in California found the lack of a high school degree was the factor most closely related to social vulnerability to climate change.[4]

Thirty-eight percent of Americans without a high school degree do not have health insurance, compared to 10 percent with a college degree.[7]

The rate of diabetes is much greater for those without a high school degree. Incidence of this disease is more than double the rate of those who attended education beyond high school.[5]

Binge drinking is most severe among those without a high school degree. This demographic group had the highest risk of binge drinking across all measured categories (such as income, race, ethnicity, or disability status).[5]

Neighborhoods at Risk

Selected Tracts

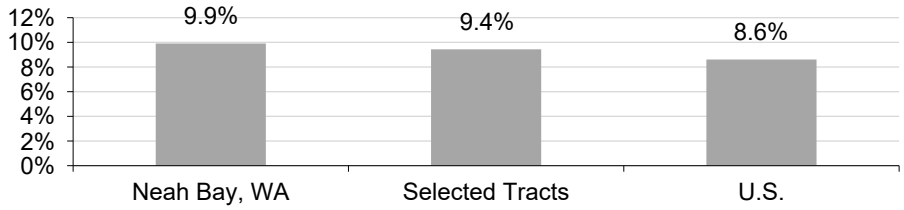
Potentially Vulnerable Households

	Neah Bay, WA	Selected Tracts	U.S.
Total Occupied Households, 2019*	323	477	120,756,048
People > 65 years & living alone	**16**	20	4,527,381
Single female households	78	109	15,016,964
with children < 18 years	67	76	9,427,068
Households with no car	32	45	10,395,713
Percent of Total, 2019*			
People > 65 years & living alone	**5.0%**	4.2%	3.7%
Single female households	24.1%	22.9%	12.4%
with children < 18 years	20.7%	15.9%	7.8%
Households with no car	9.9%	9.4%	8.6%
Change in Percentage Points, 2010*-2019*			
For example, if the value is 3% in 2010* and 4.5% in 2019*, the reported change in percentage points is 1.5.			
People > 65 years & living alone	5.0	4.2	-0.8
Single female households	-1.6	-11.2	-0.2
with children < 18 years	-1.7	-12.1	0.0
Households with no car	-0.3	2.1	-77.3

High Reliability: Data with coefficients of variation (CVs) < 12% are in black to indicate that the sampling error is relatively small.
Medium Reliability: Data with CVs between 12 & 40% are in orange to indicate that the values should be interpreted with caution.
Low Reliability: Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

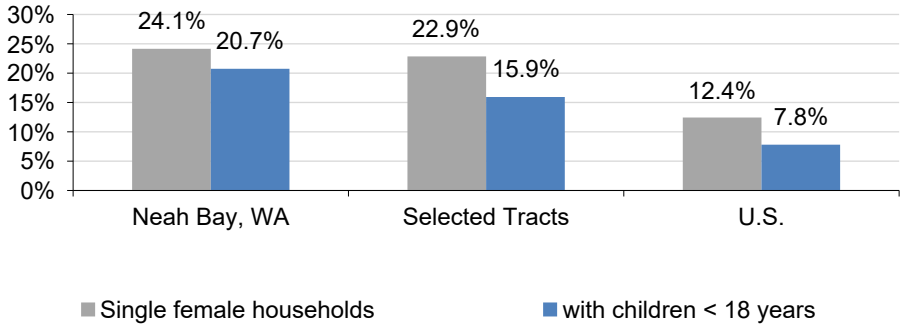
People > 65 Yrs and Living Alone as a Percent of Total Households, 2019*

- Neah Bay, WA has the largest share of households with people over 65 living alone (5.0%).



Single Female Households as a Percent of Total Households, 2019*

- Neah Bay, WA has the largest share of single female households (24.1%).
- Neah Bay, WA has the largest share of single female households with children (20.7%).



* ACS 5-year estimates used. 2019 represents average characteristics from 2015-2019; 2010 represents 2006-2010.

CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, headwaterseconomics.org/apps/neighborhoods-at-risk.

Potentially Vulnerable Households

What do we measure on this page?

This page describes household types that are associated with increased hardship, including the elderly living alone, single female households, single female households with children, and households without a car.

Why is it important?

Older adults are more likely to have compromised health and are less able to overcome disease. Living alone exacerbates health risks, and many health outcomes are worsened by social isolation.

Social isolation is strongly linked to poor health such as premature death, smaller chances of survival after a heart attack, depression, and greater levels of disability from chronic diseases.[2]

People 65 and older are particularly vulnerable to heat-related illness,[4] which is exacerbated by social isolation.

Households headed by women face challenges related to income, education, and food security. These factors make it more difficult to respond to health, environmental, or climate risks.

Female-headed households are more likely to be living in poverty. This is most prevalent among black, Hispanic, and Native American households.[16]

In 2014, 35 percent of female-headed households were food insecure, compared to 14 percent of all households.[17]
Single mothers may be burdened by providing basic needs such as food and housing, which can make the urgency of other risks seem less important.[18]

Single-mother families are disproportionally exposed to hazardous levels of air pollution.[4]

Single mothers tend to be less educated and less affluent than the general population, which puts them at greater risk during natural disasters.[18]

Access to a car is linked with higher wages and more financial stability, and can help families relocate or evacuate in the event of emergencies.

People who own cars are more likely to be employed, work longer hours, and earn more than those who do not.[19]

Access to a car has measurable benefits for those receiving public assistance. Welfare recipients with access to a car were more likely to work more hours and get higher-paying jobs, and had a greater chance of leaving welfare.[20]

During emergencies, natural disasters, and extreme weather events, people who do not have a car are less likely to evacuate or have access to emergency response centers.[4]

During heat waves, people without a car are less able to go to community cooling centers or cooler areas.[4]

Pedestrian fatalities are more than twice as likely in poor urban neighborhoods than in wealthier parts of cities.[21]

CHANGES IN BOUNDARIES: Data describing change over time can be misleading when geographic boundaries have changed.
The Census provides documentation about changes in boundaries at this site: www.census.gov/geo/reference/boundary-changes.html

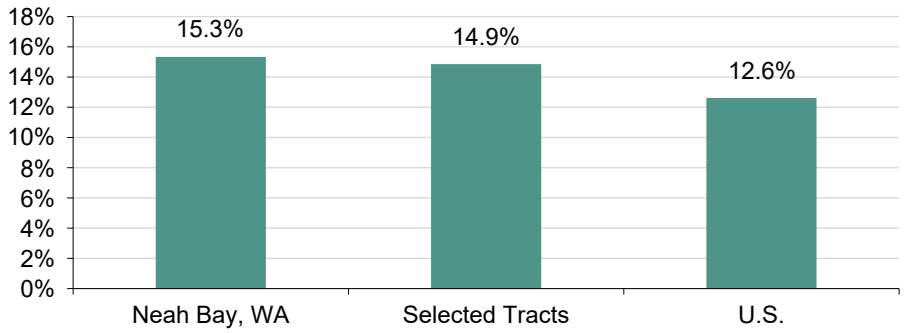
Potentially Vulnerable People

	Neah Bay, WA	Selected Tracts	U.S.
Total civilian noninstitutionalized population, 2019*	1,024	1,535	319,706,872
People w/ disabilities	157	228	40,335,099
People w/o health insurance	200	324	28,248,613
Percent of Total, 2019*			
Percent of people w/ disabilities	15.3%	14.9%	12.6%
Percent of people w/o health insurance	19.5%	21.1%	8.8%

High Reliability: Data with coefficients of variation (CVs) < 12% are in black to indicate that the sampling error is relatively small.
Medium Reliability: Data with CVs between 12 & 40% are in orange to indicate that the values should be interpreted with caution.
Low Reliability: Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

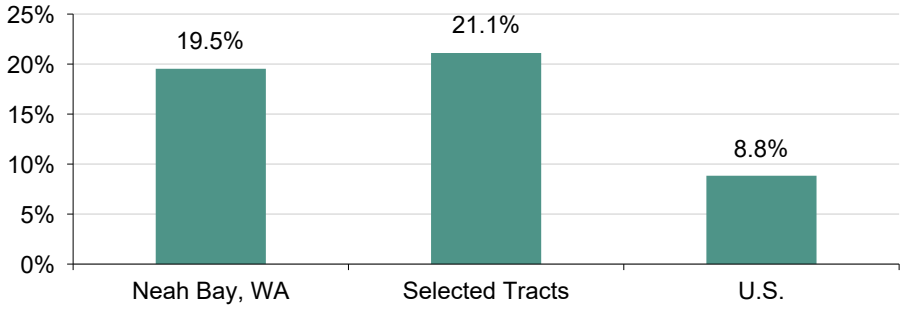
People with Disabilities, Percent of Total, 2019*

- Neah Bay, WA has the largest share of the noninstitutionalized population that is disabled (15.3%).



People without Health Insurance, Percent of Total, 2019*

- Selected Tracts has the largest share of the noninstitutionalized population without health insurance (21.1%).



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CITATION: U.S. Department of Commerce. 2020. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Neighborhoods at Risk, headwaterseconomics.org/apps/neighborhoods-at-risk.

Potentially Vulnerable People

What do we measure on this page?

This page describes groups of people that are associated with increased hardship, including people with disabilities and people without health insurance.

Why is it important?

Disabled people are subject to health complications that make environmental risks more consequential.

Disabled people are less likely to have health insurance, compared to the non-disabled population.[5]

Being confined to a bed raises heat mortality.[2]

Extreme weather events or natural disasters may result in limited access to medical care. This is particularly consequential for those who already have compromised health.[3]

People who lack health insurance are disadvantaged by several different mechanisms. They may avoid or delay diagnoses, treatment, and/or medication and thus may increase their odds of poor health. They do not have a regular place of care, and they are not benefitting from the standard of care that is afforded many Americans.

Households living in poverty are more likely to be uninsured. More than one quarter of uninsured households live in poverty.[10]

People with lower educational attainment are more likely to be uninsured.[5]

People without health insurance are less likely to have a regular source of care, and less likely to receive preventive, primary, and specialty care services.[32,33] This risk is particularly evident among racial and ethnic minorities.[5]

People without health insurance are more likely to use the hospital emergency department for standard health care needs.[5]

About 25% of uninsured adults report having either delayed or gone without care in the past year because of costs.[23]

Uninsured people are more likely to skip medications due to the costs, and some providers are less likely to prescribe medications to uninsured patients.[24]

People who do not have health insurance suffer greater health consequences from air pollution compared to those with insurance.[4]

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