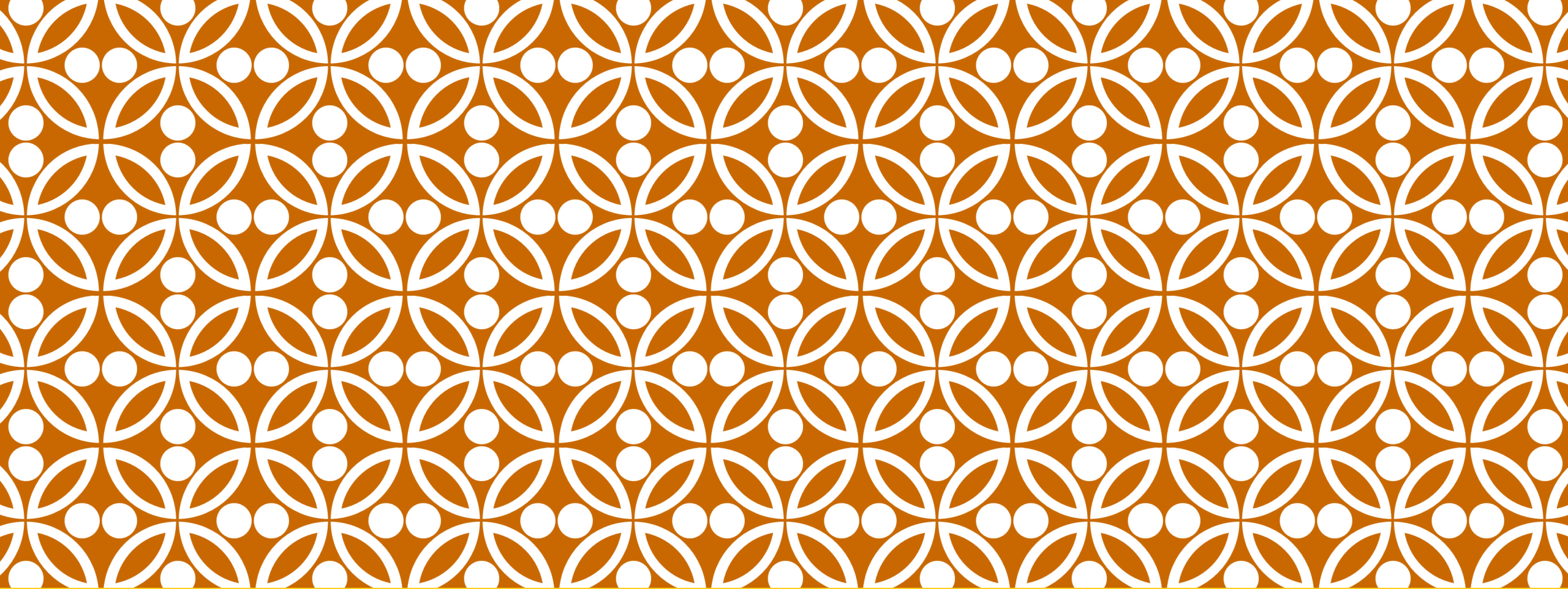




Mayor's Roundtable on Climate Change

PUBLIC FORUM

FEBRUARY 1, 2020



WHAT SHOULD WE DO ABOUT CLIMATE CHANGE? **BE BOLD.**

Presentation to Mayor's
Roundtable on Climate Change

By Megan Mitton, MLA –
Memramcook-Tantramar



**EVERY SYSTEM IS
PERFECTLY DESIGNED TO GET
THE RESULTS THAT IT GETS.**

- PAUL BATALDIN

GREEN NEW DEAL — IN CANADA



▼ Listen to the science



▼ Respect Indigenous rights & sovereignty



▼ Create millions of good jobs



▼ Enshrine dignity, justice, and equity for all

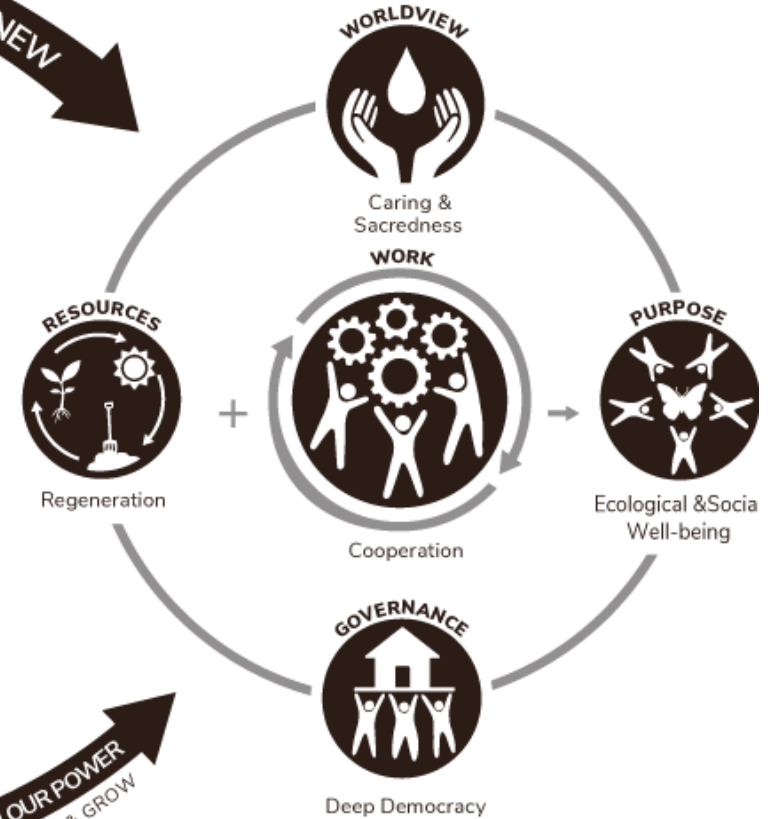
IDEA #1 — MAKE INCLUSIVE CLIMATE POLICY

- ❖ How do we make sure the most vulnerable and marginalized are not left behind and excluded?
- ❖ Not just change systems; also think about how we change systems:
 - ❖ What do we measure and how to we measure success?
 - ❖ Who is included?
 - ❖ Who benefits? Who is harmed?

Extractive Economy



Regenerative Economy



STOP THE BAD
SOLUTIONS THAT ARE VISIONARY AND OPPOSITIONAL
BUILD THE NEW



DIVEST FROM THEIR POWER
STARVE & STOP

INVEST IN OUR POWER
FEED & GROW



- A JUST TRANSITION MUST:**
- Shift economic control to communities
 - Democratize wealth and the workplace
 - Advance ecological restoration
 - Drive racial justice and social equity
 - Relocalize most production and consumption
 - Retain and restore cultures and traditions

IDEA #2 – WORK TOGETHER TO ADVOCATE

- ❖ Need to pressure other levels of government. Don't do it alone – UMNb?
- ❖ Don't let lack of action at another level stop Sackville:
 - ❖ LEAD & BE BOLD
 - ❖ OTHERS MAY FOLLOW, BE INSPIRED
 - ❖ MAY INFLUENCE PROVINCE OR COUNTRY
- ❖ Need policies and investments: affordable housing, public transit, adequate social assistance rates and supports, especially in face of climate change
 - ❖ ($\frac{2}{5}$ seniors live in poverty, between $\frac{1}{5}$ and $\frac{1}{2}$ children in NB live in poverty, many people with disabilities live in poverty - we don't need to accept this). These people will be impacted the hardest by climate impacts - do we need to fix things in a way that supports them.

IDEA #3 — BUILD POLITICAL WILL

- ❖ What if the councillors in Sackville all received education/understood policy options on this topic after the May 2020 election.
- ❖ What if every municipal councillor - through the Union of Municipalities of New Brunswick, and the Association de municipalités francophones du NB, and the cities, received this education?

CALLS TO ACTION

- ❖ MAKE INCLUSIVE CLIMATE POLICY: Apply GBA+ to everything you do
- ❖ WORK TOGETHER TO ADVOCATE: Work collaboratively to pressure other levels of government
 - ❖ DIY when they won't
- ❖ BUILD POLITICAL WILL: Educate politicians - municipal councillors - to generate political will to implement solutions and prioritize climate crisis (especially mitigation) ASAP.

CONCLUSION — BE BOLD

❖ **Be Bold.**

❖ We need the political will to change, but politics isn't just for politicians

❖ **If it's the right thing to do, we have every right to do it.**

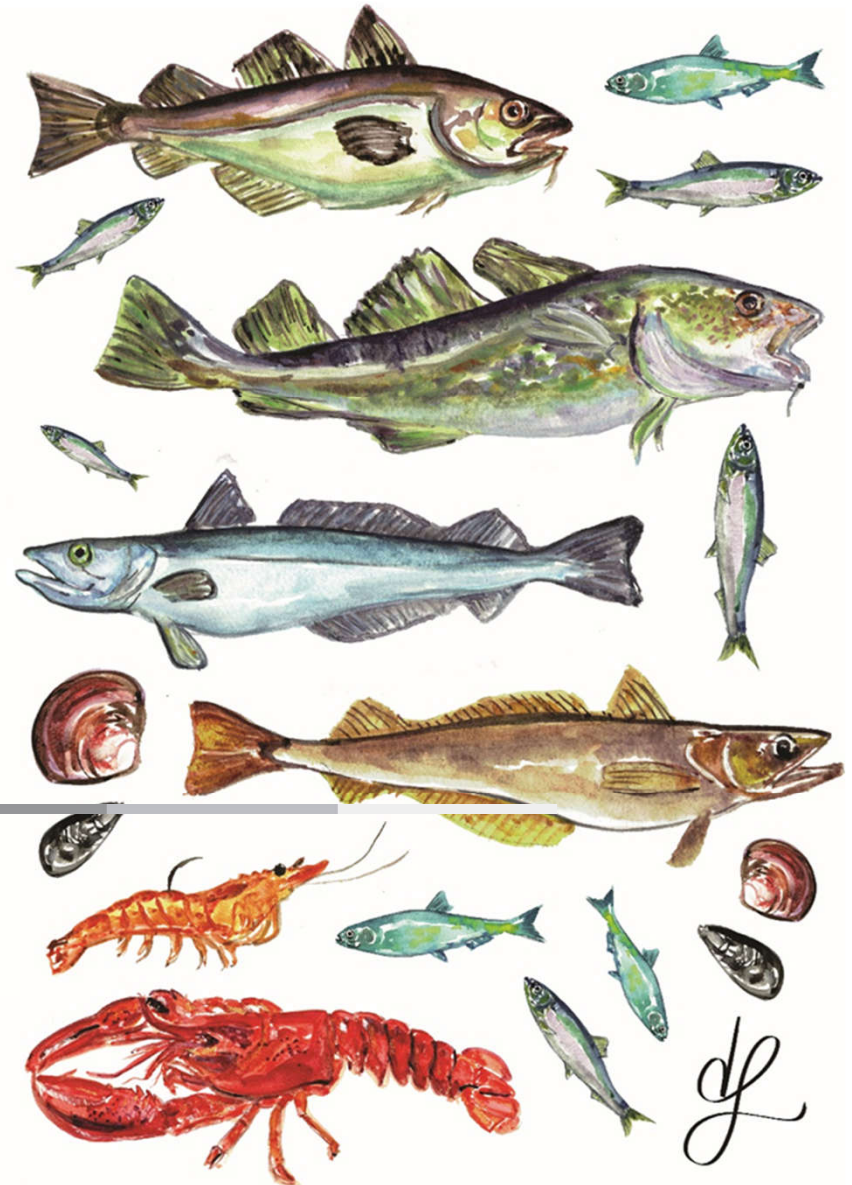


Government
of Canada

Gouvernement
du Canada

Mayor's Roundtable on Climate Change Sackville, New Brunswick

Presentation by Fisheries
and Oceans Canada
February 1, 2020



Canada



- sustainably managing fisheries and aquaculture
- working with fishers, coastal and Indigenous communities to enable their continued prosperity from fish and seafood
- ensuring that Canada's oceans and other aquatic ecosystems are protected from negative impacts
- ensuring commercial vessels and recreational boaters can safely navigate our waters
- being there to save lives and protect our environment when emergencies arise

2018 State of the Ocean Report



<https://www.dfo-mpo.gc.ca/oceans/soto-rceo/atlantic-atlantique/index-eng.html>

Global climate change is impacting the three Atlantic bioregions in many ways.



 GULF OF ST. LAWRENCE
 SCOTIAN SHELF
 NEWFOUNDLAND AND LABRADOR SHELVES



HIGHER WATER TEMPERATURES



SHIFTING CURRENTS



LESS SEA ICE



HIGHER ACIDITY



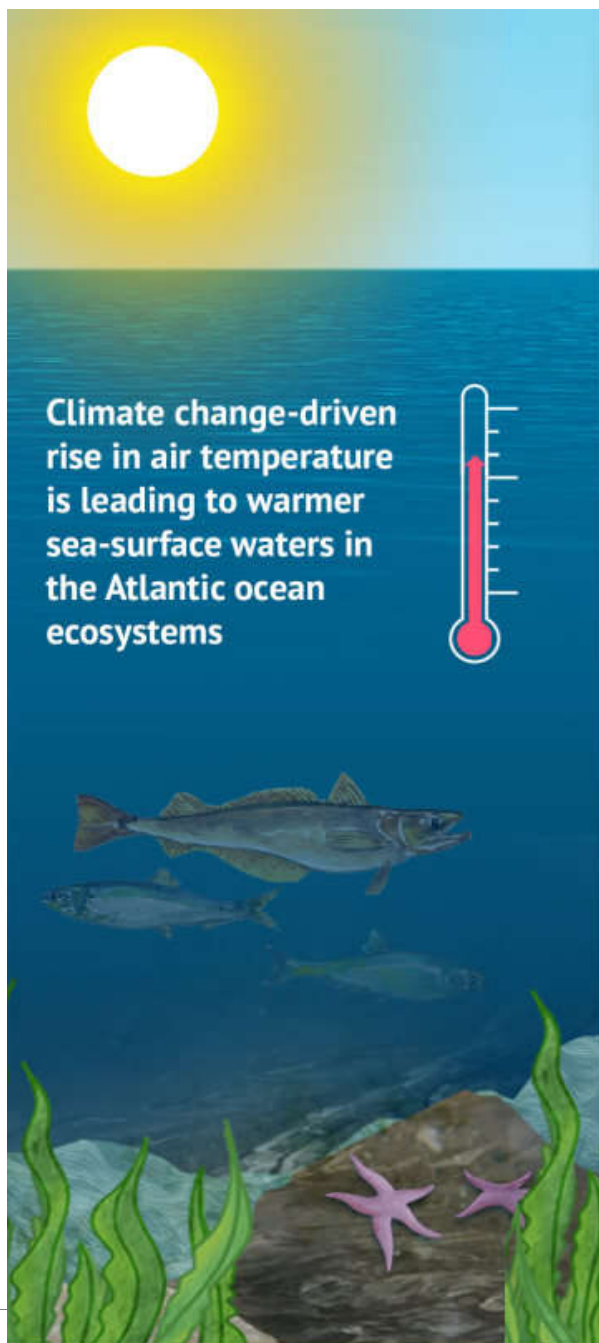
SHIFTING COMMUNITIES



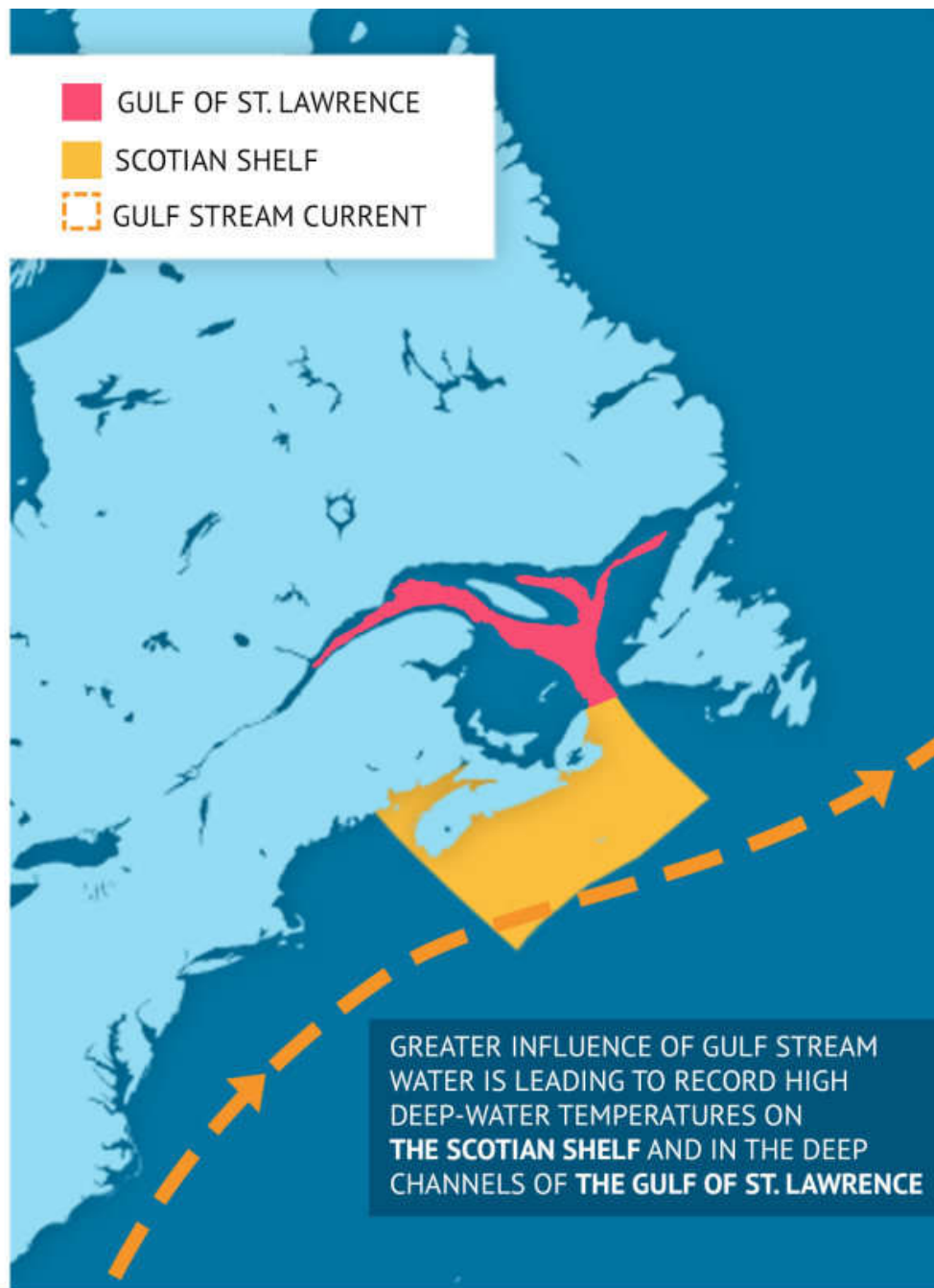
NOVEL AND INVASIVE SPECIES



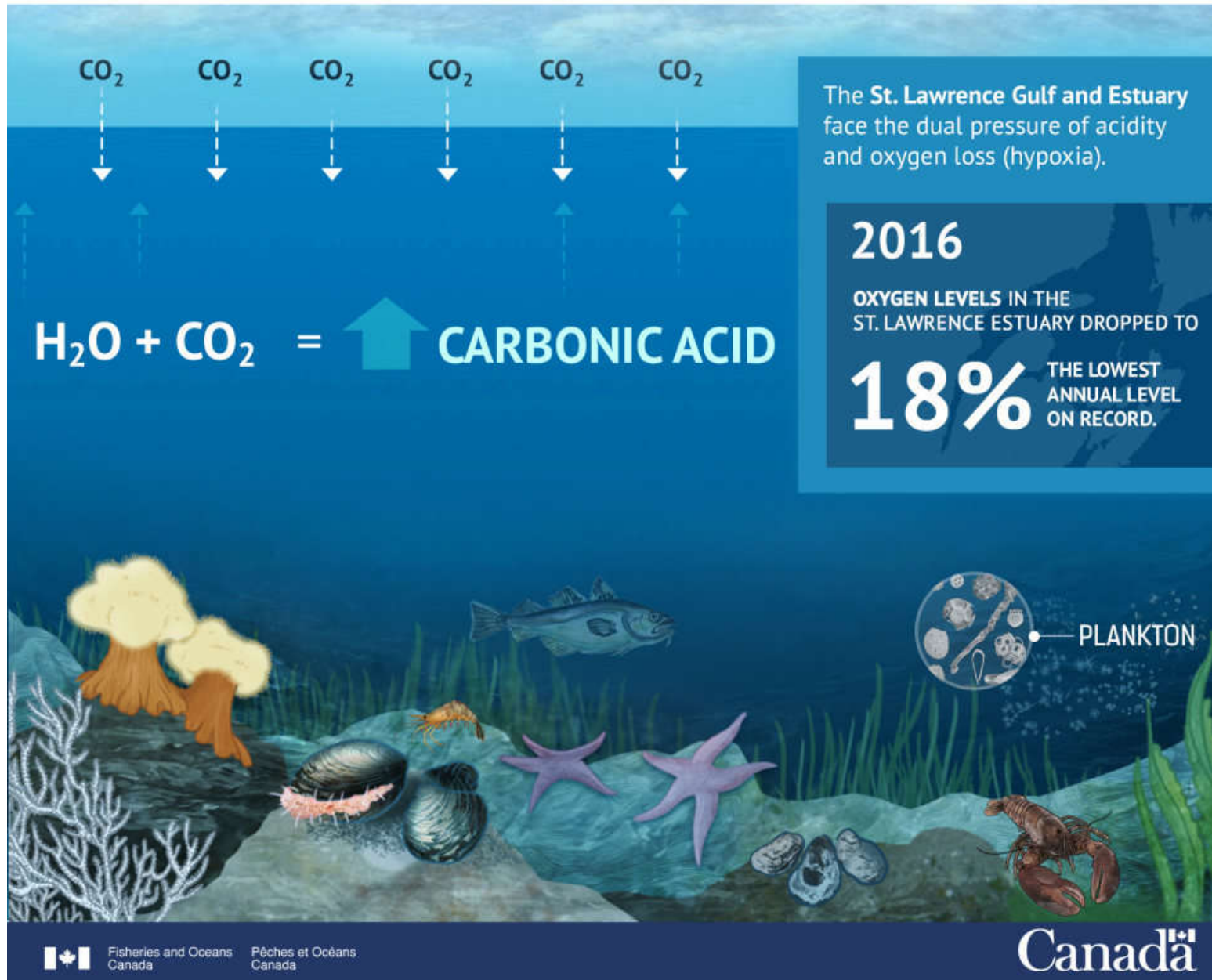
HABITAT IMPACTS



Climate change-driven
rise in air temperature
is leading to warmer
sea-surface waters in
the Atlantic ocean
ecosystems

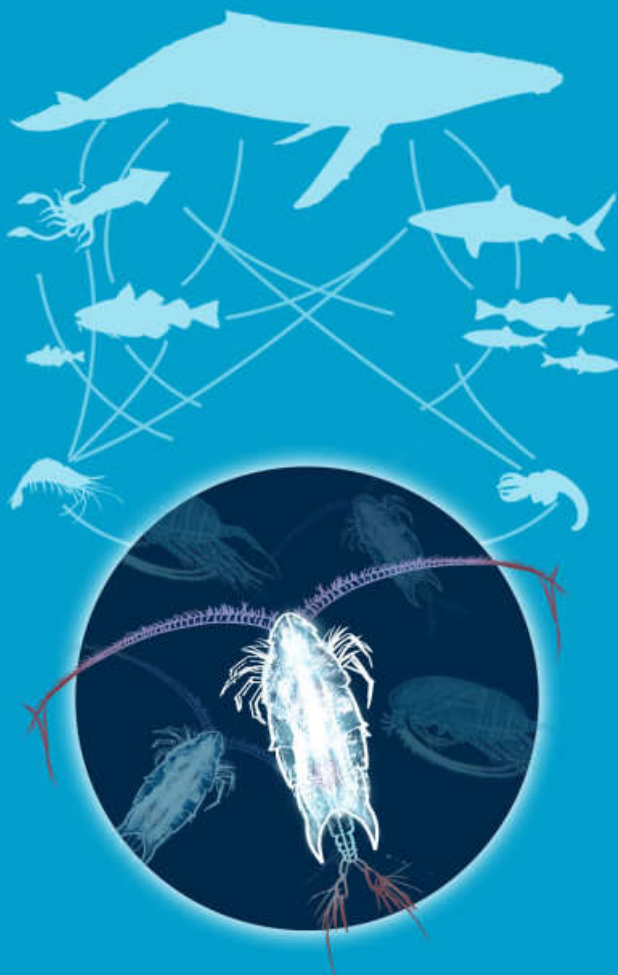


Canada's Atlantic waters are acidifying more quickly than in other parts of the world. Normal functions of marine organisms are affected by increased acidification and oxygen loss.

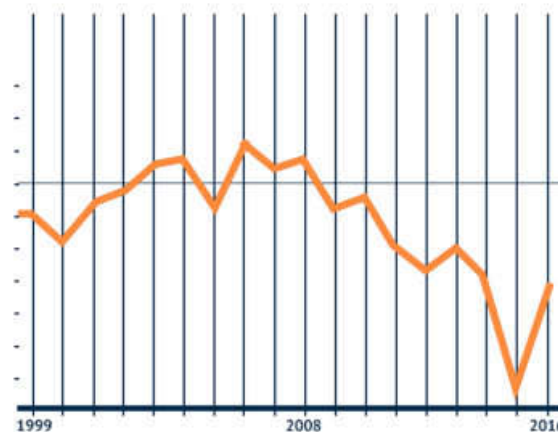


In all three Atlantic bioregions, zooplankton populations are changing.

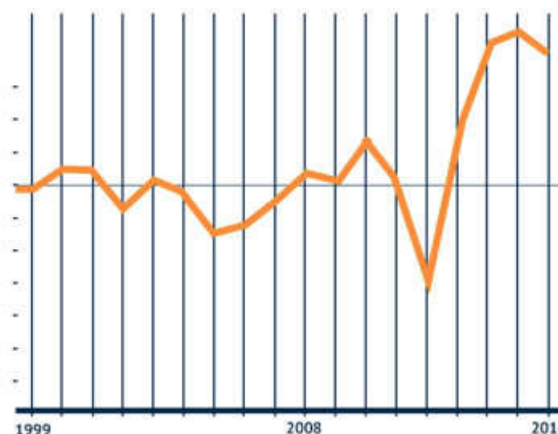
TINY CRUSTACEANS CALLED **COPEPODS** ARE THE MOST NUTRITIOUS ZOOPLANKTON FOR GROWING ATLANTIC FISH TO EAT.



IMPORTANT COLD-WATER COPEPODS ARE **DECREASING**.



SMALLER, LESS NUTRITIOUS COPEPODS ARE **INCREASING**.



Changes are occurring in ecologically important habitats including intertidal flats, kelp and eelgrass, and coral and sponge habitats.

INTERTIDAL FLATS

ABOVE SEDIMENT

SANDPIPER MUMMICHOG

BELOW SEDIMENT

MUDWORM SOFT-SHELL CLAM

EELGRASS

↑ NEWFOUNDLAND

JUVENILE COD WHITE HAKE

KELP

↓ NOVA SCOTIA

ROCK CRAB LOBSTER

CORALS AND SPONGES

COASTAL AND OFFSHORE AREAS HAVE CORAL AND SPONGE BEDS THAT PROVIDE NURSERIES TO MANY DIFFERENT SPECIES

SQUID EGGS SHARK PURSE

REDFISH GRENADIER

SAND DOLLARS

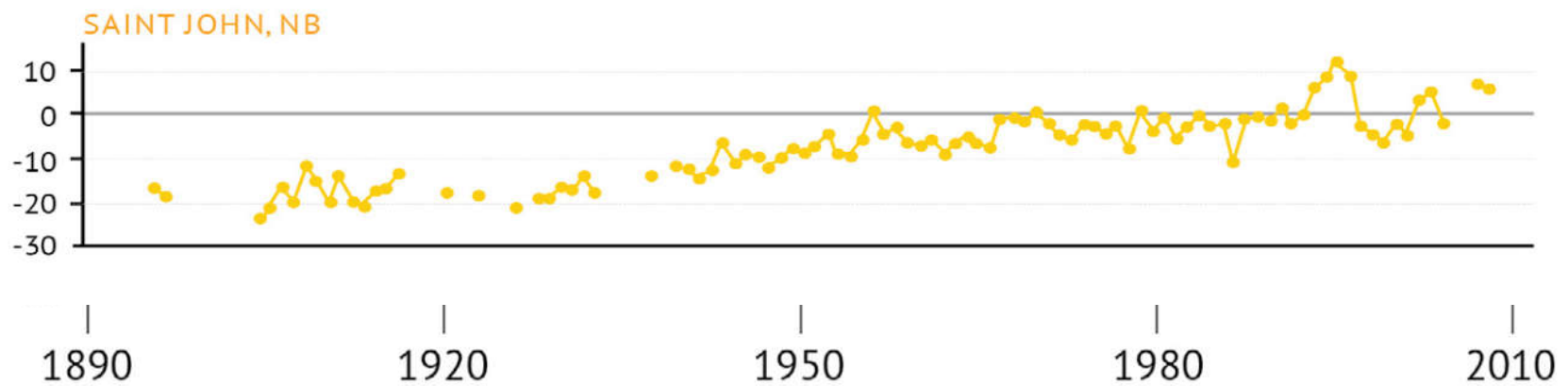
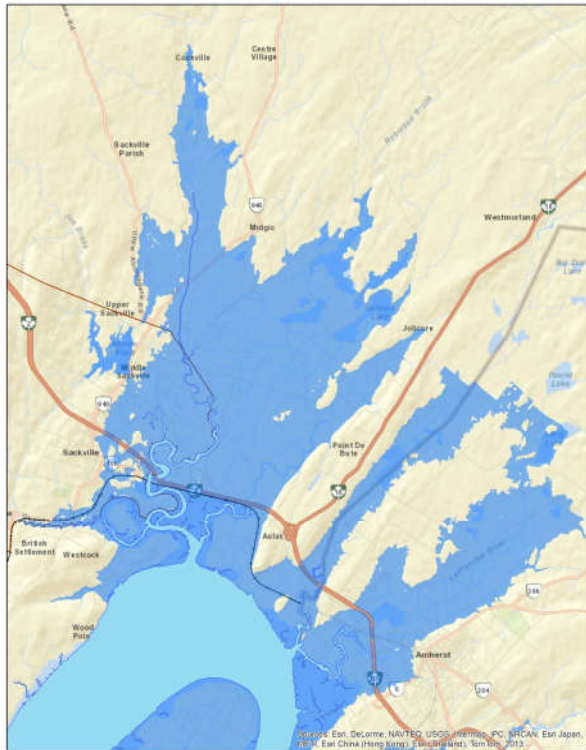
SAND DOLLARS PLAY AN IMPORTANT ROLE IN DISTURBING SEDIMENTS AS THEY MOVE AND FEED

SOME POSSIBLE STRESSORS TO ECOLOGICALLY IMPORTANT HABITATS ARE:

COASTAL EROSION
 WARMING TEMPERATURES
 SEA LEVEL RISE

STORMS
 HIGHER NUTRIENT LEVELS
 HUMAN-CAUSED

Sea-level Rise



Our ocean, our environment and our wildlife has been altered and will continue to be altered, likely at an increasing pace, due to climate heating.....

RESILIENCE



- Assist **resilience** in the local **environment and wildlife**
- Assist **resilience** of citizens to adapt to change
- Ideas for how to do this is why we are here today.....



Natural Asset Management

James Bornemann

Southeast Regional Service Commission

February 1, 2020 presentation to
Sackville's Mayor's Roundtable
on Climate Change – Public Forum

Adaptation ✓

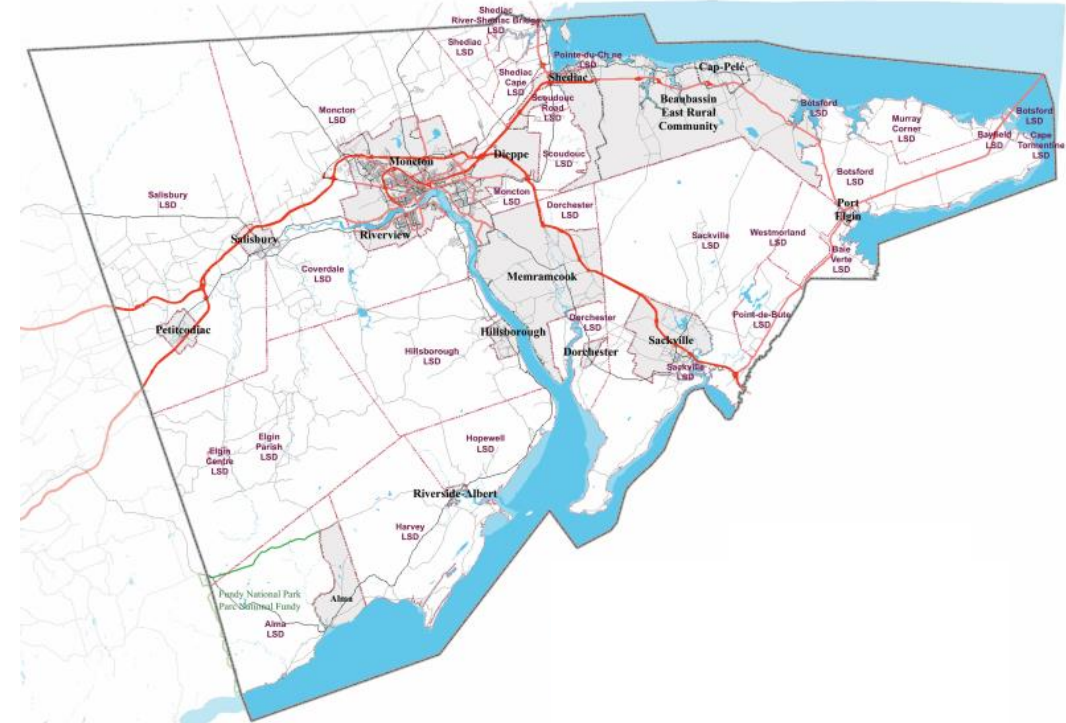
Mitigation ✓

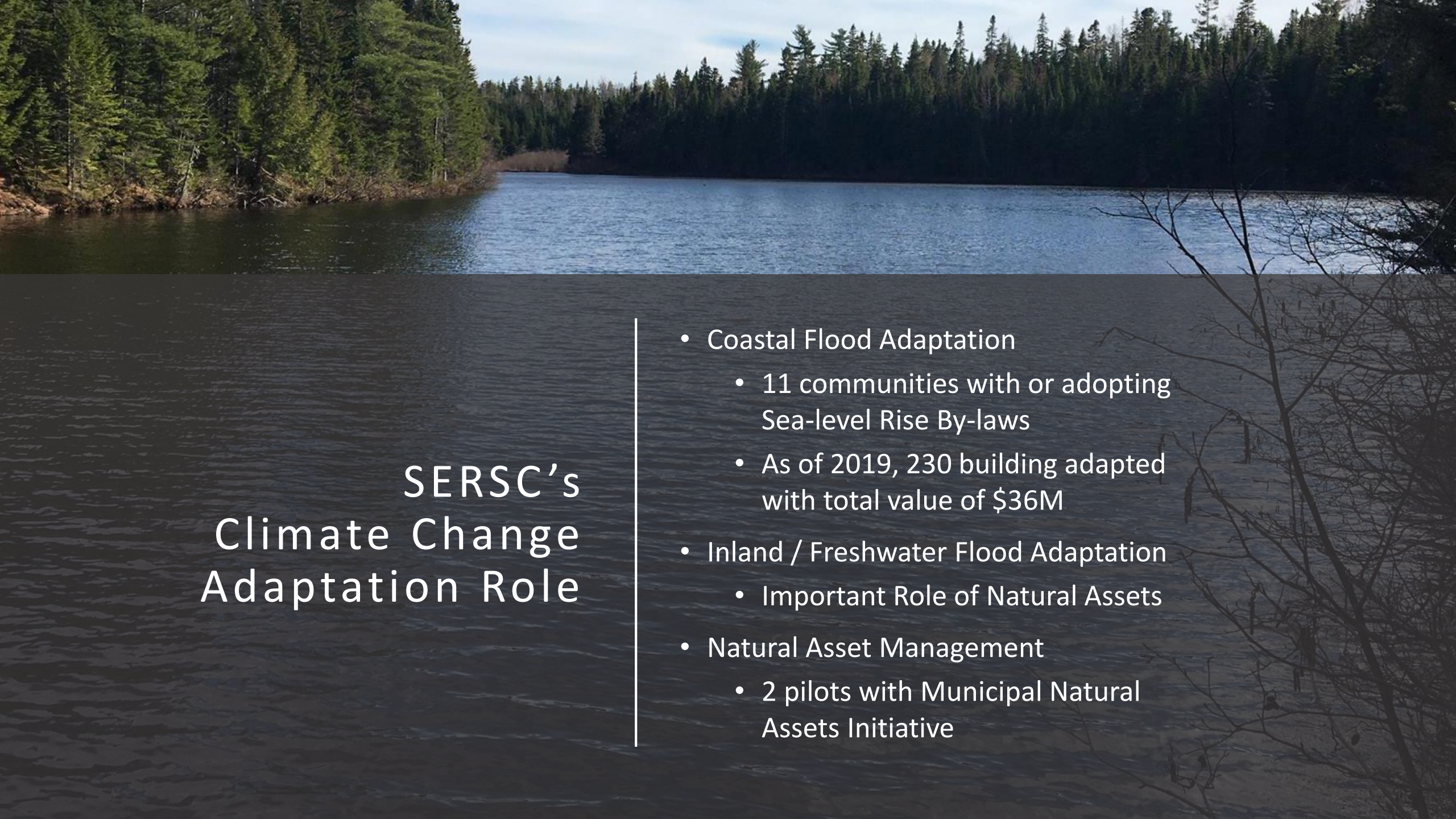
Low cost ✓

Multiple benefits ✓

Southeast Regional Service Commission

- Shared services model
- Eco360
- Land Planning and Development services for 11 municipalities and rural areas





SERSC's Climate Change Adaptation Role

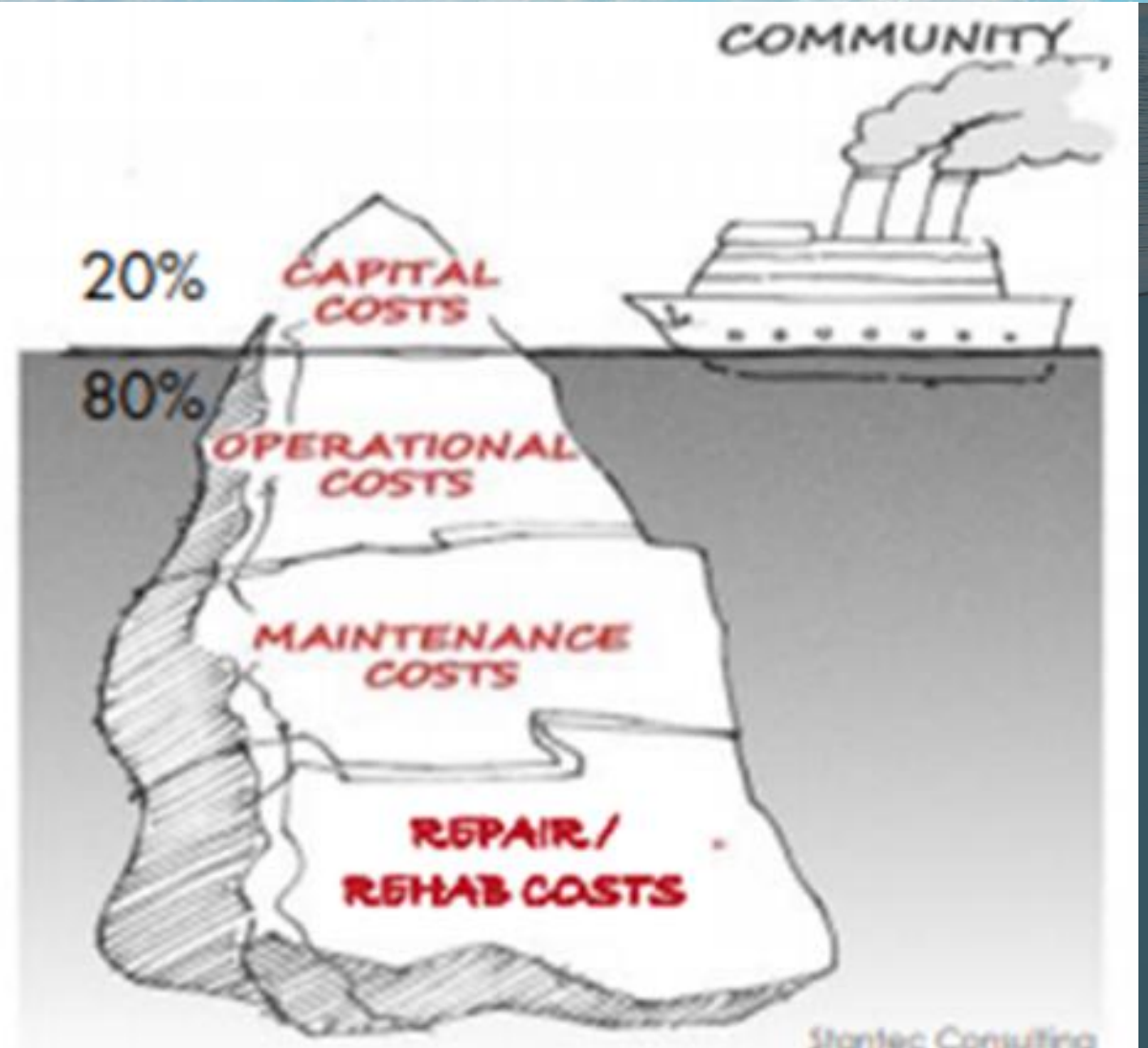
- Coastal Flood Adaptation
 - 11 communities with or adopting Sea-level Rise By-laws
 - As of 2019, 230 building adapted with total value of \$36M
- Inland / Freshwater Flood Adaptation
 - Important Role of Natural Assets
- Natural Asset Management
 - 2 pilots with Municipal Natural Assets Initiative

Asset Management

- Asset Inventory
 - What assets do we have?
- Condition assessment
 - Are assets meeting desired level of service?
- Prioritize asset improvement
 - Which assets need to be upgraded first?
 - How much will it cost to bring assets back to desired level of service?
- Long-term planning

Infrastructure Deficit

- Large infrastructure investments 1960s and 1970s
- Assets not-maintained overtime
- Today's challenge – reduce deficit & grow
 - Natural assets opportunity



Types of infrastructure

Gray Infrastructure

- Roads
- Water and sewer pipes
- Storm water networks
- Water treatment plant

Green Infrastructure

Natural Assets

- Wetlands
- Forests
- Parks
- Lakes/Rivers/
Creeks
- Fields
- Soil

Enhanced Assets

- Rain Gardens
- Bioswales
- Urban Trees
- Urban Parks
- Biomimicry
- Stormwater
pond

Engineered Assets

- Permeable pavement
- Green Roofs
- Rain Barrels
- Green Walls
- Cisterns



Natural Asset Management

- Understand importance of natural assets to communities
- Value natural assets in equivalent way to engineered assets for:
 - Storm water management
 - Clean and abundant drinking water
 - Flood protection
- Co-benefits
 - Recreation
 - Biodiversity
 - Carbon storage (mitigation)



Gibsons, BC – where it all began

- “Nature is our most important infrastructure asset”
- What are the risks and costs if natural assets are lost?
- Saving costs
 - Stormwater: creeks and ponds \$3.5 to 4 million

Natural Asset Management vs Conservation

- Natural Asset Management
 - Understand “level of service”
 - Monitor
 - Careful design of future surrounding development

- Conservation



Natural Assets and Climate Change Adaptation

- More resilient and adaptable than other infrastructure solutions
- Value of natural assets increase with climate change
 - Especially in comparison to built infrastructure

Natural Foreshore



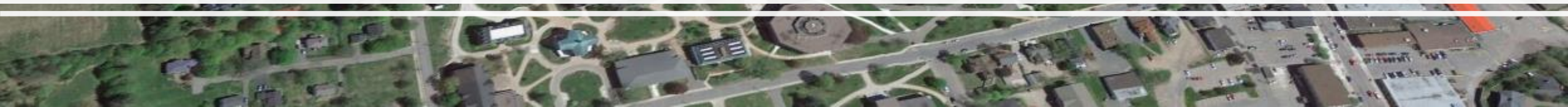
Credit: Ducks Unlimited



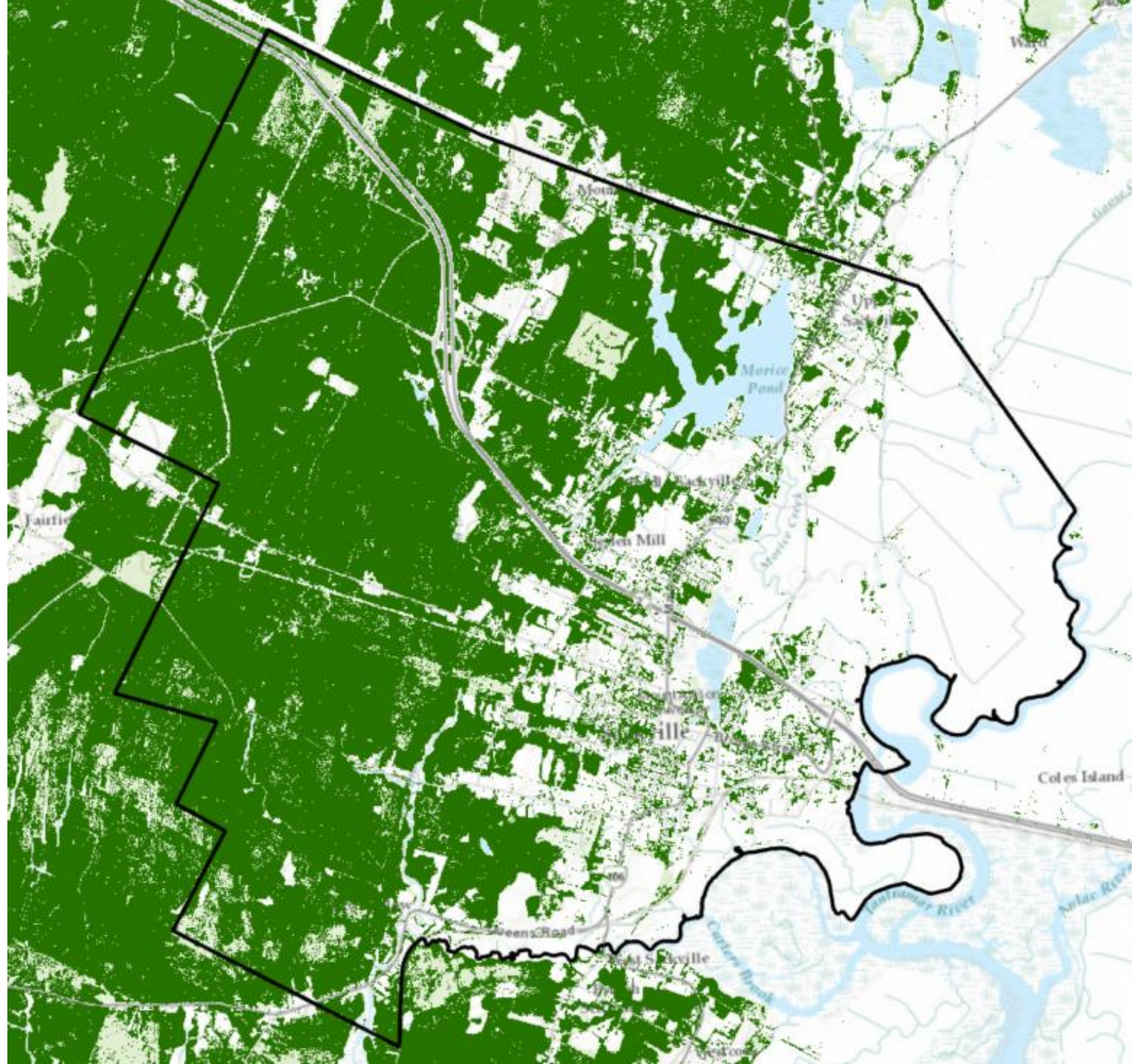
Service New Brunswick

Wetlands

Sackville



Forests



Why Light Pollution Should be Part of a Climate Mitigation Plan



Presented By: Sean LeMoine
February 1, 2020

In the News

Google search for “light pollution”: 69,300 results

- 1.Light pollution: stealing the night**
- 2.Light pollution ordinance passed in Kendall County**
- 3.Charlottesville astronomers, environmentalists fight against light pollution**
- 4.How light pollution affects the lives of garden creatures**
- 10.Enfield earns award for light pollution controls**

Light Pollution

Light pollution is excessive and inappropriate artificial light

- Urban sky glow: the brightening of the night sky over inhabited areas.
- Light trespass: light falling where it is not intended, wanted, or needed.
- Glare: excessive brightness causing visual discomfort. High levels of glare can decrease visibility.



Extent of Light Pollution

- One third of humankind can not see the milky way, including 80% of North Americans.
- 83% of the world's population lives under light polluted skies
- A 2017 study suggests that worldwide, light pollution increased by roughly 2% a year between 2012 and 2016

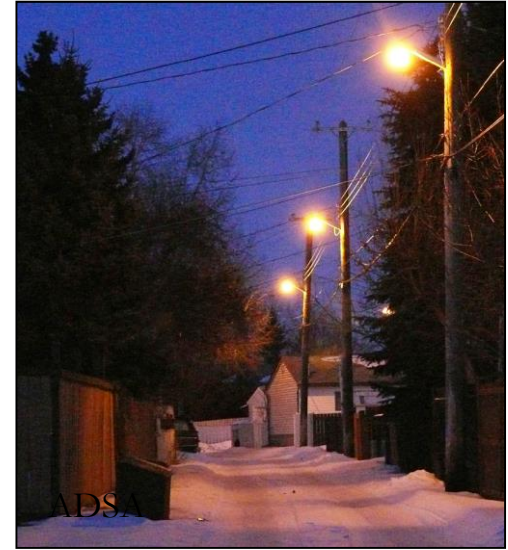
Impacts



Before and during the 2003 Northeast blackout, a massive power outage that affected 55 million people. Photo by of Todd Carlson

Impacts - Energy Use

- 13% lighting use is outdoor lighting
- 35% is wasted by unshielded and/or poorly aimed outdoor lighting
- In the US alone, wasted outdoor lighting is estimated to cost \$3 billion/year and release 21 million tons of CO₂.



Impacts - Human Health

- Lights at night interfere with our day/night cycle (circadian rhythm) by suppressing the formation of melatonin (hormone that regulates our sleep/wake cycle).
- Based on a number of studies, circadian disruption is thought to play a role in obesity, heart disease, diabetes, depression, and cancer.
 - In 2012, the American Medical Association warned that pervasive use of nighttime lighting “creates potentially harmful health effects and/or hazardous situations.”

Impacts - Wildlife

- Birds: an estimated 25 million birds fatally collide with windows each year in Canada. Light pollution draws birds into urban centres where they become disoriented and collide with windows/buildings.
- Researchers have also identified harmful impacts on other species, including bats, insects, plants, fish, turtles, marine invertebrates including corals, and even primates.



LED Technology

- LED lights are far more energy efficient
 - A change from HPS to LED street lights can result in savings around 60%.
- Concerns
 - People tend to overuse them and over-illuminate areas (efficient and more affordable)
 - The white LEDS (most commonly used) emit a wavelength of blue light which travels further (contributes to light pollution) but is also known to impact wildlife and humans more dramatically.
- In 2016, the American Medical Association recommending that communities change streetlights to “minimize and control blue-rich environmental lighting.”

One possible Approach?

Designation as an IDA International Dark Sky Community

- It is a community that has shown exceptional dedication to the preservation of the night sky
 - through the implementation and enforcement of a quality outdoor lighting ordinance
 - dark sky education
 - and citizen support of dark skies.

So Why Consider Light Pollution

The simple answer is addressing light pollution reduces energy use and GHG emissions.

But problems and answers are never simple...

“Our nights are getting brighter, and Earth is paying the price”

- Electric lights have revolutionized our lives, but as illumination increases, the toll on wildlife and human health is becoming harder to ignore (National Geographic April 3, 2019).
- <https://www.nationalgeographic.com/science/2019/04/nights-are-getting-brighter-earth-paying-the-price-light-pollution-dark-skies/>

