

Big Lake Draft Total Maximum Daily Load for Petroleum Hydrocarbons Public comment period



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Agenda

- Background information
- What is a total maximum daily load (TMDL)?
- Big Lake water quality and the TMDL
- Implementing the TMDL
- How to make comments on the draft TMDL

Summary of issue

- ***What is the concern?***
Areas of Big Lake have too much gasoline pollution during busy summer days.
- ***Why is this a concern?***
Exposure to gasoline can be harmful to aquatic life and to humans.
- ***What is the major source of this concern?*** Gasoline powered boats & jet skis.

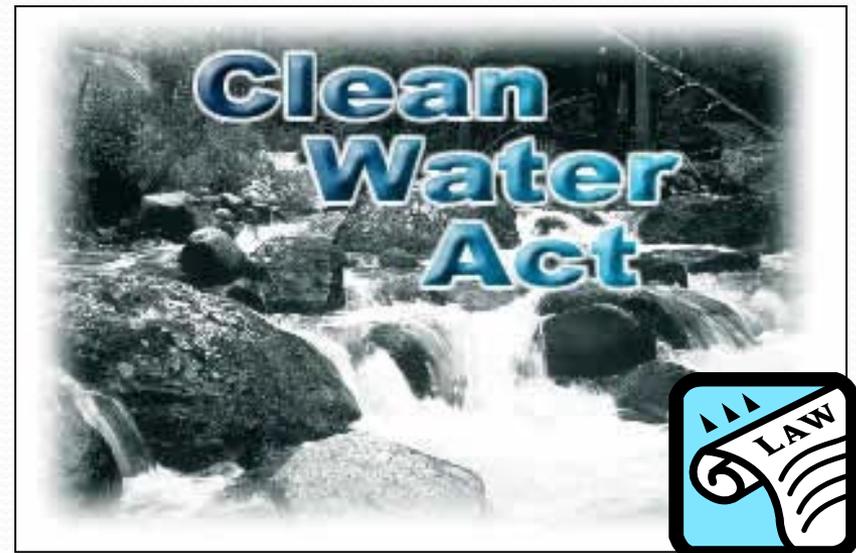


Why a Total Maximum Daily Load?

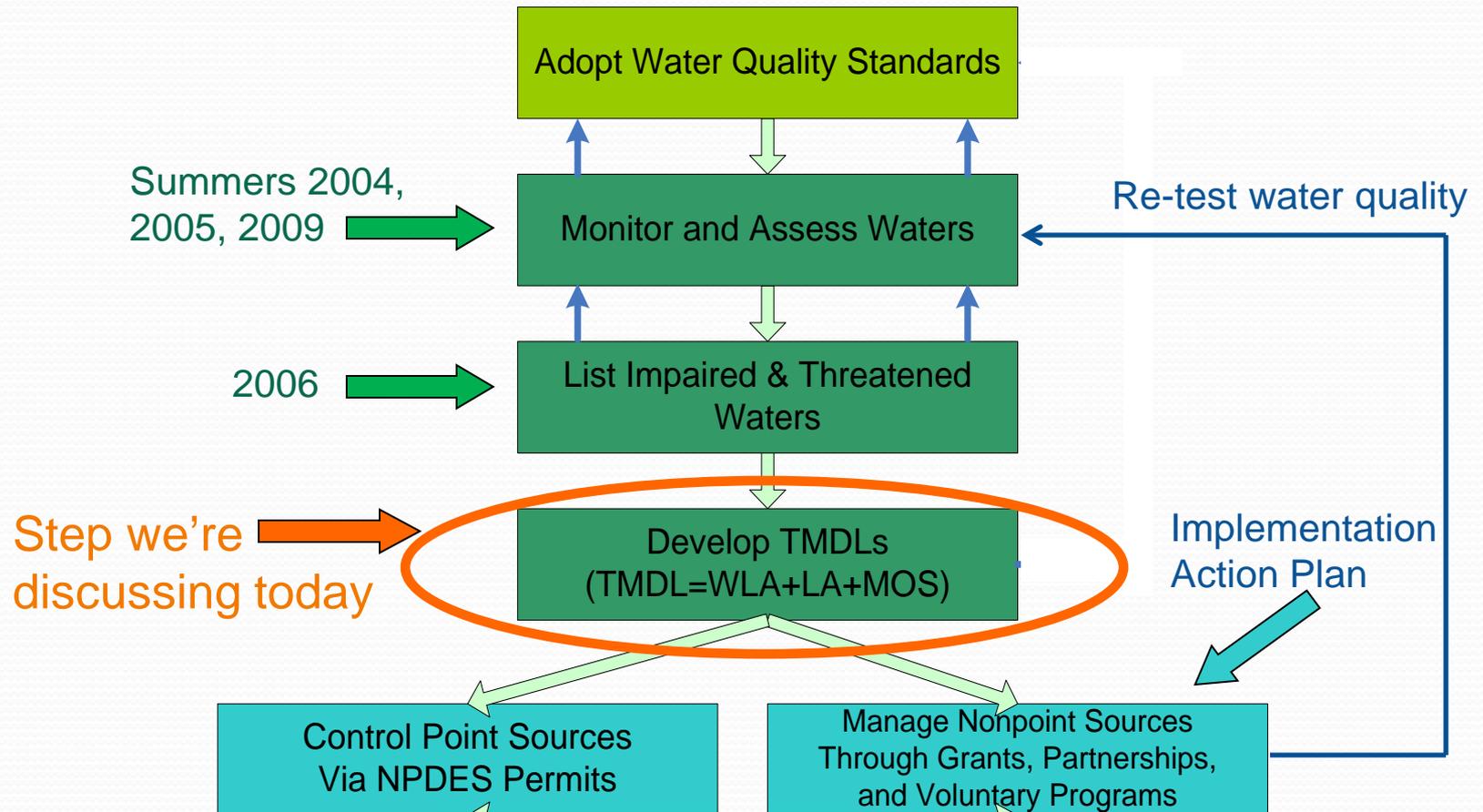
Federal law requires that states:

- Identify waters not meeting State water quality standards
- Develop a TMDL (water quality restoration plan) for each pollutant for each listed water and submit to EPA for approval.

The Total Maximum Daily Load (TMDL) program is required by the Clean Water Act



Bird's Eye View of Process

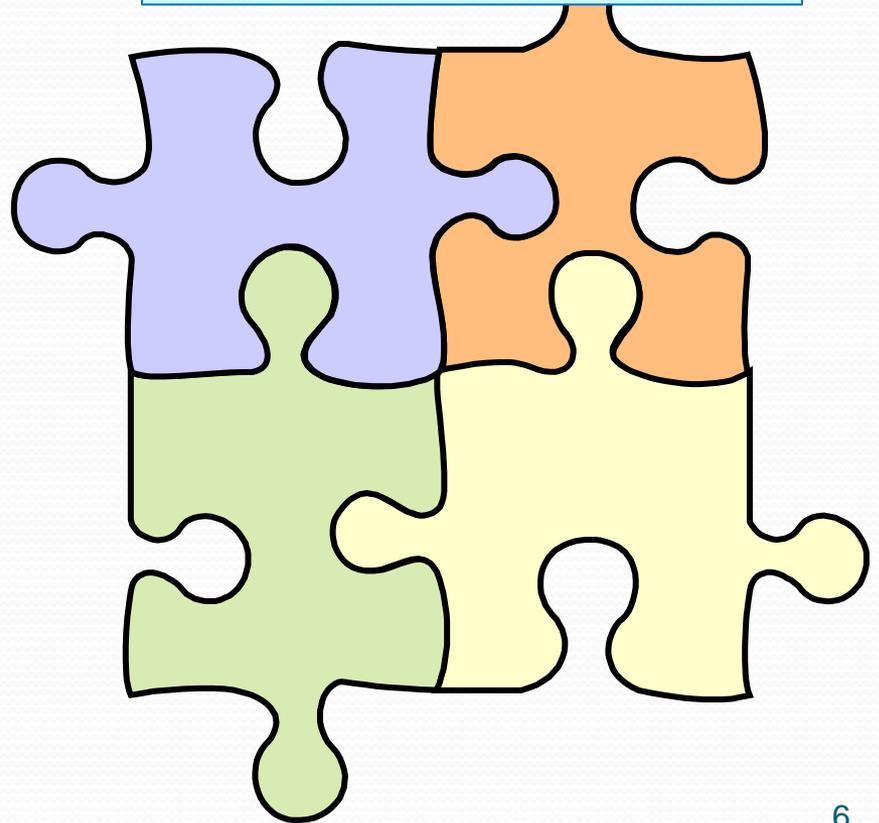


Putting the pieces together

Water quality
restoration plan (TMDL)



Improved Big Lake
Water Quality



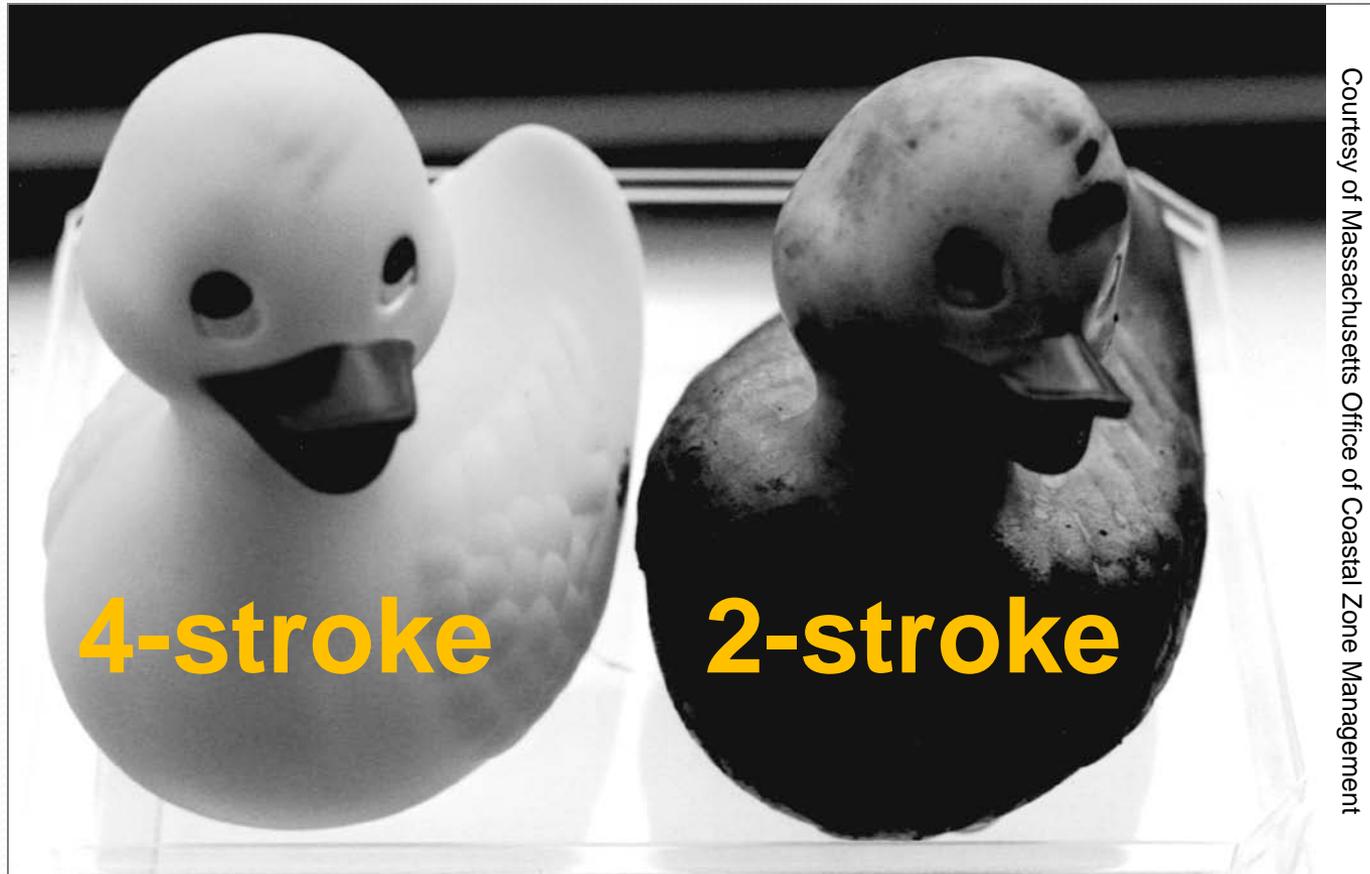
Petroleum Hydrocarbons

- Total aromatic hydrocarbons (TAH)
 - includes the compounds benzene, toluene, ethylbenzene and xylene (BTEX)
 - constituents of gasoline

Benzene is highly toxic & known to cause cancer.

Alaska water quality standards are designed to be protective of human health and the environment.

These ducks were part of an emissions test comparing boat engines.



Carbureted 2-stroke engines directly discharge a mix of unburnt gasoline and oil through the exhaust right into the lake as part of the combustion process. (upwards of 20 - 30%)

What is a TMDL?

- A document designed to restore the health of a waterbody.
- A TMDL identifies pollution sources that contribute to the problem and describes actions needed to reduce this pollution.



A TMDL is a plan to attain and maintain water quality standards.

What will be in the TMDL?

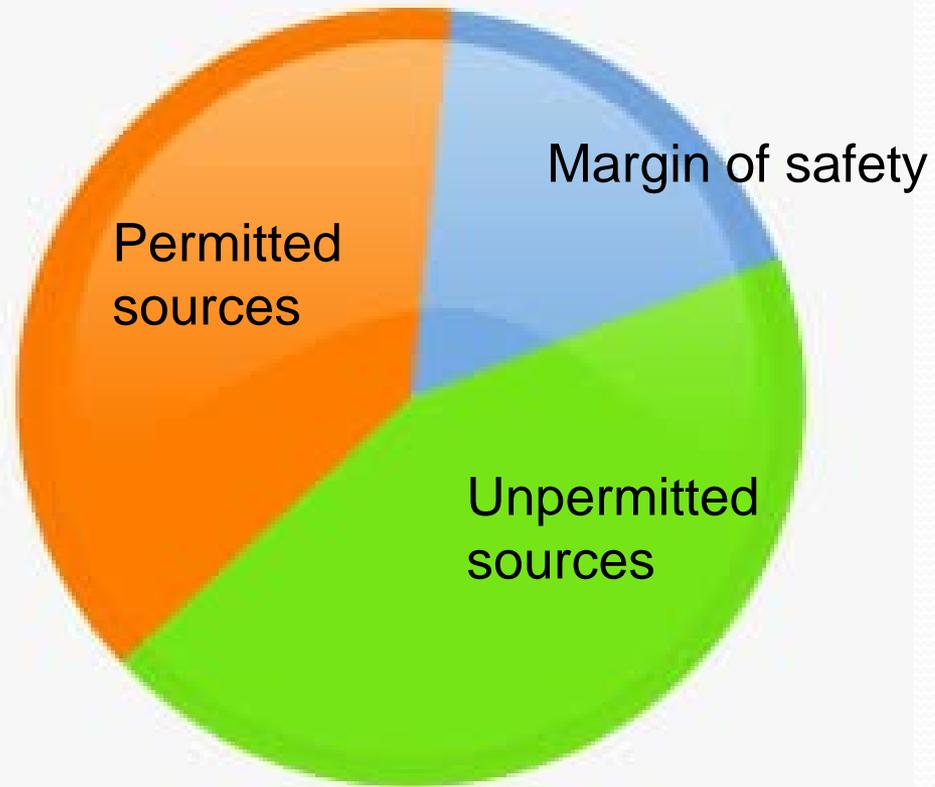
- A TMDL looks at permitted pollution point sources and also nonpoint sources.

WLA: waste load allocation (permits)

LA: load allocation (all other sources)

MOS: margin of safety (uncertainty analysis)

TMDL pie - example

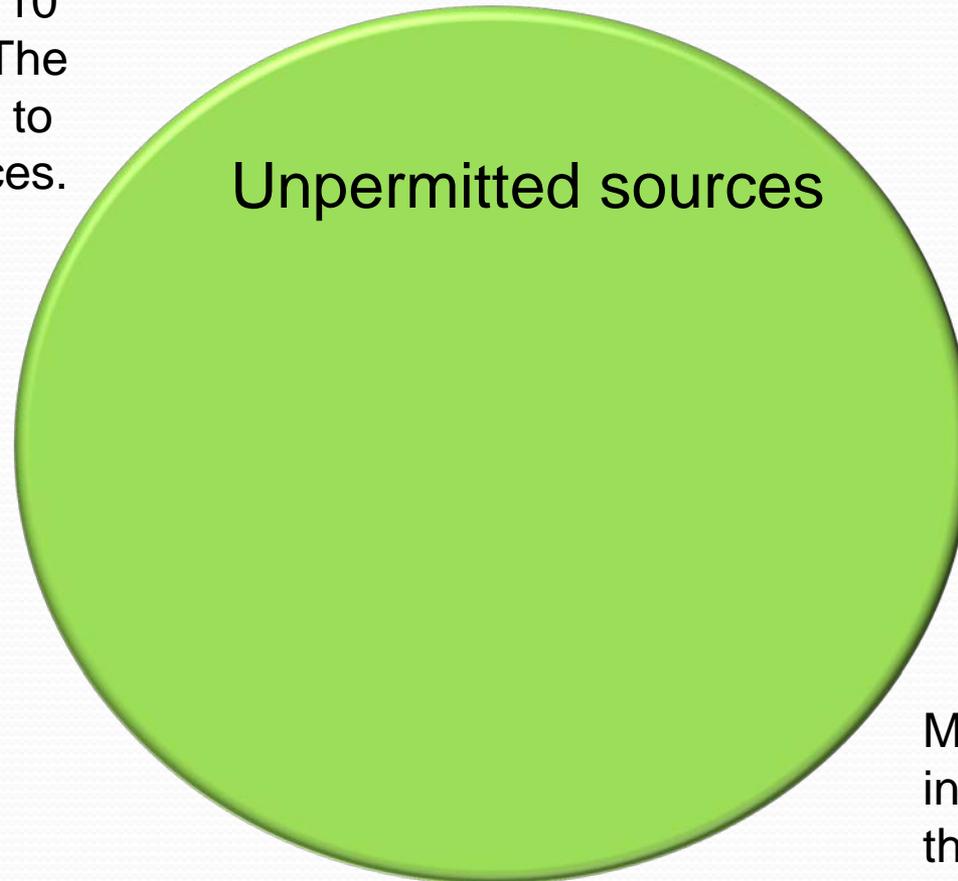


Pollutant target

- Pollution target in TMDL set at the state water quality standard of 10 parts per billion.
- This is the recovery level goal that needs to be reached under all use conditions in the lake.
- This pollution “load” is budgeted (allocated) completely to non-permitted sources (nonpoint) called a load allocation.

Big Lake TMDL pie

Pollutant target is 10 parts per billion. The whole pie is given to unpermitted sources.



Margin of safety is included implicitly through the state water quality standard.

Budgeting the pollution

- **Waste load allocation**

- No permits in target area for discharge of gasoline(TAH)
- Set as Not Applicable (NA) in TMDL

- **Load allocation**

- Nonpoint source pollution
 - Engine exhaust discharge
 - Drips and spills
 - Stormwater runoff
- Not regulated through permits
- Limit set at the water quality standard of 10 parts per billion

How the TMDL shows this info.

Sample Site	Total Aromatic Hydrocarbons measured as concentrations (µg/L)					Percent Reduction to Load Allocation
	Loading Capacity Concentration	Wasteload Allocation	Load Allocation	Future Growth	Maximum Observed	
BL-2	10	NA	10	10	16	38.0%
BL-3	10	NA	10	10	18	43.6%
BL-4	10	NA	10	10	70	85.6%
BL-5	10	NA	10	10	15	33.9%
BL-6	10	NA	10	10	27	62.5%
BL-7	10	NA	10	10	19	47.4%
BL-8	10	NA	10	10	20	50.7%
BL-10	10	NA	10	10	76	86.8%
BL-26	10	NA	10	10	17	41.1%
BL-27	10	NA	10	10	17	40.0%

The bottom line on the TMDL

- Calculates the reduction in gasoline needed to meet the state allowed limit.
- Establishes a margin of safety while still allowing for future sources of gasoline.
- Suggests ways to reduce/eliminate pollutant(s)



Implementation

The Action Plan developed by the community work group identifies the primary implementation actions.



Steps for TMDL Approval

- DEC to revise the TMDL based on the comments received.
- Submit TMDL to EPA for approval. Final approval expected by June 30, 2012
 - Big Lake will still be considered impaired but with a recovery plan in place.



Public comments

- Public comments must be received in writing by 4:30 PM on April 24, 2012.
 - include your name, address, phone number and a concise statement of the comment and any relevant facts.

Send comments to:

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Wasilla, AK 99654

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Thank you for your time!

