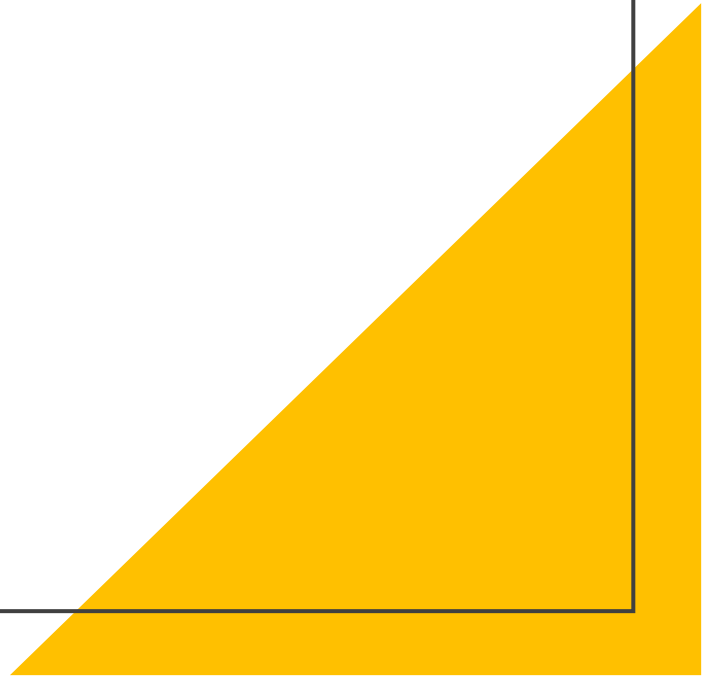


A Case Study: Science vs Politics

2022 National Water & Wastewater Conference

Halifax



HEY, MR. GOVERNMENT OFFICIAL, WHAT'S GOING ON UNDER THERE?

TRUST ME. YOU DON'T NEED TO KNOW.

THE PUBLIC

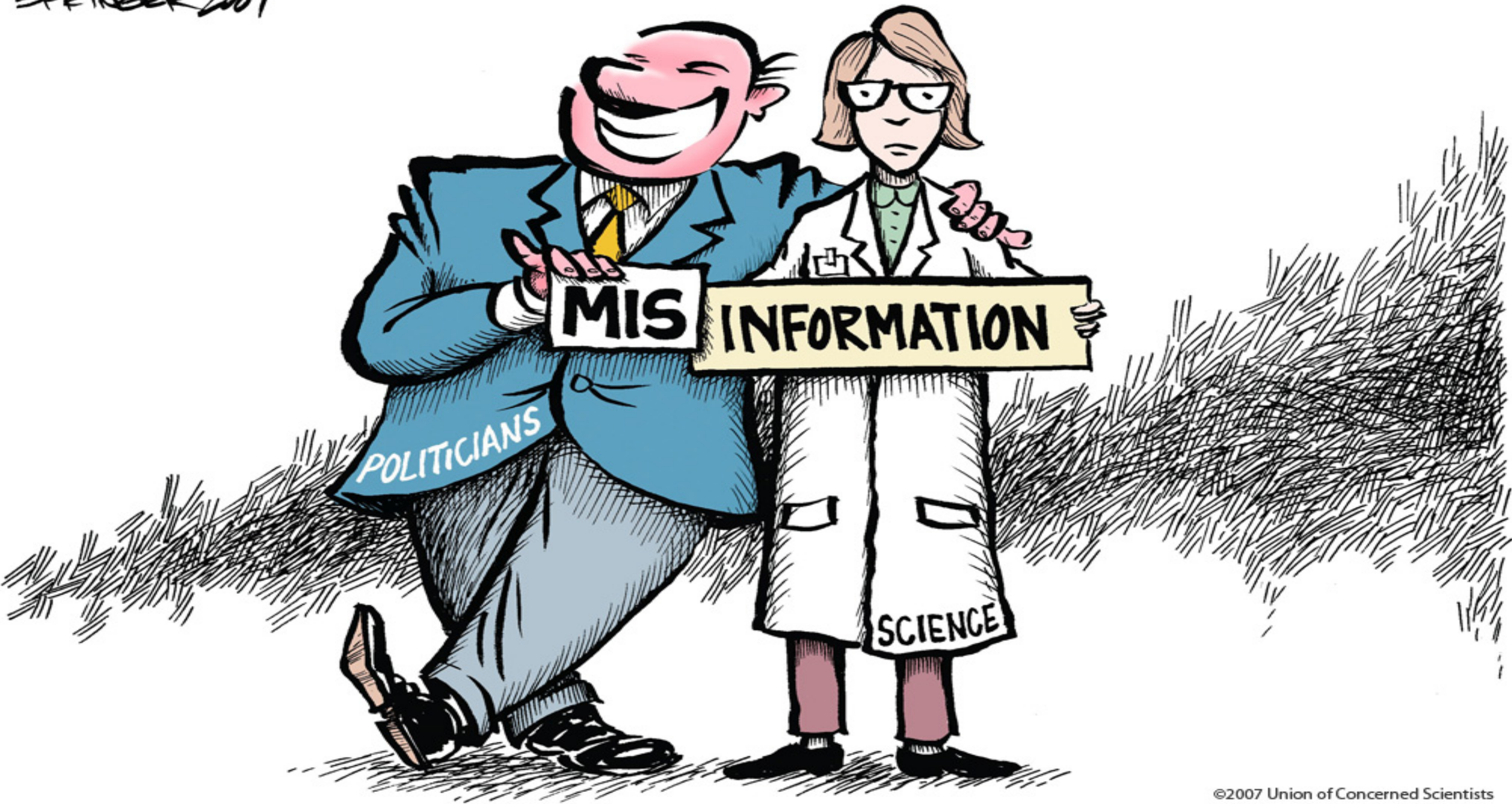
CLOAK
of
SECRECY

©2009
FLORIDA
TODAY

WTF
PARKER

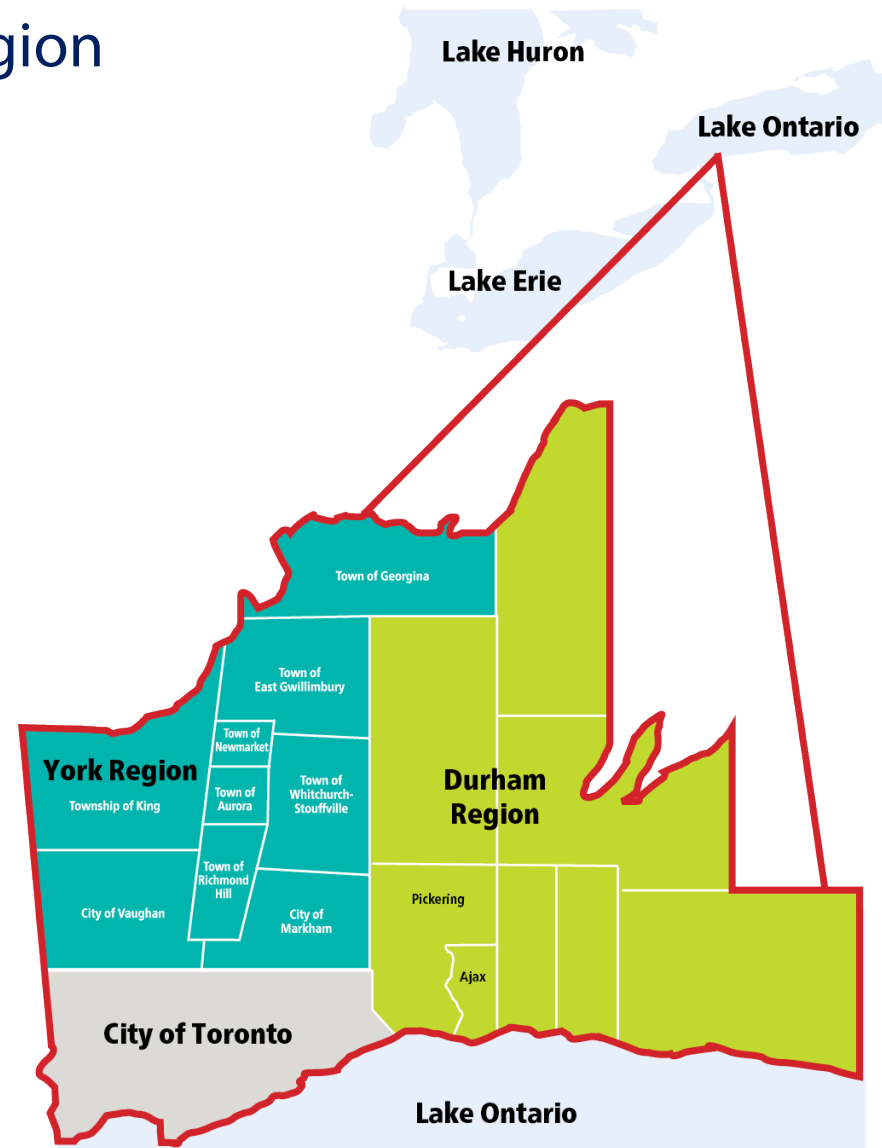


SPRING 2007



Duffin Creek Plant

- Located in the City of Pickering in Durham Region
- Part of York-Durham Sewage System (YDSS)
- Wastewater from:
 - Durham (Ajax & Pickering) ~ 20%
 - York Region ~ 80%
- Operated by Durham Region
- Co-owned by York and Durham
- Co-managed by York and Durham



Expanded sewage treatment plant could impact Ajax waterfront

Residents encouraged to speak out on plans for Duffin Creek facility

Residents and visitors to Ajax's magnificent waterfront parks may have occasionally noticed a distinct and unpleasant smell. What people may not realize is that the odour is blowing over from the Duffin Creek Water Pollution Control Plant (WPCP) in neighbouring Pickering.

And now an environmental assessment (EA) is underway for a planned expansion to handle increased raw sewage from Durham and York Regions which is raising concerns about more threats to the Town's shoreline.

"Our waterfront is a people place first and foremost," says Ajax Mayor Steve Parish. "It's a place where everyone should be able to enjoy themselves free from unpleasant odours. The proposed expansion is a threat to not only air quality but water quality as well.

"Through the Town's and residents' participation in the Outfall EA consultation process, we need to ensure whatever goes ahead contributes to improved water quality for drinking purposes and



Effluent Plumes in the lake



Algae growth on the shore

operation closer to Ajax homes and residents. It has been releasing treated effluent into Lake Ontario for more than 30 years and will continue to do so for many decades.

The Regions received the Province's approval to expand the Plant's daily effluent release to 630 million litres a day, a 50 per cent increase over the current 420 million litres. That is also more capacity than the Plant's outfall pipe can handle in order to achieve the level of dilution required by the Ministry of the Environment. This poses a legitimate concern for water quality and can create plumes of effluent that contribute to algae production.

In 2008, the Regions began conducting this Outfall EA. The first phase of the EA is scheduled to be completed soon. The next phases are expected to be conducted and completed in Fall, 2013, at which time detailed options for the Plant's outfall and advanced treatment technologies will be chosen, with operations expected to begin in 2018.

"This opportunity to speak up about the potential impacts and have them

Cladophora Algae

- Cladophora requires:
 - Sunlight
 - Hard Substrate
 - Food (Phosphorus & Nitrogen)
 - Temperature
- Cladophora exists across the Great Lakes – even in rural areas with NO wastewater treatment plants
- Resurgence of Cladophora coincides with invasive *Dreissenid* mussels



Cladophora Algae

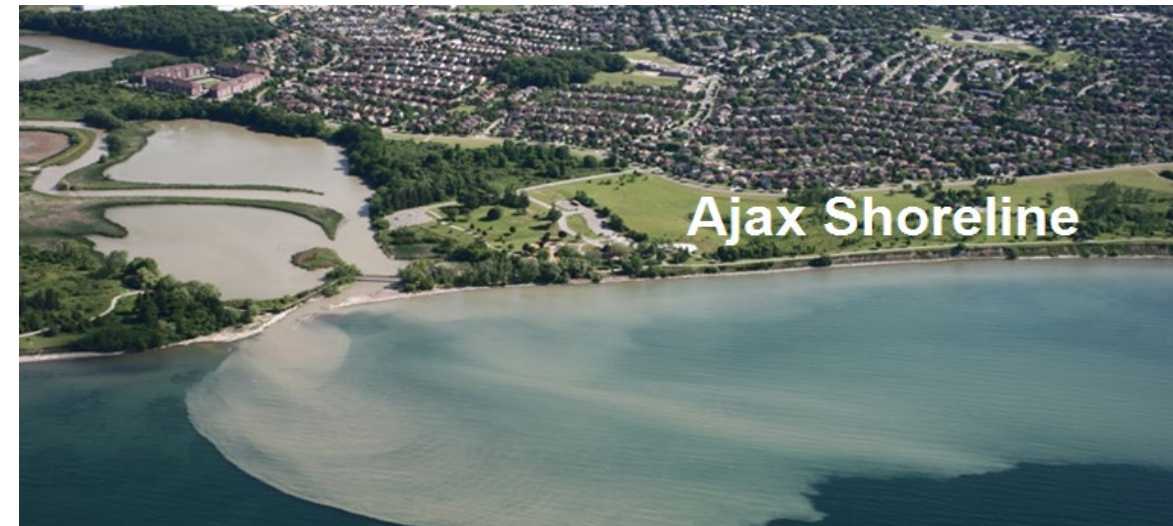
- *Cladophora* a problem in areas without large plants
- Presqu'ile Provincial Park- eastern Ontario
- No large wastewater treatment plants nearby
- Presqu'ile Park staff note: Onshore algae is sometimes so bad that it must be removed on a daily basis



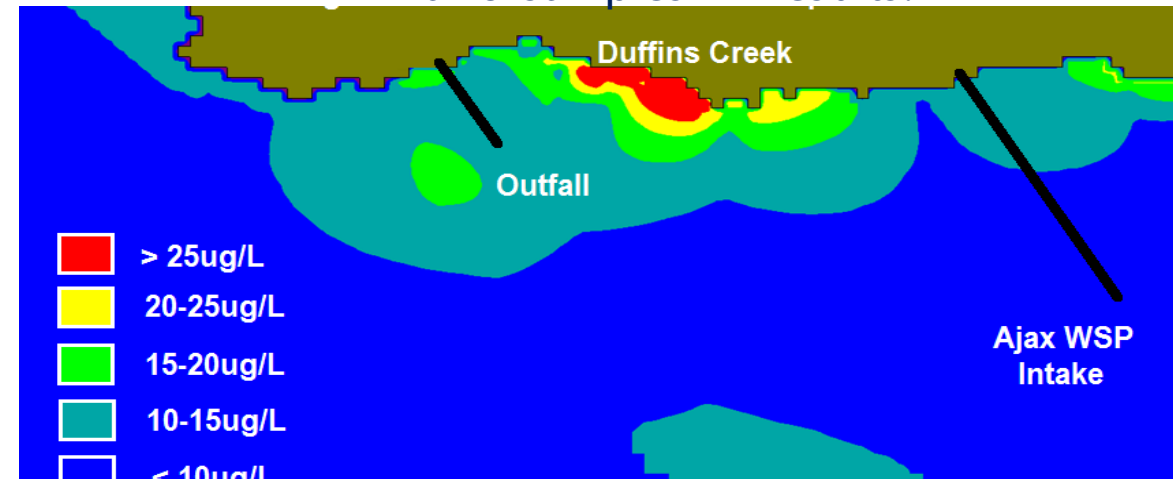
Water Quality Sampling vs Computer Simulation

- Duffins Creek has a **great** effect on water quality at the shoreline...
- 8 years of sampling shows the Duffins Creek is a major contributor of high bacteria and phosphorus at the shoreline

Duffins Creek Discharging After Rainfall

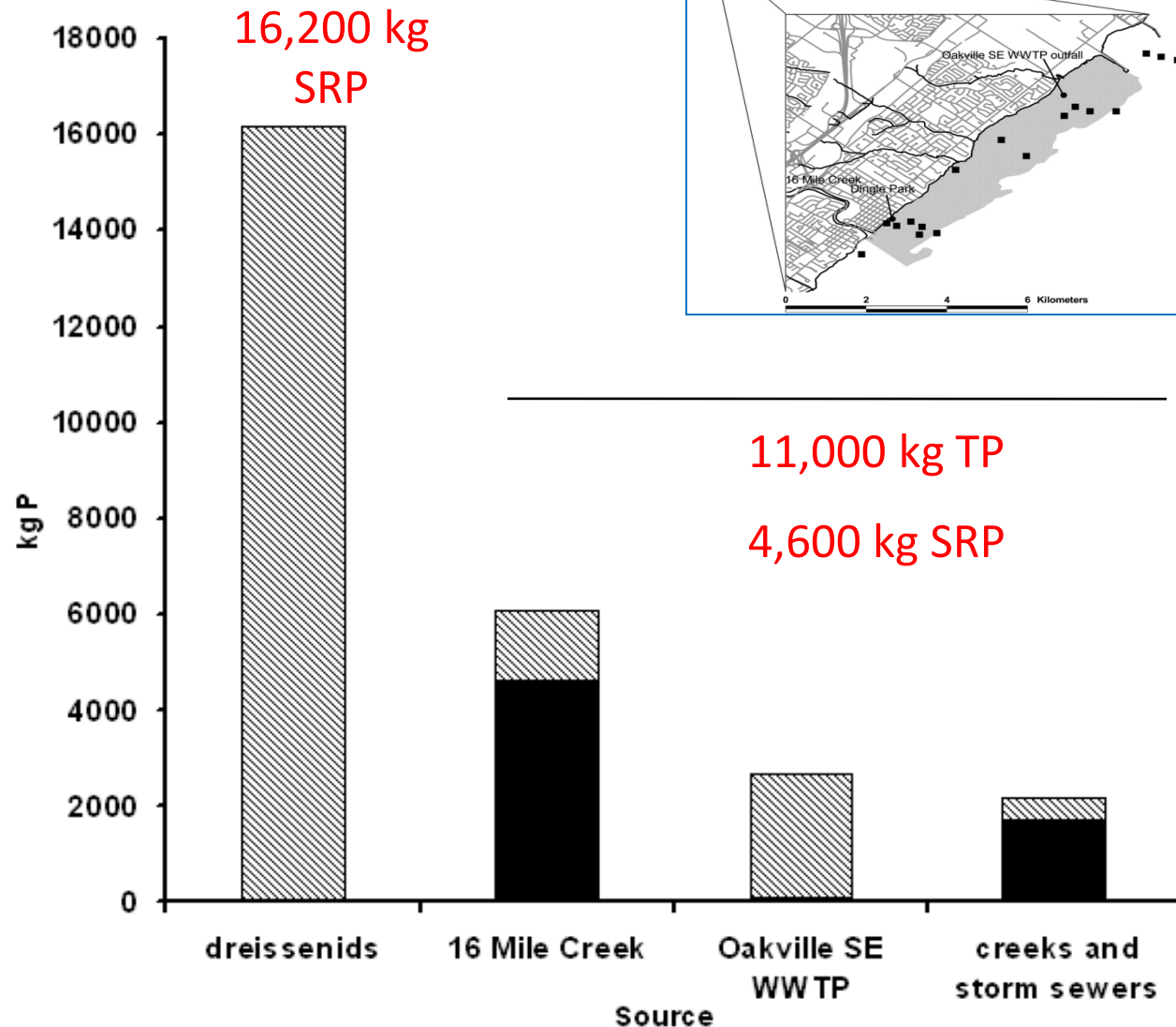


All 2018 samples TP results.



*Outfall EA Study Report

Lake Ontario Water Quality Research



Dreissenid SRP excretion exceeds other P sources and P demand by *Cladophora* (by 3x) along a rocky urban shoreline which host both organisms

Ozersky et al. 2009. JGLR

Source of P presumed to be from lake based on C isotopes but P could also be regenerated from these same coastal sources—different management implications for managing P fluxes in the coastal zone

Cladophora Algae Research and Policy

Cladophora is a lake-wide issue.



Government
of Canada

Gouvernement
du Canada



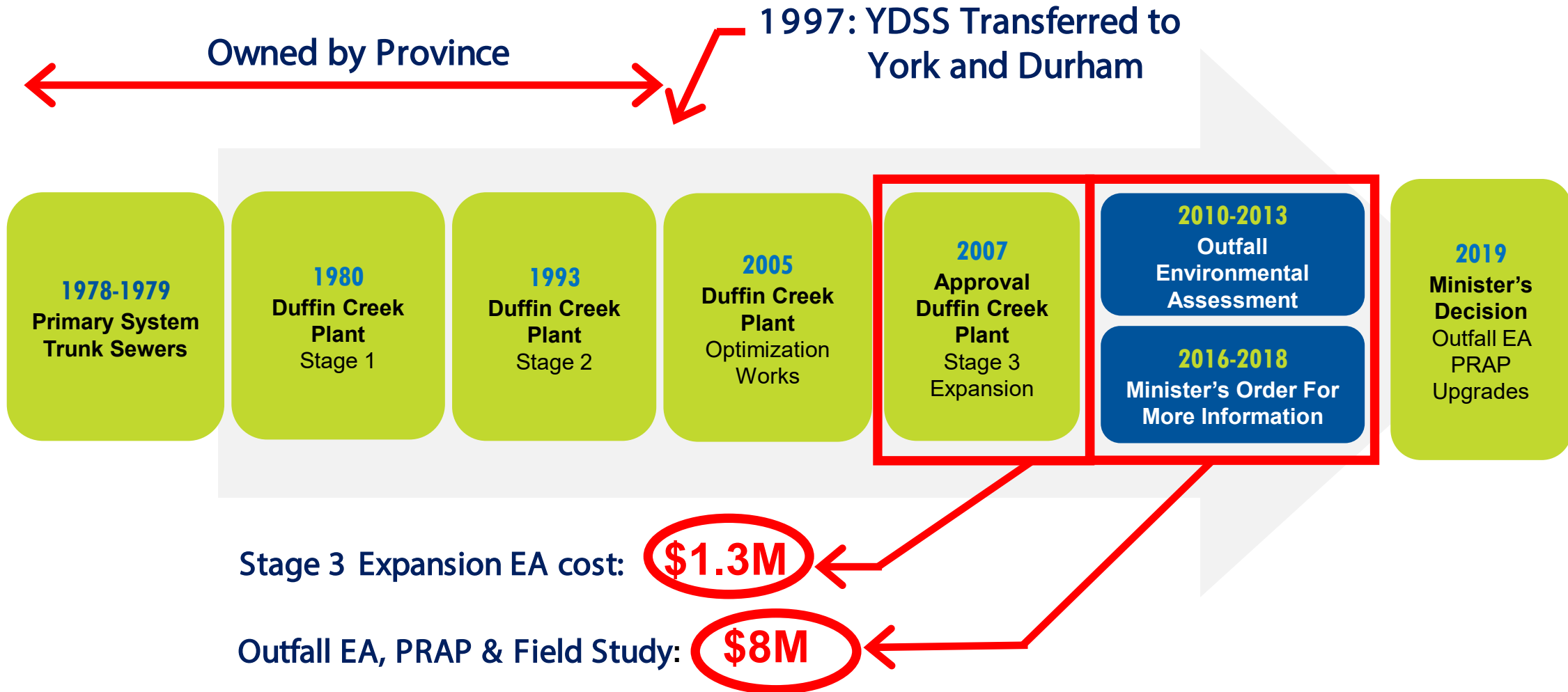
ONTARIO **POWER**
GENERATION



New ECA Objectives and Limits for Total Phosphorus (TP)

	Previous ECA		New ECA – Phase 1		New ECA – Phase 2	
TP Parameter	Objective	Limit	Objective	Limit	Objective	Limit
Monthly Average Concentration mg/L	0.6	0.8	N/A	N/A	N/A	N/A
Seasonal Average Concentration mg/L (April 1 – August 31)	N/A	N/A	0.35	0.50	0.35	0.45
Annual Average Concentration mg/L	N/A	N/A	0.35	0.45	0.35	0.45
Annual Average Mass Loading kg/d	N/A	311	N/A	284	N/A	284
Notes	These objectives and limits remain in effect until PRAP upgrades are complete.		New objectives and limits come into effect once PRAP upgrades are complete.		New seasonal average limit comes into effect once Biosolids Treatment Replacement Project is complete.	

Duffin Creek Plant History & EA Timeline



Note: Outfall EA for mixing only. Treatment, algae and phosphorus not part of EA scope.

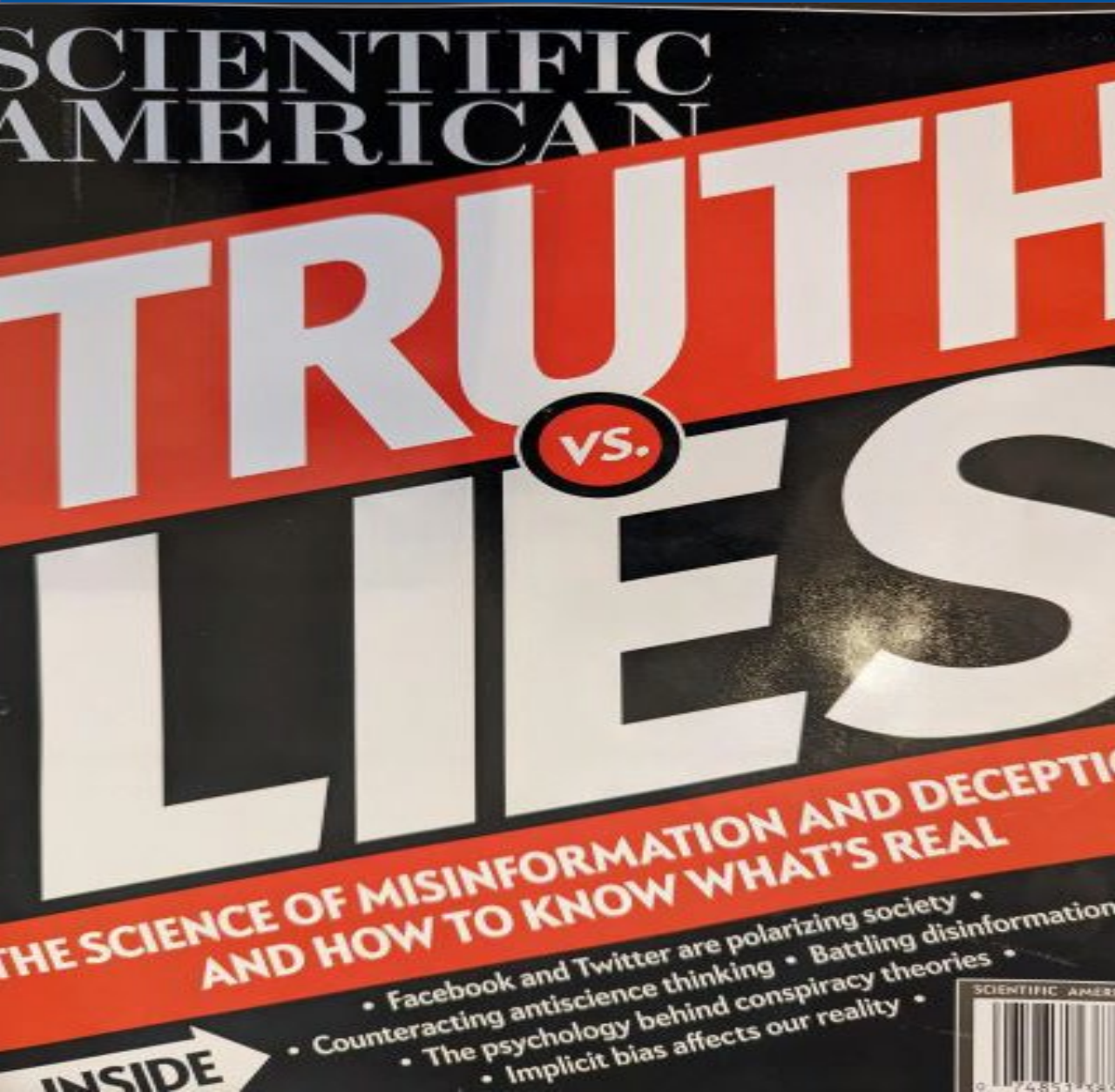
Summary of the FACTS:

- Treatment approval established by regulator
- Outfall EA **meets** regulatory conditions & requirements
- **Best** performing plant discharging to open waters of Lake Ontario
- Lake monitoring confirms **good local water quality**
- **Plant is not responsible** for excess algae
- Lake Erie task team confirms **complexity** of *Cladophora*

No justification for more stringent phosphorus limit

Lower limit will not improve onshore algae (current P removal 94-95%)

Science of Truth vs Lies



- Arguing the Truth
- Post-Truth: A Guide for the Perplexed (*If politicians can lie without condemnation, what are scientist to do?*)
- Why We Believe Conspiracy Theories
- Contagious Dishonesty
- Evidence Shouldn't Be Optimal

Questions?

- **John Presta, P.Eng.**
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Region of York
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