



1:00pm – 4:30pm

Symposium 1: Science policy 101

Symposium Organizer: CSPC

Eutrophication in Lake Erie – a ‘perfect’ science policy problem

Canadian Science Policy Conference
Nov 9th, 2018
Ottawa



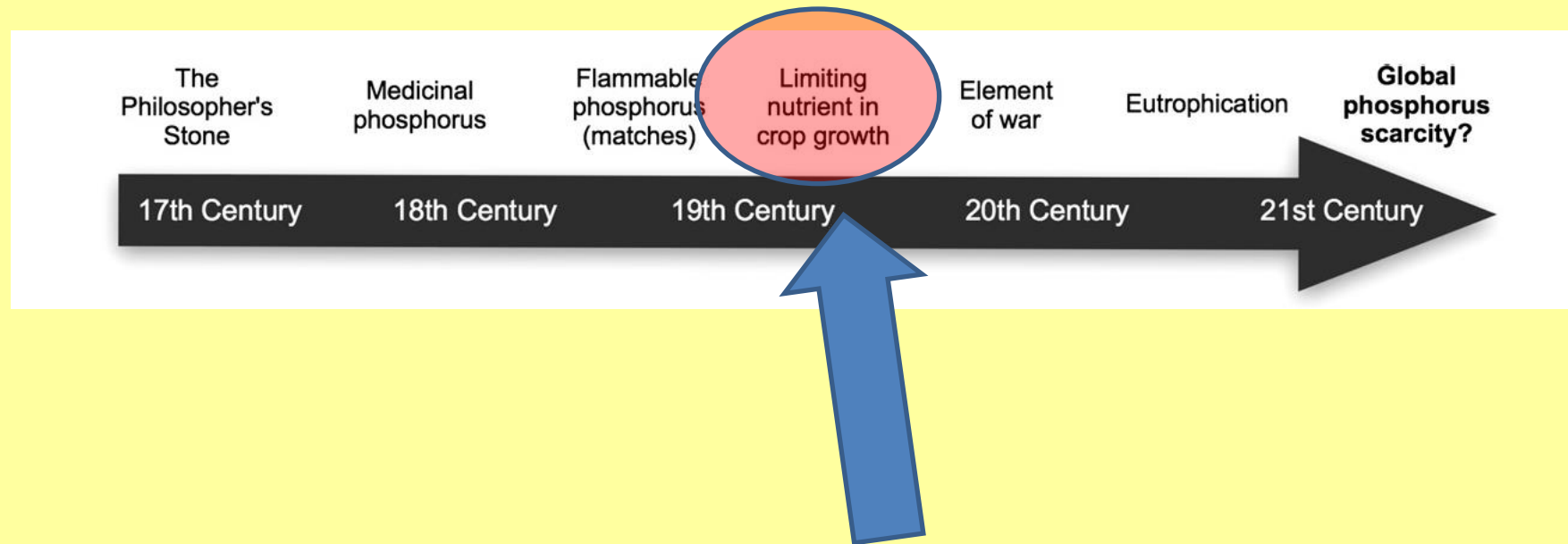
2014 Satellite image of Lake Erie showing nutrient-induced algal blooms.
Credit: Don Scavia, Univ. of Michigan

In the 17th century, people believed that the legendary 'Philosopher's Stone' would turn metal into gold.

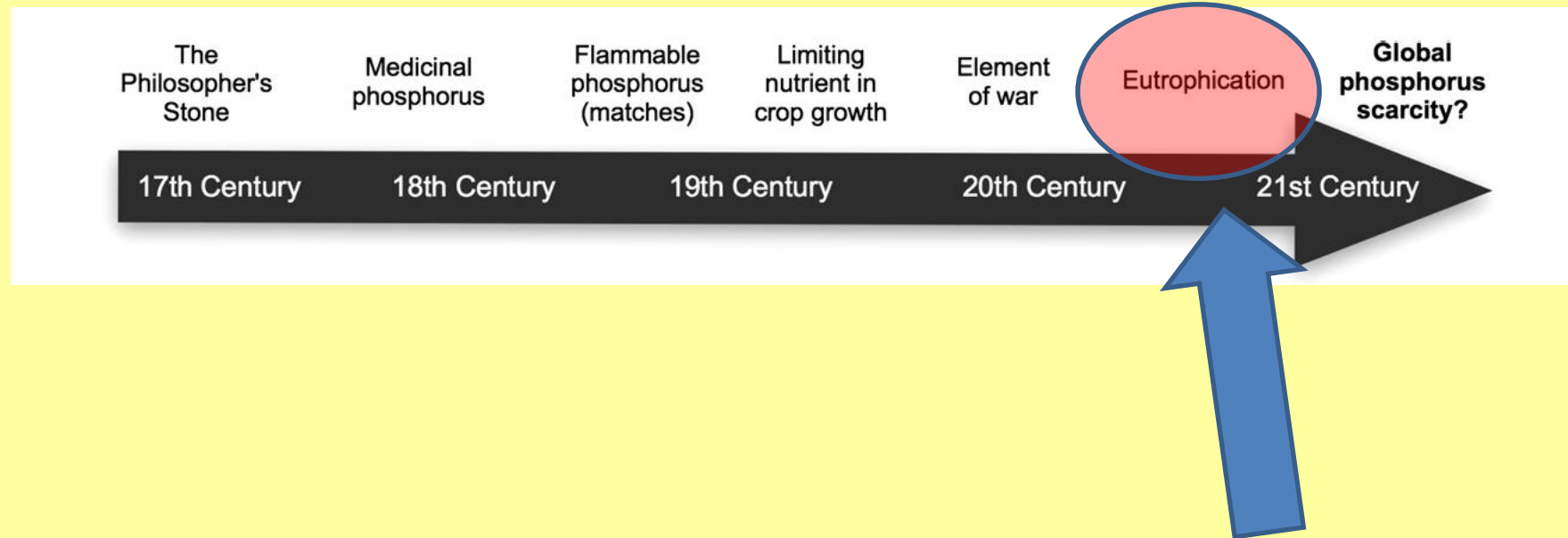
In search of it, the German alchemist Hennig Brandt distilled 50 buckets of urine.



Instead, he discovered Phosphate.



Instead, he discovered Phosphate.



Time

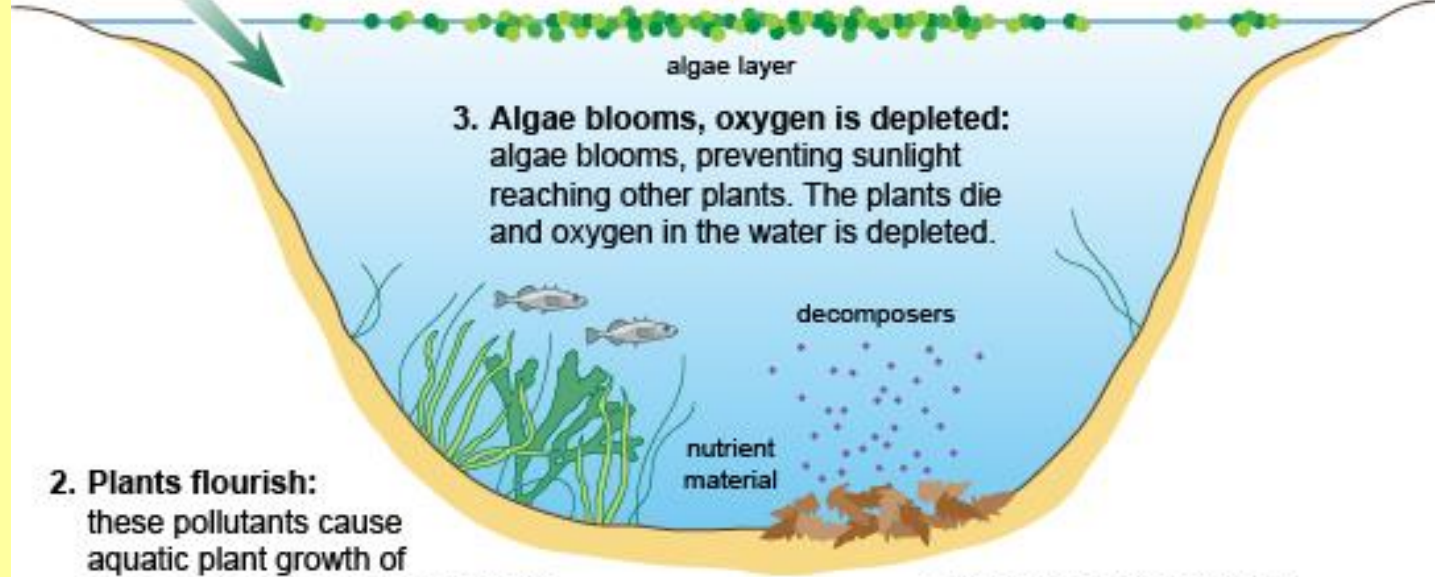


sunlight



1. Nutrient load up:
excessive nutrients from
fertilisers are flushed
from the land into rivers
or lakes by rainwater.

5. Death of the ecosystem:
oxygen levels reach a point
where no life is possible.
Fish and other organisms die.



3. Algae blooms, oxygen is depleted:
algae blooms, preventing sunlight
reaching other plants. The plants die
and oxygen in the water is depleted.

2. Plants flourish:
these pollutants cause
aquatic plant growth of
algae, duckweed and other plants.

**4. Decomposition further
depletes oxygen:**
dead plants are broken down by
bacteria (decomposers), using up
even more oxygen in the water.

My Shots


Ontario, Michigan and Ohio pledge 40% phosphorus cut to reduce algal blooms

windsorstar.com expires in 14 days

Download

Ontario, Michigan and Ohio pledge 40% phosphorus cut to reduce algal blooms

After a toxic algal bloom cost Pelee Island more than \$1 million last summer, Mayor Rick Masse knows the urgency of putting less phosphorus into Lake Erie.

 **SHARON HILL, WINDSOR STAR**

Published on: June 15, 2015 | Last Updated: June 15, 2015 10:44 PM EDT



Ontario, Michigan and Ohio pledge 40% phosphorus cut to reduce algal blooms - Mozilla Firefox

https://screenshots.firefox.com/tK7nGkldAbQrDVhk/windsorstar.com


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But how???

Farming practices?



Cover crops



Buffer strips

Tax on phosphate?



Knowledge gaps?

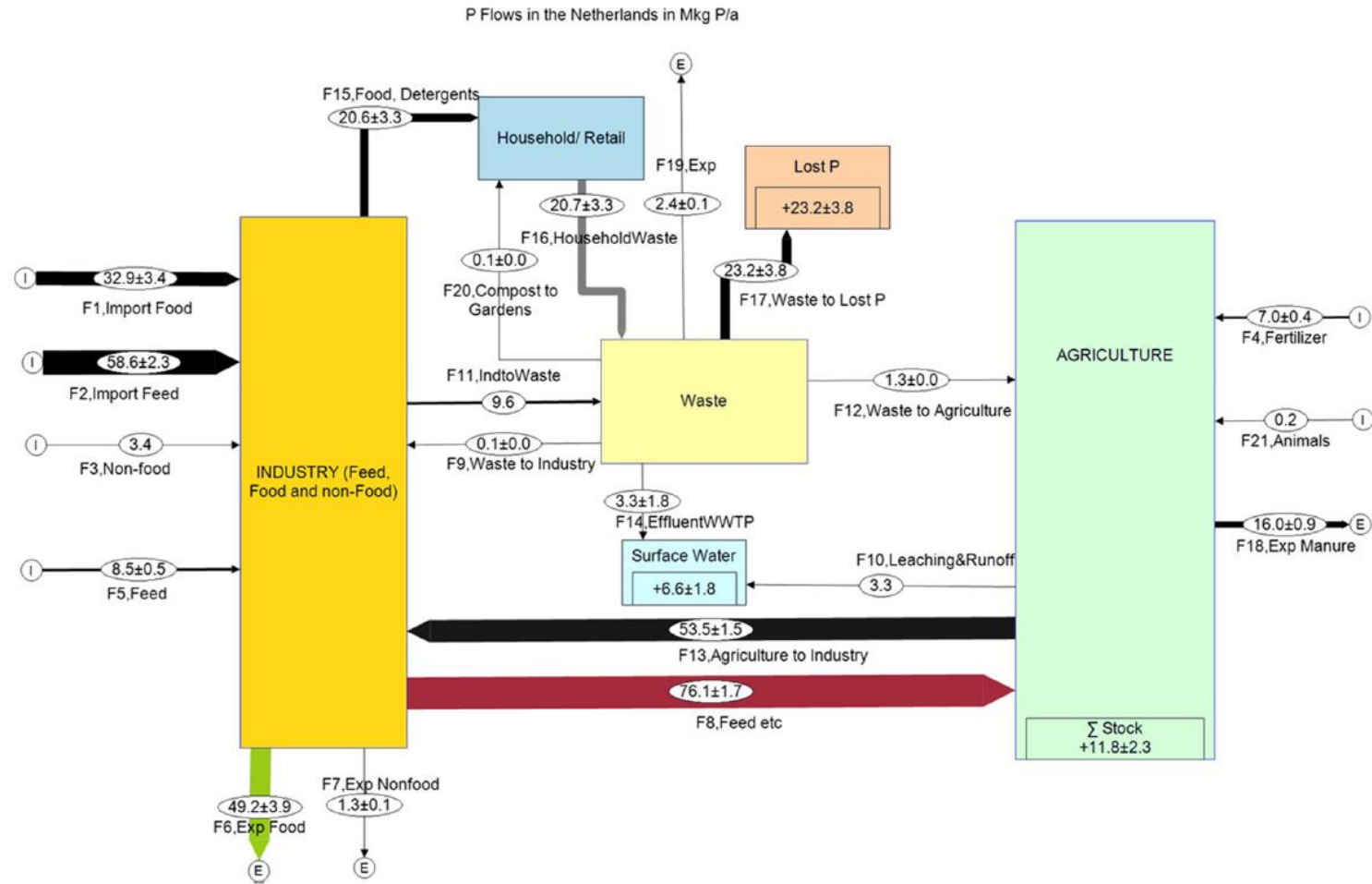


Fig. 1 P flows in the Industry, Agriculture, Household/Retail, Waste and Surface water systems in 2011 (Mkg P/a)

Municipalities: phosphate recycling in waste water?

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Switzerland is the first country in the world that made recycling of phosphate mandatory by 2017 (10-year time frame)

A Pint of Beer at This Festival Might Be Brewed From Recycled Urine

Northern Europe's largest outdoor music bash collected the liquid human waste so it could be reused as a fertilizer.



TAKE ACTION



SHARE



YOUR REACH



Through its cheekily named “From Piss to Pilsner” effort, the annual Roskilde Festival in Denmark, which ended on Saturday, collected more than 6,600 gallons of urine from about 100,000 attendees. Instead of urinating on the ground, attendees were encouraged to pee in gigantic metal troughs emblazoned with the message “Don’t waste your piss. Farmers can turn it into beer again,” reported *The Guardian*. Women naturally lack the equipment to easily urinate while standing, but the festival’s organizers planned for that—they passed out a cardboard apparatus that directed ladies’ flow of urine into the containers.

Who are the stakeholders?

- Government
- Agriculture
- Municipalities
- Scientists

Agriculture/Municipalities

- What do you contribute to the problem?
- How can you reasonably reduce your contribution?
- What is your leverage/bargaining power?

Scientists

- What do you think we need to know to find a solution?
- Do you need extra time and resources to obtain the required data?

Government

- Come up with an action plan that keeps everybody happy and solves the problem.