

# NATURAL CAPITAL IN THE DISTRICT OF WEST VANCOUVER

UBCM: Large Urban Communities Forum

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# Presentation Outline

1. What is natural capital?
2. Why do a natural asset inventory?
3. How we did the inventory
4. Analysis by natural asset class
5. Valuation summary
6. Next steps

# What is municipal natural capital?

- The fundamental purpose of a municipality is to provide services
- It follows that what we call assets are only really assets if they provide or support the provision of a flow of services

# What is municipal natural capital?

- Natural capital, or natural assets, are the stock of natural resources that provide a flow of services, called “eco-system services”
- If these eco-system services can supplement, support, or even replace engineered assets in the provision of municipal services, then they must be understood as “municipal natural capital”
- Examples: wetlands, forests, waterways, foreshores, open areas, aquifers, riparian areas

# Natural Asset Inventory: Project Objectives

Create an initial, high level inventory of natural capital to:

- inform decision-making
- raise public awareness
- start a conversation



# Considerations

- ❖ involve diverse staff team with understanding of the main asset classes
- ❖ use previously published work
- ❖ submit to external advisory panel for credibility
- ❖ make it engaging and easy to read
- ❖ anticipate challenges

# Natural asset classes



Forests – subdivide Upper and Urban forests



Waterways – lakes, ponds, river, creeks, streams, and ditches



Foreshore – beach and rocky foreshore



Parks and open space – grassland and shrubs

# Valuation methods - overview

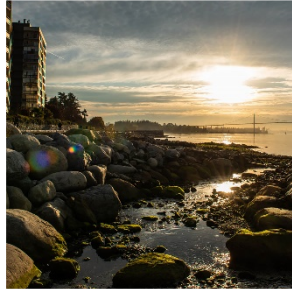
- Basic formula is area x annual service value  
(ecosystem hectares x \$ value of services per hectare for that ecosystem type)
- Area in hectares comes from District GIS department using in house image capture and Metro Vancouver database
- Ecosystem service values obtained from valuations of natural capital in Howe Sound and Lower Mainland



# Ecosystem services - examples

Forests	Waterways	Foreshore	Parks and open space
<ul style="list-style-type: none"><li>• water filtration</li><li>• clean air</li><li>• carbon sequestration</li></ul>	<ul style="list-style-type: none"><li>• storm water management</li><li>• habitat</li></ul>	<ul style="list-style-type: none"><li>• erosion control</li><li>• recreation</li></ul>	<ul style="list-style-type: none"><li>• carbon storage in soils</li><li>• recreation</li></ul>

# Valuation methods



- avoided cost
- contingent valuation
- hedonic pricing
- opportunity cost
- travel cost
- replacement cost
- production

# Forests



Valuation driven mainly by role in regulating and filtering water.

Key issues and implications:

- climate change
- managing competing uses
- sensitive development
- protecting trees on private land

# Waterways



Valuation driven by clean water supply (reservoirs), and regulation of water flows (storm water management).

Key issues and implications:

- development
- riparian area management
- invasive species
- climate change

# Foreshore



Valuation driven by erosion regulation and recreation.

Lack of studies for west coast ecosystem services.

Key issues and implications:

- foreshore encroachments
- climate change and sea level rise
- shoreline restoration

# Parks and open space



Mostly qualitative as many parks and trails covered in Forest and Foreshore sections.

Includes grasslands in alpine areas, along rights of way, playing fields, school yards and private yards.

Focus on carbon storage in soils and recreation.

Key issues and implications:

- some key services, e.g. health, can't be valued yet
- increased demand and conflicts in use
- ecosystem degradation
- invasive plants

# Valuation summary

	All monetary amounts in \$1,000s CDN (2019)			
Natural capital asset class	Low estimate annual service	High estimate annual service	Low estimate asset	High estimate asset
Upper forest	\$13,167	\$37,197	\$438,885	\$1,239,911
Urban forest	\$6,442	\$18,200	\$214,737	\$606,662
Total waterways (including riparian buffer)	\$2,644	\$17,218	\$88,128	\$573,935
Total foreshore	\$4,837	\$16,487	\$161,234	\$549,589
Total grasslands	\$487	\$487	\$16,237	\$16,237
Total carbon storage – forest, soils	n/a	n/a	\$228,842	\$228,842
<b>Totals</b>	<b>\$27,577</b>	<b>\$89,589</b>	<b>\$1,148,063</b>	<b>\$3,215,176</b>

# Next steps

