



INTERNATIONAL ALLIANCE TO  
COMBAT OCEAN ACIDIFICATION



## Tsleil-Waututh Nation's Climate Action Initiatives

səlilwətaʔt (Tsleil-Waututh) are the “People of the Inlet”, and have used and occupied the lands and waters of səlilwət (Burrard Inlet) and surrounding watersheds since time out of mind. Tsleil-Waututh Nation (TWN) holds inherent and longstanding Indigenous rights and title throughout our territory, including to the land – upland, intertidal, and submerged – water, air and resources therein. These rights are recognized and affirmed by Canada (Section 35 of the Constitution) as well as internationally (United Nations Declaration on the Rights of Indigenous People).

**Region:** Tsleil-Waututh Nation (TWN) is a distinct Coast Salish Nation whose unceded territory encompasses Burrard Inlet and the greater Vancouver region in the lower mainland of British Columbia (BC) (see Consultation Area Map here: <https://twnation.ca/about/our-departments/treaty-lands-resources/>).

**Kilometers of Coastline:** TWN's Consultation Area<sup>1</sup> contains ~645 kms of coastline. The total length of shoreline in Burrard Inlet is approximately 190 kms.

**Regionally Significant Marine Resources:** Marine resources of significance to TWN include, but are not limited to, shellfish, crab, herring and other forage fish, rockfish, salmon, Blackfish (orcas), as well as the habitats and food sources upon which their life histories depend.

**Status of Action Plan:** In progress

**Key statistics on ocean economy:** Much of the TWN subsistence economy has been depleted, eliminated, contaminated or otherwise made unavailable for harvest due to pollution and the cumulative environmental effects (CEs) of urban, industrial and port development. This dispossession and elimination of resources has been ongoing and continuous throughout colonization in the region. Despite this, harvesting marine resources remains central to TWN's contemporary ocean economy. TWN holds food, social, ceremonial (FSC) salmon, crab, and bivalve rights-based communal fishing licenses. The Salish Seas Ltd., to which TWN is a limited partner, currently holds prawn, crab, halibut, herring, salmon and sablefish commercial licenses. Takaya Tours is a TWN-owned ecotourism company, which offers cultural canoe tours of the TWN territory, as well as kayak rentals from ancient TWN village

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<sup>1</sup> According to Coast Salish concepts of land tenure and territoriality, the water, land, air, and resources of Tsleil-Waututh territory are our birthright. Tsleil-Waututh traditionally managed our territory in accordance with Coast Salish protocols and our own distinct culture, governance, laws, and stewardship obligations. The Consultation Area does not represent TWN's traditional land use and occupation over time, but rather synthesizes information provided by elders and knowledge holders of land use activities in living memory. Drawing a boundary on a map is an imposed artifice of colonization insofar as it does not reflect nor represent Indigenous conceptualizations of land rights, stewardship and territoriality. Nevertheless, this boundary can be a useful tool in negotiating the Crown's duty to consult and accommodate TWN's rights, title and interest under constitutional Canadian law. We continue to refer to this boundary in order to fulfill our stewardship obligations to the territories that are our home and birthright.



INTERNATIONAL ALLIANCE TO  
COMBAT OCEAN ACIDIFICATION

sites with key marine access points. Takaya Tours services approximately 8,500 people annually and provides both full time and seasonal employment.

### **What Is at Stake in Your Region?**

Tsleil-Waututh members have observed the effects of climate change in our territory for decades. The existing CEs leading to the loss and degradation of biodiversity, traditional food species and habitats in Burrard Inlet are indicative of ongoing violations against ecological thresholds and TWN laws. Impacts of climate change (ex. OA) will exacerbate and further contribute to adverse CEs throughout our territory. Climate change will also present new and discrete challenges; all of which may impair the full expression of our culture, rights and stewardship obligations.

OA is a concern to TWN, along with other ocean-related effects of climate change (ex. Coastal erosion, sea level rise). Burrard Inlet is becoming more acidic, and research is underway to determine whether the cause is disproportionately associated with OA or if the reduction in pH is attributed to urban and industrial inputs (ex. stormwater runoff).

By 1970, pollution and contamination levels in Burrard Inlet were a significant concern, and led to the sustained federal bivalve shellfish fishery closure. In 2016 - after working on the issue with the Canadian Shellfish Sanitation Program for a decade - TWN conducted its first sanctioned FSC bivalve harvest since the closure. We now hold annual community shellfish harvests at designated and monitored sites.

Our renewed relationship with shellfish is revitalizing a physical, cultural, and spiritual strength that comes from stewarding, harvesting, consuming, and honoring traditional foods. TWN also identified an ancient clam garden site in Burrard Inlet, and is advancing efforts to restore shellfish habitat using traditional techniques. Further acidification of local waters could threaten bivalve populations, as well as other ecologically essential calcifying species.

Archaeological sites are often characterized by thick layers of shell deposits. Archaeological sites in Burrard Inlet are becoming increasingly exposed due to coastal erosion. The exposure of ancient shell deposits to acidic waters could further degrade these critical sites. Archaeological sites contain a physical body of evidence of Tsleil-Waututh's continuous use and occupation of Burrard Inlet. This evidence is critical for Tsleil-Waututh's assertion of inherent Indigenous rights and title to the territory under Canadian Law.

### **Policy Vehicle, Enabling or Authorizing Conditions for Creating an OA Action Plan**

TWN's environmental stewardship priorities and actions are guided by our community-based marine stewardship goals, the vision of traditional and elected TWN Chief and Council, elders, and knowledge holders.



INTERNATIONAL ALLIANCE TO  
COMBAT OCEAN ACIDIFICATION

The most applicable expressions of TWN's stewardship values that can be applied to our approach in combating climate change are:

- 2009 Stewardship Policy
- 2016 TMX Assessment Report<sup>2</sup>
- 2016 (ongoing) Updating the 1990 Burrard Inlet Water Quality Objectives (WQOs)<sup>3</sup>
- 2016 (ongoing) Cumulative Effects Monitoring Initiative (CEMI) (In Progress)
- 2016 Burrard Inlet Action Plan<sup>4</sup>
- 2018 (ongoing) Climate Change Resiliency Planning Project (CCRP) for TWN village (IR#3)
  - Phase 1: Vulnerability Assessment<sup>5</sup>
  - Phase 2: Climate Change Action Plan (CCAP) and Greenhouse Gas Inventory and Reduction Plan (In Progress)

OA is specifically incorporated in our CEMI, WQOs, Vulnerability Assessment, and CCAP (see examples below). Climate change has also been incorporated into the TWN Land Use Plan, which sets the vision and direction of development on reserve lands for the next hundred years, and is implemented through approvals, permitting and updated bylaws.

## Priority Areas or Actions in Your Plan

### Advance Scientific Understanding

*TWN Cumulative Effects Monitoring Initiative (CEMI):* CEMI is developing a holistic monitoring program to establish current baseline conditions, monitor and assess trends over time, predict future development and climate change effects, and identify and prioritize opportunities for environmental protection, restoration and enhancement. CEMI includes an array of monitoring programs to assess current trends in traditional food species, key habitats, and physical oceanographic parameters throughout Burrard Inlet. TWN partnered with Ocean Networks Canada to deploy a seafloor observatory and a field monitoring program. In partnership with the University of British Columbia, TWN is using CEMI data to develop an ecosystem model that will estimate the impact of different parameters on species' productivity, and help inform management and decision making.

*Climate Change Resiliency Planning:* Tsleil-Waututh took a unique eco-cultural and archaeological approach to the hazard mapping component of the CCRP. Subsurface testing along the foreshore identified intact archaeological materials dating back to 3,000+ years that, while originally situated on land, are now located well into the marine intertidal area due to rising sea level. This data corroborates Tsleil-Waututh community knowledge of shoreline change and affirms traditional oral history. Pending availability of the appropriate

<sup>2</sup> <https://twnsacredtrust.ca/assessment-report-download/>

<sup>3</sup> <https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/water-quality-objectives/south-coast-region-water-quality-objectives/burrard-inlet-water-quality-objectives>

<sup>4</sup> <https://twnsacredtrust.ca/read-burrard-inlet-action-plan/>

<sup>5</sup> [https://twnation.ca/wp-content/uploads/2020/01/TWN\\_CCVA-SUMMARY\\_FINAL-repaired-canoe-and-pole-Jan-2020.pdf](https://twnation.ca/wp-content/uploads/2020/01/TWN_CCVA-SUMMARY_FINAL-repaired-canoe-and-pole-Jan-2020.pdf)



INTERNATIONAL ALLIANCE TO  
COMBAT OCEAN ACIDIFICATION

archaeological clam shell samples, TWN is interested in exploring the use of isotopic oxygen analysis in combination with carbon dating to shed light on historic oceanic conditions and temperatures.

### Reduce Causes of OA

*TWN CCRP:* TWN conducted a Greenhouse Gas Inventory and Reduction Plan for our reserve lands in 2019-2020. We will implement recommended strategies to reduce our contribution to atmospheric emissions of CO<sub>2</sub>, as resources and capacity allow.

*TWN/BCENV WQOs:* TWN is leading a project, in collaboration with the BC Ministry of Environment and Climate Change Strategy (BC ENV), to update the 1990 Provincial Water Quality Objectives for Burrard Inlet. Work on this initiative is implementing a high priority action item in the TWN's Burrard Inlet Action Plan, and is taking

important steps towards improving the water quality of Burrard Inlet. Contaminant reports include consideration of TWN values for Burrard Inlet, and will set new contaminant threshold levels. Objectives for pH and other physical oceanographic parameters will be updated with best available science and guidelines.

*TWN Consultation and Accommodation:* We continue to assess the impacts of the hundreds of development proposals within our territory every year – some of which are major projects undergoing a provincial Environmental Assessment or federal Impact Assessment. TWN conducts rigorous analyses of project-level Greenhouse Gas Assessments and requires proponents and regulators to demonstrate the projects' contribution to Canada's international climate commitments. We also advocate for high standards for offsetting, habitat banking, and restoration projects (e.g. combatting shoreline hardening and allowing for better CO<sub>2</sub> absorption).

### Build Adaptation and Resiliency:

TWN's CCAP will incorporate actions pertaining to OA, such as:

- Participate in eelgrass bed and kelp forest restoration pilot studies
- Participate in pilot studies for alkalization of nearshore areas
- Work with the OA Alliance and other partners to build awareness and develop collaborative strategies to address ocean acidification.
- Participate in integrated stormwater management planning for shared watersheds
- Work with local governments and regional districts to reduce the risk of cross-contamination during flood events

### Expand Public Awareness:

TWN is actively engaging all levels of government, academics, industry, and the community on climate change issues. TWN engages all provincial and federal climate-related policy, legislative, and regulatory reviews, as capacity and resources allow. TWN will continue these efforts and emphasize the growing threat posed by OA, any trends identified by CEMI and WQOs data collection, and actions to be taken to address OA.





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