



Investigation of Ark Clam Culture and Marketability

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Rationale

- Ark clams harvested in mid-Atlantic states (VA, NC) in limited quantities
- Development of a major fishery for these species restricted by
 - Dispersed wild populations
 - Minimum understanding of reproduction
 - Small, isolated ethnic markets
- Research efforts in VA during 1990s concluded slow growth of arks limit aquaculture potential
- In Florida natural recruitment of arks into newly-planted clam bags supported hypo-thesis that arks may have potential for commercial development



Ponderous ark
Noetia ponderosa

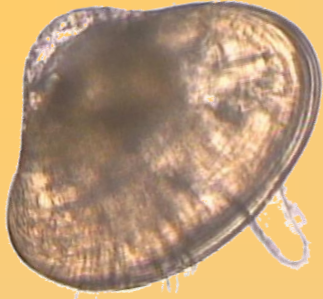


Blood ark
Anadara ovalis

Spawning Summary

- Wild-collected adults can be spawned using standard hard clam techniques
- Reproductive patterns and sex ratios documented
- Need to domesticate broodstock
- Fertilized eggs
 - Color: orange to reddish
 - Size:
 - Blood: 55 μm
 - Ponderous: 65 μm
 - Hard clam: 70 μm





Larval Rearing Summary

- Early development similar to clams but larval sizes smaller
- Most likely higher seed costs
 - Lower larval survival
 - Longer larval period
 - Blood – 17 days
 - Ponderous – 21 days
 - Hard clam – 9 to 12 days
- Determining competency difficult
 - Need to optimize survival at settlement and identify cues for setting



Land-based Rearing

- Post-set rearing in downwellers
 - Strong byssal threads result in clumping and adhesion to surfaces
 - Growth rates
 - Blood: 6-12 days to 1 mm
 - Ponderous: 49-56 days to 1 mm



- Land-based nursing in downwellers
 - Sieving difficult
 - Growth rates
 - Blood: 3-4 months to 14-15 mm SL (3.5-4.3 mm/mo)
 - Ponderous: 6 months to 19 mm SL (3.2 mm/mo)

Field Growout Summary

- Field nursing and growout can be conducted using equipment and methods for hard clams
 - Survival commercially acceptable in field
 - Blood – 60%
 - Ponderous – 62%



- Crop period from 14-19 mm SL to 23-27 mm SW (1" littleneck)
 - Blood – 11 months
 - Ponderous – 17 months



Market Survey Summary

- Magnitude of potential domestic market assessed
 - Over 2,100 shellfish wholesalers surveyed nationwide
- Survey results revealed limited trade awareness and sales projections
- Wholesale prices ranged from \$0.18-0.25 clam
- Preferable sizes from 1-1.25" SW
- Current sellers noted inadequate supplies appear to limit market growth
- Basic product characteristics (taste, appearance, aroma, texture) evaluated

Market Summary



- Unlikely to be a widespread, mainstream demand for ark clams
- Market development proponents recognize importance of ethnic markets in target locations on East and West coasts
- Targeting seafood dealers with large Asian and Hispanic populations could result in profitable niche markets

Ark Clam Final Report

The Potential of
Blood Ark
and **Ponderous Ark**
Aquaculture in Florida

Results of Spawning, Larval Rearing,
Nursery and Growout Trials

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- Gametogenic cycle and reproductive pattern
- Embryonic development
- Seed production trials
- Field nursery and growout Trials
- Marketing survey
- Product characterizations
- Nutritional composition and shelf life

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