



# Bureau of Water Quality

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MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

*Protecting Maine's Air, Land and Water*

# Water Quality Trend/Status

What is the quality of our waters?

Are they getting better or worse?

How do we compare with other states?

Important that we understand the answers to these questions.



# What is the quality of our waters?

## Rivers and Streams

Morrison Stream  
SW of Town of Bethel



Androscoggin River  
19<sup>th</sup> Annual Source to the Sea



# What is the quality of our waters?

## Rivers and Streams

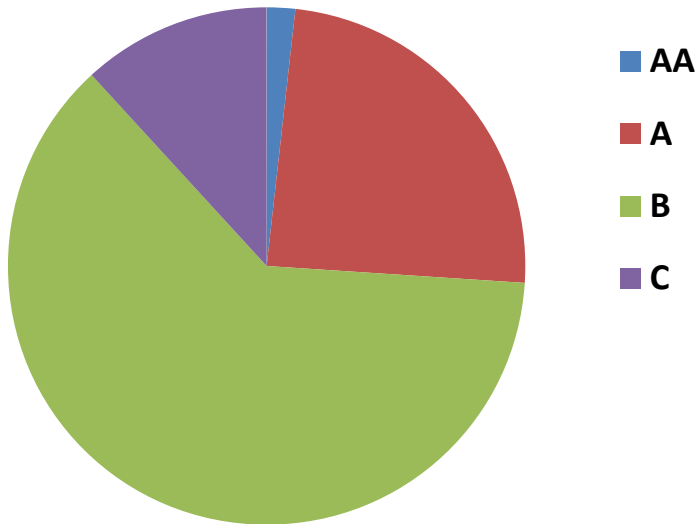
Over 55,000 miles of rivers and streams:

|          | <u>1987</u> | <u>2012</u> |
|----------|-------------|-------------|
| Class AA | 985 mi      | 3,404 mi    |
| Class A  | 13,471 mi   | 25,192 mi   |
| Class B  | 34,515 mi   | 26,313 mi   |
| Class C  | 6,552 mi    | 614 mi      |
| Class D  |             |             |

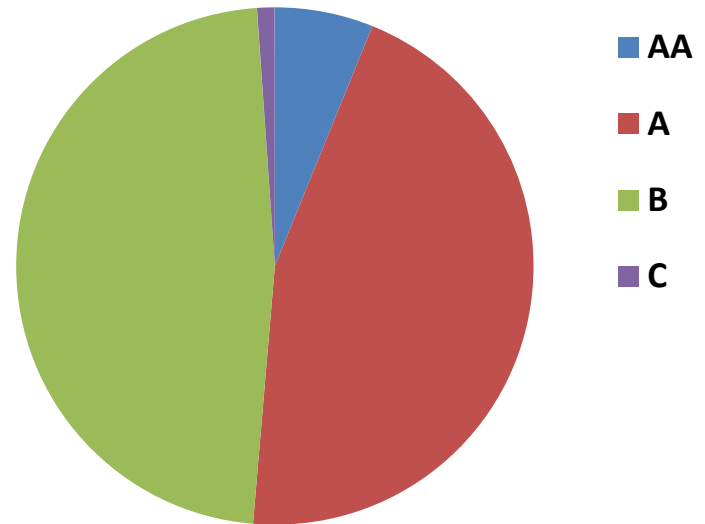


# What is the quality of our waters? Rivers and Streams

1987



2012



***99% of all the rivers and streams in Maine are Class B or better!***





# What is the quality of our waters?

## Lakes and Ponds

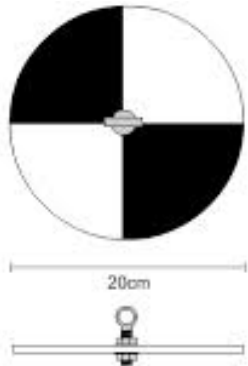
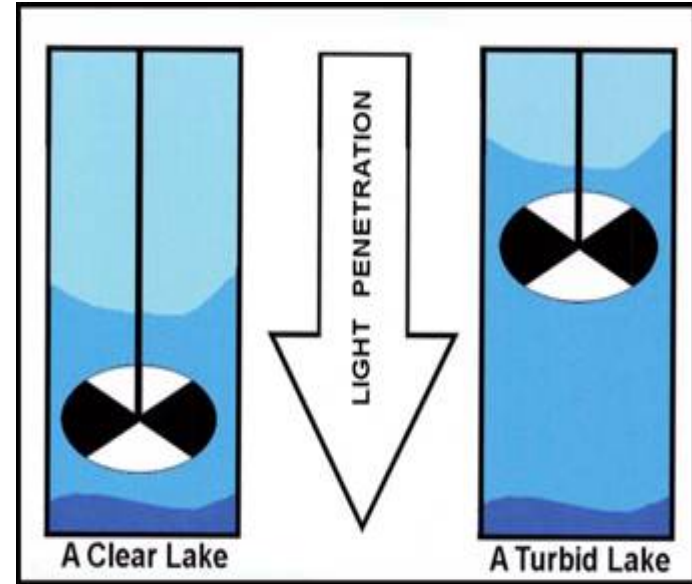
Taylor Pond



Sebago Lake



# Lake Transparency



Copyright © Verloren Hoop Productions 2003

The diagram shows five stages of using a Secchi disk. Each stage is represented by a circular disk with a different level of shading, indicating the amount of light reaching it. The steps are: 1. Lower disk into water. 2. Continue lowering disk... 3. ...and lower... 4. ...until it can no longer be seen. Record this level. 5. Raise and record level you see disk again.

**USING A SECCHI DISK**

# What is the quality of our waters?

## Lakes and Ponds

“Regional distribution of Secchi disk transparency in waters of the United States.” Stephens, et al

- Reviewed 975,760 Secchi disk readings from all 50 States
- Maine ranked third, behind Alaska and Montana
- Least variation in Maine data, so water quality is consistently higher state-wide more so than the other states
- Maine’s Median Secchi depth = 4.8 m (15 ½ ft.)





# What is the quality of our waters?

## Marine Waters

Half Moon Rock, Casco Bay



Falmouth Harbor



# What is the quality of our waters?

## Marine Waters

Maine is known for its clean ocean waters

Experience excellent flushing – very active currents

Home of the iconic American Lobster, Clams,  
various fisheries, significant tourism and the  
thousands that make their livelihoods from the sea

However, these are waters that are being stressed:

- Ocean acidification
- Climate change impacts
- Invasive species



# Marine Waters

In 2014, the 126<sup>th</sup> Legislature established a commission to study ocean acidification, specifically:

- The effects of coastal and ocean acidification; and,
- The existing and potential effects on species that are harvested and grow along the Maine coast.

Final report issued January 2015.

[www.maine.gov/legis/opla/Oceanacidificationreport.pdf](http://www.maine.gov/legis/opla/Oceanacidificationreport.pdf)



# Marine Waters



## Climate change impacts

- Increasing ocean temperature
- Altered habitat

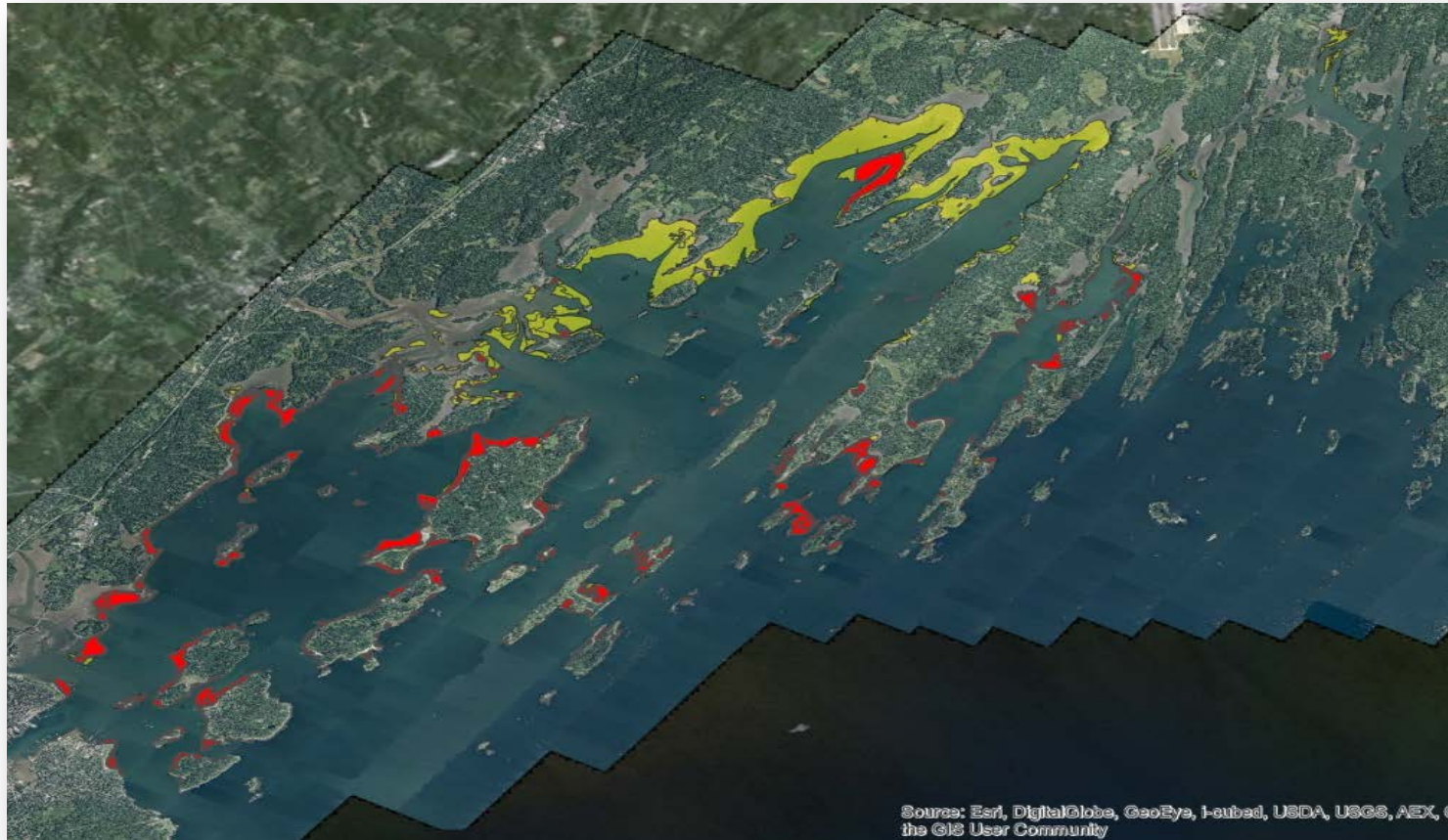


# Marine Waters



# Marine Waters

## Decreasing Eelgrass Habitat





# *How do we compare with other states?*

## **Trends in Water Quality**

CWA Sections 303(d) and 305(b) require monitoring and reporting of water quality. Water bodies are put into one of five categories.

Categories 1 & 2 are considered to be meeting water quality requirements for their classification.



# How do we compare with other states?

## Trends in Water Quality

Here are the Category 1 & 2 water bodies as reported in 2012:

|              | <u>Rivers &amp; Streams (mi.)</u> | <u>Lakes (ac.)</u> |
|--------------|-----------------------------------|--------------------|
| <b>Maine</b> | 96%                               | 91% ↑              |
| <b>US</b>    | 46% ↓↓                            | 31% ↓↓             |

Note: Trends determined on data submitted since 2006.

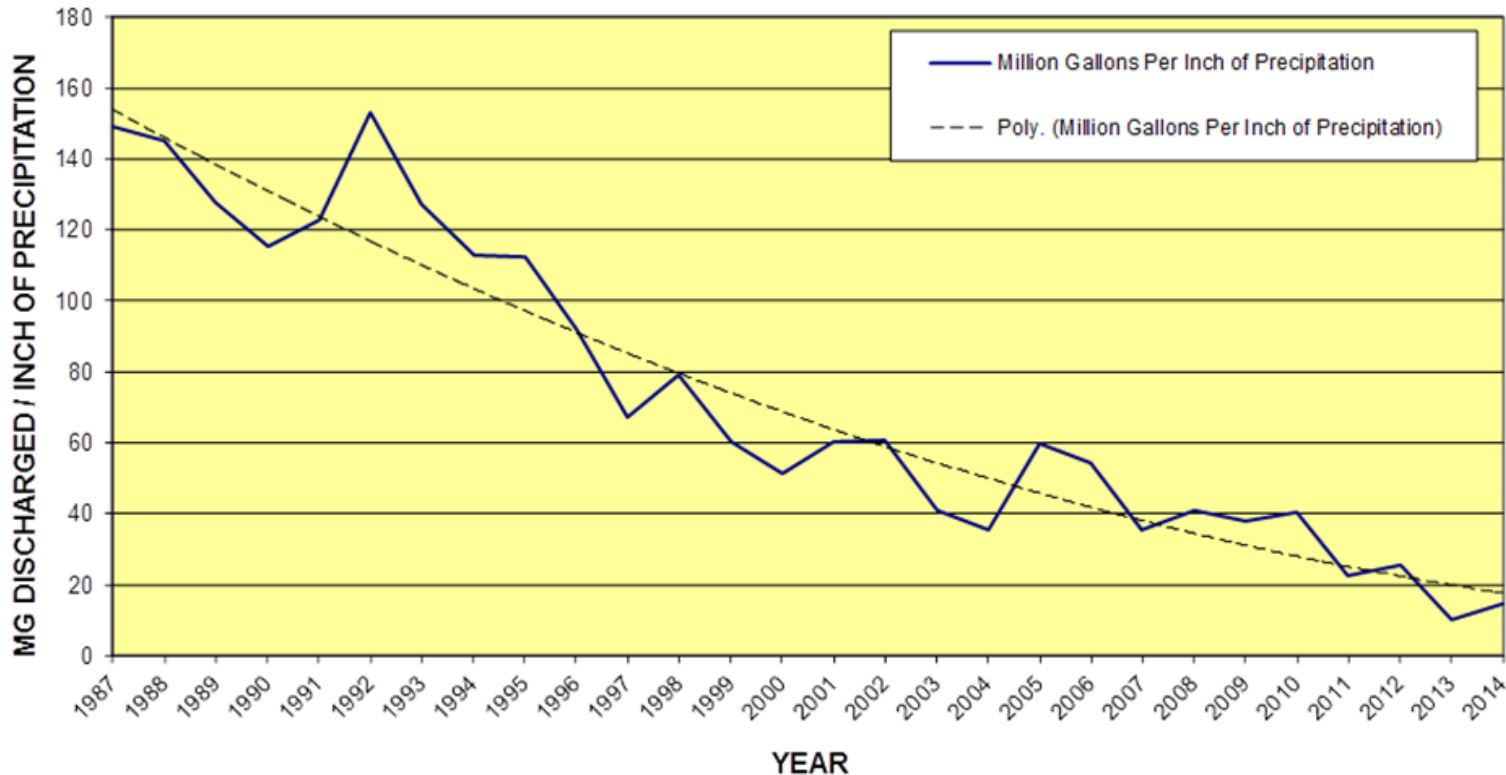
Source: EPA.



# Challenges - Combined Sewer Overflows (CSOs)



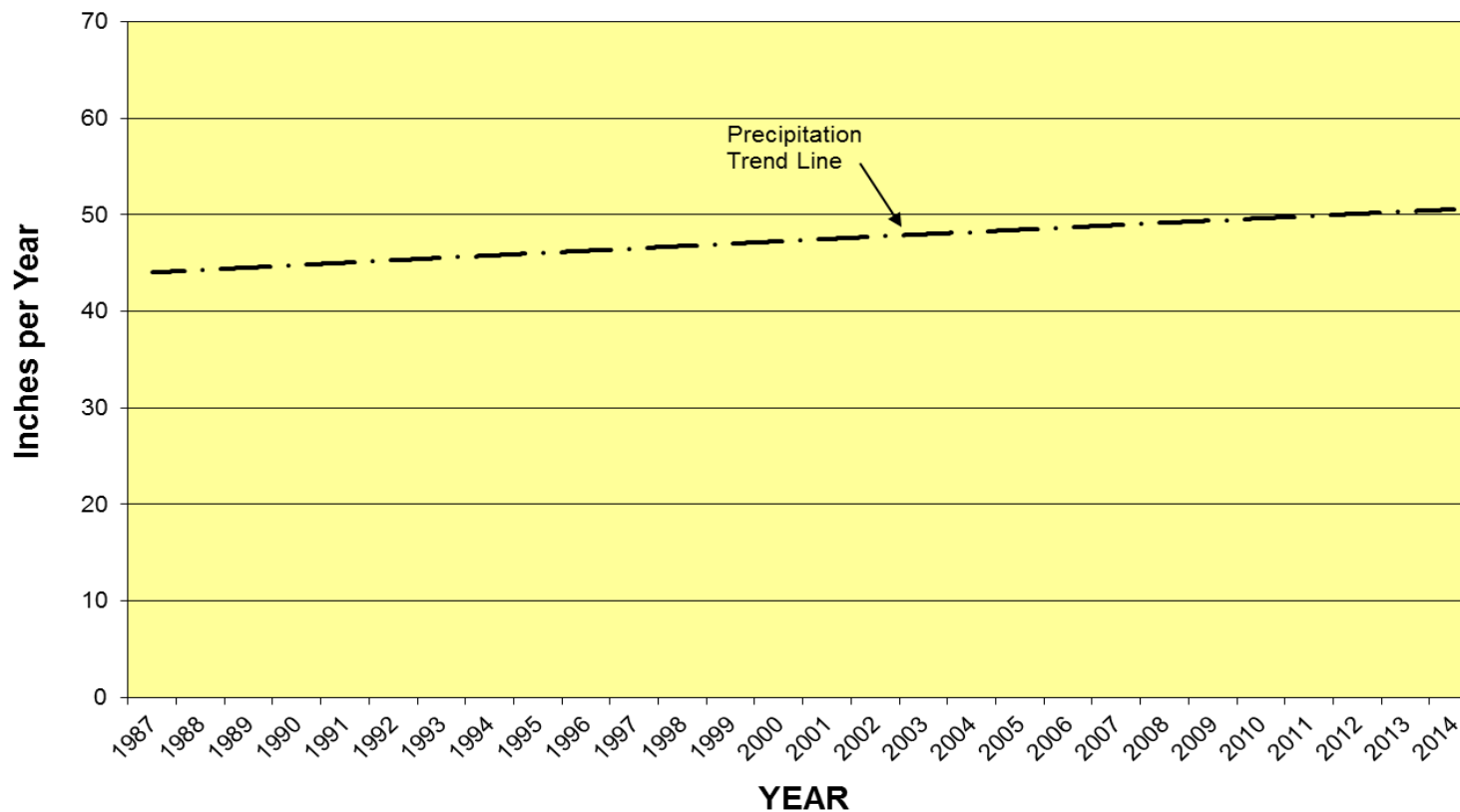
MAINE  
COMBINED SEWER OVERFLOWS  
ANNUAL VOLUME DISCHARGED PER INCH OF PRECIPITATION



# Challenges - Combined Sewer Overflows (CSOs)



**MAINE  
YEARLY PRECIPITATION**



# Opportunities

Wastewater is a very mature program:

- Needed upgrades to aging POTWs
- Need an influx of new POTW operators
- Continued work on CSOs
- Innovative ways to deal with climate change
  - Natural and Built environments





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