



Identifying Knowledge Gaps

Notes and Reflections on Georgia Strait Alliance's Third and Fourth

Waterfront Forums

April 16, 2015, SFU Harbour Centre, Vancouver

Addendum - June 25, 2015, Creekside Community Centre, Vancouver



Georgia Strait Alliance
Caring for Our Coastal Waters

Identifying Knowledge Gaps

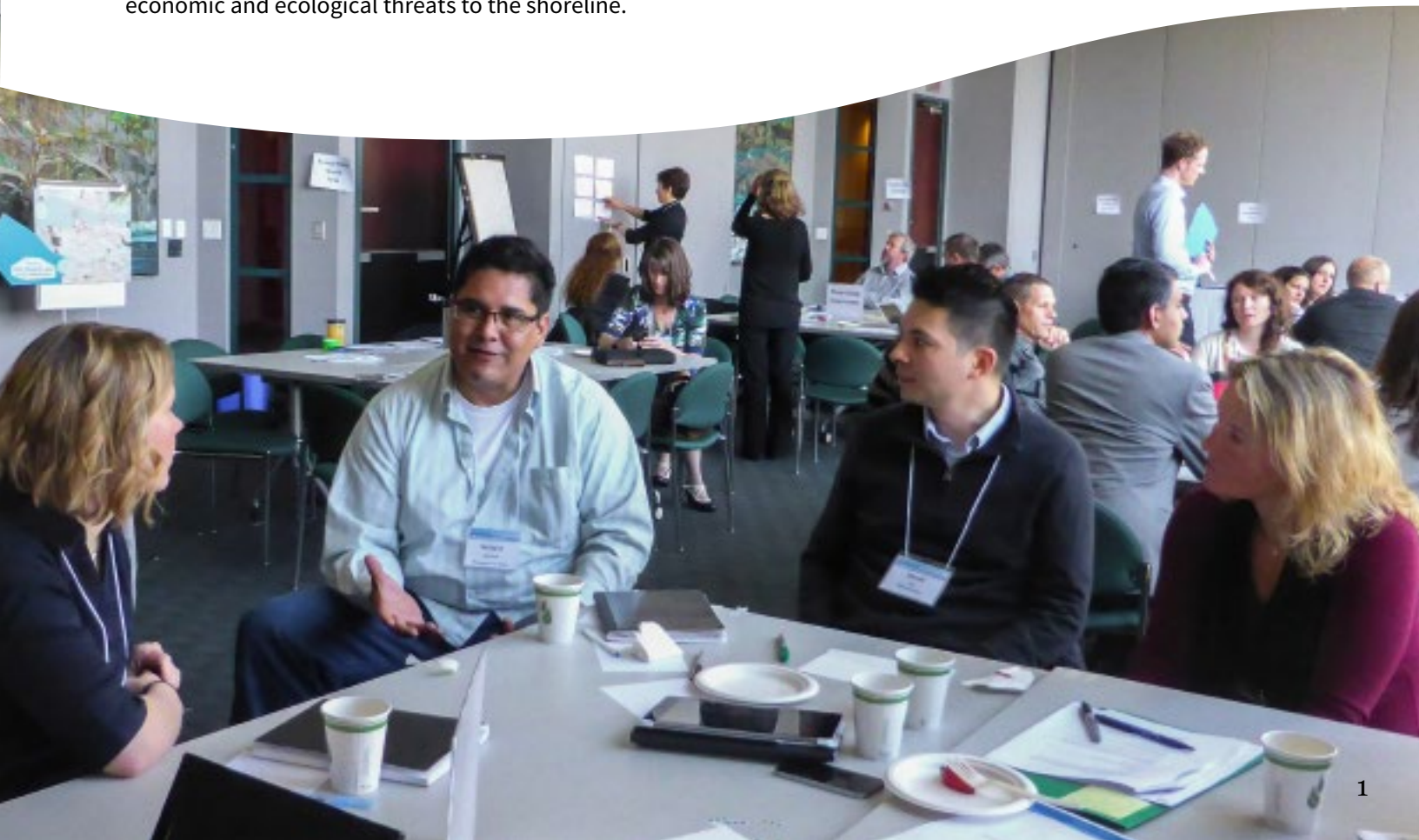
As the interface where land and water meet, Vancouver's shoreline has been drawing people to its iconic playground for hundreds of years to live, recreate and be inspired. The waters that surround Vancouver provide varying transportation options to our community, ushering folks to and from the North Shore and around False Creek. The waterfront is also headquarters to Canada's largest and most diversified port, facilitating trade with more than 160 economies worldwide, creating jobs and contributing \$10 billion to the Gross Domestic Product each year. Amidst all this activity, lies a productive and diverse ecosystem which supports more than 1,200 species, including cetaceans, salmon, overwintering water birds and eelgrass beds.

However, increasing pressures from population and industrial growth, urbanization, pollution, as well as intensifying conflicts over land use are putting our shoreline at risk. Impacts from climate change and rising sea levels are also quickly becoming a concern and integrated planning is essential to address the social, economic and ecological threats to the shoreline.

In 2013, GSA launched the Waterfront Initiative – a collaborative effort that brings together a growing number of multi-jurisdictional stakeholders and citizens to define a common agenda and take action to ensure a diverse, thriving, and resilient waterfront for all.

Integrated planning is essential to address the social, economic and ecological threats to the shoreline.

On April 16, 2015, a broad spectrum of stakeholders gathered once again to work together and collectively shape Vancouver's waterfront. This forum was the third of its kind, the first two taking place in 2014, to sketch out what a sustainable, prosperous future for Vancouver's shoreline could look like and how we can get there. The focus for this edition was twofold: to begin the process of developing a State of the Waterfront Report and to stimulate discussions on how this group will conduct its future work together.



Developing Measurable Objectives

In order to develop Measurable Objectives to work towards, GSA must first establish a baseline of the current status of priority themes along the waterfront. Input from key agencies, businesses, researchers and scientists is essential to indicator development and prioritization and GSA used this forum to collect ideas on how to proceed and where to focus efforts.

Following a warm welcome from the Musqueam First Nation, participants engaged in a lengthy discussion on what we know, what we don't know and what we need to know about the shoreline to assess its current state. Participants were divided into groups according to their interest in five priority themes (right), which have been developed by the Waterfront Network over the past year.

Once sorted, participants were asked to identify and prioritize potential indicators and data sources that can help us measure if our waterfront is thriving, sustainable, diverse, integrated and resilient.



Priority Themes

- Flourishing Ecosystems
- Living on the Waterfront
- Working on the Waterfront
- Access to Nature
- Transportation

Key questions discussed amongst the groups included:

- What data sets, research (past or present), ongoing monitoring programs or other sources of data currently exist that can reliably reflect the current state of each priority themes?
- What are the gaps in knowledge?
- What are the key sub-categories within each theme that must be addressed? (e.g. Transportation Theme: public transit, recreational, industrial...etc.)
- Are you aware of potential funding sources, agencies or groups that can help to fill these gaps?
- Who else should be participating in this discussion (e.g. Who is missing at the table)?



Summary of Participant Feedback

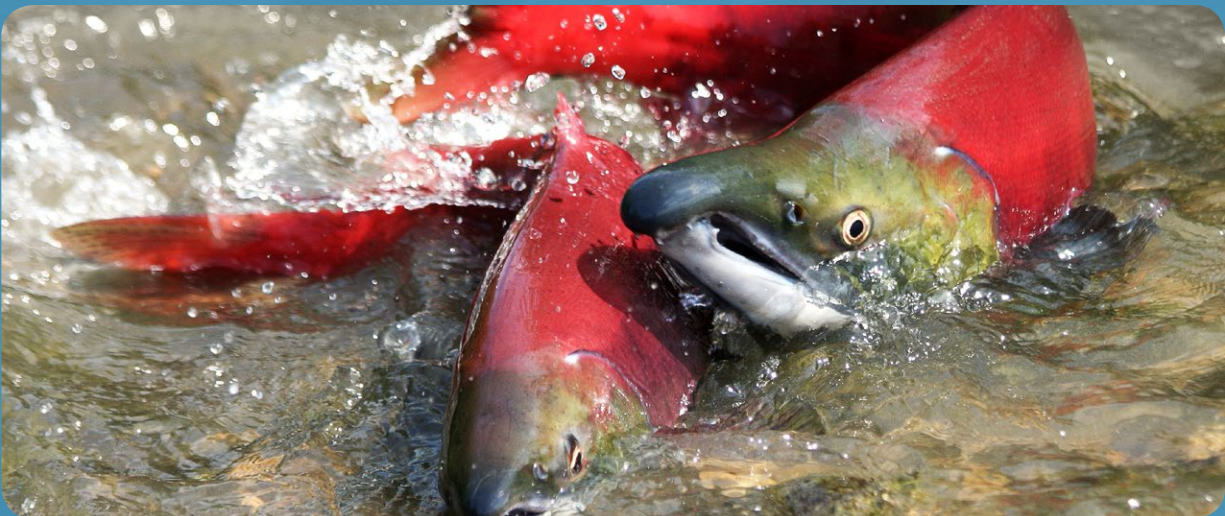
FLOURISHING ECOSYSTEMS

POTENTIAL INDICATORS

- Algal Blooms
- Beach Closures
- Chemical Pollutants
- Ecosystem Services
- E. Coli levels
- Forage Fish Populations
- Forest Cover
- Freshwater Inflow and Oceanographic Circulation
- Habitat Compensation Success
- Habitat Loss
- Impervious Surfaces
- Industrial Effluent Permits
- Keystone Species Health (ie. Salmon)
- Shellfish and Finfish Health
- Shoreline Change over Time
- Shoreline Habitat
- Shoreline Litter
- Species at Risk
- Species Diversity
- Vulnerability to Climate Change Impacts
- Water and Sediment Quality
- Wild and Natural Areas

POTENTIAL SOURCES OF DATA

- BC MOE
- BIEAP-FREMP
- City of Vancouver
- Commercial Fisherman
- Diving Network Reports
- Fisheries and Oceans Canada
- Environment Canada
- False Creek Watershed Society
- Fraser Basin Council
- Friends of Forage Fish
- Metro Vancouver
- Musqueam First Nation
- Simon Fraser University
- Stanley Park Ecology Society
- Squamish First Nation
- Tsleil Waututh Nation
- Vancouver Aquarium
- Vancouver Park Board
- Pacific Estuary Conservation Program
- Port Metro Vancouver
- University of British Columbia



ACCESS TO NATURE

POTENTIAL INDICATORS

- Beaches
- Cultural Sites
- Cultural Usage
- Economic Value
- Natural Habitat
- Points of Public Access
- Recreational Opportunities and Usage
- Recreational Pathways
- Type of Public Access

POTENTIAL SOURCES OF DATA

- City of Vancouver
- Metro Vancouver
- Vancouver Park Board



WORKING ON THE WATERFRONT



POTENTIAL INDICATORS

- Diversity of Sectors
- Employment
- Expansion Projects
- Industrial Land Availability and Capacity
- Infrastructure
- Vessel Traffic (Commercial, Industrial, Private, Cruise Ships, Ferries)
- Volume and Type of Cargo

POTENTIAL SOURCES OF DATA

- Port Metro Vancouver
- City of Vancouver

LIVING ON THE WATERFRONT

POTENTIAL INDICATORS

- Commuting Distance
- Cultural Use
- First Nations Fisheries
- Percentage of affordable housing
- Percentage of mixed uses
- Residential vs. ownership
- Shellfish and Finfish Health

POTENTIAL SOURCES OF DATA

- City of Vancouver
- Musqueam First Nation
- Real Estate Industry
- Sports Fisheries
- Squamish First Nation
- Tsleil Waututh Nation



TRANSPORTATION



POTENTIAL INDICATORS

- Access Points via Public Transit
- Commercial Transportation use of the water
- Industrial Transportation use of the water

POTENTIAL SOURCES OF DATA

- Port Metro Vancouver
- Translink

The Next Steps

Working Groups

Another key component of the Forum was to begin discussions regarding how the Working Groups that are forming around each theme will work together to achieve their goals. This was the first step in creating a framework. Here is what we heard from participants:

- Funding commitments from key stakeholders may help to move the process forward
- Formal agreements must be in place with critical partners that facilitate follow-up
- GSA should take a leading role by facilitating, coordinating and convening Working Groups
- Working Groups should establish SMART (specific, measurable, actionable, realistic, time bound) goals to make the most progress
- Working Groups should build on participant members' work, rather than add to it
- The role of Working Groups might vary from advisory to technical, depending on who is at the table and what they are tasked with
- Communication amongst participants and intermittent integration of groups will be key

Membership

Participants also agreed the process would benefit from more continuous or increased representation from the following organizations and sectors:

- BC Ministry of Environment
- BC Ministry of Forests, Lands and Natural Resource Operations
- Federal government agencies
 - Fisheries and Oceans Canada
 - Environment Canada
- First Nations
 - Tsleil Waututh Nation
 - Musqueam First Nation
 - Squamish First Nation
- City of Vancouver planning and engineering staff
- Metro Vancouver
- University Endowment lands
- Industry
- Academia
- Local Stewardship groups
- Downtown Vancouver Association
- Maritime organizations



Addendum

June 25, 2015 Forum Proceedings

On June 25, 2015, the Waterfront Initiative Network convened once again to review the draft report 'A Comprehensive Assessment of Available Data Reflecting the Status of Vancouver's Waterfront', provide input on gaps and discuss next steps for the initiative. It was emphasized that while this phase of the process is focused mainly on reviewing potential indicators in silos, the State of the Waterfront (SOTW) Report will help us to better understand their interaction with each other and how the cumulative effects of each component can impact the overall condition of the waterfront. GSA also clarified that integrating guiding principles for all management and land use plans will continue to be a goal for the Waterfront Initiative.

This forum also served as a starting point for establishment of Working Groups according to the five priority themes: Flourishing Ecosystems, Living on the Waterfront, Working on the Waterfront, Transportation and Access to Nature. GSA emphasized that Waterfront Initiative Network input on Working Group format

and function will be integrated in these early stages of development and encouraged participants to sign up for a group according to their area of interest and expertise. It is anticipated Working Groups will be struck in the fall and their first order of business will be moving the Indicator Development process forward. Long term goals for the Working Groups will include helping to implement and track progress on Measurable Objectives as identified in the future Waterfront Initiative Action Plan.

The following is a summary of input provided from Forum participants on potential indicators and data sources, specific data sets and sources that can contribute to current or potential indicators, indicators of climate change and funding models. While many of the indicators suggested may not currently have datasets rigorous enough to be included in a SOTW report, they have been captured nonetheless, as they may stimulate future work on indicator design and development.



I. Potential Indicators and Data Sources

* shows an indicator that was also suggested at the April 2015 Waterfront Initiative Forum

FLOURISHING ECOSYSTEMS

POTENTIAL INDICATORS

- Benthic Invertebrates
- Catch level and quality of fish
- Comprehensive shoreline management plans
- Cultural ecosystem services
- Forage fish populations *
- Marine mammal bioaccumulation
- Physical pollutants
- Shoreline sensitivity to spills
- Species Inventory and changes over time
- Spill response preparedness
- Tree structure in riparian zones
- Stormwater outfalls

It was also suggested that Water and Sediment Quality be represented in a broader sense

POTENTIAL SOURCES OF DATA

- BC Shore Spawners Alliance
- Environment Canada
- First Nations Traditional Ecological Knowledge
- Fisheries and Oceans Canada
- Great Canadian Shoreline Cleanup
- IUCN Red Listed Species
- Sea Watch Society
- Stanley Park Ecology Society
- Surfrider Foundation
- Squamish Streamkeepers
- Vancouver Aquarium
- West Coast Marine Response Corporation

ACCESS TO NATURE

POTENTIAL INDICATORS

- Bike access
- Boat owners
- Docks and boat launches
- Fishing boats and catches
- Marine rental equipment locations
- Pathway users (pedestrian and cyclists) *
- Parking lot usage
- Pump out Stations
- Public knowledge of waterfront access
- Recreational users of the water *
- Rental facilities
- Transit use through waterfront station and seabus
- Yacht Clubs and Marinas

POTENTIAL SOURCES OF DATA

- Fisheries and Oceans Canada
- Translink



TRANSPORTATION

POTENTIAL INDICATORS

- Assessed land value of waterfront parcels
- Car parking availability
- Cargo volume broken down by carrier
- Current industrial uses of water and whether those industries require water usage for their business
- Fuel type/usage
- Land based vs. water based transport
- Land use rate of change/Number of rezoning applications
- Marina and yachting population
- Number of spills
- Recreational/Fishing boats
- Ridership
- Risk of cargo being carried
- Seaplane and helicopter movement
- Supply and demand of waterfront

POTENTIAL SOURCES OF DATA

- BC Assessment
- Burlington Northern Santa Fe Railway
- Canadian Pacific Railway
- City of Vancouver
- CN Rail
- Corilair
- Harbour Air
- Kenmore Air
- Port Metro Vancouver
- Saltspring Air
- Seair Seaplanes
- Southern Railway of BC
- Translink
- Tyax Adventures

WORKING ON THE WATERFRONT

POTENTIAL INDICATORS

- Agriculture
- Aquaculture
- Coast Guard response stations
- Cultural sites/Areas of First Nations significance
- Land ownership/Tenure
- Log booming
- Inventory of types of home businesses
- Noise Pollution
- Oil spill response centres and equipment
- Storm drains
- Surface and underwater noise and light
- Transfer of Lands/Change in Ownership
- Vessel Traffic (by category)
- Water discharge permits

POTENTIAL SOURCES OF DATA

- Canadian Coast Guard
- Canadian Environmental Assessment Agency
- Fisheries and Oceans Canada
- Transport Canada
- Vancouver Aquarium
- Western Canada Marine Response



LIVING ON THE WATERFRONT

POTENTIAL INDICATORS

- First Nations culture and heritage *
- Demographic
- Housing reports
- Complete, smart communities
- Cultural value of waterfront
- Cumulative Effects of Industry and Transport
- Number of vacant units (local vs. foreign ownership)
- Walkability to services

POTENTIAL SOURCES OF DATA

- Canadian Mortgage Housing Corporation
- City of Vancouver
- Real Estate Board
- Statistics Canada
- First Nation Traditional Ecological Knowledge
- Urban Development Institute
- Urban Land InstituteTyax Adventures

II. Specific Data Sets and Sources that Can Contribute to Current or Potential Indicators

Data Sets	Data Sources
Winter waterbird surveys	Stanley Park Ecology Society
Mussels and sediment quality	Vancouver Aquarium
Sensitive Ecosystem Inventory (SEI)	Metro Vancouver
Terrestrial Ecosystem Mapping (TEM)	BC Ministry of Environment
2010 Metro Vancouver Land Cover Classification	Metro Vancouver
1995, 2000, 2006, 2011 Metro Vancouver Land Use Plan	Metro Vancouver
Marine Event Permits	Port Metro Vancouver
Marine Events	Jericho Sailing Centre

III. Indicators of Climate Change

POTENTIAL INDICATORS

- Algal blooms/Red tides
- Brackish water/Salinity
- Changes in indicator species
- Changes in spawning areas
- Erosion
- Extreme weather events
- Food web changes related to temperature, food availability, nutrients
- Green projects and technology
- Invasive species populations
- King tides
- Precipitation patterns
- Progressive climate change initiatives
- Sea level rise
- Sediment flow
- Shipping traffic
- Shoreline change
- Snow pack/freshet
- Water table level
- Water quality, temperature, acidity/alkalinity, pH and oxygen levels

POTENTIAL SOURCES OF DATA

- Adaptation to Climate Change Team (ACT)
- BC Ministry of Environment
- City of Vancouver
- Cruise Ships
- Environment Canada
- Fraser Basin Council
- Harbour Master
- Insurance Bureau of Canada
- Insurance companies
- Marine Environmental Observation Prediction and Response Network (MEOPAR)
- Ocean Networks Canada
- Railway Association of Canada
- Transport Canada
- UBC School of Community and Regional Planning
- Vancouver Aquarium Coastal Ocean Research Institute

IV. Funding Models

POTENTIAL FUNDING MODELS

- Business Improvement Association
- Fraser Basin Council
- NSERC
- Oceanwise Program
- One for One Model
- Pearson Airport Eco business zone
- Toronto Waterfront Regeneration Trust

POTENTIAL SPONSORSHIP OPPORTUNITIES/PARTNERS

- Academia (UBC, SFU)
- Banks
- BCAA
- Board of Change
- Board of Trade
- Chip Wilson's Waterfront House
- Credit Unions
- Gordon and Betty Moore Foundation
- Harbour Air
- Hootsuite
- Industrial Light and Magic
- Insurance Brokers of BC
- Law Firms
- Marine Insurance Association of BC
- Microsoft
- Port Metro Vancouver
- Tides Canada



GSA has reached out—and continues to reach out—to a broad network of organizations and individuals to engage them in the Waterfront Initiative. Below is a list of organizations who were able to participate in our third and fourth Waterfront Forums:

BC Ministry of Forests, Lands and Natural
Resource Operations
BC Stewardship Centre
City of Vancouver
Colliers International
Concord Pacific
Dillon Consulting
Evergreen
Fraser Basin Council
Fraser River Keeper
Hemmera
I Budke Coaching & Consulting
International Longshore and Warehouse Union
Jericho Sailing Club
Kerr Wood Leidal Associates
Light House Sustainable Building Centre
Metro Vancouver
Modus Planning Design and Engagement

Musqueam First Nation
Port Metro Vancouver
PWL Partnership
Quadra Architecture
Rivershed Society of BC
Simon Fraser University
Sharp Six
South Coast Conservation Program
Stanley Park Ecology Society
Surfrider Foundation Vancouver
The Tyee
Tides Canada Foundation
UBC SCARP
Vancouver Aquarium
Vancouver Maritime Museum
West Coast Environmental Law

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