Climate Change Project

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CONTAMINATED SITES CLIMATE CHANGE PROJECT

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June 16, 2020

CSAP June 2020 PD Workshop

BRITISH COLUMBIA
Ministry of Environment and Climate Change Strategy

TERRITORIAL ACKNOWLEDGMENT

I acknowledge the traditional territory of the xʷməθkʷəy̓əm (Musqueam), Sḵwx̱wú7mesh (Squamish), Sel̓íl̓witulh (Tsleil-Waututh) and kʷikʷəƛ̓əm (Kwikwetlem) Nations *on whose traditional territories I work and live. I thank them for having cared for this land for the benefit of all.*

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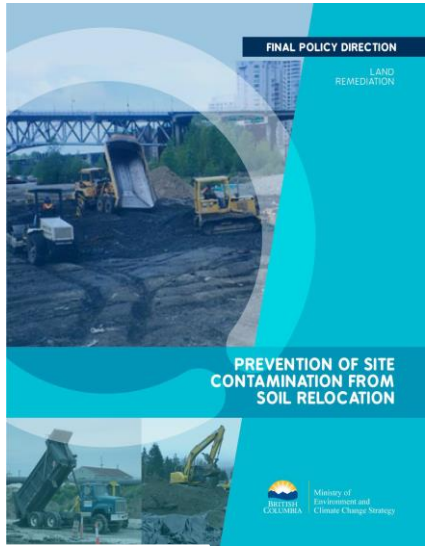
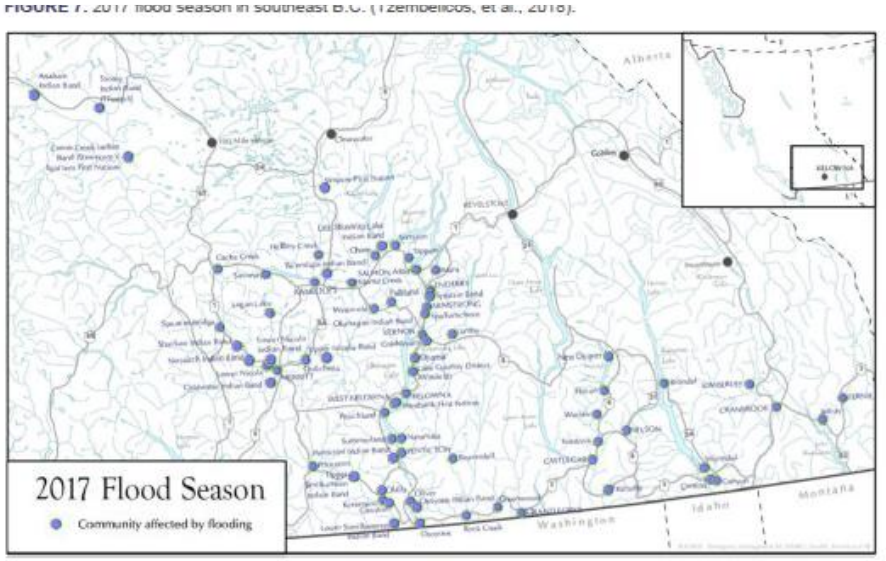
CLIMATE CHANGE PROJECT

Making Contaminated Sites Climate Ready

- Incorporate climate change considerations into contaminated sites assessment and remediation
- Incorporate climate change thinking in contaminated sites decision making





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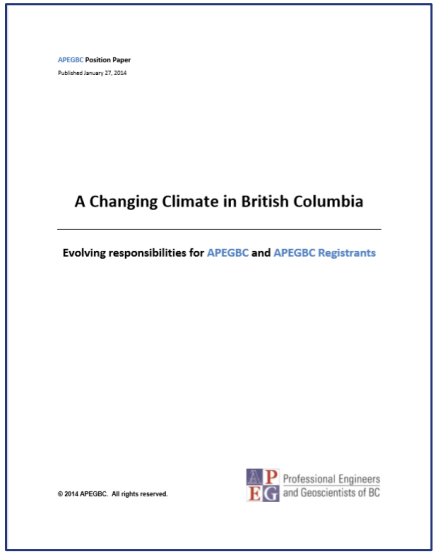
WHY DO THIS

Rationale:

- To be protective of, and resilient to, future climate change

Strong interest:

- Ministry has identified the need to incorporate climate change approaches to the contaminated sites regulatory regime
- Indigenous Peoples consultation as part of Climate Action Secretariat (CAS) Preliminary Strategic Climate Risk Assessment
- Professional associations. E.g. EGBC 2014 Position Paper on changing climate, EGBC Conference climate change/sustainability, CAB Joint Statement



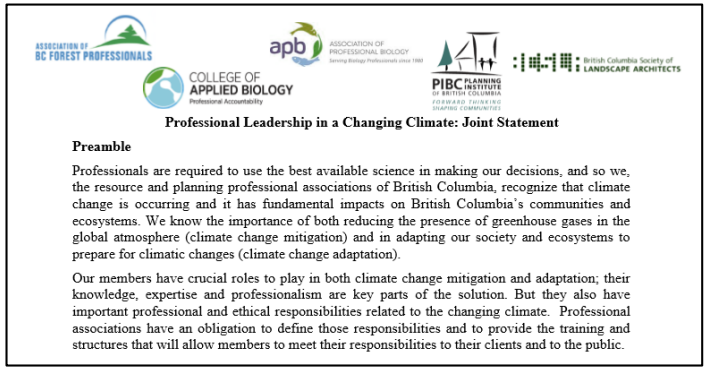
APEGBC Position Paper

Published January 27, 2014

A Changing Climate in British Columbia

Evolving responsibilities for APEGBC and APEGBC Registrants

Professional Engineers and Geoscientists of BC



ASSOCIATION OF BC FOREST PROFESSIONALS

COLLEGE OF APPLIED BIOLOGY

apb ASSOCIATION OF PROFESSIONAL BIOLOGY

PIBC PLANNING INSTITUTE OF BRITISH COLUMBIA

British Columbia Society of LANDSCAPE ARCHITECTS

Professional Leadership in a Changing Climate: Joint Statement

Preamble

Professionals are required to use the best available science in making our decisions, and so we, the resource and planning professional associations of British Columbia, recognize that climate change is occurring and it has fundamental impacts on British Columbia's communities and ecosystems. We know the importance of both reducing the presence of greenhouse gases in the global atmosphere (climate change mitigation) and in adapting our society and ecosystems to prepare for climatic changes (climate change adaptation).

Our members have crucial roles to play in both climate change mitigation and adaptation; their knowledge, expertise and professionalism are key parts of the solution. But they also have important professional and ethical responsibilities related to the changing climate. Professional associations have an obligation to define those responsibilities and to provide the training and structures that will allow members to meet their responsibilities to their clients and to the public.

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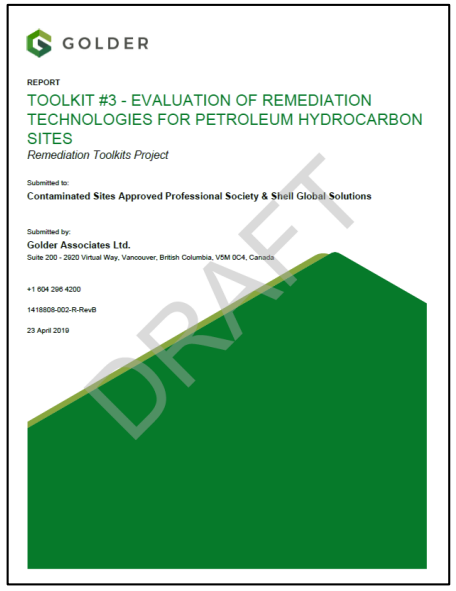
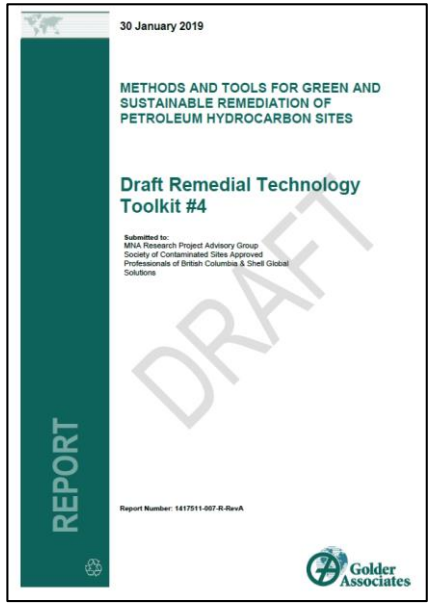
WHY DO THIS (CONT'D)

Strong interest (cont'd):

- CSAP PD workshops, GeoEnviroPro seminars, SABCS workshop
- CSAP Toolkits 3 and 4 on sustainability
  - ENV red flag review
  - ENV/CSAP to work together to harmonize the toolkits with ministry policy





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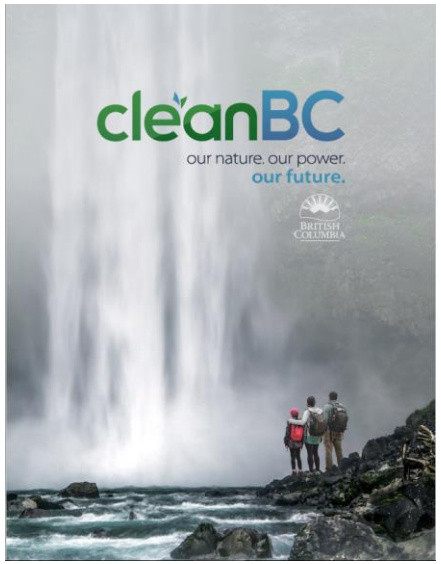
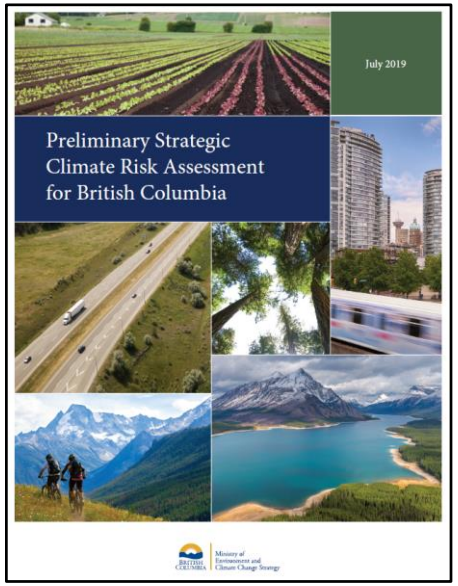
WHY DO THIS (CONT'D)

Government direction

- CleanBC, 2018
- Preliminary Strategic Climate Risk Assessment, 2019
- CAS Adaptation Strategy Intentions Paper in development (update of 2010 document)
- Climate change measures in ministries/divisions (ENV, FLNR, TRAN, AGRI, HLTH…)





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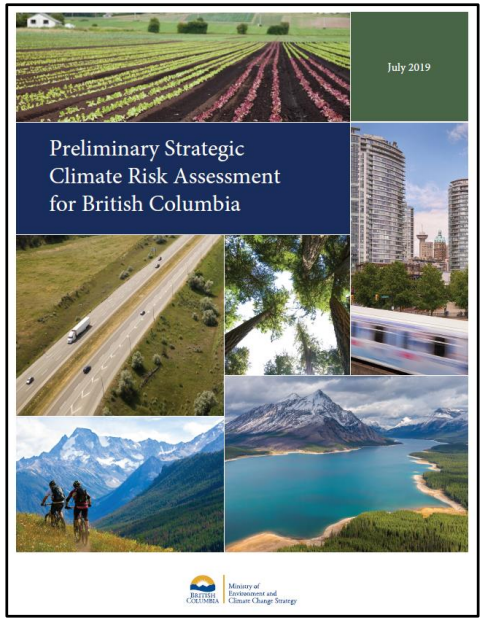
CLIMATE RISK ASSESSMENT FOR BC

Preliminary Strategic Climate Risk Assessment for BC

- Climate Action Secretariat (CAS), July 2019

- Risk assessment framework
  - 15 “provincially significant” risk events
  - Likelihood and consequences of risks (loss of life, loss of natural resources, economic impact)
  - Timeframes: present day and year 2050
  - Assuming “business as usual” - RCP8.5
  - Temperature increase of 1.8 ˚C



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CLIMATE RISK ASSESSMENT FOR BC

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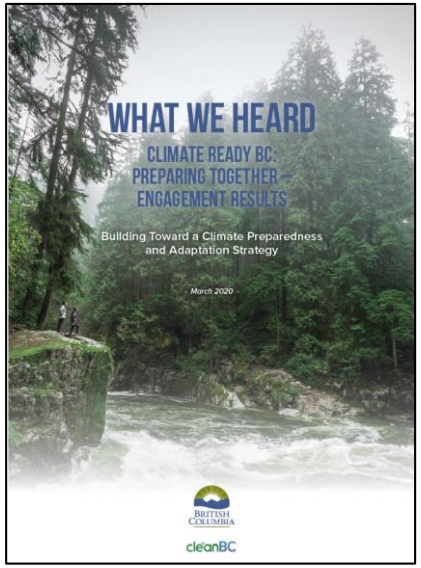
CLIMATE PREPAREDNESS AND ADAPTATION

Climate Preparedness & Adaptation Strategy

- Deadline, 2020
- Climate Ready BC: “What We Heard” report, March 2020
  (SRN sent Nov/19 encouraging practitioners to contribute)
- Climate Ready BC: Partner Engagement **May-July 2020**



- Include climate change considerations in all government processes
- Government, Indigenous Nations, local governments and sectors are better prepared for the risks and opportunities of BC’s changing climate
- Collaboration – key to successful adaptation

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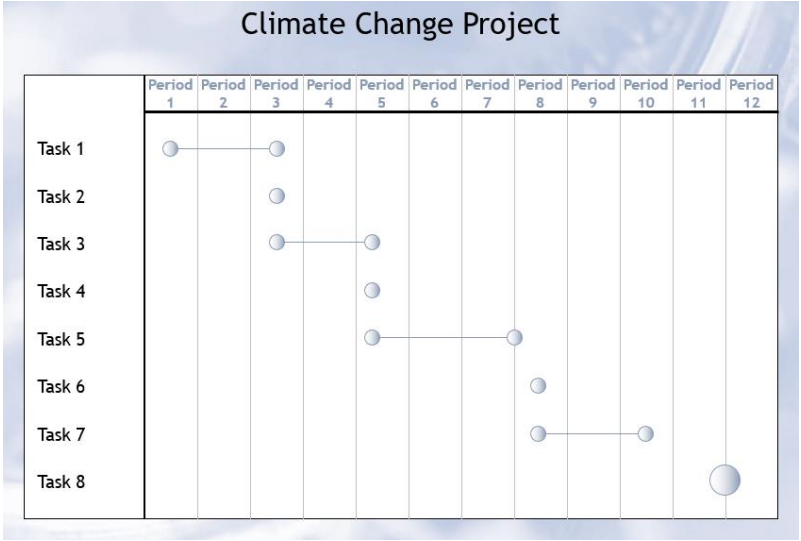
MAKING CONTAMINATED SITES CLIMATE READY

Activities Underway

- Scoping the project to identify tasks, milestones and resources
- Starting from a clean slate with high level policy ideas
- Determine whether EMA/Regulation amendments necessary
- Long term project
- Providing input into CAS Adaptation Strategy Intentions Paper (due out in 2020) to ensure contaminated sites is visible in the provincial initiative for climate change adaptation



CLIMATE CHANGE CONSIDERATIONS

Climate Change and Contaminated Sites Issues

- Increased demand on groundwater resources, restrictions on water use, more emphasis on protection of water resources and remediation
- Increased saltwater intrusion in coastal areas
- Changes in distribution/partitioning of contaminants of concern
- Changes to contaminants of concern
- Changes to land use
- Wildfire/flooding/landslide impacts on infrastructure and contaminant fate/transport

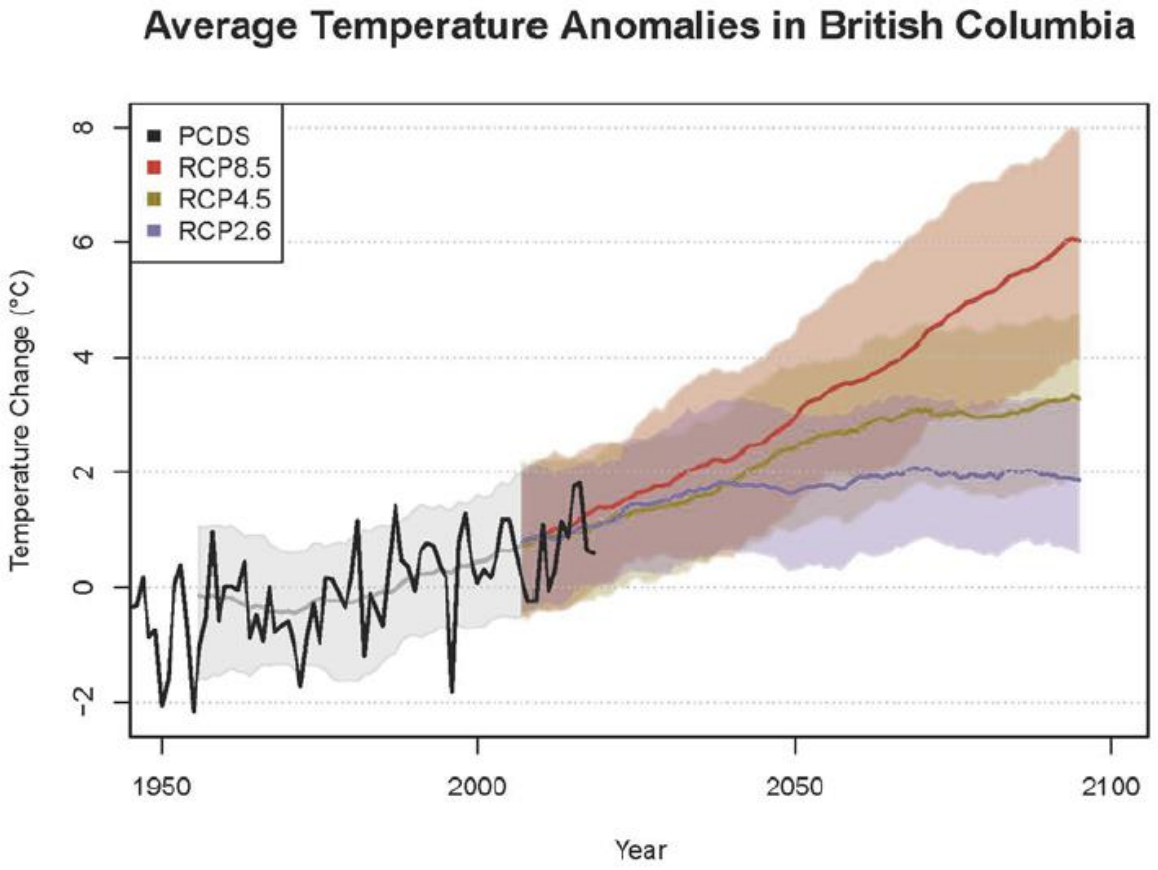
CLIMATE CHANGE CONSIDERATIONS – WHAT TO TACKLE FIRST

Climate Change and Remediation

- Satisfy EMA section 56
- Evaluate full suite of remediation options
- Incorporate sustainability concepts/process (under consideration)
- Incorporate climate change measures (under consideration):
  - Exposure to extreme weather impacts
    - Nature and extent of contamination
    - Conceptual site model
    - Remedial options evaluation, design and long-term monitoring
    - Reviews of risk-managed contaminated sites over time?
  - Resilience and adaptation measures

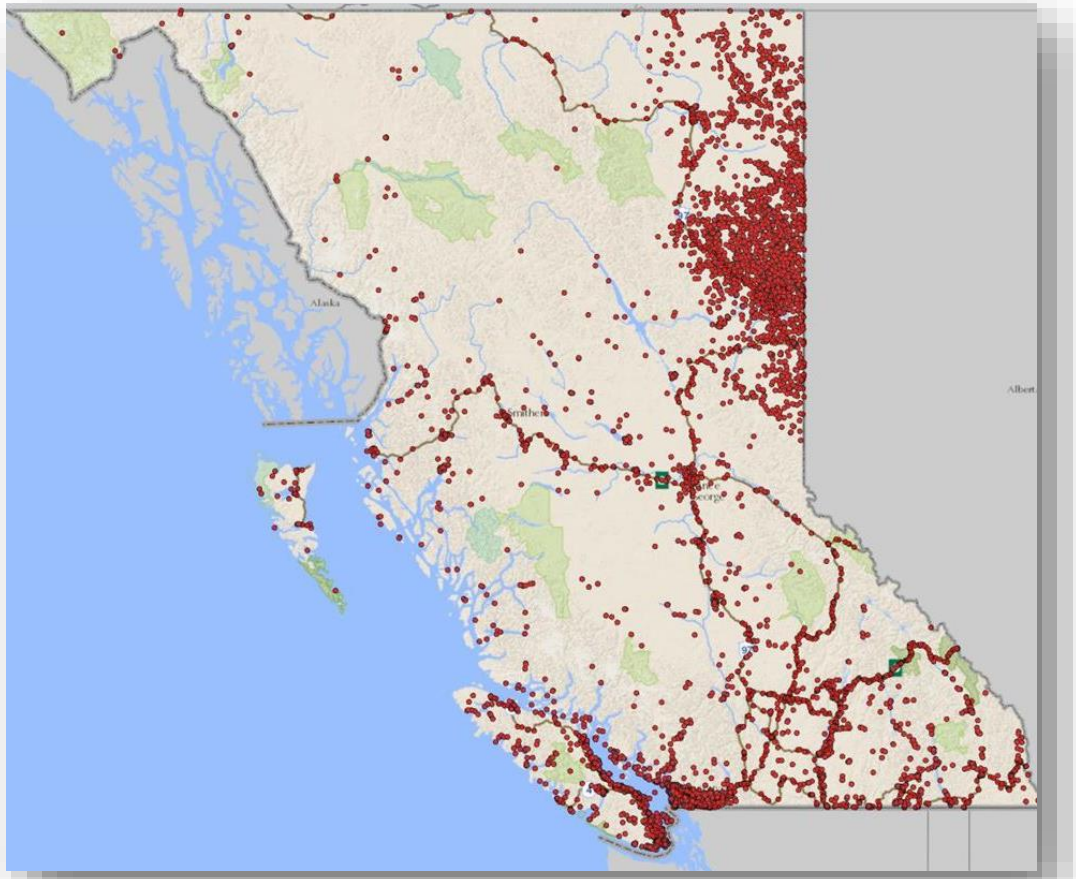
AVERAGE TEMPERATURE PROJECTIONS

Fig. 34 from Preliminary Strategic Climate Risk Assessment for BC



Which RCP to use for contamination sites remediation or long-term monitoring and management?

FLOODING/SEA LEVEL RISE



Provincial **"Site Registry"**: more than 22,000 sites on record.

Of the contaminated sites, how many are located within 100-year floodplain or within 1.5 meter mean sea level rise?

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HIGH LEVEL POLICY IDEA – ADAPTATION

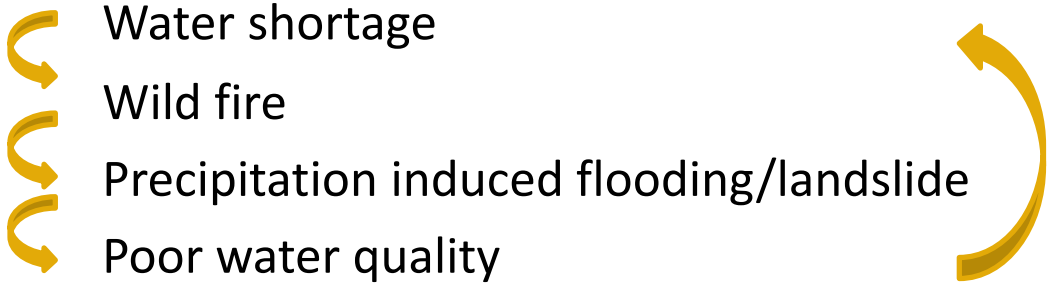
Proposed New Policy

- Incorporate climate change assessment in remediation option selection and on an ongoing basis for long term risk management of contamination at contaminated sites.

- A companion component is to also incorporate a sustainability framework into the contaminated sites regime. This will enable harmonized development of climate change adaptation and sustainability in the investigation and remediation of contaminated sites for the long term.

WATER SCARCITY RISK

- Short term water shortage
  - Months long summer water shortage affecting two or more regions
- Long-term water shortage
  - Multi-year water shortage
- Change in seasonal precipitation
- Compounding and interconnected effects:



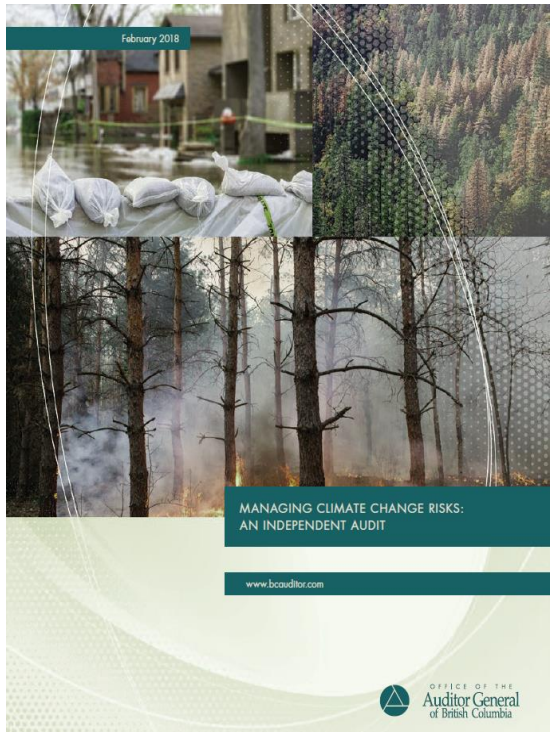
GROUNDWATER RESOURCES IN BC

- More than 1100 aquifers are mapped and registered in BC
  - More than 1 million people in BC rely on groundwater for drinking
  - Groundwater aquifers provide water for industries, municipalities, farms, and rural homeowners
- Quantity and quality concerns
  - Drought resulting in low water levels
    - Koksihla River Watershed, Vancouver Island.
    - First order under the Water Sustainability Act to restrict water use.
- Salt water intrusion
  - e.g. Gulf Islands and along the Fraser River
- Contamination
  - e.g. nitrate in the Hullcar Aquifer

AUDITOR GENERAL 2019 REPORT

The Protection of Drinking Water: An Independent Audit

- Ministry of Health and the Provincial Health Officer are not sufficiently protecting drinking water
- Audit undertaken because of importance of safe drinking water and because risks to drinking water are increasing
  - Climate change, industrial activity, growing population
- Risks intensified in small water systems
- 8 recommendations to ensure protection of drinking water
  - Identify risk to source protection



About **4,800** drinking water systems in B.C. **~90%** are small water systems

About **480,000** **PEOPLE** in B.C. RELY ON SMALL WATER SYSTEMS

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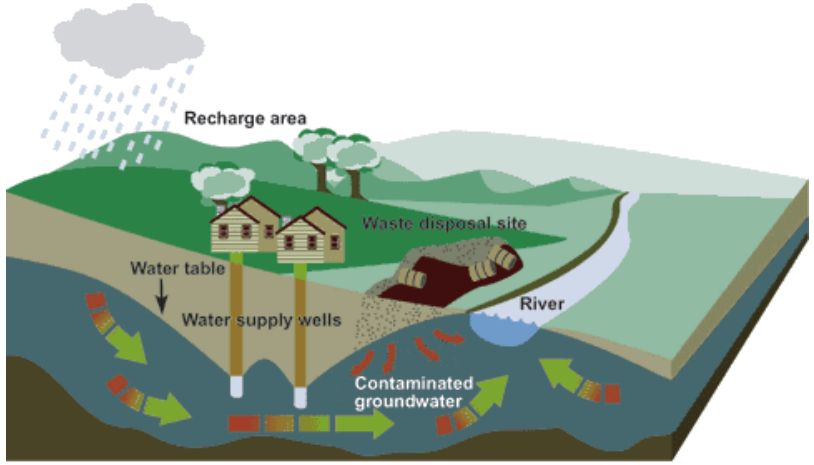
HIGH LEVEL POLICY IDEA – WATER QUALITY

Proposed New Policy

- Evaluate the current contaminated sites regulatory regime for whether it considers future conditions as a result of climate change.

- Develop policy to ensure that contaminated sites do not impair the quality of viable drinking water aquifers under changing climate conditions.

- Water shortage and impaired water quality will add increased pressure on groundwater resources under future climate conditions. This policy will map the impact of contaminated sites on freshwater resources and protect priority watersheds for future drinking water use.



NEXT STEPS

- **CAS engagement sessions on Adaptation Strategy**
  - May - July 2020
  - Youth, federal, academics/ENGOs, local government, industry/professional associations, equity communities
  - Industry/professional associations session scheduled for **Tuesday July 14/20**

- Start internal project work planning
  - Propose direct CSAP engagement on climate change issues for mid to late Sep/20
  - This work may inform a future Intention/Discussion Paper

- Align toolkits 3 & 4 and ENV policy
- Look for upcoming Site Remediation News

THANK YOU

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10:15 – 10:30

10:30 – 10:50	Ministry Application Processes	Heather Osachoff (Manager, Risk Assessment and Remediation)
10:50-11:05	Site Risk Classification Process	Peter Yan (Senior Contaminated Sites Officer)
11:5 – 11:30	TRC Project Updates	Beth Power (Chair, Technical Review Committee)
11:30 – 11:55	Coping with COVID	Guy Patrick (Chair, Professional Development Committee)