Bureau of Water Quality

Mick Kuhns, P.E.
Bureau Director
November 17, 2015
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
19th Annual Source to the Sea
## What is the quality of our waters?
### Rivers and Streams

Over 55,000 miles of rivers and streams:

<table>
<thead>
<tr>
<th>Class</th>
<th>1987</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class AA</td>
<td>985 mi</td>
<td>3,404 mi</td>
</tr>
<tr>
<td>Class A</td>
<td>13,471 mi</td>
<td>25,007 mi</td>
</tr>
<tr>
<td>Class B</td>
<td>34,515 mi</td>
<td>26,313 mi</td>
</tr>
<tr>
<td>Class C</td>
<td>6,552 mi</td>
<td>614 mi</td>
</tr>
<tr>
<td>Class D</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What is the quality of our waters?
Rivers and Streams

1987

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

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

A Clear Lake

A Turbid Lake

Using a Secchi Disk

Copyright © Venteren Hoop Productions 2003

Lower disk into water. Continue lowering disk... until it can no longer be seen. Record this level.

...and lower...

Raise and record level you see disk again.
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
In 2014, the 126th 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
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:

<table>
<thead>
<tr>
<th></th>
<th>Rivers &amp; Streams (mi.)</th>
<th>Lakes (ac.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maine</strong></td>
<td>96%</td>
<td>91% ↑</td>
</tr>
<tr>
<td><strong>US</strong></td>
<td>46% ↓↓</td>
<td>31% ↓↓</td>
</tr>
</tbody>
</table>

Note: Trends determined on data submitted since 2006. Source: EPA.
Challenges - Combined Sewer Overflows (CSOs)
Challenges - Combined Sewer Overflows (CSOs)

MAINE
YEARLY PRECIPITATION

Precipitation Trend Line

Inches per Year

YEAR

Challenges – EPA and Maine’s WQS

In letters dated February 2, 2015, March 16, 2015, and June 5, 2015, EPA stated that it had approved some of Maine’s WQS, but disapproved several other, including some that have been in place for 30 years.

DEP strongly disagrees with these three letters and that the standards have been wrongly disapproved by EPA.

For more information, please go to our website.
Challenges – EPA

No cookie cutter approach
Innovation

Examples of improved service:

• Computer Based Testing for POTW Operators
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
Stormwater: The Main(e) Perspective

Mark Bergeron, P.E.
Bureau of Land Resources
November 17, 2015
Chapter 500 – The Past

- 1995 – Maine Storm Water Management Law
- 1997 – Chapter 500 Stormwater Management Law Rules
- 2006 - Stormwater Management Rules last updated
- 2009 – Stakeholder group discussions
Chapter 500 – The Present

• New changes effective 8/12/2015
• General standards – options when 95% and 80% treatment levels can’t be met
• Redevelopment standards
• Innovative treatment measures
• Clarification of treatment standards for Site law redevelopment projects
• Rainfall table updates
• Voluntary low impact development credit
Chapter 502 – The Future

- Watersheds most at risk, and urban impaired streams
- Last updated in 2006
- Potential start of review in 2016
- Major substantive rule
What do the changes mean?
New! Chapter 501 Rule

- Compensation fees and mitigation credits
- Section 6 was moved from Ch. 500 to be a stand-alone rule
- Routine technical rule change
- Effective date 1/13/2015
Maine Construction General Permit (MCGP)

• Introduced in 2003
• Licenses discharges only from construction activities
• Expired in 2008, but coverage continues
MCGP Proposed Changes

- Definition changes
- Construction in Long Creek watershed
- Emergency-related construction activities
- Non-stormwater discharges
- Changes reviewed with EPA
Low Impact Development (LID)

• LID definition in Ch. 500 Rules
  – “…Site planning and design strategies intended to replace or replicate predevelopment hydrology through the use of source control and relatively small-scale measures integrated throughout a site to disconnect impervious surfaces and enhance filtration, treatment, and management of stormwater runoff as close to its source as possible. Low impact development strategies may be either nonstructural or structural…”

• Encourage innovation and creativity
• Voluntary LID credit
Low Impact Development (LID)

• What does DEP consider LID?
  – Not just one definition
  – Differing opinions on what LID is
Stormwater and Climate Change

DEP Online Adaptation Toolkit

Adaptation Toolkit

The Maine Climate Change Adaptation Toolkit aids climate adaptation efforts by providing a centralized source to go to for the information you might need for designing and implementing resiliency practices, as well as information on important regulations and standards to integrate into your project or planning process, and opportunities to connect with state and other engaged practitioners for technical expertise.

The Toolkit will continue to be developed in coordination with the Environmental and Energy Resources Working Group with input from user groups to enhance consideration of climate-related factors that may affect our communities, and to provide integrated best practices for design and the implementation of climate resilience activities.

Climate change adaptation is a continual process that can be done in the short-term, by project, and in the long-term, through planning.

Navigate the Toolkit

Click the audiences below to browse through a selected list of tools. From the audience pages, click on one of the subjects at the top of each page to scroll down to the related tools and information for that subject. Or, browse all the tools in the A-Z Library.

Select the Weather and Climate links to connect with information on local weather, climate change, current indicators and future projections for the climate, and tools to help visualize and understand climate hazards and their associated risks.

Information For

- Business: Private Forester, Farmer, Farmer, Utility, Developer, Grocer, Educator/Academic
- Consultant: Land Manager, Natural Resource Manager, Environmental Services or Energy Consultant
- Homeowner: Homeowner, Farmer, Landowner, Community Member, Volunteer
- Public Official: Planners, Municipal Departments, Emergency Services, Government Council and Commissions

Activities & Resources

- Weather and Climate
- Current Activities
- A-Z Listing

This page is still under development. Please continue to check back. Contact: Nathan Robbins 592-5090
Stormwater and Climate Change

DEP Adaptation Toolkit:

• Centralized source of information for many stakeholders
• Developed with other state agencies
• Will continue to be updated over time

Mark Bergeron
Mark.Bergeron@maine.gov
207-215-4397
www.maine.gov/dep