

Farm Ponds for Conservation



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FARM PONDS hold water where it is needed for future use—for irrigation, stock watering, stream regulation, fire fighting, and for recreation. Before you start constructing a pond, though, here are a few things you should consider.

Regulations

Ponds and reservoirs in Oregon, whether for fish, irrigation, or other uses, must conform with requirements issued by the State Engineer's Office, Salem, Oregon.

Water rights

Water rights are required for most surface water used for beneficial purposes ~~other than~~ ^{INCLUDING} domestic. If the water is used only to keep a fresh water supply in a fish pond, a water right is required. Information concerning this is available from the State Engineer's Office.

Cost

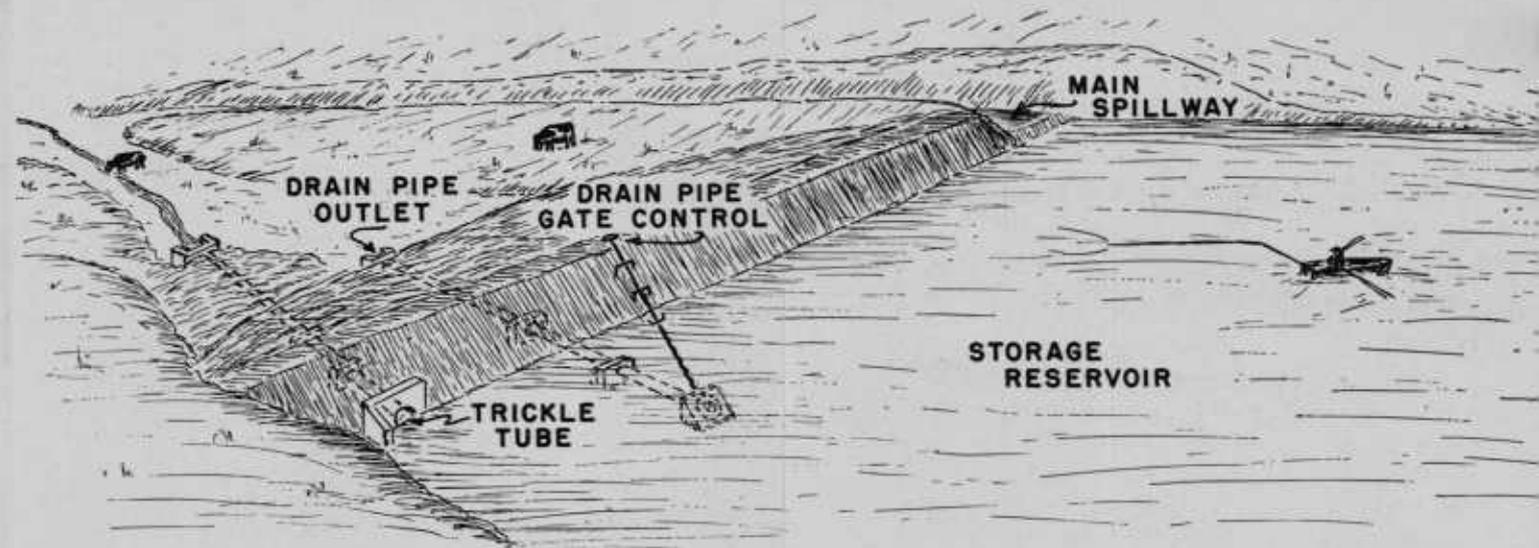
Costs will vary considerably, depending on location and material available. It is quite common for dams under 10 feet high to cost from \$125 to \$250 per acre foot of storage. Some are cheaper than this, some are more expensive.

How much storage is required?

For irrigation in western Oregon, at least 2 acre feet of storage for each acre of pasture to be irrigated



Farm ponds, such as this one in Washington County, often provide recreation and utility far beyond their actual cost.



A typical small earth-filled dam showing structures necessary for permanent, safe, reservoir control.

is required; for eastern Oregon, at least 3 acre feet for each acre of pasture is required. About two-thirds this amount is needed for annual row crops. In addition, there must be an allowance made for evaporation. This amounts to about $2\frac{1}{2}$ feet of water depth in pond in western Oregon to $3\frac{1}{2}$ feet of water depth in pond in eastern Oregon. In many areas, at least part of this evaporation loss can be compensated for by recharging the reservoirs with late spring and summer stream flow.

Storage capacity

Good sites are not located in hills or steep canyons; they are found in flatter lands. A 10-foot dam usually should back water at least 400 to 500 feet if it is going to provide an economical quantity of storage.

The following formula can be used to estimate the amount of water a reservoir will hold: (Acres of land covered by surface of pond when full) \times (Maximum depth of water) \times (0.4) = Acre feet of water stored.

Foundation for dam

Even for small dams, the unstable soil and material often found in the bottom of natural drainways make unsatisfactory bases on which to build dams. Gravel is also unsuitable.

The foundation must be firm and somewhat impervious. Clay or rock are both satisfactory. If it is overlaid with vegetation or porous material, the porous material must be removed before the dam is constructed.

Fill material

The best fill material is a combination of about two-thirds sand and gravel and one-third clay. Material high in clay is unsatisfactory because it expands when wet and cracks when dry, forming water passages that may prove disastrous to the structure. Sand and gravel are unsatisfactory by themselves because they are porous.

Drainage of reservoirs

A method of draining the reservoir always should be provided. This is especially important if fish will be planted in the pond.

Trickle tube

When earth spillways are used, trickle tubes should be installed to take care of low stream flow. They should be 1 to 2 feet below the crest elevation of the main spillway.

Trickle tubes can be incorporated into the drain tube installation, or installed independently. In no case should they be constructed in the fill portion of the dam.

Adequate spillway

More small dams wash out because of inadequate spillways than for any other reason. In some locations it is possible to use cheap earth or sod spillways; in others, it is necessary to construct spillways as costly as the dam itself.

Ponds are an investment in better rural living

Fishing

Rainbow trout, largemouth bass, bluegills, yellow perch, crappies, and catfish all have lived and grown in ponds throughout the state. Some ponds are more suitable for one kind of fish than others. A surface acre of water is a good family-size pond. Generally speaking, though, the larger the pond, the better the fishing. In a 1-acre, warm-water game-fish pond, we can expect to grow 3-pound largemouth bass, and at least $\frac{1}{2}$ -pound bluegills. Trout are doing best in ponds that are at least 10 feet deep.

Wildlife

Ponds attract migratory waterfowl, songbirds, mink, muskrat, raccoon, and other large and small animals. Aquatic life, both plant and animal, usually becomes abundant in our Oregon ponds.

Picnic spot

Shade trees planted along the shoreline provide a picnic area. Tables, fireplaces, diving boards, duck-blinds, and boat docks can be built to suit your desires and needs.

Conservation

Water impounded in the right kind of ponds often makes a year-round stream out of one that would otherwise dry up in the summer. Ponds make additional stockwatering sites and are good for fish life all the way to the sea.

**Your local County Extension Agent
can advise you on suitability of
sites, costs, and sources of
additional information and help.**

Cover photo—Jerry Cornett proudly displays a half-pound bluegill caught in the family's farm pond in Lake County. Pond also provides irrigation water for an orchard.

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