



Catfish Pond Construction



Gary Burtle

Animal & Dairy Science, UGA

Tifton, GA



Catfish Pond Dimensions

- Approximately 10 acres, 600 ft wide
- Average 4 ft deep
- Smooth bottom, 1% slope or less
- Levees at least 10 ft wide at top
- Levee slopes 3:1 or best 5:1
- Drain dimensions at least 12 inch diameter

Pond Soils Must Have Clay

- A minimum of 25% clay is required to slow the rate of seepage from ponds
- Construction requires that clay be compacted after each 12 inch layer
- Clay content over 60% should be mixed with soil of a lesser clay content
- Top soil layers must be disrupted with a trench and filled back with clay

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Rubber Tire Dirt Scrapers



Catfish Pond Equipment

- Three phase power is essential
- Hook ups for three aerators each with 10 HP electric motors is common
- Bulk feed storage for at least 16 tons of catfish feed should be near the ponds
- Remote sensors, monitors and transmitters need power supplies

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Three Phase Electric Power





Pond Construction Work Plan

- Survey
- Soils
- Water Supply
- General
 - Permits
 - Contracts and Estimates
 - Financing



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Use Laser Leveling

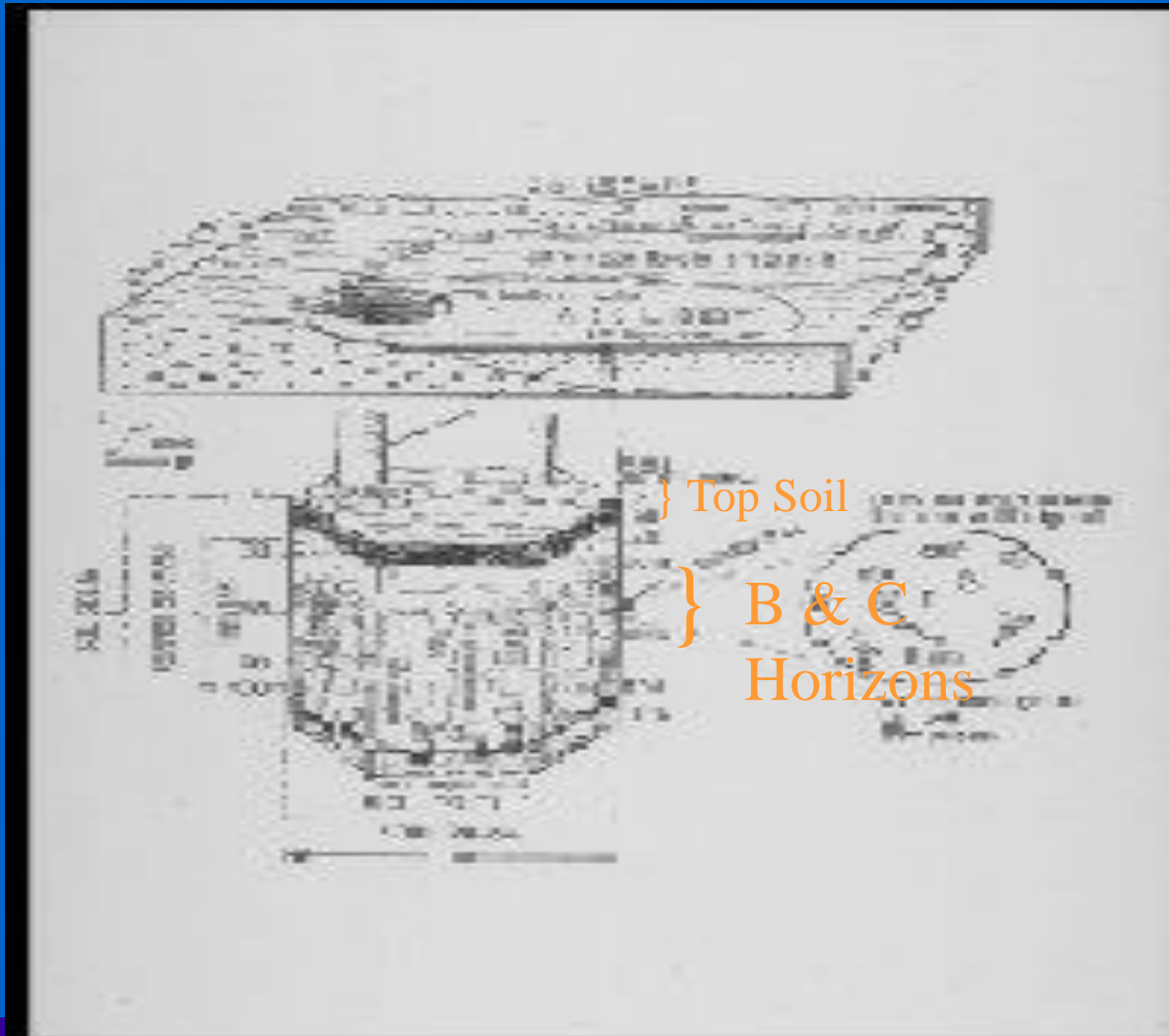


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Pick an Experienced Contractor



Identify the Soil Types

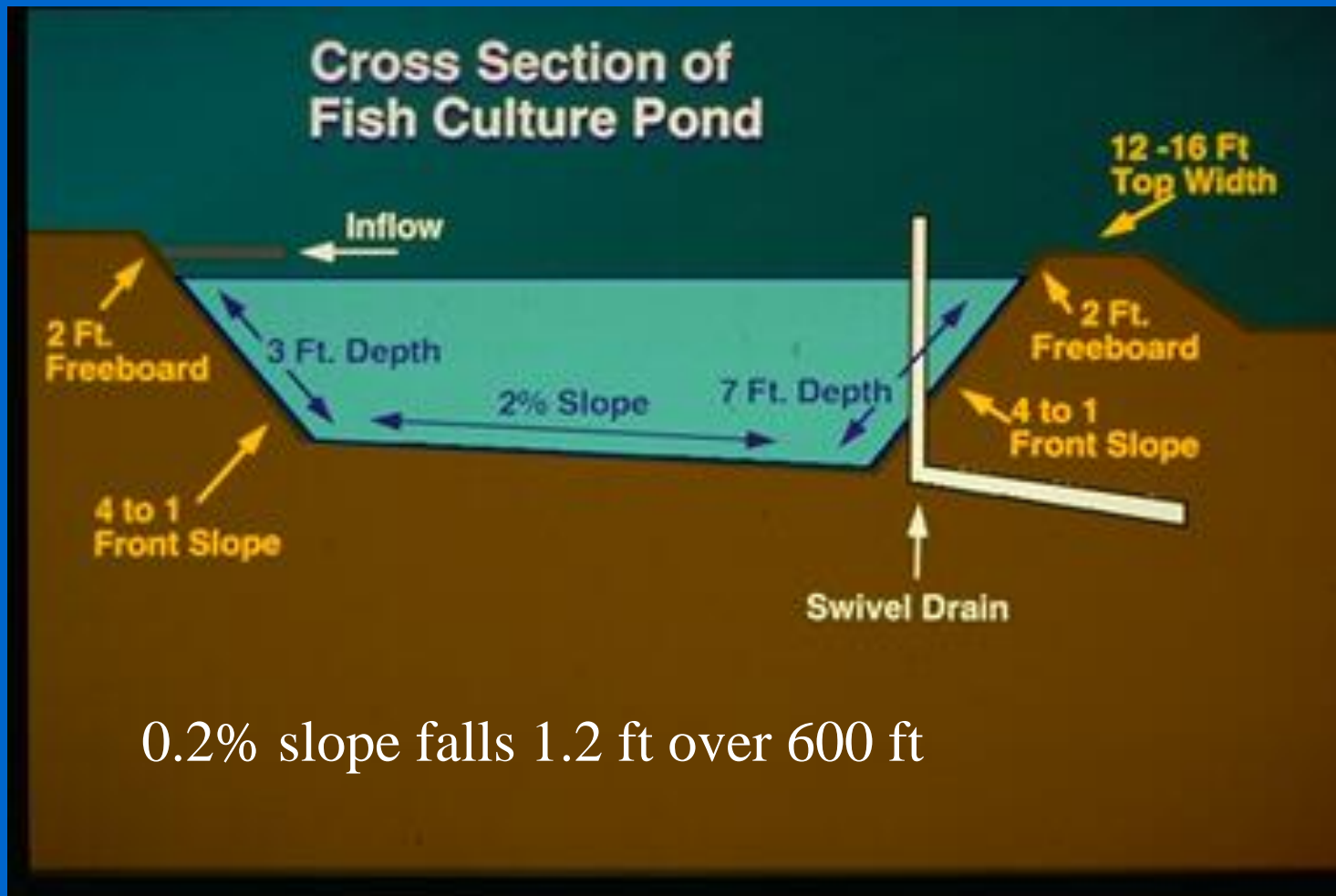


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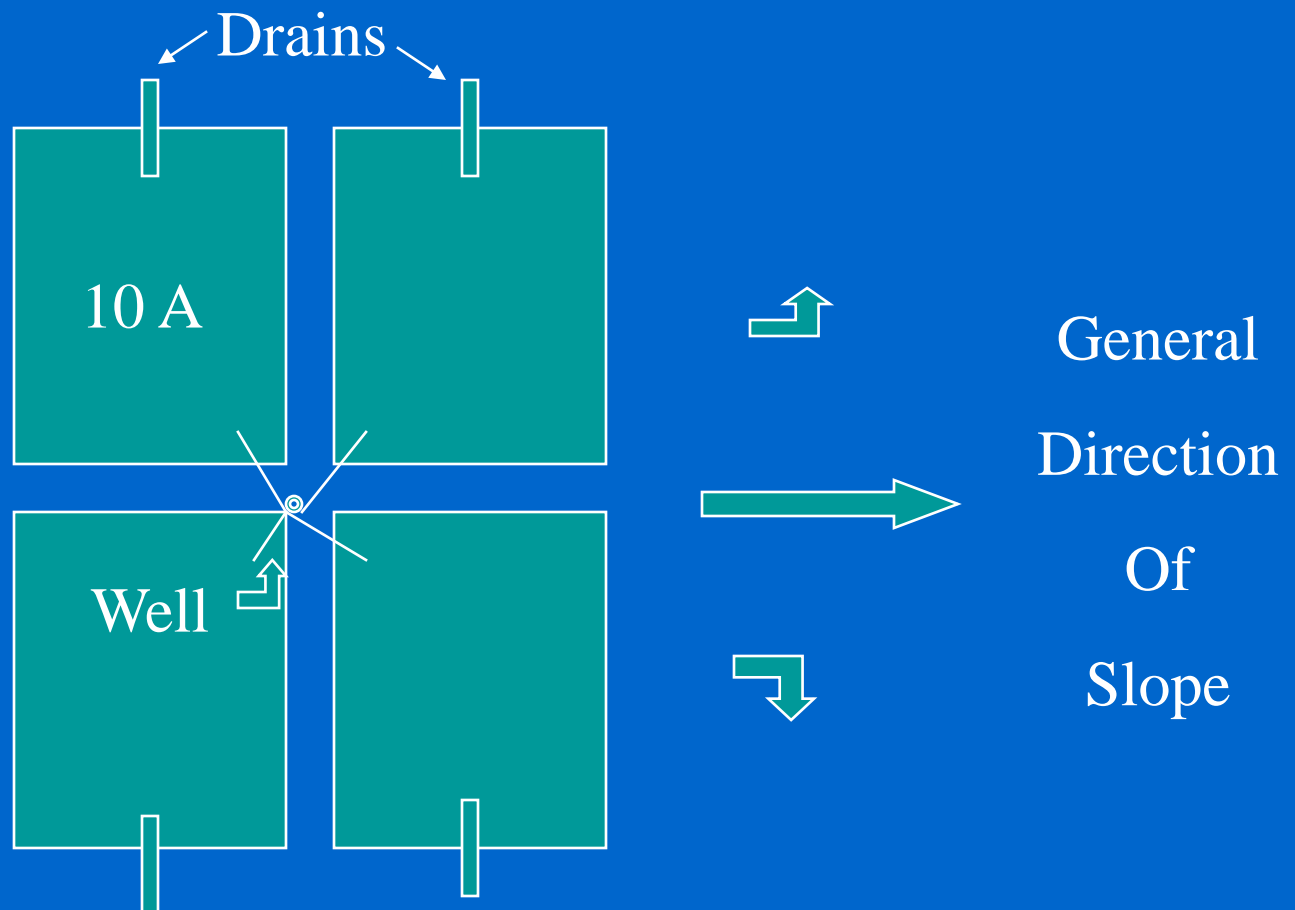
Check the Soil Texture



Pond Design Options



Levee Pond Layout



Volume of a Levee

Assume 16 ft Top Width.

Assume 5:1 Slope on both sides.

Assume 5 ft average Levee Height.



$$(16 \times 5) + (5 \times 5 \times 5/2) + (5 \times 5 \times 5/2) = 205 \text{ sq ft}$$

$$205 \text{ sq ft} \times 100 \text{ ft} = 20,500 \text{ cu ft per 100 ft length}$$

$$20,500 \text{ cu ft} / 27 \text{ cu ft per cu yd} = 759 \text{ cu yd/ 100 ft}$$

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Size Ponds According to **Your** Need

- Generally 10 Acres for loading 20,000 lb of catfish per harvest.
- Size ponds according to market FIRST.
- Consider topographical and soils characteristics of your property.
- Avoid long and narrow ponds or odd shaped ponds.
- Use the slope of your land.

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Water Control Structures

Pond Drains

Water Supply Lines

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Drains on Outside of Levee



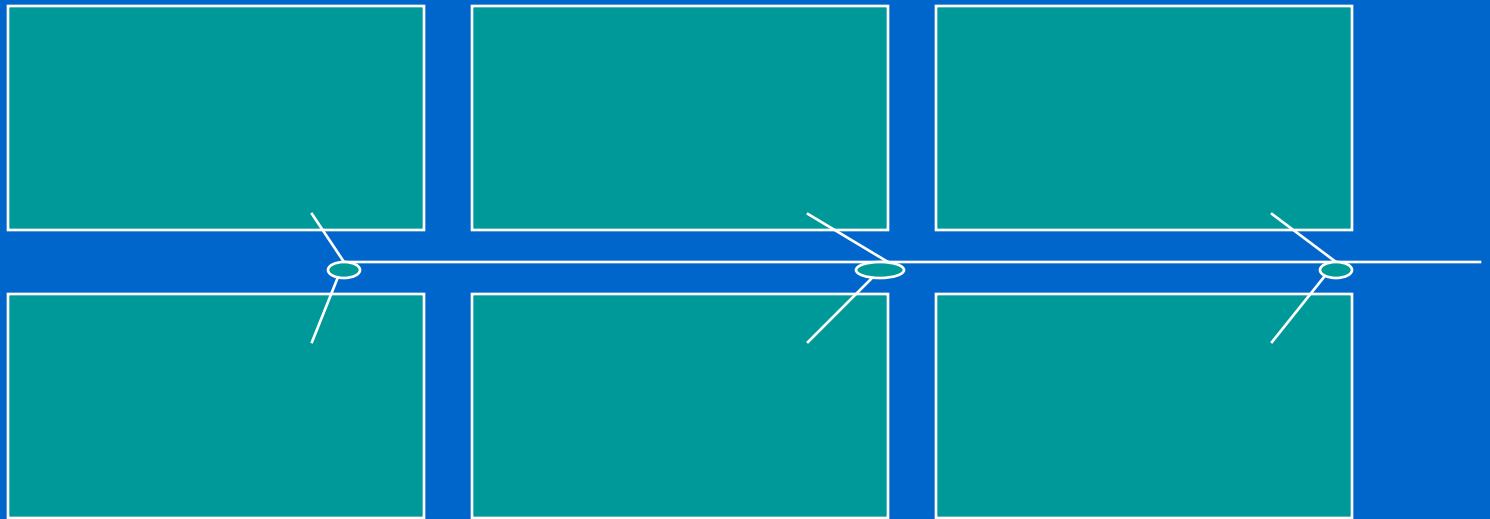
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Drain Through Core



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In Levee Drain Lines



Clean-outs every 400 ft

Concrete bearing masses at junctions

Junctions at 45 degrees

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Water Supply Line



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Supported Supply Line



Alfa Valve



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Supply too Close to Levee Toe



Well and Power Unit



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Filling Ponds from Natural Water



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13 Million Gallons in a 10 A Pond



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Water Budget

$$(Evaporation + Seepage) - Rainfall =$$

Water that must be Pumped



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Water Budget

- 45 inches/year Average in Georgia
- Evaporation from ponds 0 to 1 inch per day
 - Accounts for about 36 inches per year
- Seepage varies according to compaction
 - 0.05 to 0.5 inch per hour
 - Accounts for about 12 to 120 inches per year

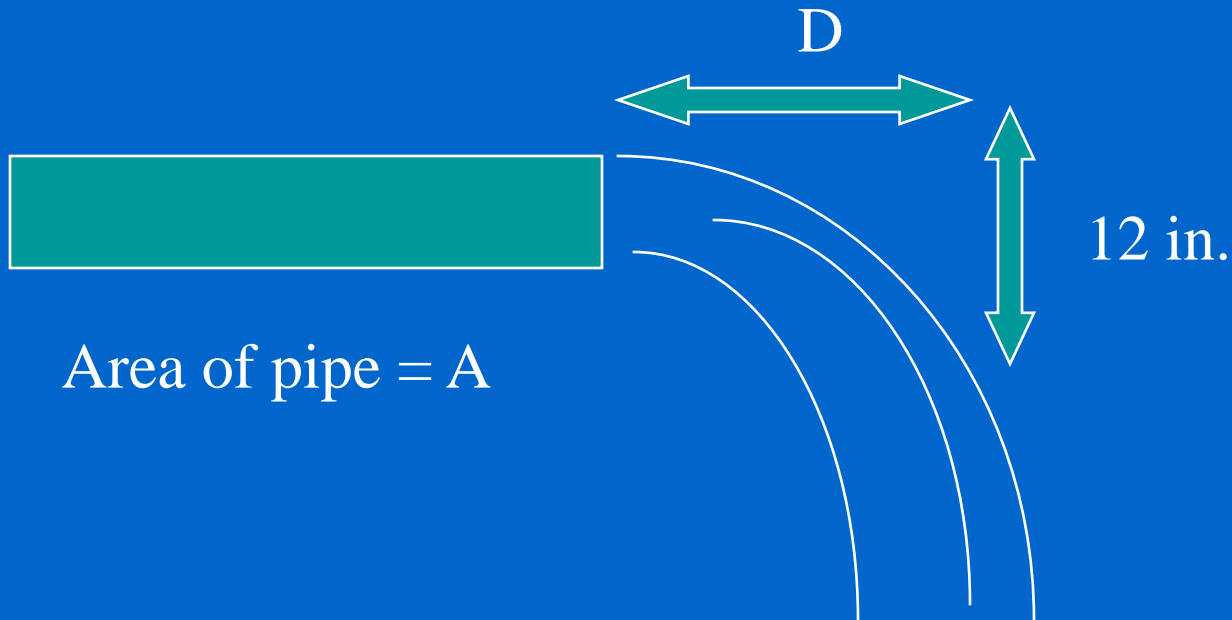


Water Needed

- 48 to 60 inches to fill the pond
- If pond is full:
 - 3 to 12 inches for well built ponds
 - 48 to 120 inches for seeping ponds



Estimating Water Flow



$$Q = \text{"A"} \times \text{"D"}$$

How Long to Fill a Pond?

Assume a 10 acre pond.

Assume a 400 GPM well capacity.

Assume very short distance between well and pond.

$$10 \text{ A} \times 4 \text{ ft} \times 325,000 \text{ gal/A-ft} / 400 \text{ GPM} =$$
$$32,500 \text{ minutes or } 541 \text{ hr or } 22.5 \text{ days}$$

Recommend 50 GPM per Acre of Pond

Options to Fill Ponds

- Seek sites with adequate ground or surface water.
- Drill several wells and pump into linked water lines. (3 x 400 GPM = 1,200 GPM)
- Pump from adjacent ponds that are to be drained using a high volume-low head pump.

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Bins Require Extra Land



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Don't Forget Storage

