

## Employee Profile

### Brian Janoski Aquatic Biologist



Brian graduated from Rutgers University in 2002, obtaining bachelors degrees in both biology and chemistry. He began work at Allied Biological in 1998, and upon graduation accepted a full time position. Brian's experience encompasses a broad range of activities performed by Allied Biological, primarily lake and wetland management. His expertise in chemistry is utilized to help clarify general chemical interactions and in "fine tuning" procedures, primarily related to nutrient inactivation.

Brian enjoys the outdoors and nature. He spends most of his spare time bow hunting in the fall and fishing from early spring to late summer. As an animal lover he also includes his dog, Cocoa, on most of his fishing excursions.



# Potamogetons

ALLIED BIOLOGICAL INC., 908-850-0303, [www.alliedbiological.com](http://www.alliedbiological.com)

## ABI's Springing into Action Again!

By Erika Magdole



While the growing season is the busiest for us in the office and in the field, we have not been idle as the snow has fallen and melted, and fallen...and predictably melted again. We are active members of multiple organizations such as **NALMS**, **NEAPMS**, **Ducks Unlimited**, and recently **PESP**, the Pesticide Environmental Stewardship Program. Developed by the **EPA**, the voluntary public and private partnership aims to reduce pesticide risk by improving existing pesticides where practical as well as recognizing need to maintain and improve cost-effectiveness. They focus on risk reduction as well as use reduction, and include agricultural as well as non-agricultural sites. For more information about the organizations we are affiliated with, please contact us, or visit our website.

We've been keeping ourselves busy in the office as well, as we have formed **ABBY PONDS** (see *News Briefs*, page 7) to handle our pond clients. We have also been doing spring cleaning; updating our filing system, adding a GPS guidance system to a second boat (see page 6), corresponding GIS equipment to improve lake treatments, acquiring an Eureka Multiprobe Water Quality Meter, and adding another boat to the fleet. The growing season for us lasts all year round! Even our staff has grown, (see *News Briefs*, page 7) and all our employees have been key in preparing for this field season. Some things that have kept us busy were out of our hands, such as the change in permit processing for our New York Clients (see page 3, *NY Adds Hurdles*). Permitting Olympics aside, we are ready for the new season. Keeping reading to see what we've been up to, and what we have planned!

## A non-copper algaecide? That adds oxygen!

For years people in the Aquatics industry have been looking for alternatives to copper for algae control. BioSafe Systems *GreenCleanPRO* is just that, a new use of a very old compound, which happens to quickly kill algae cells. *GreenCleanPRO*'s active ingredient is Sodium Carbonate Peroxyhydrate, commonly known as percarbonate. Percarbonate is a stabilized *hydrogen peroxide* chemistry that acts as a powerful algaecide without harming the environment.

Most folks are familiar with hydrogen peroxide ( $H_2O_2$ ), which is technically water ( $H_2O$ ) + oxygen ( $O_2$ ). In a low concentrate (3%) it is commonly used as an antiseptic for cuts, where it causes bubbling as the per-

oxide comes in contact with blood causing oxidation. Other uses of higher concentrates (30-35%) include bleaching textiles (or hair!), the production of foods like cheese, eggs, and whey-containing products, and even rocket fuel (90%). Hydrogen peroxide can be naturally produced when sunlight contacts water, and according to the magazine *Mother Earth News*, can even be formed when honey is applied to cuts.

The way *GreenCleanPRO* uses hydrogen peroxide is through its powerful oxidation reaction. According to BioSafe Systems Aquatics Manager,

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# A Plant Management Plan for Glen Lake

Glen Lake (300+ acre) has always had a diverse and vibrant aquatic plant community. Scientific studies from the early 90's (Enviromed Associates) and the late 90's (L. Eichler) both indicate roughly two dozen plant and macroalgae species found in the lake. Residents, many of whom have been on the lake for more than twenty years, can recall a robust weed community in the lake as long as they have been there. But in the last few years, people have complained about a marked increase in weed growth, both in native pondweeds and the invasive weed Eurasian Watermilfoil.

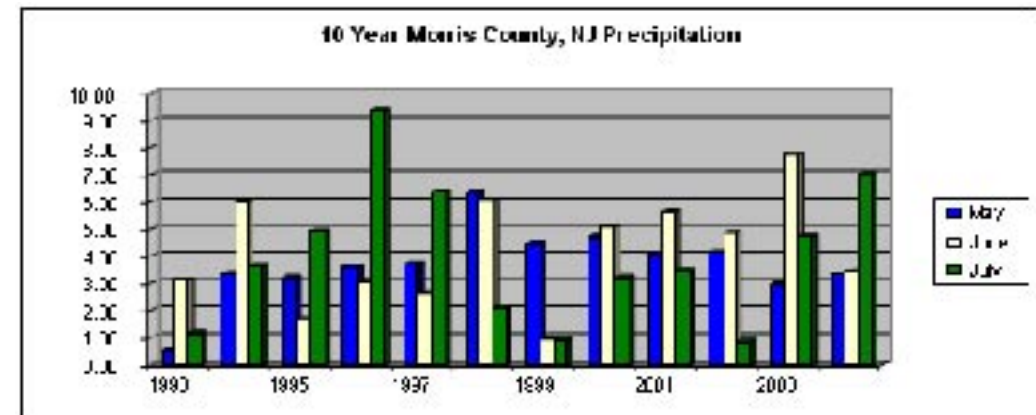
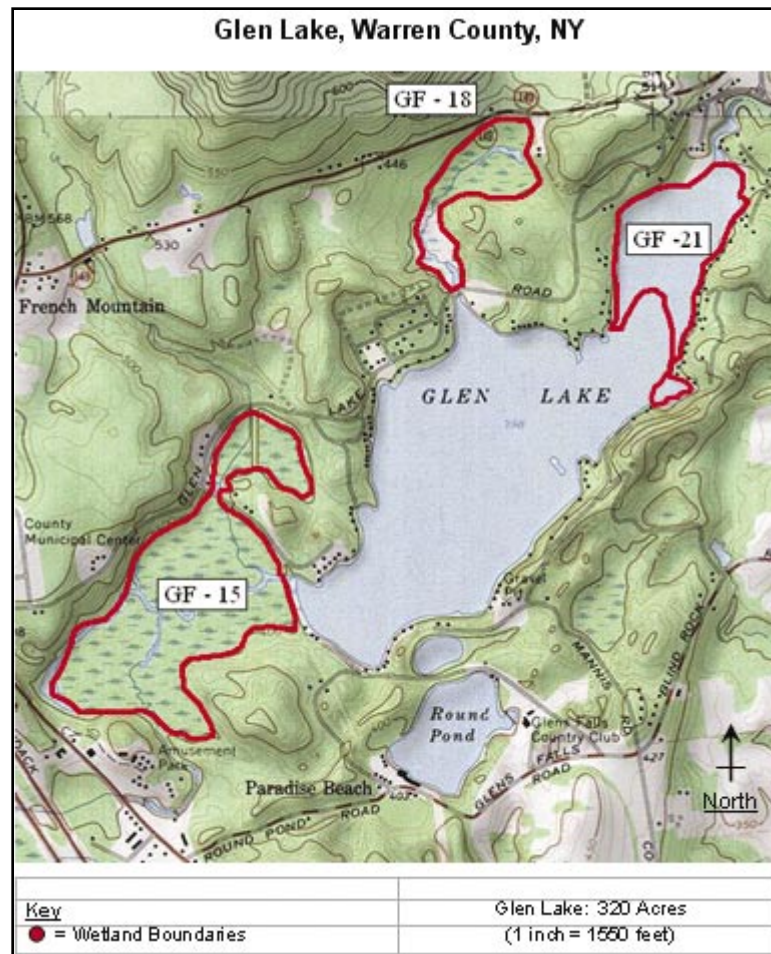
Last Spring, the lake's Protective Association solicited bids for a vegetation management plan, and after reviewing a handful of submission, elected Allied Biological (ABI) to conduct a study for them. The study focused on the lake's plant community, and how it could be thoughtfully managed to remove the invasive Eurasian Watermilfoil, and to restore some of the uses being lost, such as shoreline access for swimming, boating and fishing. The fieldwork included three detailed surveys of the lake during the 2004 growing season.

Plant composition and density were measured on a system of historical and new transect lines, and certain aspects of water quality were noted. Existing conditions were matched against previous studies to see how the plant community had changed over the years, and a variety of related issues, such as resident water drawing, associated wetlands, and lakeside business impacts were addressed. Finally, the full complement of vegetation management tools was assessed, and recommendations were presented to the Association last Fall.

ABI's report identified a primary and secondary management scenario for the lake. The latter plan required a combination of mechanical harvesting for pondweeds, and a lake-wide application of the herbicide Sonar (fluridone) for Eurasian Watermilfoil control. Together, the two techniques made an effective, but expensive secondary plan, and one which entailed relatively greater disturbance to the lake ecosystem. The primary scenario focused on the selective application of the granular herbicide Aquathol Super K to the densest and most problematic weedbeds, covering less than 16% of the lake.

Using the granular formulation would help to contain the herbicide to the application area without affecting other weed beds of the lake, and would limit water use restrictions to just 7 days. The Association has made arrangements to provide water for domestic uses to those residents that will be most inconvenienced.

At the public meeting when the report was presented, the Association voted overwhelmingly to accept Allied Biological's recommendation, and granted authorization for the firm to prepare and submit the necessary permit materials. The permit has since been submitted, and the Association waits anxiously for approval from the DEC to restore the reasonable use and protection of their lake.



## News Briefs

The dangerous plant **Giant Hogweed** was discovered last summer near Mendham, NJ. The plant resembles Queen Anne's Lace, but grows much larger. It is native to Russia and southwest Asia, and may have been introduced in this area as an ornamental. The plant should not be handled, as it secretes a sap that makes the skin extremely sensitive to sunlight, **causing irritation and burning**.

**Mr. Christopher Horton**, the national Conservation Manager of **B.A.S.S.** spoke this past January at the NEAPMS meeting in Saratoga Springs. Mr. Horton discussed improving cooperation between bass anglers and lake managers. He also stated that B.A.S.S. does not recommend the use of grass carp for vegetation control, but supports selective, responsible use of aquatic herbicides as the best management tool for lake weeds.

During the week of March 14, **Beaver Swamp Brook wetland restoration project** was highlighted on the home page of the **Society of Ecological Restoration International**. The caption showed before and after pictures of the restoration, from *phragmites* colony to a diverse, freshwater wetland. Allied Biological conducted the *phragmites* control and removal phase of the project for Westchester County.

NJDEP announced a new invasive species policy directive **prohibiting planting of non-native species** on state lands. The 66 species listed in the directive include aquatic plants **Eurasian Watermilfoil, Curlyleaf Pondweed, Hydrilla, Water Chestnut and Pond Water-starwort**, and the wetland species **Purple Loosestrife**.

This winter Allied Biological announced the formation of **ABBY PONDS** to concentrate exclusively on our small pond clients. This new venture will rely heavily on Allied Biological for support in the early stages, but will soon be **devoting increased attention to pond clients** with dedicated staff and equipment.

Allied Biological, Inc. would like to welcome two new employees, **Erika Magdole** and **Chris Doyle** who joined us at the beginning of the year. Erika has taken over the **permitting** duties, and already has things running more smoothly than last year. Chris will be managing the **Water Quality Programs**, and will use his previous work experience to improve the firm's **macro-invertebrate analyses** and related services.

## Plant Invader

by Chris Doyle

**Fanwort** (*Cabomba caroliniana*)

Fanwort is a submerged rooted herb, native to Southeastern United States, from Virginia to South Florida. A popular aquarium plant, fanwort has since spread to much of the Northeast, and even parts of the Northwest, and is considered a non-native invasive species in these regions. Fanwort prefers sluggish streams, or acidic ponds and lakes. It can reach six feet long, and can colonize water up to ten feet deep. Fanwort's slender stems are covered with a thin gelatinous slime; submerged leaves are green and in a whorl pattern, similar to a fan. It can reproduce via seed germination, as well as by fragmentation; even unattached plants can continue to grow. It can occur in dense stands, clogging streams or canals, and impairing aquatic systems.

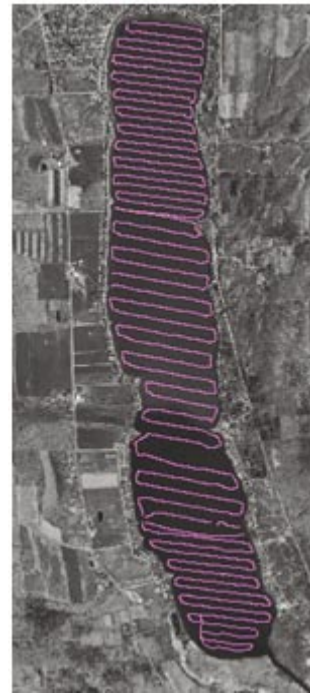


# Allied Biological Takes Technological Leaps & Bounds

By: Christopher A. Dickson

Can you remember what it was like 10, 20, 30 or even 40 years ago? Our memories are largely linked to technological advances. Advances such as the television, home computer, internet and even the cell phone. Now really, how many of us said that we would “never get a cell phone” and how many of us own one today? I was one of those people. It’s technology! The truth is, technology does impact our lives and continues to evolve around us. Technology has advanced in our homes, business and industries.

Allied Biological is no different from everyone else. Or are we? As some of you may know, ABI utilized new GPS technology to map the application area of 782 acre Waneta Lake in 2003 (see picture at right). The GPS technology was in it’s infancy at ABI then and has since blossomed nicely with the addition of a GIS package in 2005. Treatments can now be guided by GPS technology and presented in words, charts, graphs, tables or maps with GIS. What is GIS? GIS is a combination of software, hardware, data, and personnel to analyze, manipulate and present information that is tied to a geographic location. This technology has enabled us to record accurate treatment or monitoring areas located in lakes and wetlands of all sizes. The GPS guidance system also provides treatment navigation for accuracy and eliminates overlap or missed areas. ABI has installed GPS guidance units on two boats in its fleet for the 2005 season. The frequency of using these systems will increase overtime and eventually lead to the submission of detailed treatment maps along with more precise treatments.



Waneta Lake, NY



Sodus Bay, NY

# New York adds hurdles to aquatic herbicide process

In response to an edict handed down by the DEC Commissioner’s office, likely as a result of the publicity of a proposed herbicide application in Lake George, the NYSDEC has begun the process of overhauling the aquatic pesticide permit process. The new procedures will focus on lakes larger than 6.4 surface acres, of which there are more than 3000 in NY. Although the details of the new process are still being finalized, several significant changes or requirements are already being incorporated, including:

- » Lead review by the Division of Environmental Permits
- » Much longer review times
- » More background data requirements, such as soil type, watershed, land use ...
- » Written justification of goals and methodologies
- » Follow up monitoring plans

The Department also plans to require written Vegetation Management Plans by as early as next season for these lakes, and shortly thereafter for lakes using other management methods.

Much of the information being sought is well-justified, and should be part of a lake community’s planning process when conducting any management activities. Allied Biological has already prepared Vegetation Management Plans for some communities, and has been able to collect the necessary information to submit permits this season, although with significantly greater effort and greater expense to the client. However, more critical than the cost or the enormous paper-load that Albany is requesting (8 copies of each), is the expected time required to review and act on applications. The DEC has already advised that review times will change from 45 days to 75-90 days, or more! There is a genuine concern that seasonal weed control projects which have been approved year after year for a decade or more, will fail to be approved in time for this summer season.



“I never think of the future - it comes soon enough.”  
Albert Einstein

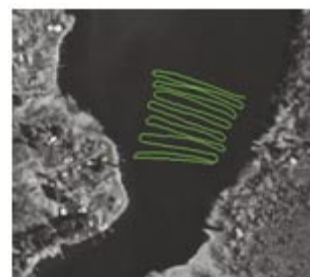
## Wetland Treatment Area



Aerial Photo



Black & White Topographical



East Bay, NY

# A non-copper algaecide?...con't. from page 1

Melissa Gugliotti, “the product reacts with natural elements of surface waters, creating hydroxyl free radicals. Hydroxyl free radicals are strong oxidizers that destroy algal cell membranes, chlorophyll and unsaturated fatty acids, providing immediate control of algae. *GreenCleanPRO* is fast acting, and initial results can be seen within 60 seconds of application. Waters can be used without interruption after treatment, and the product biodegrades completely into soda ash, water and oxygen. As the algaecide works,

it also adds 13% bio-available oxygen to the water column, and the effects last for several hours.”

Testing of *GreenCleanPRO* on a popular Mendham Township Pond resulted in excellent algae suppression from May through the end of August. *GreenCleanPRO* granular formulation is suitable for use on smaller water bodies, but the manufacturer is working to develop a liquid formulation for more widespread use.



# Cape May Wetlands Restoration

In the fight for Cape May wetlands, the invasive plant *Phragmites* (Common reed) now has competition. Usually *Phragmites* out-competes other wetland plants, creating large stands of dense stalks that even a deer can't squeeze through. That has been the case in parts of Cape May Point State Park and The Nature Conservancy's Cape May Migratory Bird Refuge, located in Cape May County, New Jersey, for many years. But now native plants are getting help fighting back.

As part of the U.S. Army Corps of Engineers (Corps) LOWER CAPE MAY MEADOWS-CAPE MAY POINT ECOSYSTEM RESTORATION/SHORE PROTECTION PROJECT, *Phragmites* is being targeted for replacement with native wetland vegetation. The *Phragmites* control is part of a much larger initiative, which, according to the Corps, consists of "restoration of a protective dune/berm ....; planting of 18 acres of dune vegetation; seaward restoration of previously eroded emergent wetland; elimination of 95 acres of *Phragmites*; planting of 105 acres of wetland vegetation; restoration/creation of drainage ditches...; installation of water control structures; creation of fish reservoirs within existing ponds, and construction of an earthen water-retaining structure and a tide gate at Cape Island Creek to allow for a 25-acre tidal marsh."

Still in its early stages, the project has been a model of cooperative effort among the Corps, Cape May Point State Park, The Nature Conservancy, and the municipalities of Cape May Point, West Cape May, and Lower Township. The NJDEP is the non-federal sponsor of the project, and Commissioner Bradley Campbell was quoted in a Sept. 12 New York Times article, saying "With the migrations and the growth of the *Phragmites*, the greater danger here is delaying getting rid of it". Joining the Corps work team are the NJ Forest Fire Service, the US Fish and Wildlife Service, the wetland consultants Northern Ecological Associates and Allied Biological, Inc.

Phase I of the wetland restoration got under way in September 2004 with Allied Biological applying herbicide to approximately 56 acres of *Phragmites*-dominated habitat within the Park and Refuge. The initial application took place with ground equipment during the week of September 20, under absolutely perfect weather conditions, and was completed without any complications. The next step in the process will involve the mowing of the treated *Phragmites* and subsequent replanting of the area with native vegetation.



*Cape May Before Phase I*

The Cape May area is well known not only for its Victorian charm, but also for its great birding opportunities. As a result, the project has come under intense scrutiny and public pressure at times. Ultimately, however, people have come to realize the benefits the project brings to Cape May. According to Corps Biologist Beth Brandreth "The point is to improve the quality of the wetlands .... We're looking to keep this a world-class habitat."



*Cape May After Phase I*

# Benthic Macroinvertebrate Surveys: Another Tool for Lake Managers

By Chris Doyle



Dragonfly Nymph

Lake managers have many tools in their arsenal to assess the general health of a water body, including water quality monitoring, aquatic vegetation surveys, and algal surveys. The more tools utilized by lake managers, the better the understanding of the water body in question. Extensively used to assess the health of streams and rivers, benthic macroinvertebrate surveys are becoming a popular component of lake management. It's one more tool that can be used to get a better understanding of a lake.

Benthic macroinvertebrates represent all the critters that live in aquatic sediments. They include worms, insects, snails, clams, and crustaceans such as crayfish. Although most lake users are unaware of this secret society nestled in their own microhabitat, benthic macroinvertebrates perform many useful tasks. These tasks include mixing surface sediments to increase aeration of deeper layers, accelerating nutrient cycling, and breakdown of organic debris. They perform a vital role in transferring energy from primary producers (algae) to higher-level consumers, such as fish and reptiles. A healthy water body will contain a diverse and abundant amount of benthic macroinvertebrates.

Since benthic macroinvertebrates inhabit the water and sediment of a habitat, they make ideal long-term indicators of environmental quality. Most have sensitive one or two year life stages (some even shorter) that respond to both short-term and long-term environmental stressors. Before and after surveys can be performed to assess the effectiveness of management practices.

Benthic macroinvertebrates can be sampled along transects from shoreline to a fixed point, or at one or more fixed stations in the pelagic region of the lake. Samples are collected and then gently rinsed through a sieve. Back at our lab, the samples are sorted-that is all the critters are removed and the material is discarded. The critters are then identified to the lowest practical taxon, using sub-sampling techniques if necessary. The data is then transferred to a spreadsheet for analysis.

The data recovered from a benthic macroinvertebrate survey can be examined in many different ways. It can be compared to historical survey data to assess any changes in the benthic community over time. There are also a number of statistical analyses that can be performed. These include species richness (that is, the number of different species present), % contribution of the dominant taxon, % of intolerant species, diversity calculations, and tolerance indices. A lake manager can also examine feeding group ratios, family ratios, and pollution indicator species present to draw conclusions on the general health of a water body.

When coupled with a well-defined water quality monitoring program, and other biological assessments, benthic macroinvertebrate surveys can be an important tool to assess the health of aquatic biota, and develop sound long-term lake management strategies. Please contact our office for a benthic macroinvertebrate study for your lake.

Site: XX04-1, May 20, 2004

	Value	RBA Value
Taxa Richness	12	6
EPT Taxa	4	3
Percent EPT	49.0%	6
Percent Dominance	28.9%	6
Shannon-Weaver H'	2.079	
Normalized H'	0.836	
Family Biotic Index	4.08	6
Percent Insecta	97.2%	
Percent Crustacea	1.4%	
<b>RBA Score</b>	<b>27</b>	<b>NON-IMPACTED</b>

The most widely accepted means of evaluating a stream's aquatic biota are detailed in *Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers* (1999). By assigning a numeric value to several metrics, this index generates the RBA score. The higher the score, the less impacted the site. This (**right**) is a sample table depicting a non-impacted site.

