

Choosing Your Aquaculture Site: Land and Water Requirements

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Essential Ingredients for Aquaculture

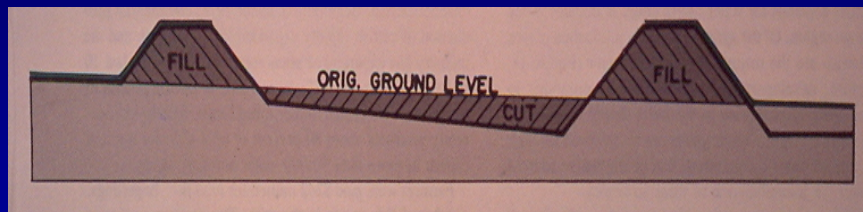
1. Suitable Land
2. Suitable Water
3. Money
4. Markets
5. Management Time and Skills

Suitable Land

- Land needs to be flat
- > 15% clay content
- Not a wetland
- Not on a utility right-of-way
- Not an area of pesticide concentrations: low runoff area, equipment fill area, disposal area
- Ponds need to be able to be gravity drained

Suitable Land

- Land needs to be flat



Suitable Land

- > 15% clay content



Suitable Land

- Core samples – strata often not consistent
- Farm drainage (effluent)

Aquaculture Effluent

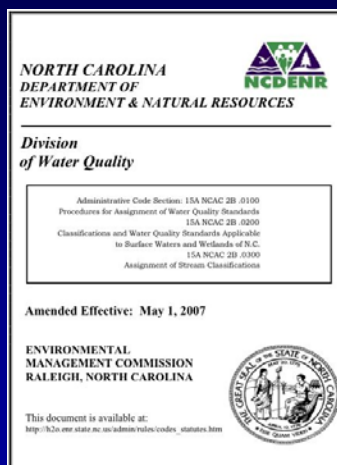
- Drainage Ditch or Canal
- Zero-Flow Stream
- Blue Line Creek
- Named Creek, Stream, River
- Other (stays on property)

Stream Classifications

(<http://h2o.enr.state.nc.us/csu/swcfaq.html>)

Aquaculture Effluent

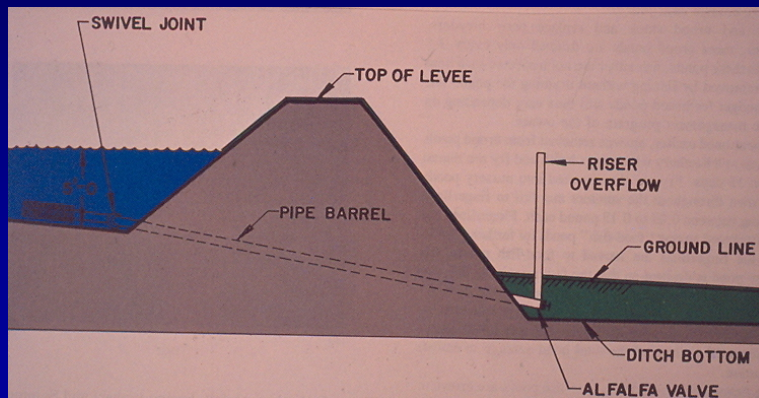
- Aquaculture effluent must meet state standards to be discharged
- Fresh Surface Water Quality Standards begin on p.25 of "Red Book"
- Chlorophyll a – 40ug/l
- DO – 5 mg/l (ppm)
- BOD – 0-5 mg/l
- pH – 6 to 9
- Cl⁻ - 230 mg/l (383 mg/l NaCl)
- Turbidity – 50 NTU
- Individual National Pollutant Discharge Elimination System (NPDES) Permit



http://h2o.enr.state.nc.us/admin/rules/codes_statutes.htm

Suitable Land

- Ponds need to be able to be gravity drained



Pond Sizes

- Catfish: 8-10 acres
- Hybrid Striped Bass: 2-4 acres
- Prawns: 2-3 acres
- Crawfish: >2 acres

Land Needs



Suitable Water

Quantity
Quality

Suitable Water

Quantity

25 gpm/ac
0.25" evaporation per day
(4.5 gpm/ac/day)

Suitable Water

Quality

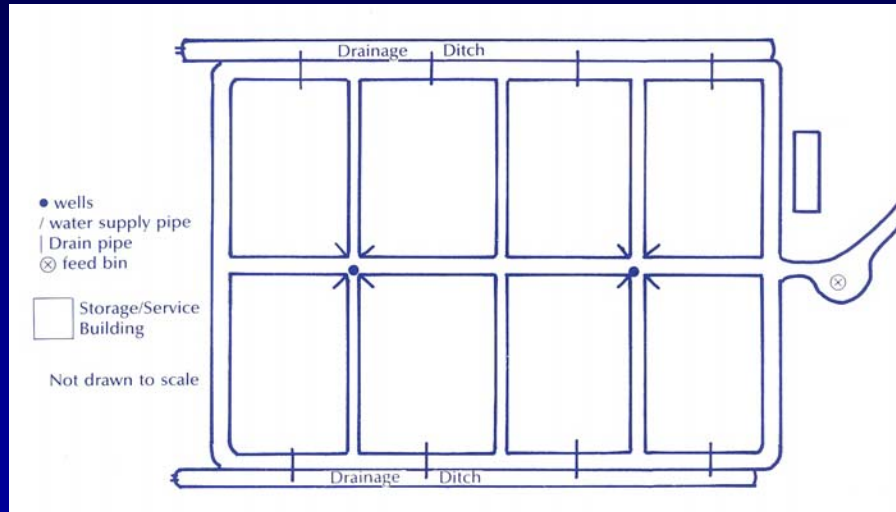
Surface Water: Contamination

Well Water: Alkalinity / Hardness

Salinity

Dissolved Gases

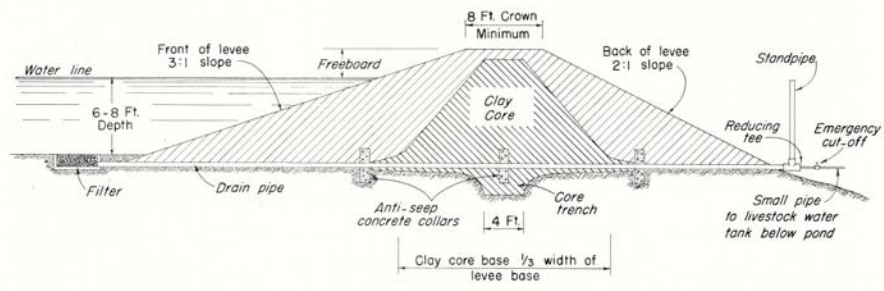
Pond Layout



Pond Layout

- 2:1-3:1 Length:Width
- Rectangular
- Top Width: 16-20', 20-25'
- Slopes: 2:1(outside), 3:1 (inside), 0.5% (bottom)
- Depth: 3'-8' (3.5-6'), 1'-1.5' freeboard

Pond Construction



Cross Section of the Levee

(Drawing by Eddie L. Bennett)