



Photo: Charlene Huerth

Pəskehtək^wok



Summer 2011 ~ Issue 1

Penobscot Indian Nation
 Department of Natural Resources
www.penobscotnation.org/DNR/DNR1.htm

Phone Extensions

David Almenas, <i>Forest Technician</i>	7335
Ron Bear, <i>Forest Technician</i>	7335
John Banks, <i>DNR Director</i>	7330
Rhonda Daigle, <i>Water Quality Monitoring Program Coordinator</i>	7326
Yvonne "Cookie" Francis, <i>Administrative Assistant</i>	7331
Tim Gould, <i>Game Warden Supervisor</i>	7395
Dan Kusnierz, <i>Water Resources Program Manager</i>	7361
Dan McCaw, <i>Fisheries Biologist</i>	7377
Jason Mitchell, <i>Water Resources Field Coordinator</i>	7381
Ed Paul, <i>Game Warden</i>	7392
Jan Paul, <i>Water Resources Field and Lab Technician</i>	7382
Kristin Peet, <i>Big Game Biologist</i>	7363
Angie Reed, <i>Water Resources Planner</i>	7360
Russ Roy, <i>Forest Manager</i>	7339
Dennis Stevens, <i>Forester</i>	7337
Bill Thompson, <i>Air Quality Program</i>	7340
Binke Wang, <i>GIS Specialist</i>	7341

Watching for harmful algal blooms: Real-time data from Dolby Pond

Well, it isn't Jan Paul actually standing out there watching for harmful algal blooms! But there is equipment on this floating platform that takes measurements that help us understand if the conditions are right.

We are really excited to share that we have our first real-time monitoring station in place near Dolby Dam in Millinocket. This is another important step in the process of understanding what conditions in the Dolby Pond impoundment create too much growth of blue-green algae (a bloom) in the Penobscot River. Dolby Pond seems to be the place where all of the major blooms in the past 10 years have started. We hope that our monitoring station will be able to pick up the signs of a potential problem. This would allow us a chance to work with others to fix it before the impacts are seen more than 50 miles downriver at Indian Island.

To avoid jurisdiction issues we bought a floating pontoon platform. This allows us to install any equipment the platform can handle and locate it anywhere we want.

(Photo: Jan, Jason and Dan launching the platform into the water from the trailer)

The picture on the next page shows the solar panel that charges



(Continued on next page)

the marine battery which in turn provides power to the equipment that analyses the water (Turner and YSI) and that which stores the data and sends it through a cell modem to the computer in the DNR building (SDL500C). This data also gets sent to a web site that allows staff and others to view it online.

If you check out the Water Resources home page you will see the latest readings - which are updated every 30 minutes.

<http://www.penobscotnation.org/DNR/Water/wrhome.html>

WATER RESOURCES PROGRAM
Protecting the Penobscot given to the Nation by the Creator for living, sustenance, and spirit

- The Watershed
- Who We Are
- What We Do
- Dischargers
- Dams
- Water Classification
- Partnerships
- Resources
- DNR Newsletter

Real-time data from Dolby Pond →

Powered by: NexSens Technology

DP3	
at 06/27/11 2:00PM	
Temp	21.24 C
Sp Cond	0.026 mS/cm
Cond	0.024 mS/cm
pH	7.00
Turb+	4.60 NTU+
ODOSat	100.6 %
ODO	8.93 mg/L
Chlorophyll	492.4 ug/L
BGA-PC	12.9 RFU
CDOM	1,454.0 RFU
Turb	14.44 NTU

For all data prior to this time click here

PENOBSCOT INDIAN NATION
Department of Natural Resources
12 Wabanaki Way, Indian Island, ME 04468

Back in 2007 the Water Resources Program had to suggest that you not swim in the river for a period of time because a bloom was happening (<http://www.penobscotnation.org/DNR/newsletters/newsletter2007.html> - Issue 1b). For more than 10 years and three major blooms the Program has been making the Maine Department of Environmental Protection (DEP) aware that we do NOT think this impact to the river is acceptable. Now we have the ability to discuss conditions with DEP earlier so that they can identify the cause of the problem and fix it sooner. The 2007 bloom was caused by, what was then, Katahdin Paper in Millinocket. While they have been offline for the past three years we have had the chance to apply for and receive a grant that allowed us to purchase the necessary sampling and data transfer equipment for this project. We will be adding equipment that automatically takes and stores phosphorus samples for us to retrieve at a later date. Current technology requires us to analyze phosphorus samples in a laboratory but we will be getting a lot more data than if we needed to go up every day to collect samples.

We are being trained by US Geological Survey (USGS) staff on their methods to ensure the quality of the data. We have also purchased lab equipment and have been receiving training for us to analyze water samples for chlorophyll a and phosphorous.

Penobscot Indian Nation Water Resources Program Dolby Pond Impoundment Monitoring Project

OVERVIEW
MAP
DATA
GRAPH
STATS
PANEL
GO LIVE
FORUM

Project Description
 After more than 10,000 years the people of the Penobscot Indian Nation (PIN) continue to proudly share the name of the river that is at the center of their culture. The Nation's Water Resources Program exists to protect the health of the Penobscot River which, in turn, helps to protect the health of community members using the river and their right to do so.

We have seen the growth of algae during the summers increase in severity over the past 15 years, resulting in concentrations high enough to be considered a bloom. At the same time the severity of the blooms increased there was also a shift in the types of phytoplankton present, starting with algal species that were brown and green and moving toward a dominance of cyanobacteria.

Because there is a paucity of information about the in-stream conditions leading up to these blooms, PIN has begun putting together a continuous monitoring network in Dolby Pond impoundment - where the blooms generally begin.

Data on this web site has been collected using a YSI 6920 V2, Turner C6, LI-COR 190 Quantum Sensor and Vaisala WXT520 multi-parameter weather sensor.



2004 Cyanobacteria Bloom



Monitoring platform deployed in 2010

Penobscot Indian Nation Water Resources

DP3
at 06/27/11 2:00PM

Temp	21.24 C
Sp Cond	0.026 mS/cm
Cond	0.024 mS/cm
pH	7.00
Turb+	4.60 NTU+
ODOSat	100.6 %
ODO	8.93 mg/L
Chlorophyll	492.4 ug/L

ALL DATA Powered by NexSens Technology

Limitation & Data Disclaimer
 Uncertainty and potential for error can be associated with environmental monitoring data. Data users are cautioned to consider carefully the provisional nature of the information before using it for decisions that concern personal or public safety or the conduct of business that involves substantial monetary or operational consequences.

No warranty, express or implied, is given as to the accuracy, reliability, utility or completeness of the data hosted on this datacenter, and this organization shall not be held liable for improper or incorrect use of the data described or information contained on these pages.

DATA ENTRY FORM
ADVANCED QUERY

ADMIN LOGIN

Penobscot Indian Nation Water Resources Program Dolby Pond Impoundment Monitoring Project

OVERVIEW
MAP
DATA
GRAPH
STATS
PANEL
GO LIVE
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DP3

- Temp
- Sp Cond
- Cond
- pH
- Turb+
- ODOSat
- ODO
- Chlorophyll
- BGA-PC
- CDOM
- Turb
- Depth
- Temp
- PAR
- Min WindDir

SELECT ALL GO

DAY

WEEK

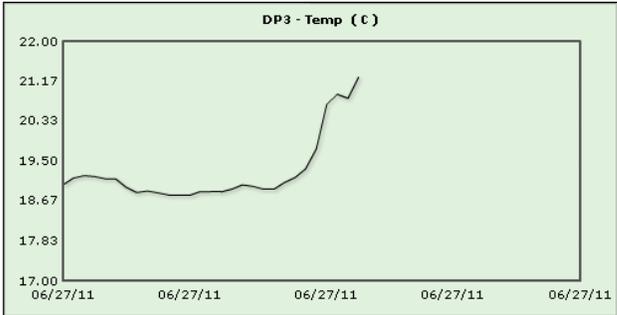
MONTH

YEAR

06/27/2011

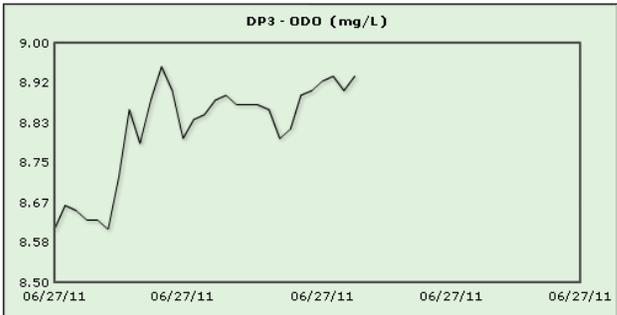
06/27/2011

DP3 - Temp (C)



Min Y Value 0.00 Max Y Value 0.00 GO

DP3 - ODO (mg/L)



Min Y Value 0.00 Max Y Value 0.00 GO

ADMIN LOGIN
POWERED BY NEXSENS TECHNOLOGY



Light sensor - tells us how much is available for the algae to use as energy to grow



Weather station



Context map for Penobscot watershed in Maine, aerial photo extent in watershed and locations of paper mill, Dolby Pond and monitoring platform.

