Achieving Resilience: Preparation, Response and Recovery from Water Crises

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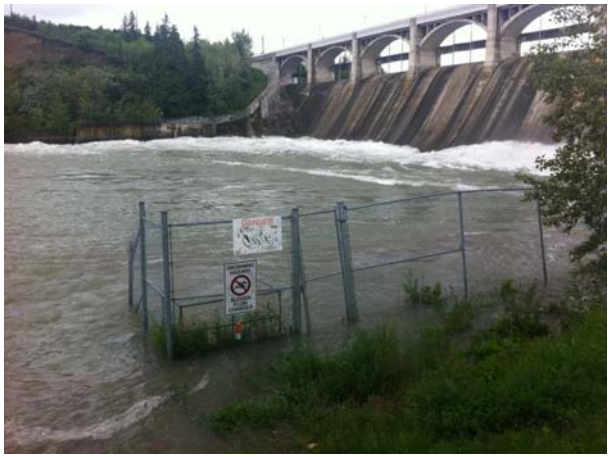
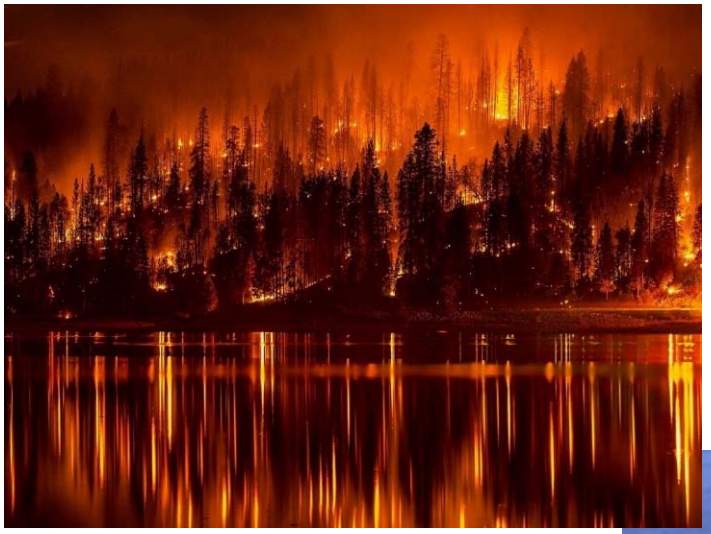
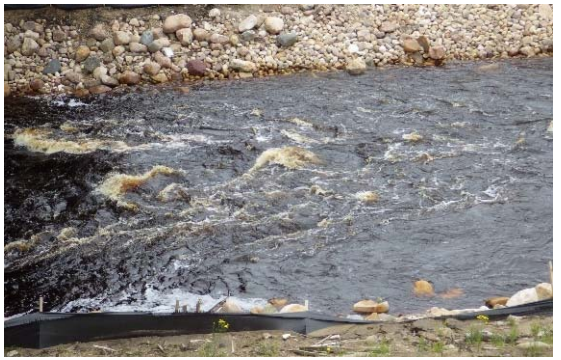
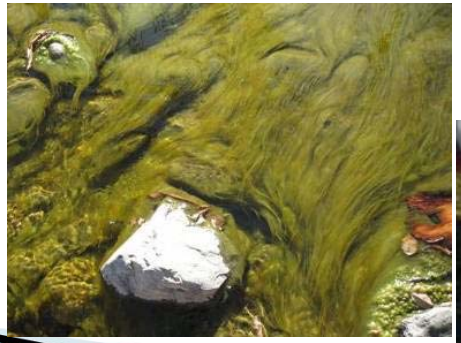
CWN Blue Cities

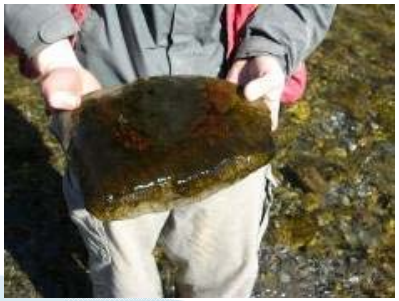
Stationarity is dead…landscape disturbances in a warming world deteriorate drinking water security through quantity AND quality

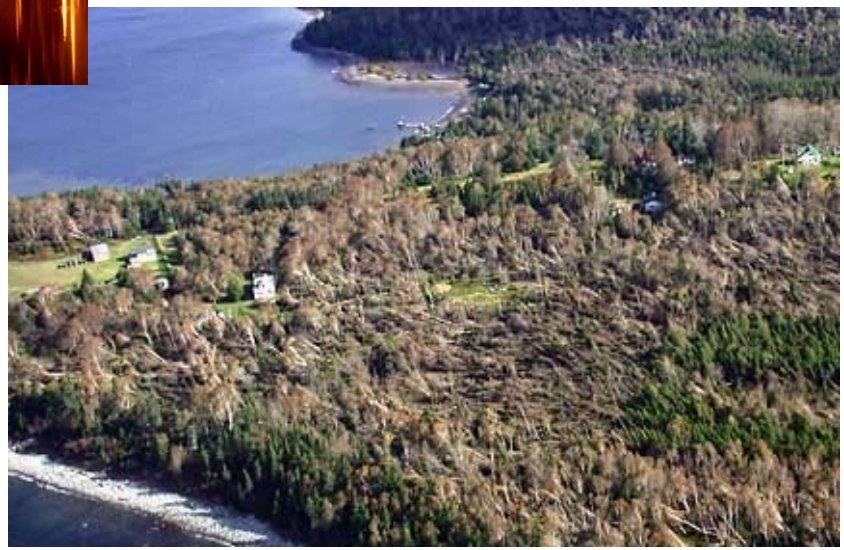












Can these disturbance and effects be prevented? No, but…

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BIG BIZ

David Staples: As Fort McMurray discovered, you can be FireSmart – or too late smart

DAVID STAPLES, EDMONTON JOURNAL

More from David Staples, Edmonton Journal

Published on: May 15, 2016 | Last Updated: May 15, 2016 8:16 PM MDT

SHARE

A few years ago Allan Vinni took the advice of a local fire prevention officer and cut down 30 coniferous trees on his acreage, the kind that might burn readily in a wildfire.

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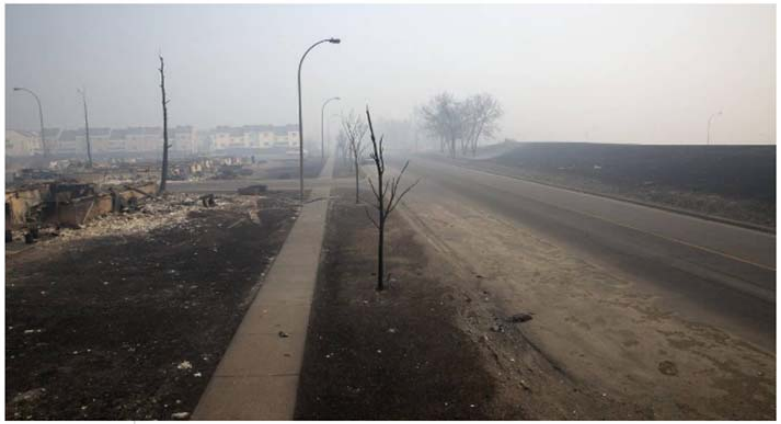


Gutted homes and smoky streets in the Beacon Hill neighborhood of Fort McMurray.

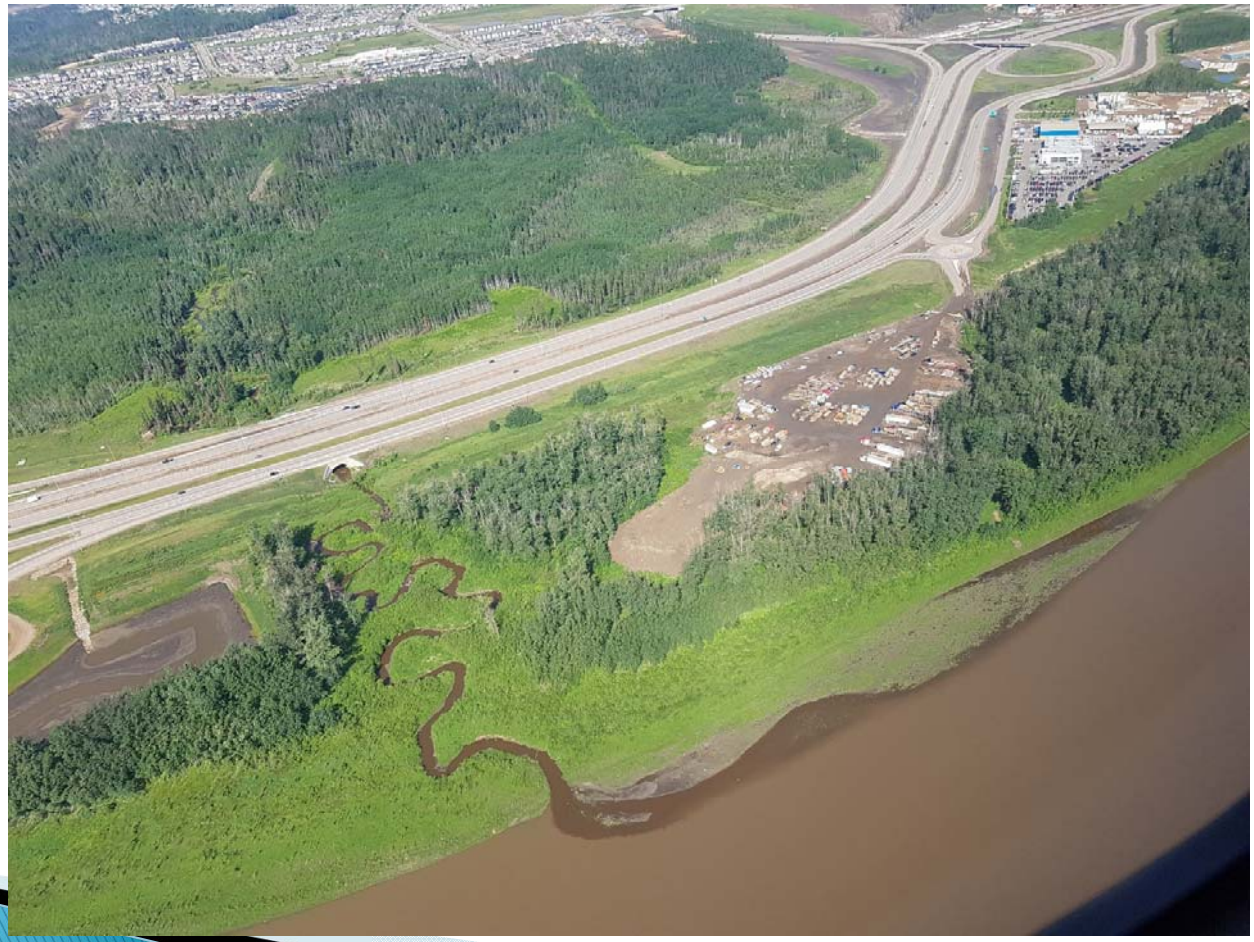
TYLER HICKS/THE NEW YORK TIMES

'Why didn't we all learn?'

Yet another destructive wildfire raises questions about our failure to learn from Kelowna and Slave Lake – to take steps to guard against their fury. **Mark Hume** reports

MARK HUME
VANCOUVER | The Globe and Mail | Last updated: Friday, May 20, 2016 7:56PM EDT

“Consequence is foreseeable….”



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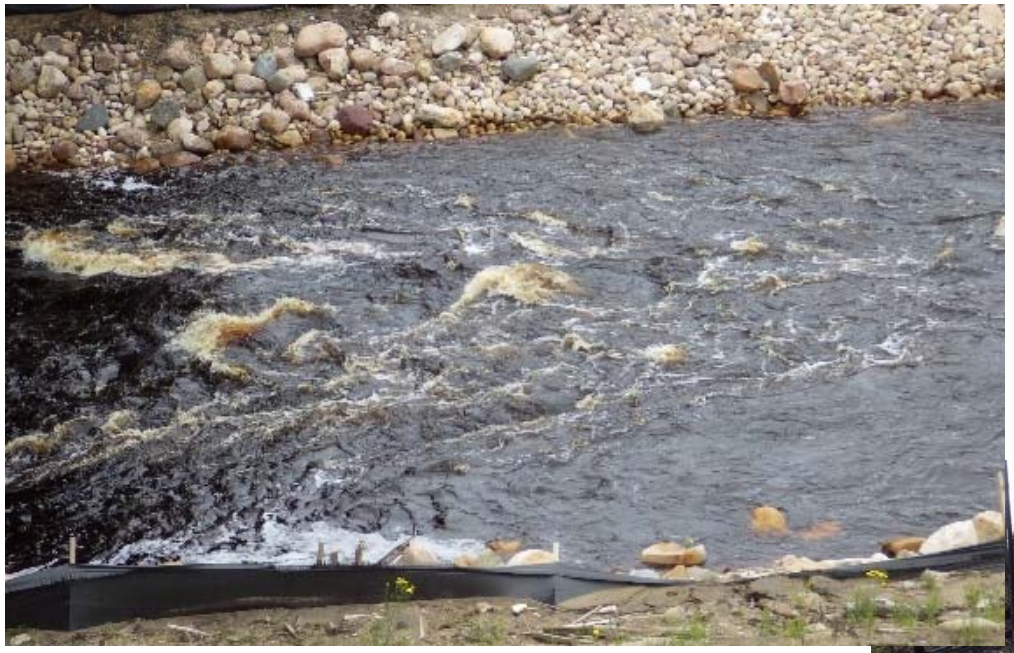

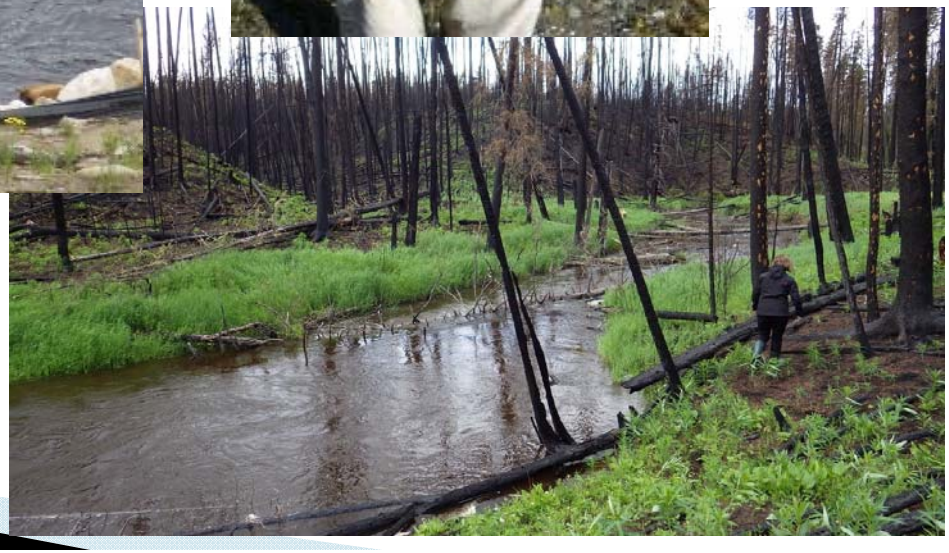

"Consequence is foreseeable…."
Water quality thresholds for treatment design AND operations

Process	Turbidity	Colour	TOC
Conventional	high >20 NTU	high >20 c.u.	high >4 mg/L
Direct/Inline Filtration	low ≤15 NTU	moderate to low ≤20 c.u.	low <4 mg/L
Microfiltration	low ≤10 NTU	moderate to low ≤10 c.u.	low <4 mg/L

Note: Algae/toxins have not been historically included as primary design considerations in North America!

MWH (2005) Consulting Engineers, Inc., *Water Treatment Principles and Design*, 2nd Edition. Wiley-Interscience.

Key Messages

- Landscape disturbances lead to deteriorated water quality
- Considering “contamination” that has direct health significance alone is inadequate
- Know the risks that are relevant to your source
- Know your source, know the limitations of your infrastructure and operational capacity
- Disturbance impacts may not be evident immediately; may also be long lasting

Some Adaptation Strategies

- Recognize operational limitations: developing a plan before it's needed
- Discuss licensing with regulators
- Identify/acquire critical support infrastructure
- Evaluate trade-offs between service disruptions and infrastructure/watershed management investment and then make a plan
- Be vigilent…recognize that disturbance impacts may last for years or take years to manifest

Thank you!