



TSLEIL-WAUTUTH

THE PEOPLE OF THE INLET

CLIMATE CHANGE AND COMMUNITY HEALTH ACTION PLAN – SUMMARY REPORT



August 2022

ACKNOWLEDGEMENTS

This Tsleil-Waututh Nation (TWN) Climate Change and Community Health Action Plan has been co-developed by TWN Public Works and Health and Wellness staff with valued input from community members, and with technical and engagement consulting support.

We express sincere gratitude to TWN community members that completed the climate change and community health survey and/or who shared their knowledge during workshop sessions.

We appreciate the guidance and support of the TWN Core Project Team (staff), Project Steering Committee, other TWN staff, and the Climate Change Advisory Committee. TWN staff include:

Andrea Aleck, *Director Health and Wellness*

Sarah Dal Santo, *Climate Action and Sustainability Manager (Public Works, Project Manager)*

Sibylle Tinsel, *Health Manager (Health and Wellness)*

Anila Dina, *Primary Care Manager (Health and Wellness)*

Dr. Alyson McCabe, *TWN Family Doctor (Health and Wellness)*

Andrew Van Eden, *Community Safety Manager*

Cora den Hartigh, *Environmental Specialist (Treaty, Lands and Resources)*

Michelle George, *Cultural Advisor (Treaty, Lands and Resources)*

Melissa Fahey, *Director Public Works*

Deanna George, *Lands Officer (Public Works), TWN Councillor*

William George Thomas, *Cultural Program Manager (Community Development)*

Nini Samra, *TWN Emergency Coordinator*

TWN Climate Change Advisory Committee members who worked on the project include:

Carleen Thomas

Curtis Thomas, *TWN Councillor*

Deidre Thomas

Heidi Martin

Kevin O'Neill, *TWN Councillor*

Lori Campbell

Sara Hyland

We acknowledge and thank personnel from the First Nations Health Authority (Environmental Public Health Services), and Vancouver Coastal Health Authority (Healthy Environments, Health Protection and Public Health teams) for sharing insights and perspectives on climate change and health related methodologies and reporting.

Finally, we acknowledge and appreciate the leadership and support of the Project Consulting Team:

Sarah Gillett, *Senior Planner, Kerr Wood Leidal (Consultant Project Manager)*

Patrick Lilley, *Senior Biologist, Kerr Wood Leidal*

Sydney Edwards, *Junior Planner, Kerr Wood Leidal*

Careene Andrews, *Senior Consultant – Indigenous Health, Kahui Tautoko Consulting Ltd.*

We are grateful to Tsleil-Waututh artist **Olivia George**, who created many of the illustrations and icons featured throughout the report

This Project was made possible through funding from the First Nations Health Authority and with in-kind support by Tsleil-Waututh Nation.



First Nations Health Authority



Tsleil-Waututh Nation
PEOPLE OF THE INLET



Tsleil-Waututh Nation Admin & Health Centre, S. Dal Santo

OVERVIEW

This report identifies a set of proactive actions, working within existing plans and programs, to build Tsleil-Waututh Nation (TWN) community health and resilience to climate change.

Our world is changing at a rapid rate, and the effects of climate change is being felt globally. Sensitivity to these effects is more pronounced among communities already affected by pre-existing vulnerabilities. Low income, Indigenous, coastal and remote communities are the most likely to be disproportionately impacted by climate change. Assessing where our communities are vulnerable, where their strengths lie, and how resilience can be fostered will help protect the future of our communities. The link between climate change and health is a topic of growing interest and TWN is one of many Indigenous communities demonstrating leadership in planning to reduce the impacts of climate change on community health.

Tsleil-Waututh (“səlilwətaᐱ”, meaning “People of the Inlet”) health, well-being, diet, cultural identity, and stewardship laws are closely tied to the health of the səlilwət (Burrard Inlet). səlilwətaᐱ have thrived for thousands of years living, governing, protecting, and stewarding the lands and waters of the səlilwət (Burrard Inlet), and TWN will continue to protect its waters from the damaging effects of climate change. The core principle of this report, therefore, is “When our lands and waters are healthy, our people are healthy”. Since time immemorial səlilwətaᐱ people have shown continued strength against adversity – and in response to climate change TWN will continue to protect and strengthen the health of its community.

This report builds upon existing TWN plans and programs, including the Comprehensive Community Plan (2015), TWN Community Health Survey (2016), Community Health and Wellness Plan (2017), the Land Use Plan (2019),

Climate Change Vulnerability Assessment (2019), and the Climate Change Resilience (Action) Plan (2021).

Iterative rounds of engagement with TWN community members and staff occurred from September 2021 through to June 2022. This engagement helped identify the values that TWN hold important as well as identify recommendations for action.

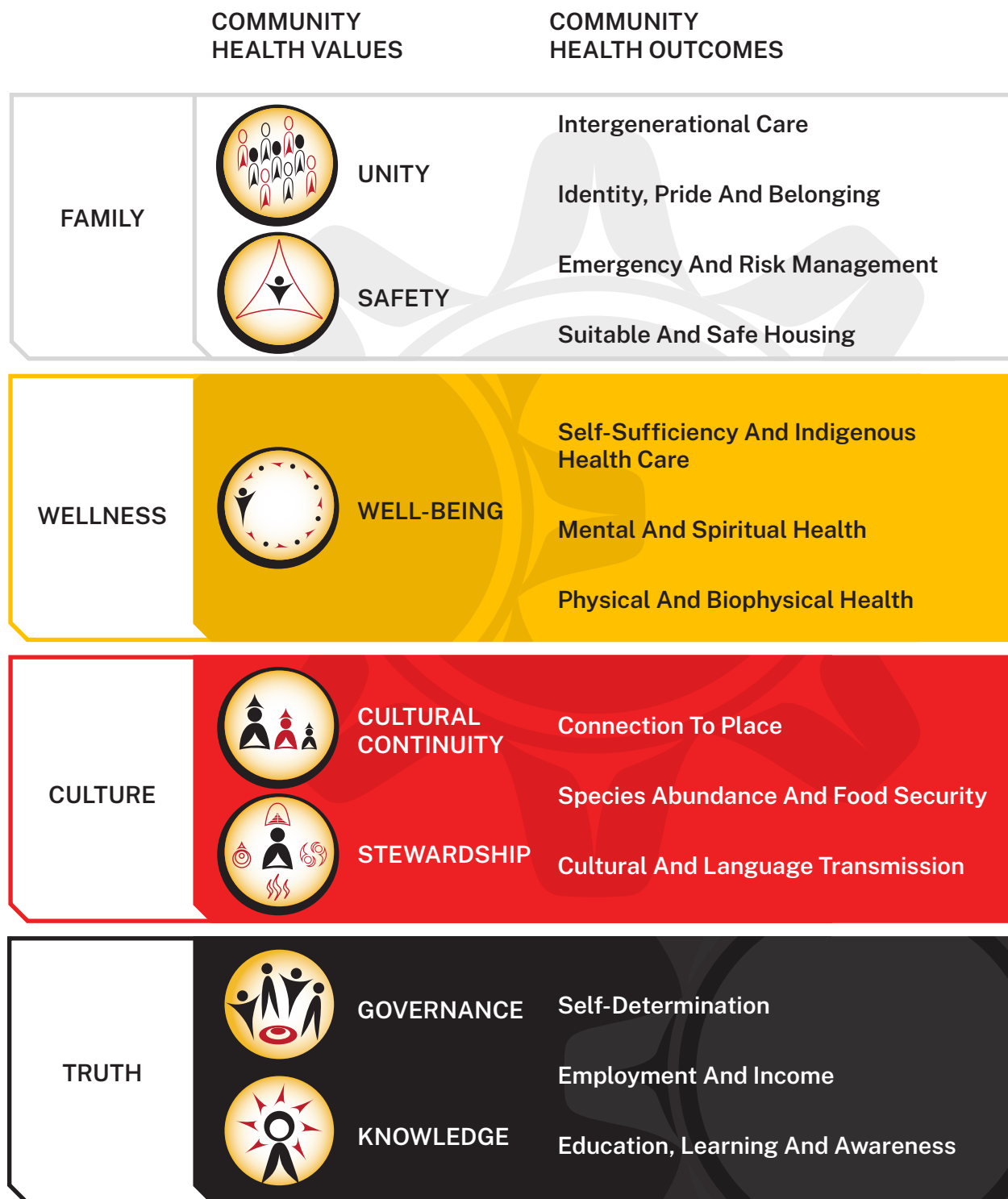
To help define and build understanding of Tsleil-Waututh community health vulnerabilities to climate change, the Project team developed a unique TWN community health framework that identifies a full spectrum of TWN specific bio-physical, social, cultural, environmental, and economic determinants of community health.

This framework is grounded in four fundamental xʷəlməxʷ (Coast Salish) laws: Truth, Family, Culture, and Wellness and seven community health values: Unity, Safety, Governance, Knowledge, Stewardship, Cultural Continuity, and Well-Being. Thirteen desired health outcomes serve as a foundation for the development of TWN priority actions and Indigenous health indicators for tracking progress on building TWN community health resilience.

Key questions that this report seeks to answer are:

- Where are we today? (community health journey)
- Where are we most vulnerable to climate change?
- What are we doing to build community health resilience?
- What further action should we take?
- How do we track our progress towards building TWN community health resilience?

The four laws, seven community health values and thirteen health outcomes that make up TWN's Determinants of Community Health Framework for guiding assessment of community health in relationship to climate change.

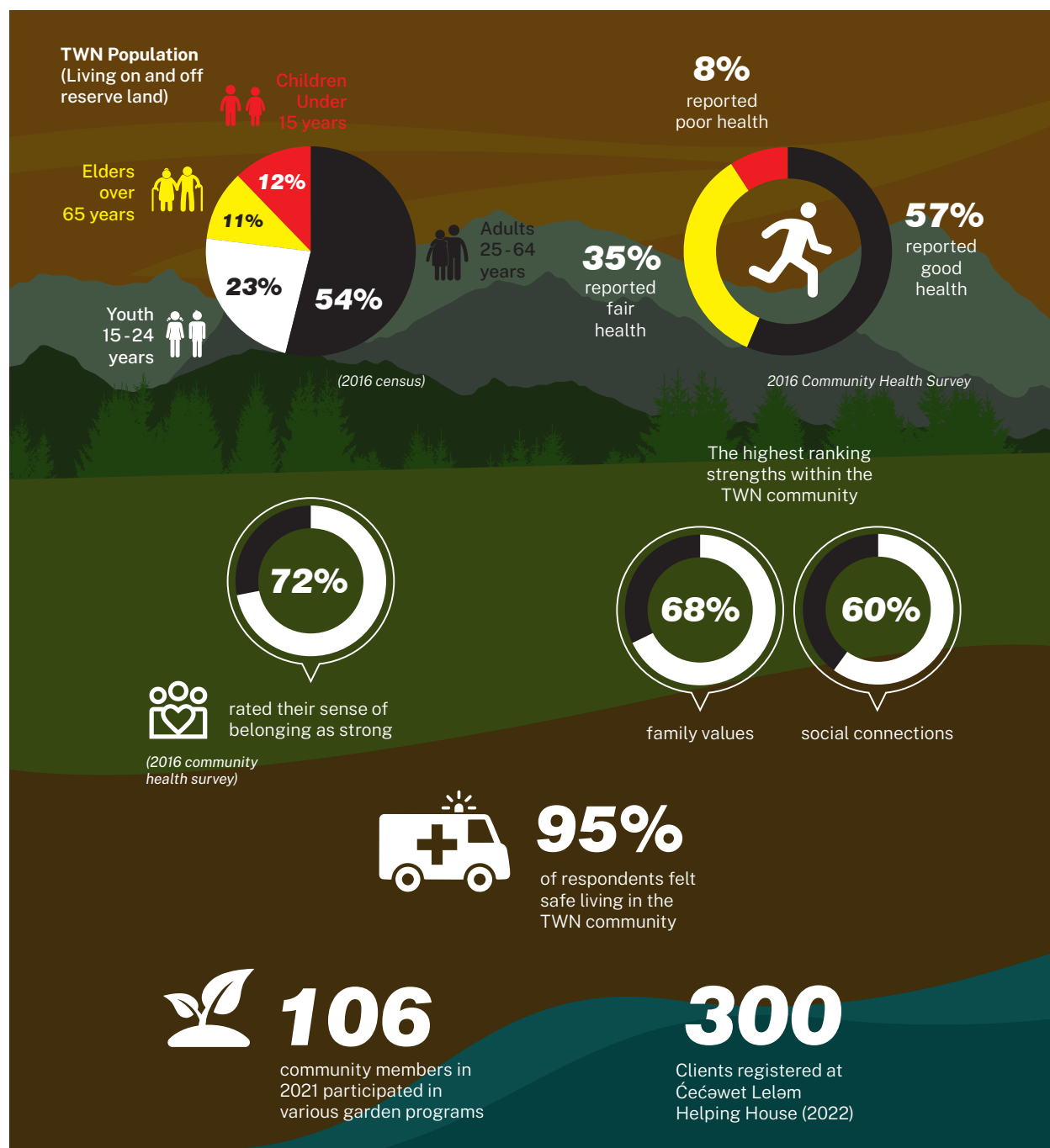


Artist credit: Icons created by TWN artist Olivia George

Community Health Insights

The following infographics represents a selection of currently available data points which are featured throughout the report with an emphasis on TWN's current strengths. A key element of this project was the collection of information to help paint a picture of where TWN community health is today. The journey of collecting this information is not over, and this report sets a course to guide future data collection to support TWN's understanding of how climate change is impacting community health moving forward.

Data points:





TWN Cultural and Community Centre 📍 TWN Public Works

1. INTRODUCTION

This Climate Change and Community Health Action Plan examines possible community health related impacts to Tsleil-Waututh Nation (TWN) as a result of climate change and identifies a set of proactive actions, working within existing plans and programs, to build TWN community health and resilience to climate change.

Climate Change Readiness

Our world is warming, largely caused by human activities. Global mean temperatures exceeded 1°Celsius above pre-industrial levels in 2017 and parts of the world including Canada are warming at faster rates. Observed warming in Canada is on average approximately double the magnitude of overall global warming ¹. From 1900 to 2013, the province of British Columbia (BC) warmed an average of 1.4°Celsius per century compared to the global average rate of 0.85°Celsius per century. Northern and interior regions of BC have warmed even more rapidly than coastal regions ².

Holding global mean temperatures below a 1.5°Celsius increase will require ambitious and transformative solutions. While global efforts to reduce contributions to climate change ramp up, communities must also continue to prepare for, adapt and build resilience to climate change. This is especially important for lower income, Indigenous, coastal and remote communities that may be disproportionately impacted by climate change.



Young trees in TWN reserve forest

¹Canada in a Changing Climate. Natural Resources Canada, 2021.

²Indicators of Climate Change in BC: 2016 update, BC Ministry of Environment, 2016.

Community Health Lens

As climate change impacts are observed and assessed, there is growing awareness and focus on the social and community health impacts of climate change. A 2022 report from the Intergovernmental Panel on Climate Change³ (IPCC) draws important linkages between climate change and social inequities, decreased food security, worsening physical and mental health, and displacement. Climate change does not affect everyone equally, and certain populations and communities are disproportionately affected by the changing climate.

Collaborative action is needed to address climate change related health-risks and to support First Nations communities in undertaking climate change and health-adaptation projects that protect community health⁴. Several reports aim to build an understanding of how Canada's climate is changing, including looking at how this affects the health and health systems of our communities, implications for those most at risk, and various strategies to strengthen individual and community health and wellness⁵. Growing attention to climate change and community health can be seen regionally across Metro Vancouver. In addition, Vancouver Coastal Health has completed both a climate change vulnerability and adaptation assessment⁶ as well as framework for health authority priorities in adapting to climate change⁷.

Indigenous communities and Climate Change and Health Adaptation Framework Nations continue to face structural inequities that leave them at increased vulnerability to climate change related health risks. The health and wellness of Indigenous communities is identified by the BC First Nations Leadership Council⁸ as a core theme for climate action and adaptation, and the First Nations Health Authority⁹ has established a program that supports First Nations leadership in reducing climate change impacts on health.

“The World Health Organization (WHO) defines **health** as, “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO 1946) and that health is “a positive concept emphasizing social and personal resources as well as physical capabilities” (WHO 1998).

Many Indigenous peoples define health and well-being similarly, including familial and community-wide considerations, reflecting interlinked social, cultural, spiritual, environmental and psychological aspects of health. Such Indigenous health systems are complex, structured in content and internal logic, and comprise practices and knowledge about connections between human beings, nature, and spiritual beings.”

Jamie Donatuto, John Konovsky, Eric Grossman, Sarah Grossman and Larry Campbell, 2014. Indigenous Community Health and Climate Change: Integrating Biophysical and Social Science Indicators. Published in Coastal Management in 42:355-373.

³ 6th Assessment Report, Intergovernmental Panel on Climate Change, 2022

⁴ The Pan-Canadian Framework on Clean Growth and Climate Change, 2016

⁵ Health of Canadians in a Changing Climate, Health Canada, 2022 ; Clean BC Climate Preparedness and Adaptation Strategy, 2021-2022

⁶ HealthADAPT Vulnerability and Capacity Assessment, Vancouver Coastal Health & Fraser Health, 2022

⁷ Climate Change and Health Adaptation Framework, Vancouver Coastal Health & Fraser Health, 2022

⁸ BC First Nations Climate Strategy and Action Plan, First Nations Leadership Council, 2022

⁹ Indigenous Climate Change Health Action Program, First Nations Health Authority

Tsleil-Waututh Nation Context

Tsleil-Waututh (“səlilwətaʔ which means “People of the Inlet”) have thrived for thousands of years living, governing, protecting and stewarding the lands and waters around səlilwət (Burrard Inlet). As an Indigenous Coast Salish community whose cultural identity, stewardship laws, language, diet, health and well-being are closely tied to the health of the lands and waters around səlilwət (Burrard Inlet); Tsleil-Waututh People are vulnerable to the impacts of climate change.

TWN community members are already experiencing impacts of extreme summer heat, intense rainfall and more extreme winter storms, reduced air quality from wildfire smoke, coastal and overland flooding, shoreline erosion, and changing oceanic conditions. Many of these changes to our climate and natural environment are happening faster than were thought to be possible.

“Climate change has the potential to profoundly impact the Tsleil-Waututh Nation (TWN) and many key aspects of community life. It influences the ability of our community to harvest some wild foods and medicinal plants, how we access the shoreline and marine waters, and how we connect with Nature. It poses community health risks, influences our ability to practice spiritual and cultural ceremonies, and share cultural teachings”

(TWN Climate Change Vulnerability Assessment Summary Report, 2019.)

Strength and Indigenous Knowledge Based Approach

Our People are survivors. səlilwətaʔ laws, knowledge, practices, family histories and traditions continue to be passed on from generation-to-generation. This flow of knowledge provides valuable records and teachings on how our ancestors survived and adapted to adverse conditions, changing seasons, natural disasters and more. TWN Indigenous Knowledge will continue to support resilience for current and future generations.

As stewards of the lands and waters and as healers, səlilwətaʔ people have much of the knowledge, tools and strengths needed to adapt to climate change and to build a stronger, healthier, and a more resilient community and natural environment. This plan offers a pathway towards increased community health resilience that builds on existing TWN Indigenous knowledge and community strengths. Implementation will require whole community action, creative thinking, and working in partnership with others.



TWN Administration & Health Centre

Building on Existing Plans and Programs

This report acknowledges and builds on existing TWN voices, plans and programs that may relate to climate change and community health, and which were developed with community input. These include, but are not limited to the:

Comprehensive Community Plan (2015) – provides a long-term vision for the community, direction on achieving the community’s health and wellness goals and objectives, and acknowledges the need to build understanding and to prepare for the impacts of climate change on the community;

TWN Community Health Survey (2016) – provides insights on physical and mental health, activity levels and nutrition, community strengths and health challenges, access to health services, and other social and economic determinants of TWN community health;

Community Health and Wellness Plan: 2017- 2027 (2017) – provides a 10-year framework for the continued development of quality services and programs to enhance community health and wellness;

Land Use Plan (2019) – outlines policies to prioritize community health and wellness, to build climate change awareness, and to strengthen community capacity and resilience in responding to climate change;

Ćećawet Leləm “Helping House” 2019 - 2020 Annual Report (2019) – outlines TWN existing and planned services in the following key areas: primary care, public health, Elder care, mental wellness, and recreation;

Climate Change Vulnerability Assessment (2019) – builds understanding of TWN vulnerabilities to climate change hazards;

Climate Change Resilience (Action) Plan (2021) – outlines a 10-year action plan to improve TWN resilience to climate change.

This report also draws inspiration from “*Indigenous Community Health and Climate: Integrating Biophysical and Social Science Indicators*”¹⁰. This article identifies challenges with applying commonly used health assessments that focus on individual and physiological health outcomes as these often neglect community level outcomes as well as social, cultural and environmental values that are vitally important to the well-being of Indigenous communities. Informed by work, led by Swinomish, this article identifies and tests the efficacy of a set of Indigenous Health Indicators (IHIs) in assessing community health impacts from climate change and reports that:

“When Indigenous-based valuations such as the IHIs (Indigenous Health Indicators) are employed in conjunction with environmental indicators, the complex linkages between community health and well-being and the economic and ecologic costs and benefits common to vulnerability assessments are more equitably promoted.”

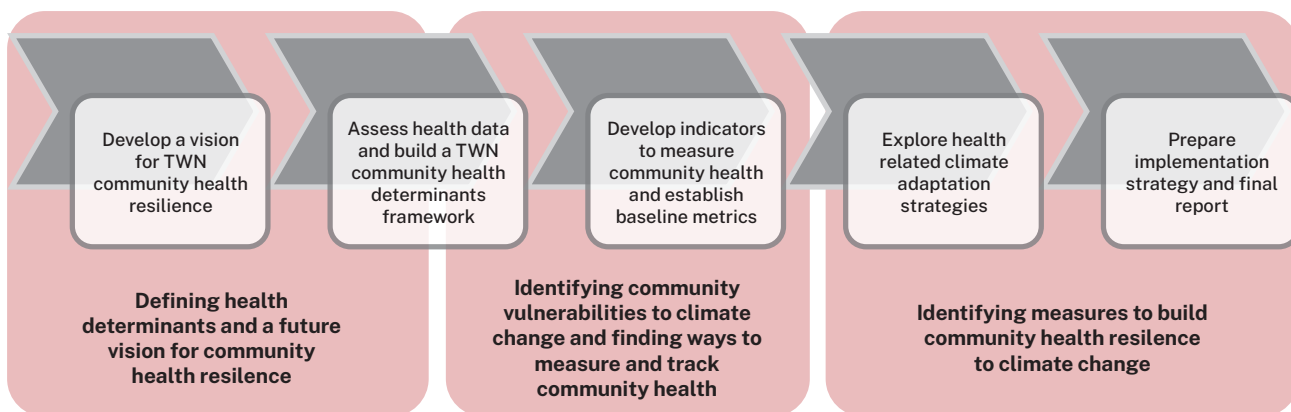
¹⁰ Article in the *Coastal Management*, 42:355–373, 2014. This work was led by the Swinomish Indian Tribal Community (Jamie Donatuto), in collaboration with Tsleil-Waututh First Nation (John Konovsky), the U.S. Geological Survey’s Pacific Coastal & Marine Science Center and Western Fisheries Research Centre (Eric Grossman) and Sarah Grossman.

Purpose and Process to Develop this Plan

This TWN Climate Change and Community Health Action Plan aims to:

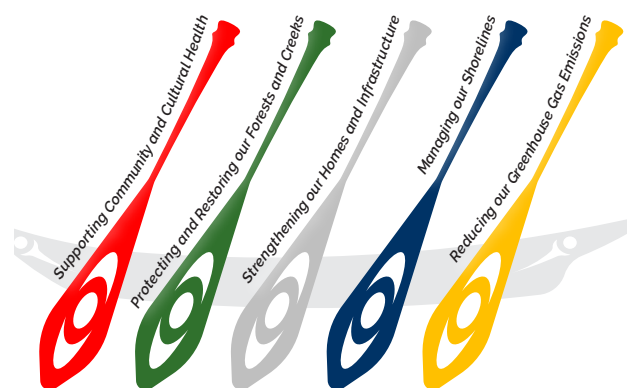
- build understanding and awareness of TWN community health impacts and vulnerability to climate change;
- integrate Indigenous Knowledge to ensure alignment with community culture, interests and values;
- develop a TWN Indigenous health framework and set of TWN Indigenous health indicators, including both social and biophysical metrics, to guide assessment of community health impacts from climate change;
- use identified Indigenous health indicators, existing health data and results of community engagement to establish a baseline of TWN community health;
- develop a set of proactive community health adaptation strategies to grow community capacity and increase community resilience to climate change; and
- explore opportunities to integrate and “mainstream” health related adaptation measures into existing plans and community programs to ensure successful implementation.

Work to develop this plan involved the following steps:



TWN community and staff engagement and input played an important role in guiding this work. Their involvement is described in more detail in the following sections.

The preparation and completion of this Climate Change and Community Health Action Plan addresses an identified gap in TWN's Climate Change Resilience Planning work to date. It also advances implementation of key strategies identified in the *Supporting Community and Cultural Health* focus area of the TWN Climate Change Resilience Plan.



Key focus areas from the TWN Climate Change Resilience Plan

Community Engagement and Input

Through iterative rounds of engagement with community members and staff, the Project team gathered information about how TWN members and staff define what health means and their priorities for action. The following engagement activities were undertaken throughout the Project.

September 2021	Project Steering Committee - Framework Workshop Initial meeting of the Project Steering Committee (inter-departmental staff team). Introduction to the Project and background research completed to date. Gathered feedback on a draft framework for assessing community health impacts from climate change, and discussed linkages to other TWN projects and work plans. Provided input on community engagement opportunities.
October 2021	Climate Change Advisory Committee - Framework and Indicators Workshop The Climate Change Advisory Committee (CCAC) is a volunteer group of TWN community members who advise on TWN's climate change action. In October the CCAC provided feedback on the draft framework for assessing community health impacts from climate change, and brainstormed ideas for indicators to measure and track TWN community health and impacts from climate change.
January 2022	Project Steering Committee - Health Vulnerability and Mitigation Workshop Project Steering Committee Workshop #2. Revisited the latest draft of the framework for assessing community health impacts from climate change, discussed the health impacts of climate change hazards, and brainstormed current and future adaptation strategies for addressing climate change impacts.
January 2022	Climate Change Advisory Committee - Mitigation Workshop CCAC workshop #2. The Committee revisited the latest draft of the framework for assessing community health impacts from climate change and brainstormed potential adaptation strategies for each key goal area.



TWN Climate Change Resilience Workshop, 2019 📍 S. Dal Santo

February
2022

Climate Change and Community Health Survey

Online TWN community member survey to gather input on community values to guide this work, community views on climate change health impacts, and ideas on actions to support a climate resilient and healthy TWN community. The survey was completed by 19 respondents. Respondents felt that community health was showing strength in areas of self-determination, Indigenous health care, education and learning, and employment and income. Respondents identified that more work was needed in the areas of suitable housing, emergency and risk management, intergenerational care, spiritual and mental health, and cultural and language transmission.

March
2022

First Nations Health Authority and Vancouver Coastal Health Workshop

Meeting with the First Nations Health Authority and Vancouver Coastal Health staff to share knowledge and learn about each organizations' work relating to climate change and community health. Discussion on methodologies for assessing climate change vulnerability and measuring impacts of climate change on community health.

June
2022

Project Steering Committee Implementation Workshop

Meeting to update on Project progress to date, and to gather feedback on steps and priorities for implementing actions.

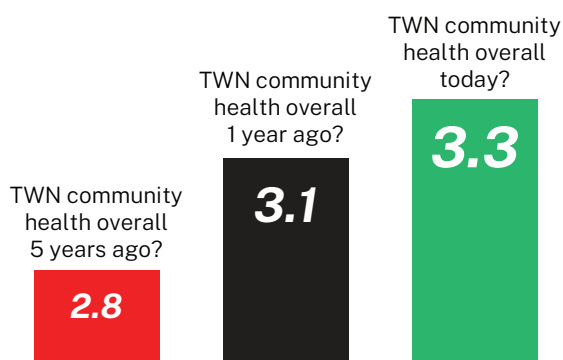
Results of the TWN Climate Change and Community Health Survey (2022)

A community health survey, delivered as part of this Project, asked TWN community members to rate how they see TWN overall community health today compared to 1 year ago and 5 years ago. Overall, respondents identified a trend towards increased TWN community health during this period.

Respondents were also asked to rate the current status of the specific community health outcomes that relate to the community determinants health framework (see page 25). Survey results are integrated into appropriate sections throughout the report.

Conclusiveness of these results is limited by the small sample size (19 respondents), and recognition that this survey was delivered during the COVID pandemic which may have influenced perceptions and concerns regarding community health. To fill in the gaps and to create a more complete picture of current community health, this plan considers the results of this survey, as well as those of the more comprehensive 2016 TWN Community Health Survey.

The results from all engagement activities undertaken throughout this project and engagement undertaken to support previous plans are integrated throughout this report.



Weighted average score on a scale of 1 to 5.

1 represents “Doing very poorly” and **5** means “Doing very well”

TWN Cultural Dance at Whey-ah-Wichen 📷 TWN Communications





“Maintain our identity as Tsleil-Waututh People, respecting our past and being mindful of our future, sharing a collective vision for a healthy, holistic community in harmony with our surroundings; guided by our spiritual, emotional, mental and physical teachings, thriving in our cultural excellence.”

(Comprehensive Community Plan, 2015 & TWN Community Health Plan, 2017)

TWN Communications

2. COMMUNITY VISION AND FRAMEWORK FOR COMMUNITY HEALTH

Vision for Community Health

Tsleil-Waututh community planning, community development, and health and wellness are guided by community vision statements as follows:

“Tsleil-Waututh are stewards of the lands, waters, and air—protecting and cleaning up the environment. We respect our culture and laws, while providing opportunities for economic development, public spaces, and affordable housing so future generations of Tsleil-Waututh people can live and thrive in our community.”

(Land Use Plan Law, 2019)

For the purposes of this report, an online engagement survey asked TWN community members to imagine a future in which TWN people are healthy, well-prepared and able to withstand climate change impacts such as extreme heat, drought, wildfire smoke, intense rainfall and rising sea levels; and to provide key words that describe this vision. The following word cloud captures the key words that engagement participants used to describe their **vision for a climate resilient future for TWN**.





Community Health Determinants Framework for Guiding Assessment of Climate Change Impacts on Community Health

To help define and build understanding of Tsleil-Waututh community health vulnerabilities to climate change, our Project team set out to develop a unique TWN community health framework that identifies a full spectrum of TWN specific bio-physical, social, cultural, environmental and economic determinants of community health. These determinants were developed in consultation with community members, our Climate Change Advisory Committee, and TWN staff and Project Steering Committee, and are rooted in TWN values and TWN Indigenous Knowledge.

The resulting TWN community health framework is centred around a core principle with concentric circles of key health determinant values and outcomes that form the building blocks for the framework. Each are discussed in turn below.

CORE PRINCIPLE: WHEN OUR LANDS AND WATERS ARE HEALTHY, OUR PEOPLE ARE HEALTHY

This principle represents a core statement about overall TWN community health and acknowledges that TWN community health is inseparably tied to the health of sə́lilwət (Burrard Inlet).

FUNDAMENTAL XʷƏLMƏXʷLAWS: TRUTH, FAMILY, CULTURE, WELLNESS

These are the four (4) fundamental Coast Salish laws that have passed down from generation to generation.

📷 Julien Kettman

COMMUNITY HEALTH VALUES:

Key community health values reflect core values that can be used to determine community health outcomes and impacts from climate change. The seven (7) identified community health values are organized according to the four (4) laws and are described in more detail below.

FAMILY



UNITY

Deep connection to and close relationships between community members, taking care of Elders and those in need, sharing knowledge and resources, and working together to support the needs of current and future generations.



SAFETY

Risk of injury, damages and impacts from climate change are reduced through proactive vulnerability assessment, infrastructure planning and emergency management.

WELLNESS



WELL-BEING

Quality of life including mental, spiritual and physical health of community members is healthy and supported by TWN culture, active living, access to Indigenous health care, and with attention to equity and those who are most in need.

CULTURE



STEWARDSHIP

TWN's sacred and legal obligation to protect and defend the waters, lands, resources and air in their unceded territory. Ongoing responsibility to maintain or restore conditions that support environmental health and biodiversity that enables the community and other beings to thrive.



CULTURAL CONTINUITY

Ongoing practice, interpretation, sharing and celebration of community culture and teachings and including protection of TWN cultural and archaeological sites, and revitalizing TWN identity and language in changing times.

TRUTH



GOVERNANCE

Maintaining and applying TWNs right to self-determination and self-governance, acknowledging and bringing forward TWN's ancestral laws, and developing new laws as needed to empower, protect, and sustain TWN People, lands and waters in a changing climate



KNOWLEDGE

Ongoing transmission of TWN Ancestral knowledge, practices and teachings between generations as well as access to modern education to build community skills and capacity to prepare for, respond and adapt to changing climate conditions and opportunities.

Artist credit: Icons created by TWN artist Olivia George

OUTCOMES:

Key community health values lend themselves to specific positive outcomes for TWN community health. The identified community health values and associated health outcomes, as they relate to climate change, are summarized below. In later sections of this plan, these outcomes serve as a foundation for the development of TWN Indigenous health indicators for tracking progress on community health resilience.

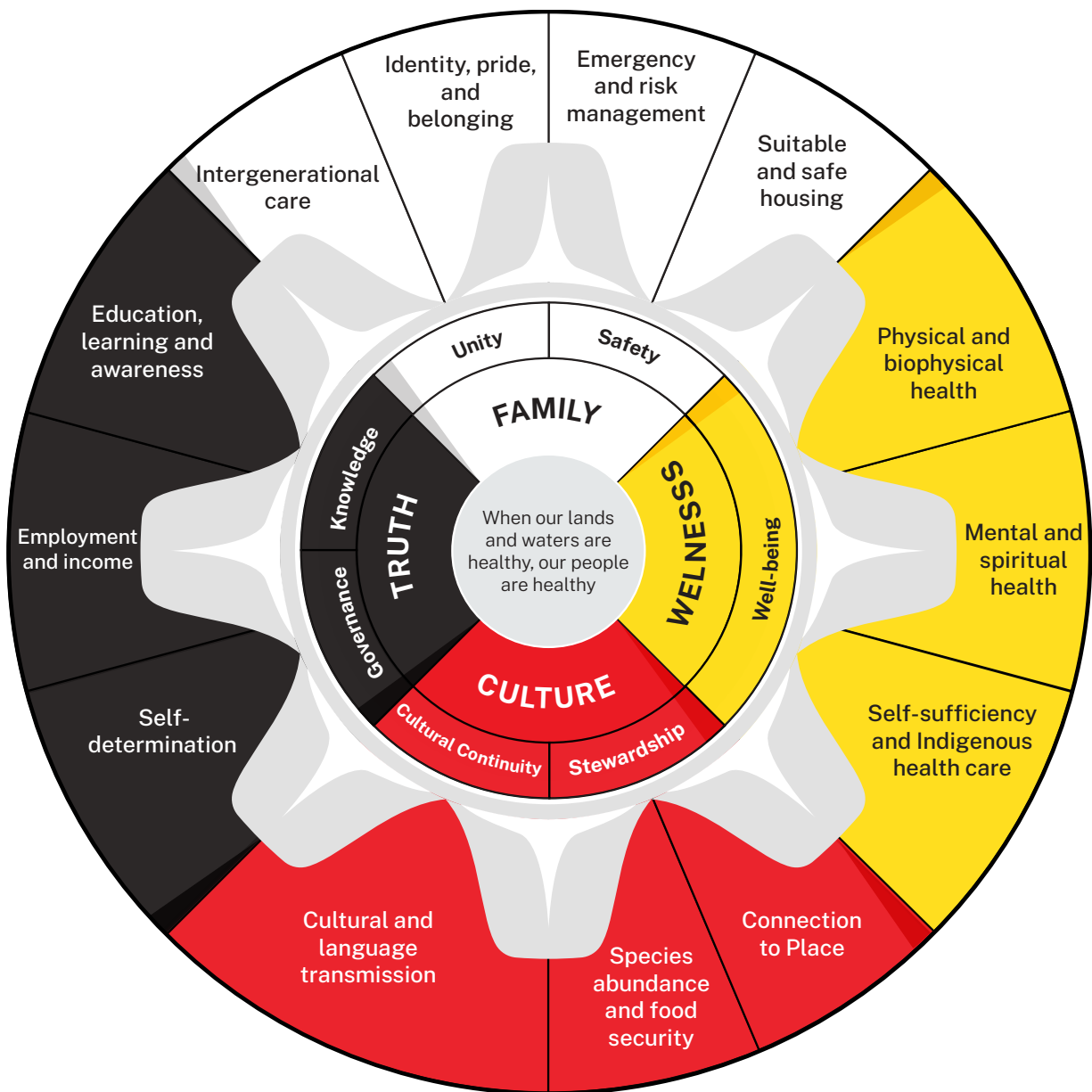
COMMUNITY HEALTH VALUES

COMMUNITY HEALTH OUTCOMES

	UNITY	Intergenerational Care
	SAFETY	Identity, Pride And Belonging
		Emergency And Risk Management
		Suitable And Safe Housing
	WELL-BEING	Self-Sufficiency And Indigenous Health Care
		Mental And Spiritual Health
		Physical And Biophysical Health
	CULTURAL CONTINUITY	Connection To Place
	STEWARDSHIP	Species Abundance And Food Security
		Cultural And Language Transmission
	GOVERNANCE	Self-Determination
	KNOWLEDGE	Employment And Income
		Education, Learning And Awareness

The graphic below combines the above building blocks into a complete TWN specific community health framework. Subsequent chapters in this report employ this framework in guiding assessment of community health vulnerabilities and impacts to climate change and identifying proactive ways to respond and adapt to climate change.

It is noted that many of the core values and related outcomes identified in the framework are interrelated and the concentric circles in the framework graphic are intended to acknowledge and celebrate this interconnectedness instead of considering these as discrete and separate units.



**Tsleil-Waututh Nation
Determinants of Community
Health Framework for guiding
assessment of community health
in relationship to climate change.**

Honouring the Journey and Survival

səlilwətaʔ (Tseil-Waututh People) have a long history of perseverance and resiliency in overcoming adversity. Coast Salish communities that occupied the Salish Sea and Pacific Northwest regions around 10,000 years ago experienced massive flooding caused by the collapse and melting of glacial lakes at the end of the Ice Age. Survivors faced many other challenges including severe cold, famine, disease outbreaks, volcanic eruptions and earthquakes, and warring tribes.

Before contact an estimated ten thousand səlilwətaʔ thrived on their unceded territory, living in harmony with the cycles of the natural world and seasonal access to food. Travelling by canoe, səlilwətaʔ followed the salmon runs in səlilwət (Burrard Inlet) and the Fraser River, visited and formed trading alliances and relationships with nearby First Nations communities. Salmon, shellfish, herring and other seafoods, native plants and wild berries, as well as waterfowl, elk and deer all formed part of TWN diet. Longstanding practices of sun drying berries, smoking fish, storing plants in root cellars, and weaving blankets from mountain goat wool provided preserved foods and warmth during the cold winter months.

Routine activities for survival of səlilwətaʔ ancestors involved active living and access to healthy foods and medicines. Canoe travel, hunting, fishing, relocating and rebuilding shelters, food preparation and storage,

and more provided ample opportunities for physical strength building and outdoor exercise. Unpolluted environments, access to an array of healthy omega-3 rich marine foods, and nutritious plants (vitamins, nutrients, antioxidants) staved off more modern diseases such as obesity, diabetes, and cancer. Respect for Coast Salish laws and traditions, use of medicinal plants, cold water baths, smudging, sweat lodges and cultural ceremonies offering prayer to the Creator sustained and restored individual and community health.

The arrival of smallpox on the shores of səlilwət (Burrard Inlet) (in the late 1700s) had devastating impacts on səlilwətaʔ and many lives were lost. Starting in the 1860s and 70s Indigenous communities then faced dispossession of rights, title and land; establishment of reservations and residential schools; and the implementation of discriminatory laws, policies and systems to prevent the practice and transfer of Indigenous culture and language. By the late 1800s and 1900s, səlilwətaʔ had witnessed extensive environmental degradation, over-fishing, deforestation, urban and industrial expansion in the Salish Sea region from the rapidly growing settler population and colonial-based economy. These combined stressors, and more, have contributed to inter-generational cultural, bio-physical, and mental wellness challenges for the already vulnerable səlilwətaʔ population.





TWN Walk to Honour Residential School Survivors, September 2021

Despite the damage colonization has done, səlilwətaʔ has continued to practice and pass down laws, teachings, language and culture in whatever ways possible, restoring the foundation to rebuild community once again. With the closure of residential schools, the reaffirmation of Aboriginal rights and title in the Canada Constitution Act and the return of TWN ability to govern and make decisions on the use of TWN (reserve) lands, the community is healing. Language programs are growing; siʔámθət (community school) is thriving; the TWN health care system is expanding to provide access to traditional, land-based healing programs and education; and TWN's work in protecting, stewarding and restoring the health of the environment in TWN's unceded territory is acknowledged and respected.

Today səlilwətaʔ face new challenges with climate change, and potentially one of toughest challenges yet. TWN will address this challenge with revitalized strength, and renewed understanding of the importance of TWN culture and ways of being in sustaining community and environmental health. TWN will remain grounded in səlilwətaʔ Indigenous Knowledge and TWN values while applying western science and working collaboratively with other partners. TWN will face the challenges of climate change with the courage, resilience and wisdom of səlilwətaʔ ancestors as TWN works towards building community resilience for current and future generations.

4. CLIMATE CHANGE PATHWAYS OF IMPACT

The TWN Vulnerability Assessment report identifies four (4) key climate change forces and related hazards that are already or have the potential to impact səliwətaʔ (Tseil-Waututh People). Each of these climate change forces has the ability to impact səliwətaʔ community health in multiple ways. Based on the identified determinants of community health framework, a review of the Vulnerability Assessment report¹¹ and other available research, and discussions with TWN staff and community members, the Project Team compiled a table that summarizes the impacts and pathways of climate change on TWN community Health.

CLIMATE CHANGE FORCES	CLIMATE CHANGE HAZARD	POTENTIAL IMPACTS ON TWN COMMUNITY HEALTH
SEA LEVEL RISE	Coastal flooding Coastal erosion Loss of intertidal area	Damage to homes and infrastructure and potential loss of life
		Loss of land and potential displacement of homes
		Loss of livelihood, high remediation costs and increased risk of injury
		Challenges for emergency response in getting to and from homes
		Anxiety, distress, and other impacts to biophysical health
		Reduced access to the shoreline and to traditional foods
		Loss of habitat biodiversity and reduced access to traditional foods
		Damage to archaeological and/or cultural sites
		Reduced opportunities for cultural transmission and loss of cultural connection & history of place
PRECIPITATION CHANGES	Creek flooding Creek erosion Urban flooding	Damage to homes and infrastructure
		Loss of livelihood, high remediation costs and increased risk of injury
		Reduced access to creeks for cultural, spiritual, and traditional foods
		Reduced access to healthy traditional foods
		Increase in water-borne contaminants and diseases
		Damage to archaeological sites
AIR TEMPERATURE CHANGES	Extreme heat events Wildfire Invasive species Vector-borne diseases	Increase in mosquitoes and increased potential for disease
		Heat exhaustion and heat stress, and potential loss of life
		Exacerbation of respiratory conditions (e.g. asthma)
		Anxiety, distress, & other impacts to biophysical health
		Interruption to outdoor physical activity, education, and work
		Social isolation and reduced community connections
		Increase in mosquitoes and ticks, and exposure to diseases
		Reduced opportunities for cultural transmission and loss of cultural connection & history of place
OCEAN CONDITION CHANGES	Ocean acidification Harmful algal blooms Changes in temperature, salinity, oxygen levels	Loss of culturally important species (e.g. cedar)
		Illness borne from eating clams with red tide, and other impacts to biophysical health
		Damage to archaeological sites (e.g. shellfish and other artifacts) and loss of connection to ancestors, history of occupation, and traditional foods
		Loss of culturally important species (e.g. clams) and reduced access to traditional foods for cultural transmission of knowledge and teaching
		Loss of habitat biodiversity and reduced access to traditional foods
		Reduced access to outdoor cultural activities (e.g. fishing, hunting, and gathering)
		Increase in water contaminants

¹¹A more complete analysis of climate change impacts and community vulnerabilities can be found in TWN's Climate Change Vulnerability Assessment Report.

24

5. STEPPED APPROACH TO MEASURING AND RESPONDING TO CLIMATE CHANGE

Building on the foundations of the TWN community health framework, this section introduces a stepped approach –through a series of questions – to define, measure and respond to climate change impacts to TWN community health.

- **Where are we today?** – Acknowledges community health history, where TWN has been and current health status

Together with information from existing TWN knowledge studies, plans and engagement results, the Project team used results of the community health survey and interviews with Elders to build understanding of community health history, values and needs.

- **Where are we most vulnerable to climate change?** – Identifies community vulnerabilities in areas that matter most to TWN. These vulnerabilities point to important areas for strengthening our community health resilience and response to climate change.

Building on TWN's Climate Change Vulnerability Assessment, the Project team examined how TWN's climate change and community health outcomes may be impacted over time with climate change.

- **What are we doing to build community health resilience?** – Celebrates existing work, ways of being and TWN Indigenous Knowledge TWN practices, work plans and programs are already doing considerable work to advance community health in general as well as to build resilience to climate change. Project team research as well as consultation with Climate Change Advisory Committee members and the staff Project Steering Committee helped build understanding of this existing work.

TWN Community photo by Jeff Sisson 📷 TWN Communications



- **What further action should we take?** – Identifies additional and ongoing work needed to strengthen TWN community health resilience to climate change.

Actions identified build on existing community work plans and programs, and were informed by the community survey, TWN community and staff engagement, case study research, and discussions with the First Nations Health Authority and Vancouver Coastal Health

- **How do we track our progress?** – Outlines a set of tools and indicators for measuring progress towards building TWN community health resilience.

These indicators were developed with TWN Steering Committee members with knowledge of existing staff and community programs, reports and data collection pathways.

The following sections offer climate change and community health analyses for each of the key outcomes identified in the community health determinants framework. Information is organized according to the above key questions.

It is recognized that some of the proposed actions in this report could apply to several different sections. To avoid repetition proposed actions are reported with the most applicable section only.

Indicators play an important role in measuring progress as work of strengthening community health resilience. Indicators help us observe how community is being impacted over time and measure progress in areas where taking action. This helps ensure that adapting actions and making decisions based on observations. Indicators must be measurable and should reflect key parameters that are important to observe in tracking progress. Other factors to consider:

- availability and reliability of data
- time and resources to track and assess data
- time intervals at which data is typically collected
- methodologies used in collecting the data (different methods may yield different results)

Indicators selected for this plan represent initial recommendations based on discussions with TWN staff. Moving forward, other indicators may emerge as new data and reporting becomes available.



6. CLIMATE CHANGE AND COMMUNITY HEALTH ACTION PLAN IMPLEMENTATION

As identified in earlier sections, TWN is already making important strides towards building səlilwətał health and resilience to climate change. The community health determinants framework, developed as part of this Plan, provides a useful way of framing assessment of community health vulnerabilities to climate change and identifying current and recommended actions to further improve community health and resilience.

Appendix A summarizes the recommended priority actions from this Plan into an implementation matrix. As organized by community health outcomes, the matrix also outlines recommended priorities, TWN departmental leads, timelines, and a high-level estimate of initiation costs to implement each proposed action. Appendix B summarizes the suggested indicators identified throughout this Plan that may be useful for tracking and reporting on progress to improve community health and resilience.

Moving forward with implementation of the proposed actions, the following strategies as informed by Climate Change and Community Health Steering Committee input, may help leverage progress and achievement.

1. Integrate proposed Climate Change and Community Health Action Plan actions and progress tracking into existing staff work plans and programs, wherever possible.
2. Consider opportunities to support alignment with the TWN Climate Change Resilience (Action) Plan.
3. Seek opportunities for interdepartmental collaboration on coordinating implementation of proposed actions and reporting on progress. The Coordinated Climate Action Team (CCAT) could play a role in supporting this work.
4. Use and update the suggested level of priority and timeline for actions (in the implementation matrix) to guide implementation priorities and timing.
5. Use the indicators identified in Appendix B as a guide when designing questions for future community health surveys to help fill information gaps and track progress on the health outcomes identified in this report.
6. Consider the Climate Change and Community Health Action Plan as a living document that will need to be updated as priorities change or as new information about climate change and health arises. Recommended review or update approximately every 5 years.
7. Maintain momentum and interest in the Plan by reporting on progress (using the indicators as a guide) to the community approximately every 2 years.

