Low Impact Development/Aquatics Resources

From the "New Hampshire Homeowner's Guide to Stormwater Management: Do-It-Yourself Stormwater Solutions for Your Home":

- http://des.nh.gov/organization/divisions/water/stormwater/documents/dripline-fs.pdf
- http://des.nh.gov/organization/divisions/water/stormwater/documents/drywell-fs.pdf
- http://des.nh.gov/organization/divisions/water/stormwater/documents/rain-barrel-fs.pdf

General Aquatics Information Websites

Surface Water and Groundwater

http://waterontheweb.org/under/lakeecology/index.html - Understanding Lake Ecology from Water on the Web. Basics of lake ecology.

- Review the following pages:
  - Density Stratification
  - Watersheds
  - General Lake Chemistry
  - Dissolved Oxygen
  - Nutrients
  - Chlorophyll

http://www.groundwater.org/gi/docs/GWBASICS2.pdf - From The Groundwater Foundation, the basics of groundwater.

www.epa.gov/region01/students/teacher/world.html - "World in Our Backyard" (EPA New England). Wetland science and function. Read Chapters 1 through 4.

http://www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/Habitat_stewardship/Hab_Vernal_Pools.pdf - From the NH Fish and Game Department. Information on vernal pools.

Water Quality and Pollution Prevention

www.des.nh.gov/organization/commissioner/pip/publications/wd/documents/vrap_parameters.pdf - "Interpreting VRAP Water Quality Parameters", from the NHDES Volunteer River Assessment Program (VRAP). Basic water quality parameter descriptions

www.des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-03-42.pdf - Best Management Practices to Control Non-point Source Pollution: A Guide for Citizens and Town Officials (NHDES). Guide to BMPs and Non Point Source pollution. Read Section 3—"Best Management Practices By Land Use/Activity"

www.crjc.org/buffers/Introduction.pdf - Fact sheet about riparian buffers from the Connecticut River Joint Commissions.

Plants and Animals

www.dec.ny.gov/animals/35772.html - From the NY Department of Conservation. Pictorial guide to macroinvertebrates. Students should understand the difference between the major Orders of insects. Do not be concerned about knowing the different Families within each Order, but at least understand that similar insects within an order can have a variety of characteristics.

www.cdm.org/biosite/BioSITE-Curriculum/Curriculum-by-Activity/Unit-8-Read1-Intro-Macroinvertebrates.pdf - From the Children's Discovery Museum "BioSITE" curriculum. Introduction to Macroinvertebrates. *includes brief intros to pollution tolerance, types of macros, adaptations and metamorphosis*

Things to think about as you read through the aquatics materials

1. **Water quality parameters** – What do they measure? What do they indicate?
   - Focus on nitrogen enrichment, dissolved oxygen, chlorophyll *a*, phosphorus, temperature, chloride, conductivity, turbidity, and macroinvertebrate pollution tolerance, salinity, brackish water, etc.

2. **Hydrologic cycle components** – connections between groundwater, rivers, estuaries, lakes, wetlands, etc.

3. **Watershed changes** – How does water quality change from upstream of an urbanized area to downstream? How will the aquatic organisms be impacted by changes? Which types of organisms prefer brackish water? Economic impacts from coastal pollution (i.e., vertebrate and invertebrate larvae species nurseries, etc.)

4. **Best management practices** – How can pollutants from non-point source pollution be kept from entering water bodies in urban or rural settings?

5. **Non-native, invasive species** – How do they impact a water body? How can they be reduced, controlled or eliminated?

6. **Topographic maps** – How are watershed boundaries found by looking at a topographic map? Which way does the water flow on the map?

7. **Shoreline buffers** – How can plants prevent pollutants from entering a water body? What barriers to pollution exist along the shorelines of estuaries?

8. **Wetlands** – What are the characteristics of a wetland? What are the characteristics of a vernal pool? A saltmarsh? A marine beach? What are the functions and values of wetlands?

9. **Groundwater** – What is an aquifer? How does groundwater "recharge"? What is saltwater intrusion?

The Aquatics Committee

Should you have any questions, please feel free to contact one of us. We will respond to you as soon as we can.

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