



Pond Home Study Course

Lesson I Getting to Know Your Pond

Frequently Asked Questions

Do I need a permit to build a pond?

Maybe. This will depend on the size of the dam, drainage area of the pond and the source of the pond water supply.

How much will a pond cost to build?

Costs for a one-acre pond can range from a few thousand to over ten thousand dollars depending on the amount of excavation necessary and the availability of local clay.

What kind of macro-invertebrates should I be finding in a "healthy" pond?

In a healthy pond you should find some mayflies, dragonflies or damselflies. You might also find some snails and crayfish.

If a landowner wants to install a pond, how do you size it and determine a proper depth?

A consultant or engineer should be helping with the design of the pond and its depth. The size and depth decision will be made based on the land resources and what the water supply is for the proposed pond. The owner's desire for the use of the pond will play a part in making these decisions, but the natural resources available are usually the limiting factor. Also, financial factors will play a role. The bigger the pond is, the more expense it will take to build and maintain it.

What is the best way to care for a pond fed by a stream that dries up in the summer?

The best way to care for water that has lost its inflow during the summer is to protect it from getting any nutrient runoff with a good riparian buffer. Aeration, even with a fountain aerator, can also be very beneficial for stagnant ponds in the summer. The only other options are to try to develop other sources of

water for the pond like roof water (which has its own problems of low pH, etc.) or diversion of nearby springs. Some really dedicated pond owners even drill a well to supplement their pond during dry weather!

How do I remove the bacteria from our pond?

The instructors all agree that every pond that is alive is going to have plenty of bacteria and you should not worry about eliminating bacteria. Bacteria is only a problem if high levels of E. coli bacteria are found in ponds used for drinking by domestic animals (cows or horses, etc.) or in ponds used for swimming.

How do you confirm the presence of a spring under a deep lake or pond?

Confirming large springs would be done by measuring water inflow and outflow. If outflow is larger, the spring inflow would be most of the difference (subtracting evaporation, if the calculation is done during summer). It can get even more complicating with leakage. Locating these springs is very difficult. You would need sophisticated temperature monitoring along the bottom to note entrance of colder water.

How do you measure sedimentation?

Sedimentation is measured using a very long stick graduated in inches. From a boat you jam the stick into the bottom sediment until it stops. You pull the stick up and look at how far into the sediment it went. This is a bit of an art. Novices might be inclined to measure part of the clay liner as sediment or they might not measure all of the sediment. It really takes some experience.

At what depth do you measure temperature?

Generally, surface temperature is measured unless you want to stock trout. To get deeper water temperatures, put a thermometer in a coffee can with small holes in the side. Tie a string on the can and weight the can so it goes under water quickly. The bottom water will then fill up the can and the temperature will read at that level. You can then pull up the can and read the temperature.

How do you determine the watershed area for a spring fed pond?

Basically, you are going to guess by looking up hill from where the spring enters the pond. You are looking for the ground area that when it rains, the water that hits that ground will end up in the pond. Water will tend to follow the slope of the land. So where the land slopes toward the spring that feeds your pond, this is your watershed area. It is important to protect this area from contaminants that may end up in your pond.

Is there a good way or tool to accurately measure the outflow of the pond?

To measure your pond outflow a bucket and stop watch are the best tools to use. If the flow is in a channel and you can't use a bucket, try floating an object and timing how long (in seconds) it takes to move 10 feet. Now you have feet

per 10 seconds. Divide by 10 to get feet per second. Then multiply that by the average depth of the water and the width of the channel (each in feet) to get cubic feet per second. Now you can multiply that by 7.5 to get gallons per second. It sounds complicated, but it's really very easy, if there is enough flow.

Source: Penn State Cooperative Extension Pond Management Website and PA Fish and Boat Commission Pond Website

Prepared by Jim Clark, Extension Educator in McKean County.

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