

## Lining Your Pond

Protecting our rivers, fish and wildlife is just one reason to line a pond. Pond leakage can also weaken the structure of the pond itself, damage nearby septic systems and building foundations, and can cause slope failure. Ponds can be lined with:

- Waterproof linings. If properly installed, they can prevent virtually all leakage.
- Compaction. Soil moisture and an effective compacting effort can create a protective barrier around the pond.
- Clay Blankets. Ponds with soils that are coarse and contain little clay will benefit from a clay blanket.
- Bentonite. Fine-textured colloidal clay, bentonite absorbs water and swells up to 20 times its original volume.
- Chemical additives. Approved for use as a liner, polyacrylimide, or PAM, that's added to porous aggregates can rearrange clay particles and reduce permeability.

It is most important to line ponds that are perched, that leak, and those that are constructed on or above Mancos shale-derived soils. Talk to a professional engineer or the people at NRCS for guidance.

## Maintenance

Ponds are complex, aquatic environments that attract animals, people, fish, weeds, and algae. Properly maintaining them requires time and knowledge. Be sure you are equipped with resources and time to care for your pond before committing to building it.



For more information on ponds, contact your nearest office of the USDA Natural Resources Conservation Service.

Grand Junction	242-4511
Montrose	249-8407
Delta	874-5735

CSU Cooperative Extension offices

Mesa County	244-1834
Montrose County	249-3935
Delta County	874-2195
Gunnison County	641-1260

Pond Construction:

[www.aces.edu/pubs/docs/A/ANR-1114](http://www.aces.edu/pubs/docs/A/ANR-1114)

Colorado Division of Water Resources

[www.water.state.co.us/](http://www.water.state.co.us/)

Colorado Division of Wildlife

<http://www.wildlife.state.co.us/>

# Water-Wise Approaches For Building a Pond



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### Is a Pond Necessary?

Ponds are a beautiful addition to any landscape, but if they aren't a necessary component to your operation or home, it's best not to construct one.

The reason is simple: the evaporation rate from an open water surface in the Tri-County area is about 3-4 feet per year. So, if your pond is eight feet deep, the top 36-48 inches will evaporate in the course of a year if there is no inflow or outflow. An acre-size pond will lose 3-4 acre-feet (or nearly 1.3 million gallons) of water to evaporation annually.

Leaky ponds may also create additional salinity and selenium pollution.



If, however, a pond is required for your work or environment, there are things you can do to ensure that it is built safely, and with water conservation in mind.

### Selecting a Site

The location of your pond should be determined by several factors, including:

- Safety
- Source of water
- Drainage
- Purpose of the pond
- Soils
- Wildlife
- Budget

Prior to breaking ground, consult an engineer or representative from the Natural Resources Conservation Service (NRCS) to guide you on these issues. For example, some soils in Western Colorado are not conducive for building ponds and will end up costing tens-of-thousands of dollars to repair or reconstruct. For more information on soils in our area, go to: [www.coopext.colostate.edu/TRA/PLANTS/soil.html](http://www.coopext.colostate.edu/TRA/PLANTS/soil.html)

To legally construct the pond, you are required to obtain several different permits or complete specific forms that are filed with various state agencies including the Utility Notification Center of Colorado, the Colorado Division of Water Resources, the U.S. Fish and Wildlife Service, and more. Ask your NRCS representative about where and how to start.

For step-by-step guidelines and other important information, download *Water Wise Pond Construction for Residential and Commercial Properties* at [www.thedripwebsite.com](http://www.thedripwebsite.com) or [www.seleniumtaskforce.org](http://www.seleniumtaskforce.org).



### Types of Ponds

There are several different types of ponds to choose from:

- Embankment
- Excavated
- Levee
- Combination Watershed/Levee

For example, embankment ponds are most common. This type of pond depends on rainfall runoff to fill and maintain water levels.

Regardless of the type of pond that best suits your purposes, it is critical that you line your pond. Unlined ponds seep water that leaches salt and selenium that eventually dumps into rivers and streams. Selenium is toxic to fish and wildlife, and salts can cause damage to farms and communities downstream.



This photograph illustrates the impact of seepage from an unlined pond near Delta.

