



POLICIES AND PROCEDURES

DEPARTMENT: Environmental Health and Safety

SUBJECT: IPM for our Ponds

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Procedure: SUNY New Paltz IPM with our ponds

Purpose:

The management of our ponds here at SUNY New Paltz with the use of IPM. The best management approach to our pond problems involves managing the pond ecosystem. This concept can be called IPM: in this case, Integrated Pond Management. Some aquatic plants are determined to be a nuisance such as algae, attempts are made to control the plant with non-chemical means first, such as algae harvesting and controlling the macro nutrients around and within the ponds.

Our ponds serve as storm water retention ponds and buffer the changes in flow to downstream residence and eco systems by retaining some of the flow and volume of a rainstorm or snow melt. As storm water retention ponds, they serve also to help settle out run off particulate before they reach our downstream eco system. Our ponds serve as drainage containment areas or add aesthetic value to the campus. Our water bodies demand more complex IPM practices because the water passes through the system much more slowly.

The operation of a pond ecosystem depends on available energy and nutrients. Aquatic flora and fauna need nutrients to live and grow. When nutrients are limited, growth is limited, but when nutrients are abundant we will get blooms of aquatic flora usually in the form of an algae bloom.

Controlling nutrient levels in a pond is an effective management tool for controlling nuisance algae. Phosphorus, nitrogen, and, to a lesser extent, potassium are used by aquatic plants.

Phosphorus is often the limiting nutrient in ponds.

Nutrients enter ponds in several ways. Our ponds are in a relatively populated area, and are subject to outside influence. Some storm water run-off can carry with it some nutrients from the area grounds from lawn fertilizers for example. SUNY New Paltz does not fertilize the general grounds and lawns, but surrounding areas do.

The following are descriptions of some source for nutrients being introduced:

Storm Runoff:

Runoff in the form of drainage can be a source of pond contamination. Watersheds in commercial or residential areas can produce large amounts of phosphorus in runoff, especially in the first wave of runoff.

Fertilizers:

From storm water runoff of surrounding properties the ability of turf to limit nutrients entering the ponds depends upon grass type and density, fertilizer source, method of application, temperature, soil type, rainfall or irrigation events, and timing of application.

Wildlife:

Some view birds and other wildlife as an indication that the environment is favorable to nature. The presence of wildlife gives a sense of harmony with nature. Some types of wildlife, however, can be a real nuisance.

Canada geese feed on new grass sprouts and lush turf, and golf courses are some of their favorite restaurants. The major problem with geese is their excrement. One goose can excrete 50 grams of phosphorus per month, contributing to the eutrophication of a water body; therefore, their presence is discouraged around our ponds with the use of Augie the Border collie.

The following are in pond management processes at SUNY New Paltz

Buffers:

Buffer strips along our ponds and waterways help filter certain types of pollutants. Buffers can be grass, brush, trees, or other vegetation. Grass buffers are our choice because of their good filtering activity and minimal litter characteristics.

Reducing sediment and flow into our ponds:

Streams and drainage ditches constructed in a straight line (channelization) are subject to erosion and degraded water quality. Water can reach a high velocity of flow in these circumstances and carry silt and contaminants into ponds. We now have put in place more velocity reducing weirs and dams at storm retention flows on our campus. Furthermore, these sediment ponds and

sediment traps can collect debris before it enters the pond.

Aerators:

Aerators influence the rate of oxygen transfer from air to water by creating turbulence and increasing the surface area of water in contact with air. The end result is more oxygen in the water up to the point of saturation. Aeration can be a method of controlling phosphorus release; much less phosphorus is released into the water from bottom sediments when the water overlying these sediments is oxygenated. We have two aerators in our two head ponds.

Algae Control:

Algae harvesting is a method we use to remove aquatic fauna and flora, and some nutrients.

Border collie use to keep geese off our ponds:

One goose can excrete 50 grams of phosphorus per month, contributing to the eutrophication of a water body; therefore, their presence is discouraged around our ponds with the use of Augie the Border collie.

Chemical use:

As a last resort we will look to use a contracted service with licensing from NYS Dept. of Environmental Conservation (NYSDEC) to treat our ponds with the least toxic material possible such as a copper sulfate solution and follow all protocols outlined by chemical manufacturer and the NYSDEC regulations.

Water quality is also a consideration in pond management. The management plan will probably utilize two, three, or more of the techniques in this program. One control method is seldom, if ever, the total answer.

Water body management is complex. It involves both terrestrial and aquatic factors, internal and external nutrient sources, food chains, oxygen balances, stratification, and a myriad of influences. On top of this, cycles change during the seasons and through the years. Our IPM on our ponds on campus is comprehensive.