

# Renovating Old Farm Ponds

By Larry Cofer, southwest region fisheries supervisor

Like the people and animals that use them, farm ponds have predictable life spans. Constructed in the right places, and given some occasional T.L.C., ponds can provide value for generations of anglers, duck hunters, and farmers.

Often ponds may last only a decade or so, due to poor dam construction or neglect. No matter how it's built or used, every farm pond will age, and a landowner is eventually faced with the fact that their oasis isn't as deep or wide as it once was.

Ponds with plowed fields and eroded washes in the watershed above them are loaded with silt during every rain. Even when pastures are well vegetated, some silt moves from the watershed into the pond. The problems are most obvious when a few months pass between rains, and evaporation takes its toll. Droughts like we've experienced the last two years in Oklahoma have left a lot of ponds low, and others completely dry for weeks. It was a time for many pond owners to closely consider their water needs -whether the old tanks were providing the kind of recreation and watering value that they expected or needed.

As pond edges receded in the dry spell, landowners were able to see the lost water volume. Some took advantage of the situation and invested in the future by renovating their ponds. Robin Burks, Soil Conservation Technician with the Natural Resources Conservation Service (NRCS) office in Lawton, worked with several landowners last winter on pond renovation projects in Comanche County.

"We like to see a minimum pond depth of eight feet when it's full, and that ensures that there's water in the pond even in the longer dry spells," said Burks. Matching funds may be available for deepening or rebuilding ponds, and it's usually based on a 50:50 cost-share. Burks said that the NRCS sometimes has funding appropriated for pond work after droughts, but not always. In some cases, money may be available from the WHIP and / or EQIP programs, but only when pond renovation is a part of a larger program to improve a farm for wildlife value.

Whether you have to do it yourself or want to apply for government cost-sharing, the NRCS in your county is the place to start with ideas on pond restoration. Even if money is not available, the NRCS offers free consultation, and can even check the

pond site and provide estimates on excavation amounts and costs. Each county office also keeps a list of reputable contractors that work on ponds and dams.



*A bulldozer is the most cost-efficient tool when excavating a pond. The average rates for a bulldozer operator is \$85 an hour or \$1.50 per cubic yard removed.*



When a pond is dry (or nearly dry), a bulldozer is the most cost-efficient tool for excavation. Large dozers can push more than small ones, but they may also be less nimble on a soft mud bottom. Most dozer operators prefer to charge on an hourly basis, and the going rate is around \$85 per hour. Burks recommends payment by the cubic yard of earth removed, or at least relating the hourly rate to a definite cubic yardage of material, so landowners get exactly the service they're paying for. The going rate is \$1.50 per cubic yard removed, and the NRCS can calculate the volume and stake off the excavation zone, says Burks.

For example, deepening of a pond by an

average of six feet (two yards), over an area of say, 50 yards in length by 30 yards in width, would yield an excavation of 3,000 cubic yards (2 deep x 50 long x 30 wide = 3,000 c.y.). At \$1.50 per cubic yard, the cost to renovate that pond would be about \$4,500. Under dry conditions, a good dozer operator can move about 100 cubic yards in an hour, or about 1,000 per day. So in this example, the operator should be able to complete the job in about three days, given good weather.

The excavated soil should be sloped, smoothed and shaped away from the pond. This will prevent the unprotected soil from going back into the pond soon after the project is completed. After all the earthwork is done, topsoil should be replaced and grass should be re-established on the excavated soil and new pond banks. Burks recommends sprigging or seeding bermuda grass in the growing season, and rye or wheat can be planted to temporarily stabilize pond banks in fall and winter. If the bank is left bare, the pond water will be muddy.

Dams can be refurbished during dry spells or when the water is up. All dams wear with age, particularly if cattle are allowed to graze on them, and they may need to be re-dressed occasionally. Rip-rap can be placed on larger dams if wind and wave action is eroding the face. It's also a good idea to add some rock to the spillway (the area where water leaves a pond around the dam), to prevent erosion or wash outs in floods. A concrete or rock drop-wall at least one foot high can be built to prevent rough fish from swimming upstream into the pond when water is flowing out.

If your pond leaks or seeps, then clay (often called bentonite) can be added and packed in the pond bottom to seal it while the water is low. It's not a bad idea to have trees removed from an old pond dam while work is in progress - but be careful. Water likes to follow the channels of rotted tree roots through a dam. If trees are removed, a new layer of clay should be packed along the dam face to prevent leakage. As part of a regular maintenance program, pond owners should cut trees on pond dams before they grow large enough to cause that kind of trouble.

To limit aquatic vegetation in ponds, fisheries managers recommend a bank slope

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*Having trees on your pond dam can be a serious problem. It's not a bad idea to remove them when renovating your pond, but be careful. Water likes to follow the channels of rotted tree roots through the dam, causing the backside of the dam to slide.*

of 3 to 1 below the water line, around at least two-thirds of the pond edge. That is, for every three horizontal feet from the bank, the bottom should drop vertically by one foot. If waterfowl are the target, then a significant portion of the pond should remain shallow when it's rebuilt. Generally though, pond owners should keep in mind that ponds filled with weeds don't make good fishing ponds, and don't provide as much volume for cattle during droughts.

Renovation of an old pond isn't always the best answer, added Burks. "Sometimes, it costs less to find a dam location up or downstream and build a new one, instead of excavating the old one," she said. "We like to use old ponds as silt traps above new ones."

The NRCS estimates that it has assisted

in the construction of about 250,000 farm ponds in Oklahoma, and landowners have built thousands more on their own. All of those ponds are in a constant state of aging (some faster than others) and renovation is an option to consider, particularly during prolonged dry spells that are all-too-common in Oklahoma.

### Working in the Wet

When ponds are full of water, some landowners are tempted to deepen them with other kinds of equipment. Draglines and track-hoes can be used from the bank, but they're more expensive by the hour, and are less efficient since they move both water and mud, all in one motion. It's more difficult to estimate the quantity of soil removed, and therefore harder to estimate cost versus value.

If you can do without the water, it's easy to lower a pond with a temporary syphon. Using hard plastic tubing or other pipe from 2 to 4 inches in diameter (depending on the size of the pond), a pond owner can partially drain a pond if it doesn't rain for a few days.

Lay out the tubing from the deep part of the pond, over the dam, to a low grassy area below. Then cap the lower end of the pipe, fill it partially with water from the upper end, lower the tube into the pond, then remove the cap at the lower end. If there are no air leaks in the pipe, gravity should send a steady stream over the dam. To stop the process, just lift the pond end of the pipe above water level. Even after water is removed, it can take several weeks for the pond bottom to dry to the point that a bulldozer can get in and out without getting stuck.

## What Do *You* Want

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