



The Uncanny Relationship between Nutrient TMDLs & Vonnegut's 2BR02B

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Total Maximum Daily Load (TMDL)

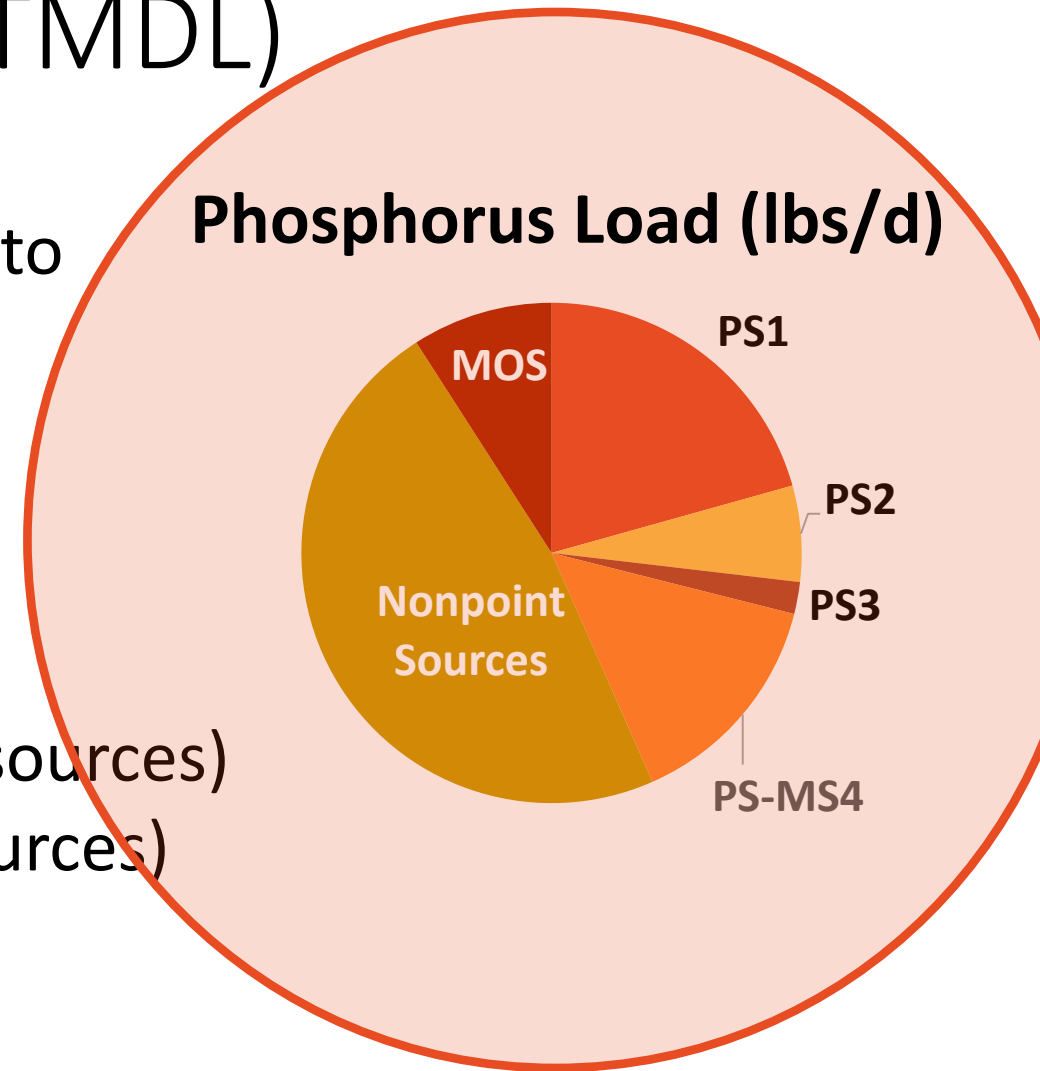
Calculated pollutant budget for a waterway to meet water quality standard(s)

$$TMDL = \sum WLA + \sum LA + MOS$$

where WLA = wasteload allocation (point sources)

LA = load allocation (nonpoint sources)

MOS = margin of safety

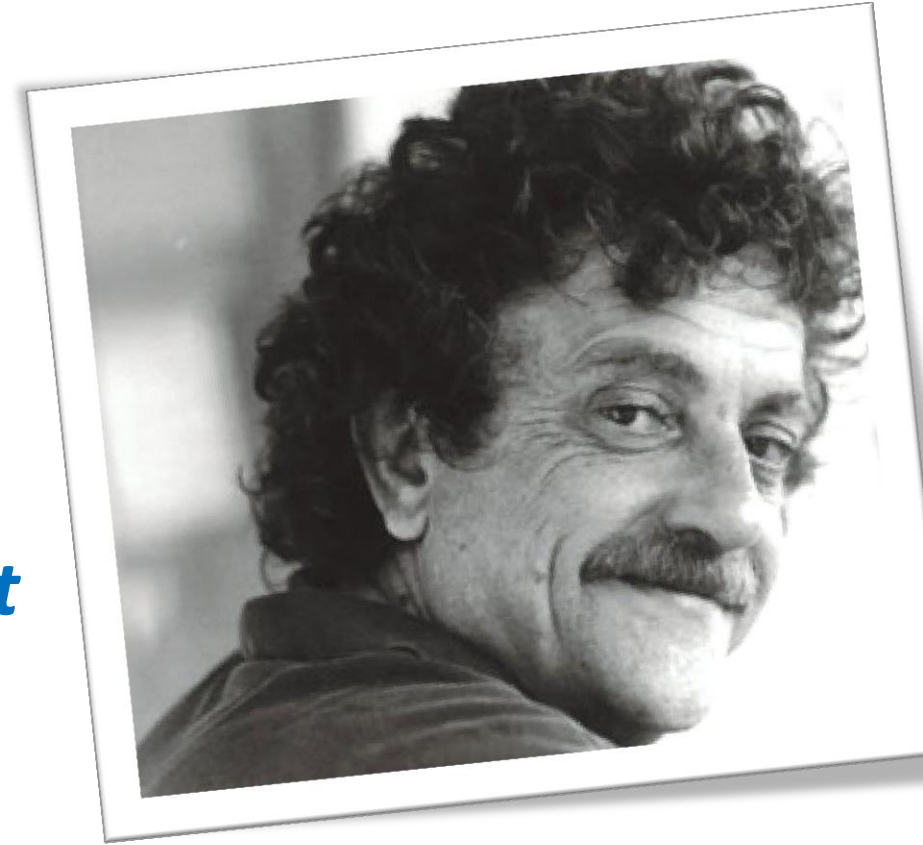


2BR02B ("To Be or Not Too Be")

Kurt Vonnegut, Jr. (May 3, 2007)

- U.S. society based on stable population
- Diseases conquered; average age of 129 years
- For every child about to be born, parent enlists a "volunteer" to die
- Simple phone call results in arranged death by gas chamber

"Your city thanks you; your country thanks you; your planet thanks you. But the deepest thanks of all is from future generations."



Text: <https://www.gutenberg.org/files/21279/21279-h/21279-h.htm>

Video: <https://www.youtube.com/watch?v=RgaID8bRPLk>

The Plot

- Edward K. Wehling, Jr. (56) waiting for triplets to be born
- 200-year old painting a tribute mural to Dr. Hitz (father of population control)
- Enter “gas chamber lady” and Dr. Hitz to admire mural
- Wehling expresses despair over losing grandfather and two of the babies
- Doctor chastises Wehling
- Wehling shoots Dr. Hitz, then gas chamber lady, then himself
- Painter calls 2BR02B and makes appointment for himself

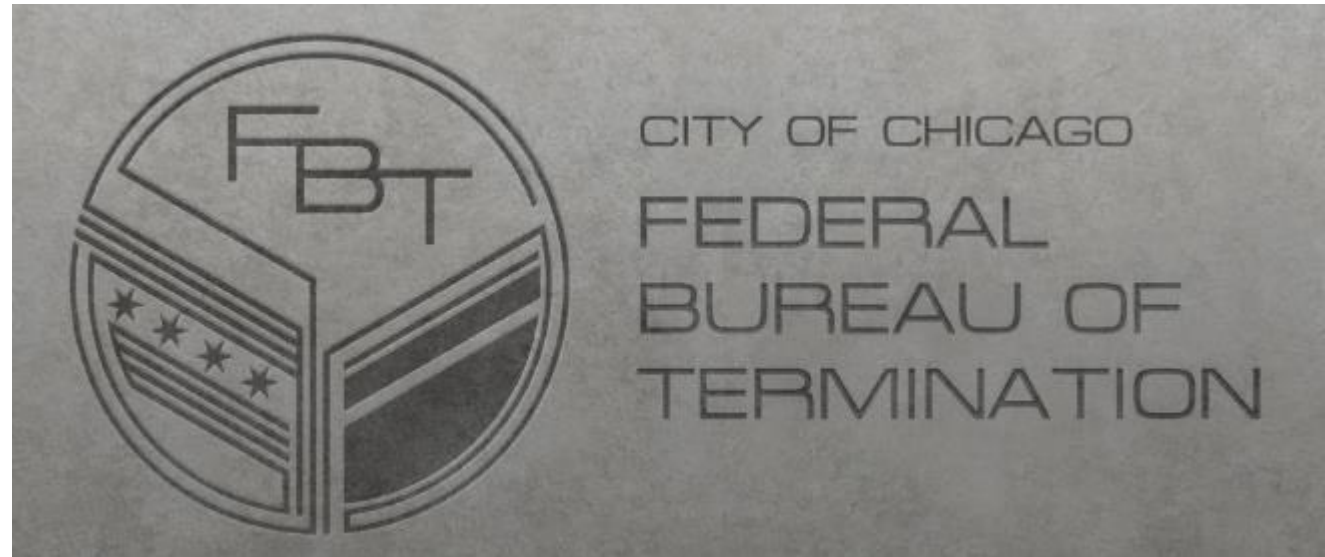




Too much algae....phosphorus “diet”



Disease from overcrowding....people “diet”



TMDL

- Assumption that water quality standards will be met
- Long protracted process
 - 8-13 years development
- Involuntary
- Often unimplementable
 - Rarely federal support
 - Long protracted planning process
- No guarantee that water quality goals will be met

2BR02B

- Guaranteed return on investment
- Simple decision - same day appointments
- Voluntary
- Implementable
 - Well organized national staff
 - Quick & easy (gas chamber)
- Goals guaranteed



Designated Uses



Water Quality Standards



Integrated Report
Assessment



**NPDES Water
Quality-Based
Effluent Limits
(WQBELs)**



TMDL(s)



THE *List.*

More on WQBELs

- TMDLs based on associative targets
 - EPA reference criteria
 - Ohio EPA Associations Report
- We did a TMDL but now we need you to do more
 - Upper Blackstone (MA)
 - Long Island Sound TMDL
- Quasi-technology-based limits
 - Statewide permit challenge strategy (0.1 mg/L)
 - Negotiated agreement to accept something less onerous than 0.1 mg/L TP



Is there an
Alternative???



A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program (Vision) Dec. 2013

https://www.epa.gov/sites/production/files/2015-07/documents/vision_303d_program_dec_2013.pdf

Is there an
Alternative???

**Listed Impaired or
Threatened Waters
(CWA 303(d) List)**

- Category 5:
Impaired (or
threatened) without a
TMDL completed
- Category 5-
alternative (5-alt):
Impaired without a
TMDL completed but
assigned a low
priority for TMDL
development because
an alternative
restoration approach
is being pursued

**Not Listed but Still
Impaired Waters**

- Category 4a:
Impaired with an
approved TMDL
- Category 4b:
Impaired without
TMDL, and with
appropriate 4b plan
- Category 4c:
Impaired due to
pollution

**Unimpaired or Restored
Waters
(i.e, meets water quality
standards)**

- Category 1: Meets
all designated uses
- Category 2: Meets
some designated uses

4B

1. Identify segment & what causes impairment
2. Describe how controls will meet WQ standards
3. Estimate when WQ standards will be met
4. Provide schedule for controls
5. Monitoring plan to track controls
6. Commitment to revise controls

Examples:

Missouri – point source is single source; use NPDES permit

Kitsap County, WA – Pollutant Identification & Correction Program




- **Alternative restoration approach exists**
- **Waterbody remains on 303(d) list until**
 - **WQ standards achieved, or**
 - **TMDL completed**
- **Performance measures used to assess progress on controls**
 - **EPA considers adequacy of approach as to whether to include in 303(d) reporting requirements**

Piloted in EPA R4 (as 5R -waters with alternative restoration plans)

Example: Savannah Harbor Dissolved Oxygen

If you are discharging to an impaired water

- Consider walking through the door that USEPA and the states have opened
- Invest wisely to control your destiny
- Don't be afraid to challenge authority



Of all the words
of mice and men,
the saddest are,
“It might have been.”
- Kurt Vonnegut

wordsbyem