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Toqaqiw (It is Autumn)

October 2010

Brenda Commander - Tribal Chief
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The Sisterhood of the Honey Bee

By: **Matthew P Edberg, Natural Resources Specialist**

While carrying out the annual wood duck nest box maintenance along the Meduxnekeag River, I noticed some bees buzzing around. Upon closer inspection, I noticed the bees coming in and out of a knothole in a large Northern White Cedar tree nearby (see photo right).

Looking closely at them I thought they looked like honey bees, so I caught a few to bring back to the office so I could put them under a microscope so to positively identify them. And yes, they were indeed honey bees (*Apis mellifera*) *apis* meaning bee and *mellifera* meaning *honeybearer*. (Did you know honey bees have hairy eyeballs?)



Many people are surprised to learn that honey bees are not a native bee species to North America. They evolved from wasps that originated in Central Africa and slowly spread around the globe. They have become an extremely important insect species responsible not only for the production of honey and beeswax, but for the pollination of a wide variety of fruit producing agricultural products of great importance to man.

Surprisingly, many beekeepers do not make most of their money selling honey and beeswax, but from renting their hives to fruit producers. Introducing beehives to agricultural fields can increase fruit production by as much as 5 times!



Honey bees are colonial insects (a hive may contain as many as 40,000-80,000 bees). All of the members (workers) of the colony are female. Honey bees collect nectar and pollen from flowers as an energy source for themselves and their larvae. During most of the larval stage they are fed "bee bread" (a mixture of honey and pollen).

Bee hives are a favorite food source for black bears who often destroy the hives they find for the raw honey they contain. Most bears are immune to the numerous stings they receive from the bees attempting to protect the hive.

Honey bees are indeed amazing creatures and have a huge impact on the world around us. Turn to page 2 to learn some amazing facts about honeybees.

Busy as Bees (continued)

A Landscape Plan for Maliseet Riverside Village:

The overarching goal of the landscape plan is to improve quality of life for residents of the Village, especially environmental quality. Plan elements include:

- Windbreaks to reduce heating costs
- Shade Trees to reduce cooling costs
- Allergy friendly (low pollen) species
- Culturally significant plant species
- Rain Gardens to protect water quality
- Natural Screening to increase privacy



While it's only a plan, it is a first step toward making it a reality. We can take this plan and shop it around to various funding agencies who support our goals and objectives. Landscape Architect Sam Coplon, created the plan with help from Natural Resources Staff and Aaron Greenlaw, Maliseet Housing Authority Director.

All of these projects have been made possible by grants from the Environmental Protection Agency.

Word Search Answers

S H I M N K L O P O N I U
 Y T R E M S W E R T A
 A D S A T H T M L K J H T G F D S A
 N O M I W O L I M O N C Z O X C V B W O L I M O N
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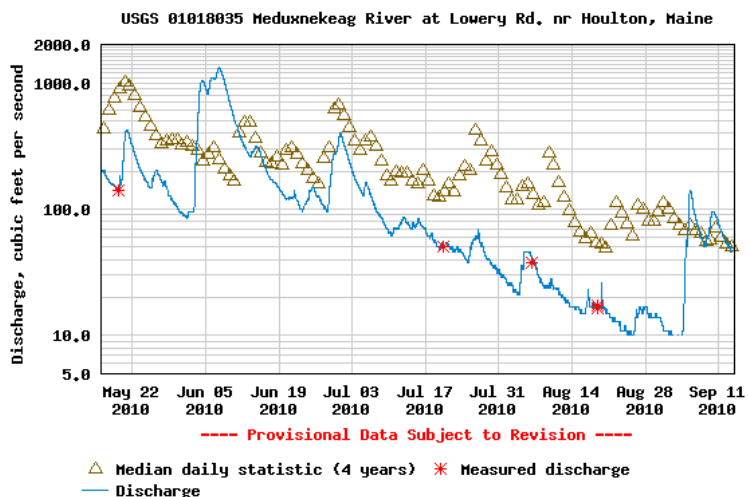
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ENVIRONMENTAL PLANNING
 Sharri Venno - ext. 215
NATURAL RESOURCES - Forestry
 Matthew Edberg - ext 220
WATER RESOURCES
 Cara O'Donnell - ext 212
 Rhonda Jewell-Smart - ext 221
NATURAL RESOURCES DIRECTOR
 Sue Young - ext 202

This Summer's Lack of Rain

By: Rhonda Jewell-Smart, Water Resource Technician

Over the past couple of months you may have noticed how low water levels in the Meduxnekeag River got over the summer. The drought conditions we experienced were very stressful on the aquatic life. Drought is considered a long period without any rain. When the temperature is extremely high, you will often see a drought. Heat will dry up the rain before it reaches the ground. As I collected water samples and monitoring equipment, I noticed in some areas of our watershed, there were places where fish were trapped in little pools of water and could not escape due to non-existent flows.

Our gage station at Lowery Bridge, operated in cooperation with USGS, records flow measurement as “cfs” which is cubic feet per second. The gage also records flow height. In August, the gage recorded a low of 10 cubic feet per second as show in the graph below. 10.0 cfs means the river was barely flowing at all.



The picture below shows the downstream side of the Meduxnekeag at Lowery Bridge when we were at 10.0 cfs. Given the width of the river and lack of canopy cover from trees along the shore, the temperature of the water rises. Increased temperatures cause a decrease in the amount of oxygen that is available to fish which is very stressful for them. When water temperatures rise, fish seek out cooler waters after heading to into tributaries with enough canopy cover to keep them cooler during these times.



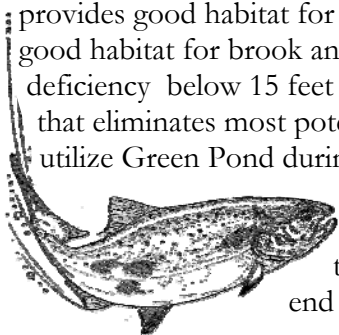
Photo of the Meduxnekeag River downstream side of Lowery Bridge at high flow at about 1,000 cfs which we usually see in the Spring. Average summertime levels are around 300 cfs.



Real time gage information can be accessed via the internet at <http://waterdata.usgs.gov/nwis/uv?01018000>

Green Pond (continued)

According to Maine Department of Inland Fisheries and Wildlife, “the principal fisheries of Green Pond are brook trout, brown trout, white perch, and chain pickerel. It provides good habitat for chain pickerel and seasonally good habitat for brook and brown trout. An oxygen deficiency below 15 feet occurs during summer months that eliminates most potential trout habitat. Trout likely utilize Green Pond during cooler months in spring, fall, and winter by movement within the Meduxnekeag River that flows through the eastern end of the pond.”



Giant Puffball

This giant puffball was recently spotted at the home of Myrna Ford in Monticello. In different times and different cultures these giant mushrooms have been used in a variety of food dishes



and have even been used to produce inks for writing and drawing. Thanks to Rhonda Smart & Myrna Ford for sharing this photo.

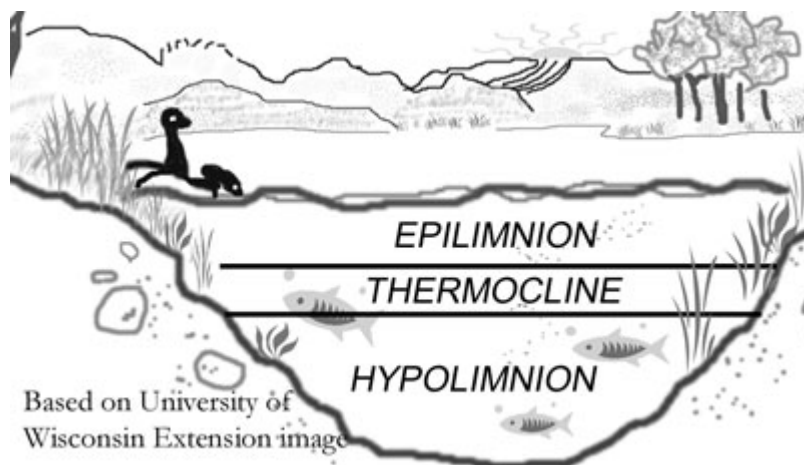
A Report on Green Pond Water Quality...

(And when and where the fish are...) By Isaac St. John and Cara O'Donnell

Green Pond, located on the Meduxnekeag River, and north of Nickerson Lake (as the crow flies) has been the focus of our attention this summer for its peculiar properties. We discovered that the pond has been experiencing anoxic conditions in the lower depths. Anoxia is defined as lack of oxygen. In this case, the cause is likely a culmination of natural processes, because the pond is surrounded by wetlands. When plants and organic materials from surrounding lands and wetlands settle to the bottom of the pond, they decompose - a process that consumes oxygen from the water. Without oxygen in the lower half of Green Pond, fish and other biota are forced to live in the top layers of the pond, which can sometimes be too warm.

Layers

A lake's temperature variations are important in influencing what types and how many fish will live and reproduce in that lake. If the colder, deeper waters of the hypolimnion have enough oxygen, then that area will provide a refuge for fish species (such as trout) that prefer, or require, cold water temperatures. However, if dissolved oxygen levels become too low in the hypolimnion and fish are forced into the warmer surface waters, coldwater fish species may not be able to survive.



The anoxic conditions (which start ~ 12 feet below the surface in Green Pond) are not suitable for plant life to grow, or animals to live. This layering is part of a phenomenon called **Lake Turnover**. The process is dictated by the seasons, and change as water temperatures separate into layers. In summer, warmer water (which is lighter than cold water) floats to the top, and the cooler water sinks. The temperature alone does not cause the anoxic conditions, but prevents it from mixing with oxygen-rich surface water.

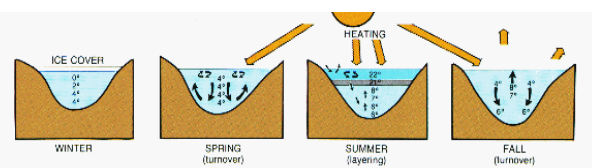
What actually causes the oxygen-free environment in the lower half of Green Pond? Plant and animal matter decaying on the



Photo of Isaac St. John preparing a Van Dorn sampler, which collects water from a pond or lake at deep depths.

bottom consume oxygen from the water, and at depths where sunlight does not reach, plants do not exist to re-supply oxygen via photosynthesis, and so it becomes completely consumed.

In spring and fall, "Lake Turnover", brought on by change in air temperatures combined with wind, is nature's way of re-oxygenating the water. The mixing of the water created by the turnover and those welcomed spring and fall winds, re-oxygenate the water to healthy levels critical to fish survival.



Spring and Fall Fishing

Turnover is quite an event for the body of water in which it occurs. It stirs up the lake bottom creating floating decayed vegetative debris and drastically increases the turbidity of the water. Oxygen levels decrease for a short period and the fish usually turn off from feeding. This event usually last from 1-2 weeks, depending on the wind. When the turn is done, the oxygen levels rise quickly and the fish get hungry and start to feed again.

So, if you come across a lake in the spring that looks dirty and full of debris, you will most likely be wasting your time fishing. Go back there in a couple of weeks and you may enjoy some of the best fishing of the season.

(continued page 5)



Top 20 Facts About Honey Bees

1. The honey bee has been around for 30 million years.
2. It is the only insect that produces food eaten by man.
3. Honey bees are environmentally friendly and are vital as pollinators.
4. They are insects with a scientific name - Apis mellifera.
5. They have 6 legs, 2 eyes, 2 wings, a nectar pouch, and a stomach.
6. Their wings stroke 11,400 times per minute, thus making their distinctive buzz.
7. A honey bee can fly for up to six miles, and as fast as 15 miles per hour. It would have to fly approx. 90,000 miles (three times around the globe) to make one pound of honey.
8. The average honey bee will actually make only one twelfth of a teaspoon of honey in its lifetime.
9. It takes about 556 worker bees to gather 1 pound of honey from about 2 million flowers.
10. It takes one ounce of honey to fuel a bee's flight around the world.
11. A honey bee visits 50 to 100 flowers during a collection trip.
12. A colony of bees consists of 20,000-60,000 honeybees and one queen.
13. Worker honey bees are female, live 6 to 8 weeks and do all the work.
14. The queen bee lives for about 2-3 years and is the only bee that lays eggs. She is the busiest in the summer months, when the hive needs to be at its maximum strength, and lays up to 2500 eggs per day.
15. The male honey bees are called drones, and they do no work at all, have no stinger, all they do is mate.
16. Each honey bee colony has a unique odor for members' identification.
17. Only worker bees sting, and only if they feel threatened. They die once they sting. Queens have a stinger, but don't leave the hive to help defend it.
18. It is estimated that 1100 honey bee stings are required to be fatal.
19. Honey bees communicate with one another by "dancing".
20. During winter, honey bees feed on the honey they collected during the warmer months. They form a tight cluster in their hive to keep the queen and themselves warm.

Source: <http://www.benefits-of-honey.com/>

Natural Resources Staff have been Busy as Bees!

by Sharri Venno Environmental Planner



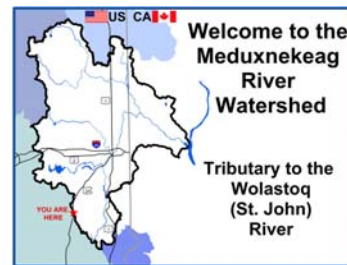
An Historic Map of the Meduxnekeag Watershed:

Many years in the making (this idea was first suggested in 1998!), this map is designed to help people become more aware of the Meduxnekeag Watershed; the land area that "sheds" the water that flows into the Meduxnekeag River.

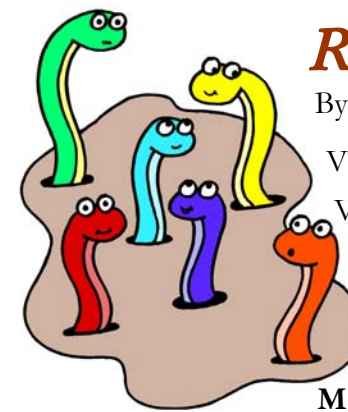
It's packed with info about the historical connection between people and natural resources in the watershed; wildlife, soil, forest, and water. Many people have contributed to the information provided in the map. There was so much information we wanted to share, we couldn't fit it all in. Susan York, the local artist, who did the artistic rendering, suggested we put some of this information on the back! Check it out for yourself! We'll soon be making copies of the map available **for free!** And look for Nora Estabrook, tribal member, who is featured prominently in one of the photographs!

Meduxnekeag Watershed Boundary Signs:

Coming soon to a roadside near you! Do you drive on Route 1 through Bridgeton, Route 2 through Smyrna or Route 2A through Linneus? Keep an eye out for new road signs indicating you are crossing a geographic boundary; the Meduxnekeag Watershed boundary. Traveling north once you leave the Meduxnekeag Watershed, you are entering into the Prestile Stream Watershed. The Prestile, like the Meduxnekeag, is part of the larger Wulastoq/St. John Watershed. Traveling southwest on Routes 2 or 2A through Smyrna or Linneus you are entering the Mattawamkeag Watershed which is part of the larger Penobscot Watershed. Another watershed education and outreach tool, these signs depict the outline of the Meduxnekeag Watershed, the major roads traversing the watershed and a star indicating "you are here" as you cross the watershed boundary.



(continued page 4)



Raising Earthworms for Profit and Pleasure

By: Matthew P. Edberg, Natural Resources Specialist

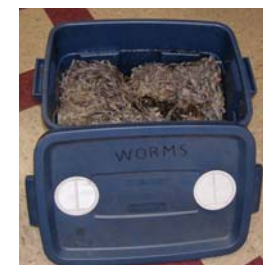
Vermiposting: = Composting with worms.

Vermiculture (vermi = worm, culture = raising) Raising Earthworms

Earthworms can be raised to be sold for bait for fishing and for their nutrient rich castings (worm manure) "black gold" as well as just for FUN! To get started you'll need:

Materials:

- 1). Some type of container with a ventilated lid such as a tote with round louver vents installed (shown here) or simply drill some holes in the lid.
- 2). Worm bedding such as Peat moss, shredded newspapers, etc...



3). Earthworms (see photo), the species most suitable for a home vermiposting system are "red worms" specifically *Eisena foetida*. They are available for purchase from a variety of producers.



Methods:

1). Moisten bedding, add earthworms, top of with moistened shredded newspaper.

2). Add kitchen scraps such as vegetable peelings, coffee grounds (filter and all), tea bags, egg shells etc...

DO NOT ADD MEAT OR BONES!



This is by no means a comprehensive list of materials and methods for setting up a home vermiposting system. A worm bin can be kept under the kitchen sink, or in the basement if it is not too cold. I keep mine in my office.

I am primarily vermiposting for the nutrient rich worm castings (worm manure) which is an excellent soil amendment for the garden or houseplants. To top dress your plants, add a couple of inches of worm castings to the soil and gently work in. Or make a tea of worm castings by putting worm castings in a piece of cloth to make a tea bag, steep in water. Water your plants with the tea. If you are interested in home vermiposting I recommend referring to Applehof, Mary. 1982. Worms Eat My Garbage. Flower Press, or google "setting up a vermiposting system".

Please feel free to stop by the office and I will be happy to show you vermiposting in action.

Maliseet Word Search

Can you find the **Maliseet** words in this puzzle?

M Q A Z W S X E D C R F V O
A T G P O C E T E S B Y H T
C N W U J M I K O L P Q M U
E W A E R T Y U N I O P M H
K E S S I Y E W O T A S I K
U A T U Y E W I N S D F P G
H H E M J T O Q A K I W K L
U M W E S K U C Q N B V C X
C Z O X C V B W O L I W O N
U N T M L K J H T G F D S A
Q M O C I Y E H S W E R T Y
U I N O P O L K N M I J H S

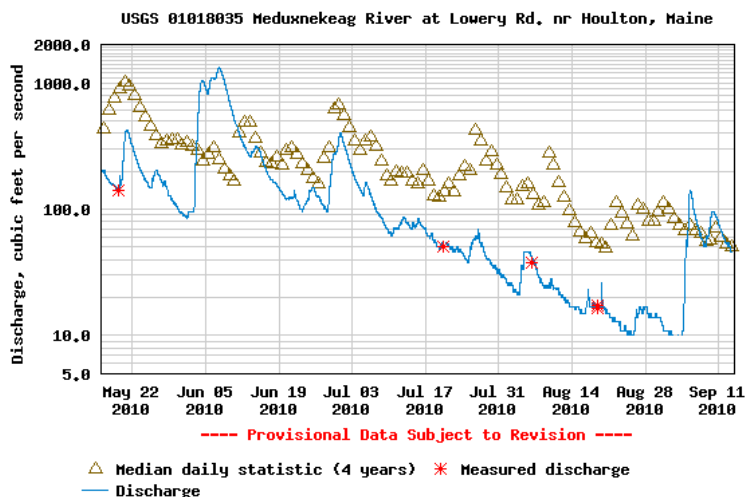
- | | |
|---------------------------------|-----------------------------|
| Eskucq - Pumpkin | Nonaqot - Recognized |
| Kessiyewotasik - Harvest | Otuhk - Deer |
| Mace-kuhucu - Chill | Pocetes - Potato |
| Mip - Leaf | Toqakiw - Autumn |
| Mociyehs - Grouse | Wastewoton - Frost |
| Mus - Moose | Woliwon - Thank you |
| Niweyu - Drought | |

This Summer's Lack of Rain

By: Rhonda Jewell-Smart, Water Resource Technician

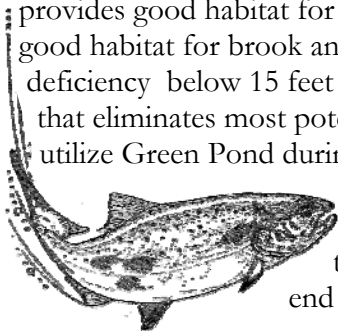
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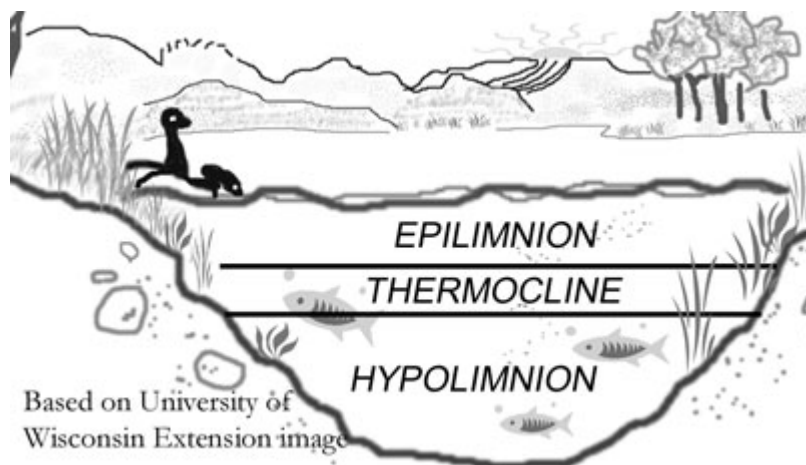
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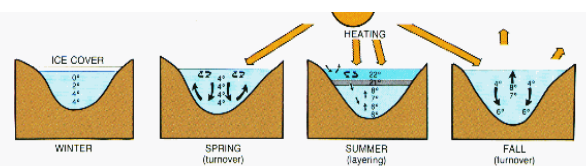
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