

Phippsburg Stream Survey 2007
Tuesday, May 15, 2007

[Http://learn.bowdoin.edu/apps/hydrology/watersheds](http://learn.bowdoin.edu/apps/hydrology/watersheds)

Maine Watershed Web

Dr. Peter Lea, Associate Professor of Geology, Bowdoin College

Dr. Lea gave an overall description of the Phippsburg Stream Survey.

22 students
6 ponds in Phippsburg
3 stream watersheds

Sprague Pond, Wah-Tuh Lake, Big Pond, Center Pond, Meetinghouse Pond, Silver Lake

Collect water samples at surface and at depth
Water quality measurements
Analyzed for chlorophyll () and phosphorus (limiting nutrient)
No major water quality issues
Sensitive to additional nutrient loading and eutrophication

Trophic state, how well nourished, human nutrient loading problems. Phippsburg mesotrophic, i.e. middle range of nutrient loading values.

Pasture Brook, North Creek, Parker Head Stream

Snapshot sampling, 3-4 sites sample water quality samples and compare across sites.
Geographical analysis.
Relationship of water discharge v.s. water level = rating curve which allows calculation of water load and from which one can calculate the amount/concentration of nutrient e.g. phosphorus.
Day loggers recording every 10 minutes.

No obvious water quality issues.
Some issues, could make some recommendations.
Issues with water crossings and culverts: underdesign, storm intensity is increasing, overhanging culverts.
Lots of details.

Posters are ours to keep.

Jeff Bush, a Freshman at Bowdoin, describe his work on the Stream study.

4 sampling days
Water quality measurements
Data logger

Recorded stage of streams.

Pasture Brook vs North Creek

Rating Curve for Pasture Brook, high flow on Patriots Day Northeast

Sampling error: found rln to data logger stages able to “repair” with new points

Decent rating curve: measure from culvert how high the water is to the top of the culvert and find on curve to tell how much phosphorus etc in stream. No E coli which is good. Lots of residential developments nearby.

Quite healthy stream.

Matt Bauers, also from Bowdoin, described his work.

North Creek

Water Quality measurements

Data loggers

3 sampling days, graphs on web

Measure pH, turbidity, discharge (North Creek very variable so no rating curve)

Specific conductance a measure of dissolved solids conducive to electricity.

pH low, pretty acidic. Emerging problem. ~5-5.5 ok for now but ideal is in the 6 range

turbidity: very clear

silica and fecal coliform not a problem, very low

Saw difference due to road influence

It was noted that the clam flats are closed at Totman Cove. Where does the fecal coliform come from?

This stream is particularly interesting to the town due to its flow into Totman Cove.

Peter Lea is doing some projects with High Schools this summer. Maybe could steer people in that direction. Time series. Add sampling times this summer. Maybe septic issues closer to coast? Clam flat closures are based on rainfall. Bath sewage system cannot handle a lot of rain and dumps sewage in the Kennebec. DMR website should show where the sampling sites are.

Wetlands map on website is excellent!

[Http://learn.bowdoin.edu/apps/hydrology/watersheds/node/538](http://learn.bowdoin.edu/apps/hydrology/watersheds/node/538)

Data loggers are still there in position.

Dr. Lea spoke about possibilities for the future.

They all had a great experience!

They are very interested in continuing to work collaboratively going forward.

Buffer Strips: do watershed surveys, walk the watershed and look to non point source pollution
State could come and train volunteers. Some funds to apply for. Dr Lea happy to work
on this.

Lots of info. Leave posters. Look at website. Comment and ask questions. Online forum
devoted to Phippsburg. Coordinate sampling.

Question and Answer

Question: from Comprehensive Plan Implementation Committee

RE Condition of culverts: any particular culvert needing addressing, e.g. Pasture Brook culvert
hanging? Time frame for notification is next couple of months. Get GPS unit and digital camera
to take inventory of culverts. Issue of design of culverts important to migration/movement of
creatures.

Question: RE Buffers. Which kinds of buffers will not block view yet absorb problem
nutrients?

Question: Dr. Lea will give us introduction to a colleague who specializes in vernal pools.