RUTGERS
New Jersey Agricultural Experiment Station

Hard Clam Aquaculture in New Jersey

Gef Flimlin
Marine Extension Agent
Rutgers Cooperative Extension

Historical Perspective

- In 1970, there was the Goose Bar!!!!
- Three baymen went VIMS to work with Castagna and Kraeuter in 1974. They wanted to take control of their future. Clamming was down to about 2000 per day.
- First Hatchery began in Atlantic City in 1974. First clams sold in 1976.

History

- Crema and Beckley got Elwood Bayer from NC to help in 1979/80. Bayer then became a welder worked on Playboy Casino construction and moved back to NC.
- Crema invented Predator Control Screens from material Castagna was using for making fencing.
- As clam culture grew, the baymen turned from wild harvesters to farmers.

Present Size of Industry

- About 30 to 40 growers.
- This is down from 40 to 60 growers in the early 1990s due to mortalities, lack of price improvement, and general economic downturn.
- There are currently 5 commercial hatcheries and one Baymen-owned Land Based Nursery System.
- About 90% of the clam culture is done in Atlantic County.

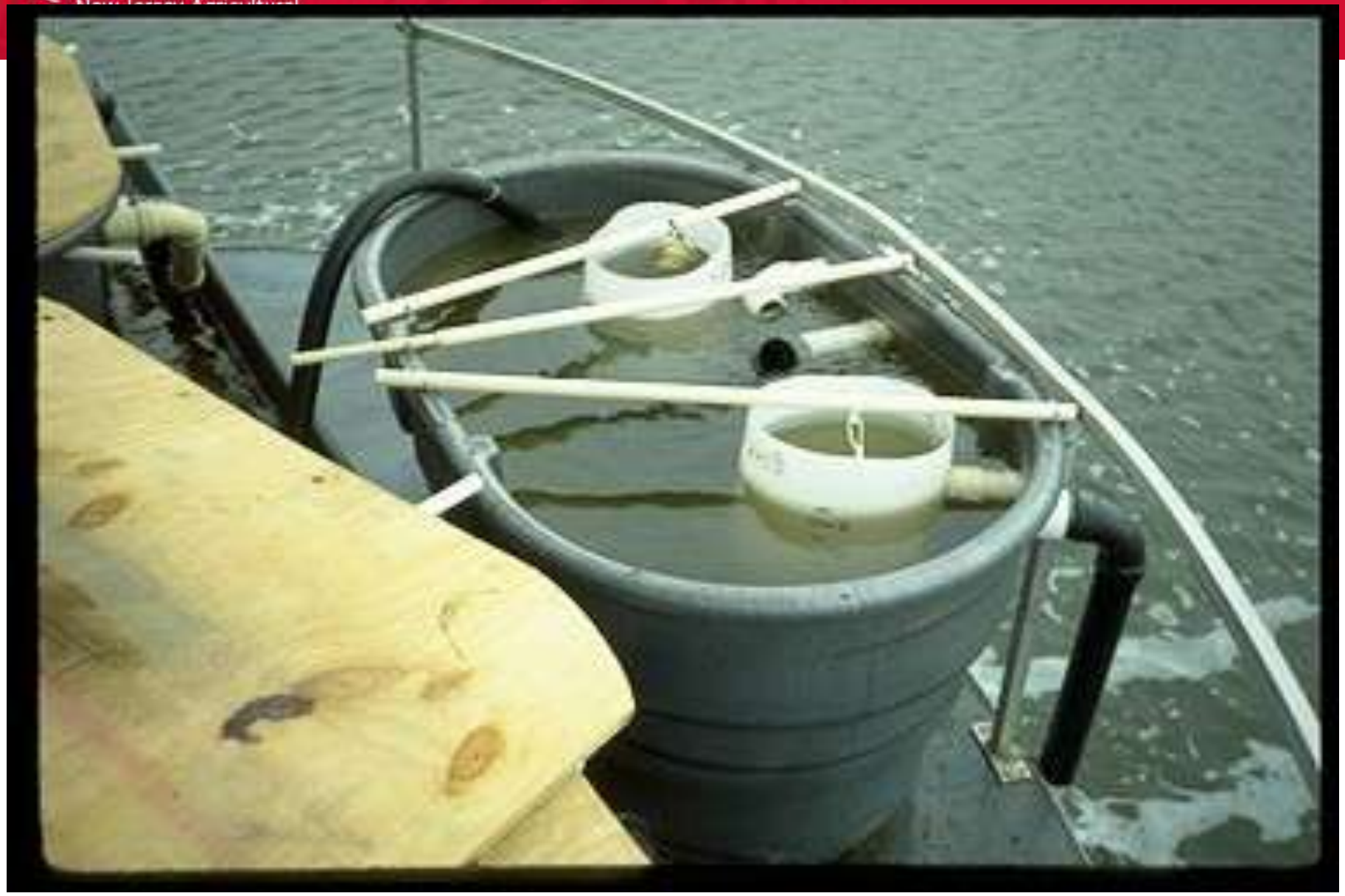
Current Level of Production

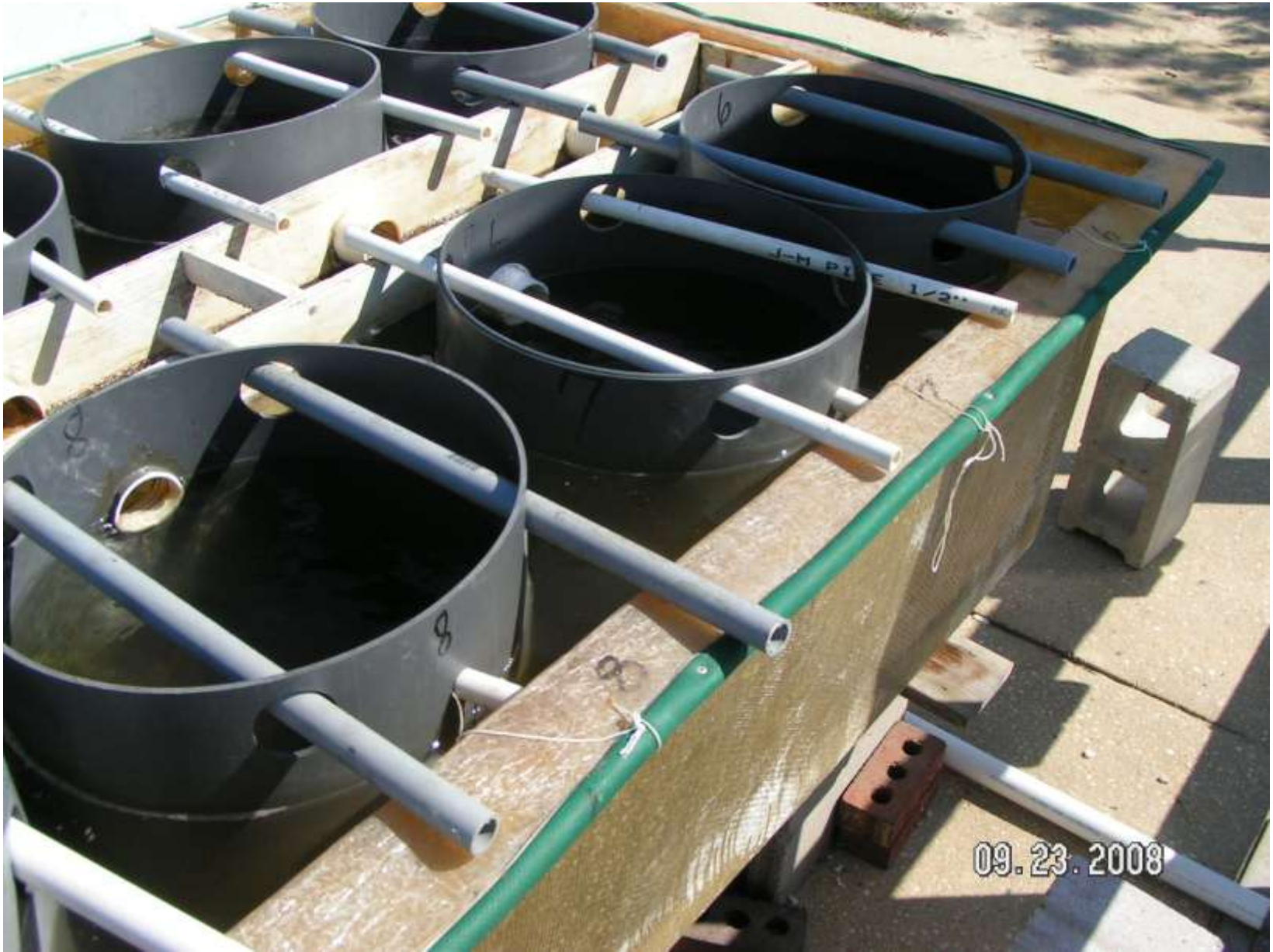
- Estimated at $4million per year ex-vessel marketable clams.
- Using normal NOAA economic multipliers for seafood, that translates into about $20million of economic benefit to NJ.
- Seed Production is around 60 to 70 million field plantable seed for the state.

Usual Technology

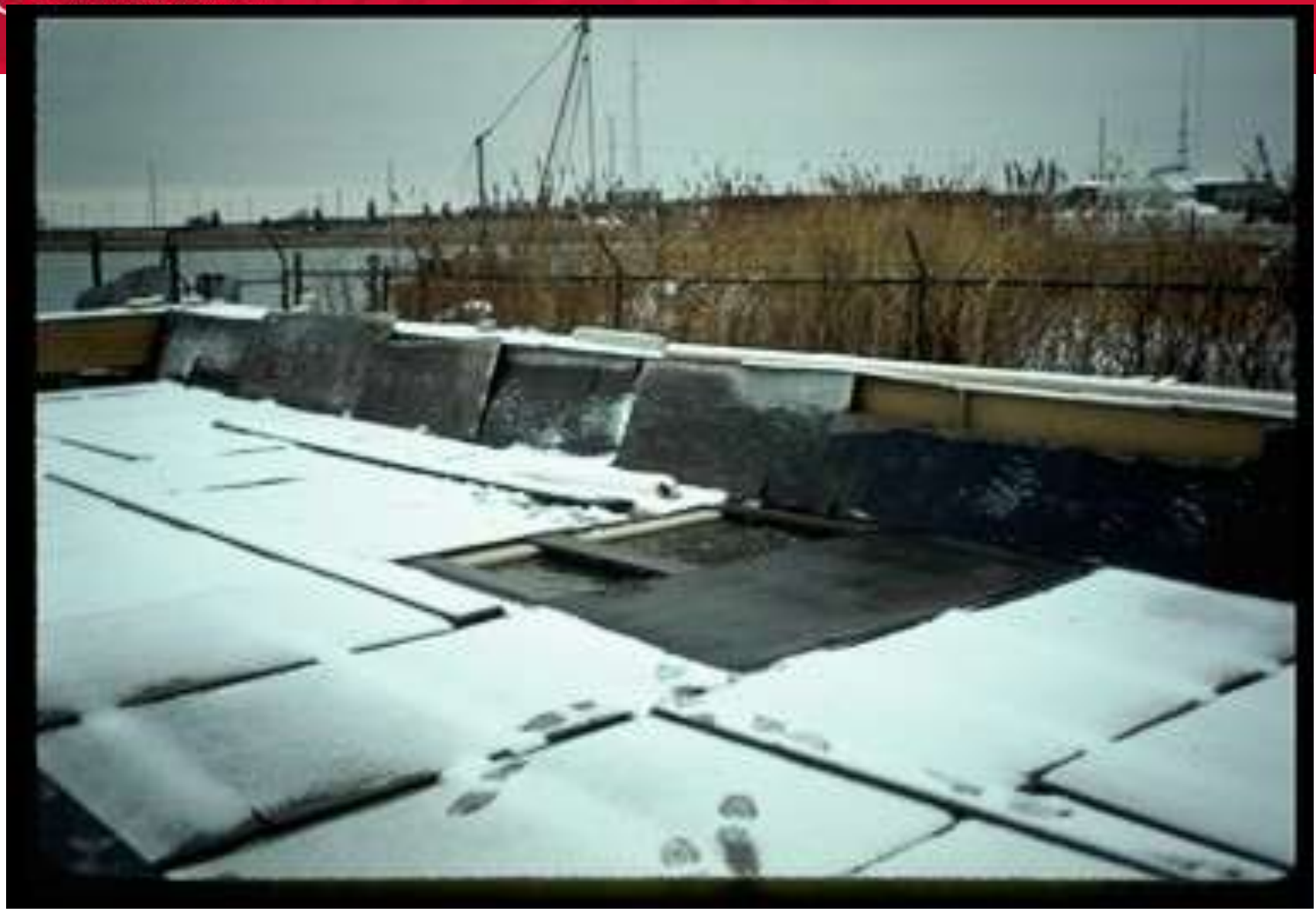
- Basic hatchery methods growing algae, conditioning and spawning.
- Downwellers and upwellers.
- Raceways at about 1.5 to 2.5 mm.
- Raceways to field plantable size, >10mm.
- Some field nursery in bags and Nestier Trays.

Upwellers

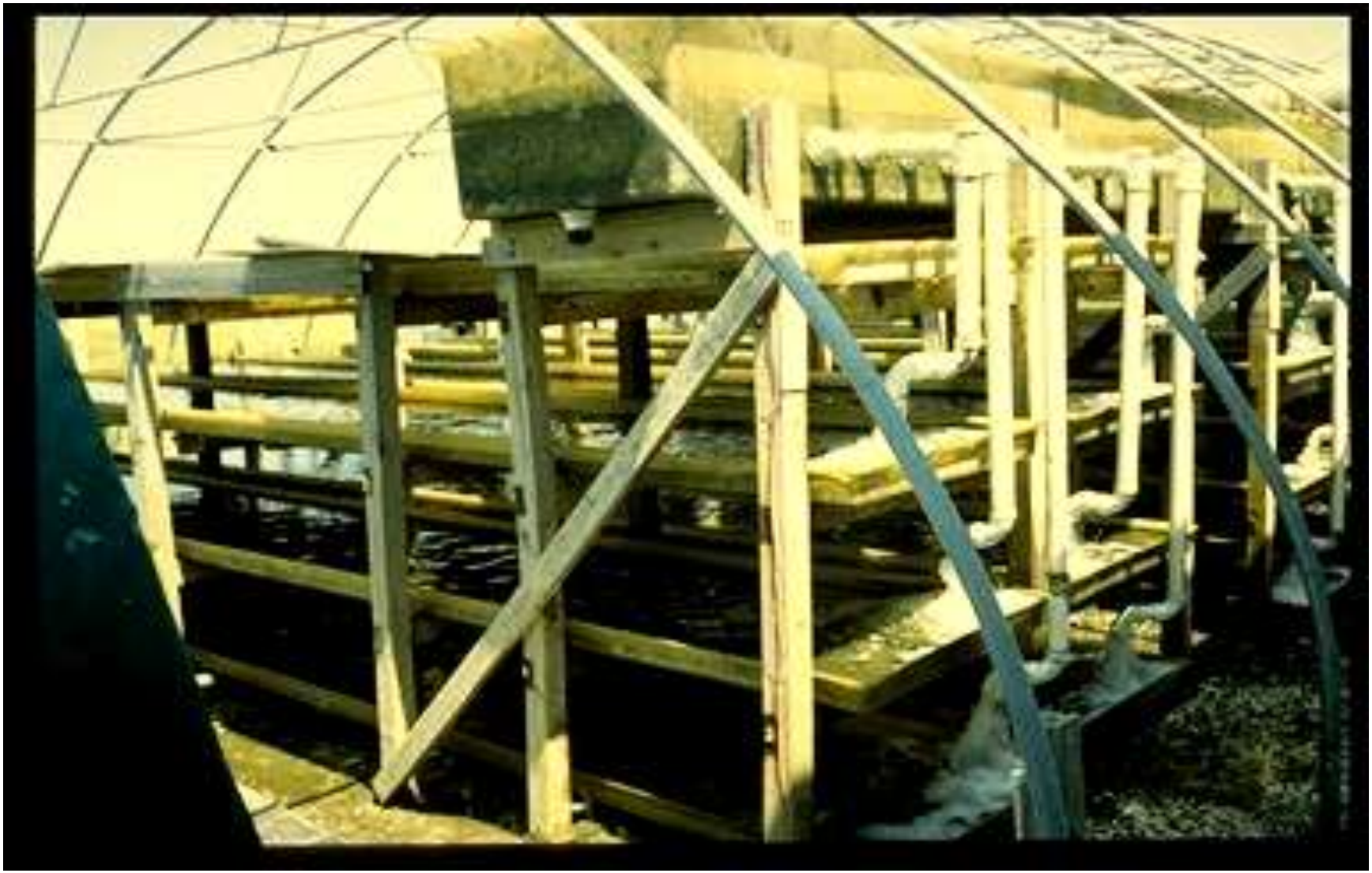



09.23.2008

Raceways



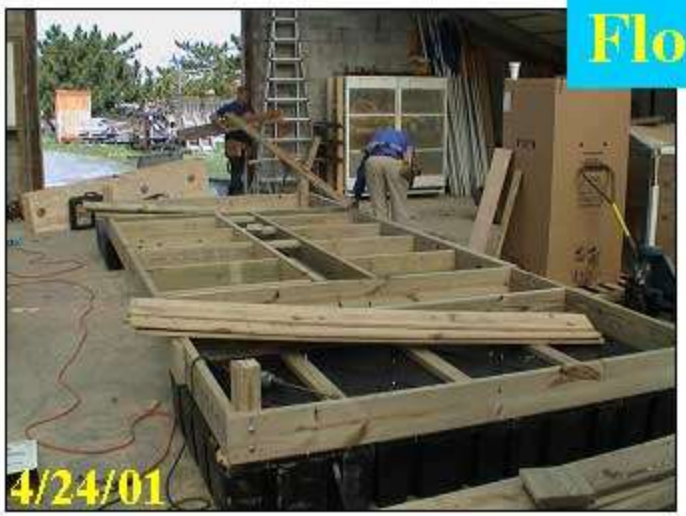
RUTGERS
New Jersey Agricultural
Experiment Station

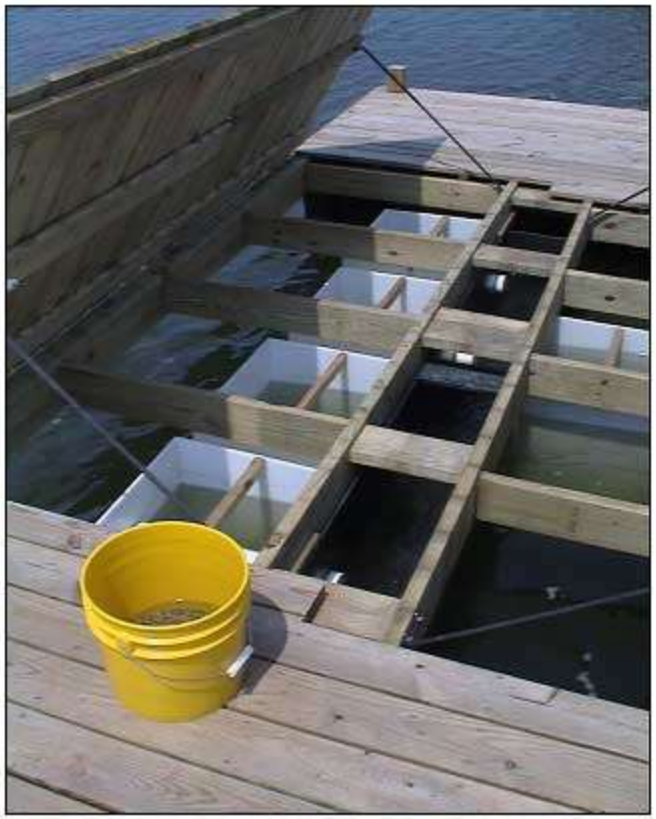


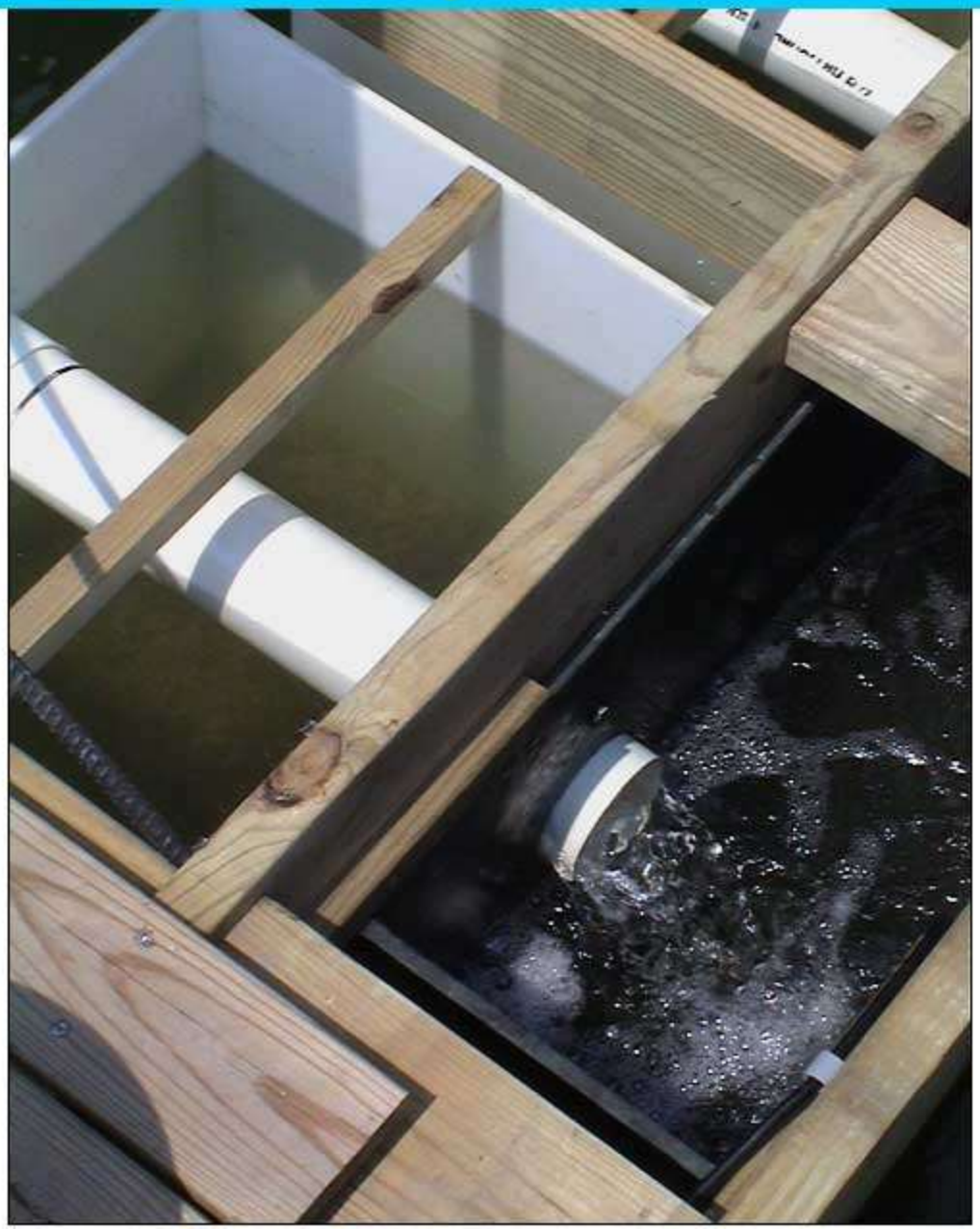

78

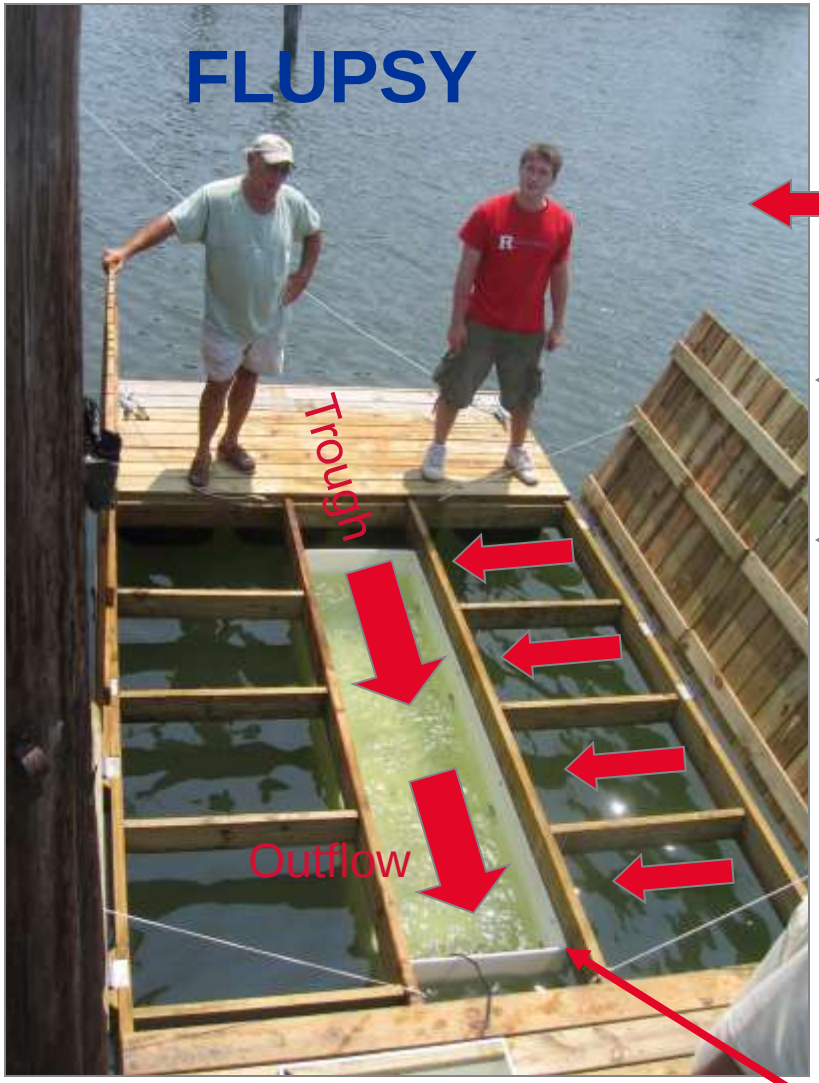
Floating Dock "FLUPSYS"

Floating Upweller System (FLUPSY)









Outflow pipe allows water to flow out of the silo and into the trough

Silos

Silos with screened bottom holds shellfish and allows water to flow up (upwelling)

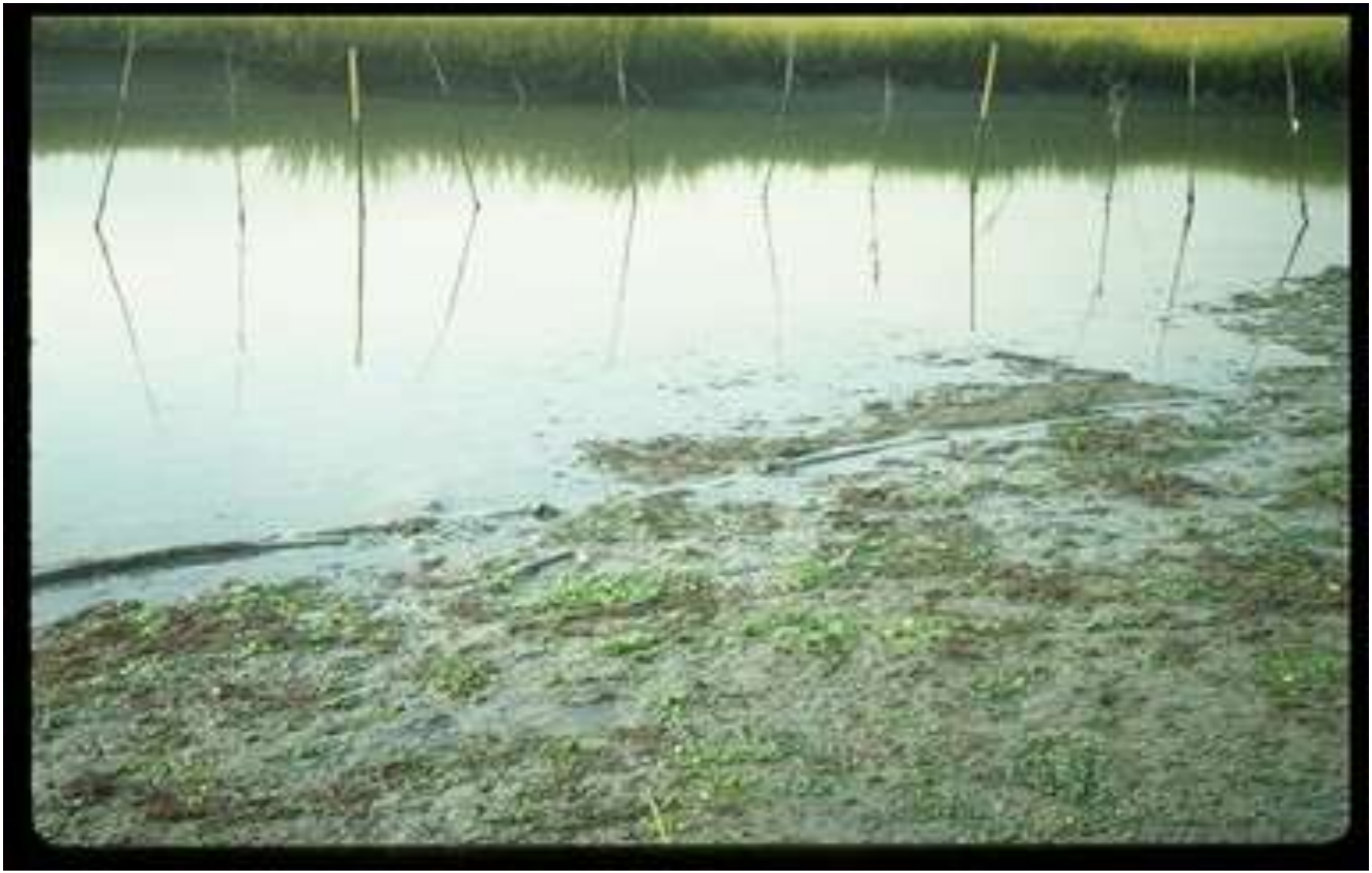
Inflow

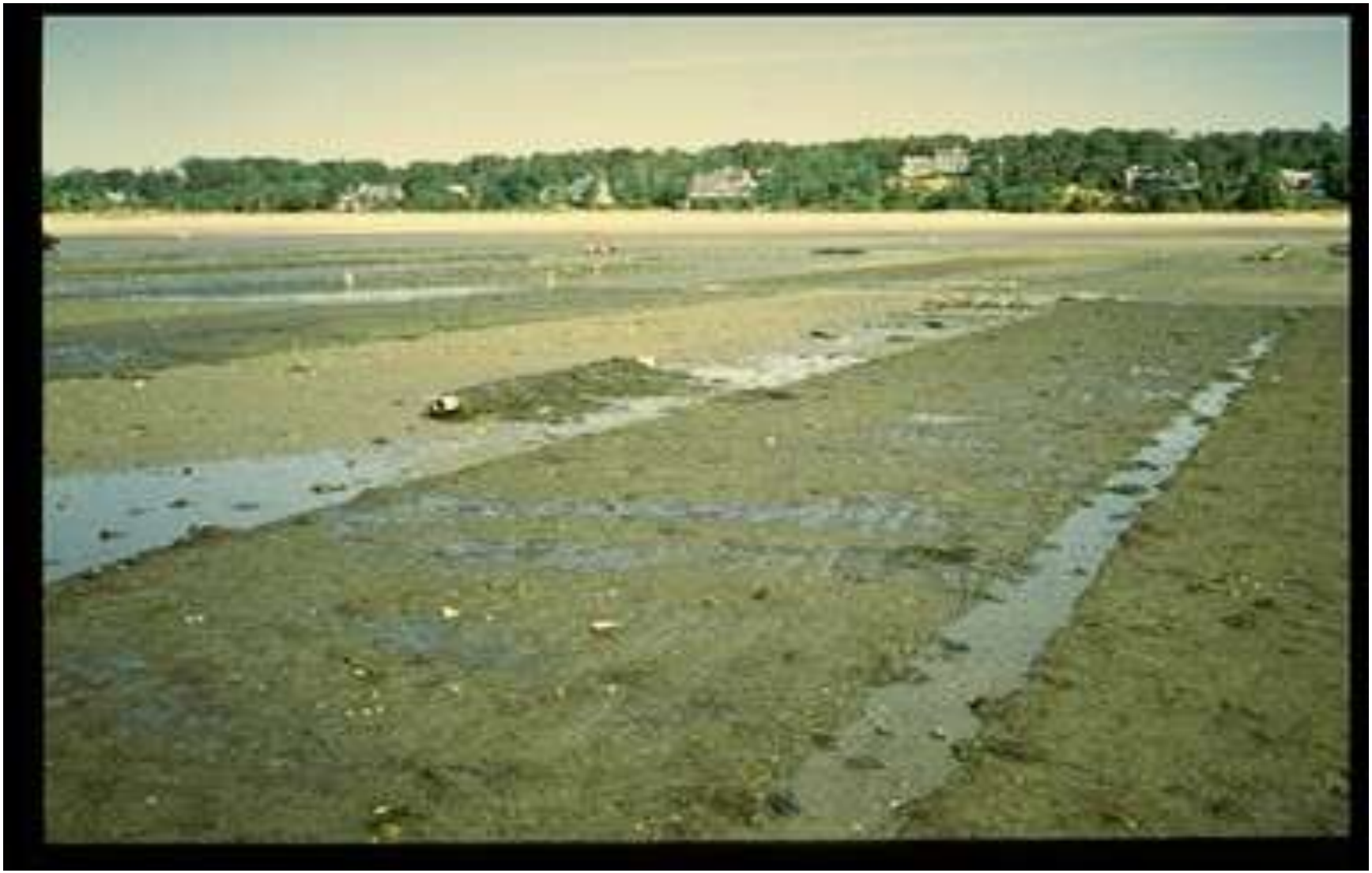
Electric motor at the end of the trough draws water out of it. This causes water to flow into the trough from the silos which, in turn draws water up through the screened bottom.

Usual Technology

- Field planting in 14 x 20’ plots with ¼”, then ½” plastic mesh.
- Nursery plants with left over small seed. Some small seed was sent South for the winter to NC or SC.
- Stocking density is about 80-100,000 small seed for nursery screen; 12,000 for growout screen.
- All maintenance and market harvesting is done by hand. NO PESTICIDES OR HERBICIDES ARE USED.
- Growout is about 2-3 years from planting to market size. Minimum size is still predicated on wild stock regulations…..1½” long.

Field Growout- Bottom Planting of Hard Clams





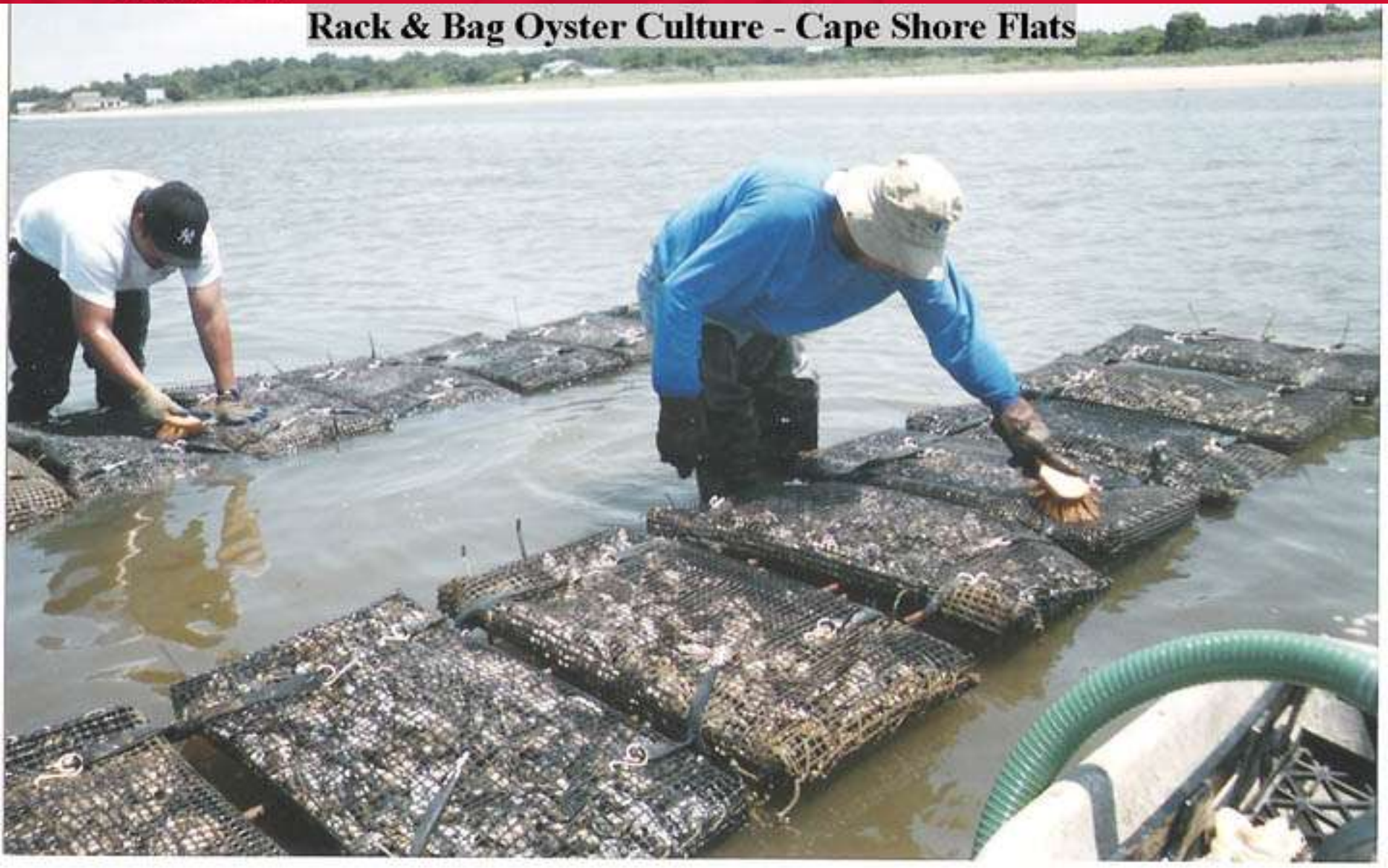
A little on oyster culture

- Rutgers has had a very strong link to NJ oyster industry for over 100 years.
- Early writings by Julius Nelson used typical farming terms when talking about oyster culture/husbandry.
- Severe blows to industry with MSX and Dermo.
- Intensive genetic work by Rutgers Haskin Shellfish Research Lab for over 50 years on oysters.

- State of NJ established Aquaculture Development Zones in Delaware Bay to allow for fish and shellfish culture.
- First hatchery based oyster culture started with Rutgers oysters on the Cape Shore Flats about 10 years ago.
- Now about 8 growers on Delaware Bay side and about 3 in Atlantic Coastal bays.

RUTGERS
New Jersey Agricultural
Experiment Station

Rack & Bag Oyster Culture - Cape Shore Flats



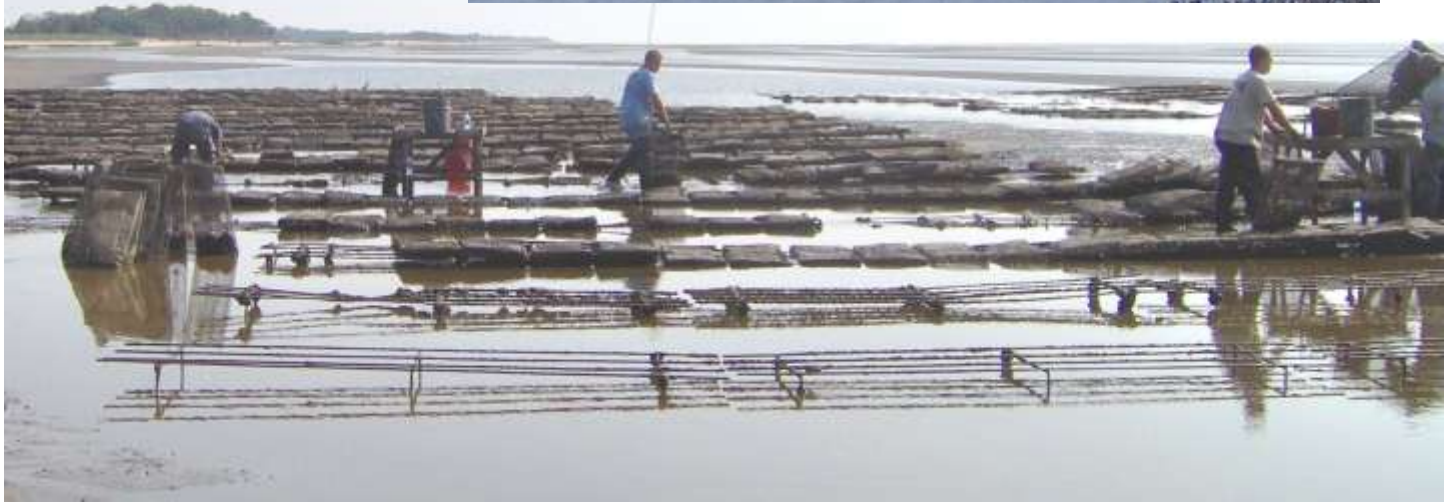
BREEDING RESISTANCE TO MSX

	Native	Imported
1964	75%	70%
1965	55%	65%
1998	ND	70%
1999	10%	100%
2000	5%	100%
2001	0%	53%
2002	0%	40%

- *MSX* percent infection in susceptible oysters imported into Delaware Bay remained high - the parasite was still present.

Disease susceptible and disease resistant oysters after 16 months in Delaware Bay


0/2007



Impediments to hard clam aquaculture

- QPX
- Brown Tide
- Unexplained mortalities in hatcheries
- Lack of new leases (Environmental and Economical Reasons)
- NJDEP Bureau of Shellfisheries provides no industry support except granting leases and is under-funded.

Impediments

- Lack of Research on Immediate Problems and Long Term Work on Production (genetics) Needs.
- No Standard Seed or Market Sizes
- Submerged Aquatic Vegetation (SAV) has become “HOLY”.
- Incomplete Industry Movement on Issues (Marketing, Research, Political Action and Participation)

Perceived problems

- Conflict with recreational fishing/boating….practically none….leases are out of the way….and there is an open comment period for new leases.
- Competition for places for baymen to go clamming….none…all leases are given in non-productive water.
- Conflict with commercial baymen….practically none…because there are practically none left who clam in the wild.
- Issues about theft….practically none…not because of great enforcement, but because most of the baymen are growers now.

Answering questions before they are asked

- Economics….start small with large seed.
- Learn how to grow.
- How much area is needed?....start with 2 to 5 acres.
- Time needed? Never counted. It's done when it's done.
- Supplies and costs….Each screen costs about $75. Seed costs:
  - 6 - 8mm $14.00/1000
  - 8 - 12mm $20.00/1000
  - 12 - 17mm $25.00/1000
  - 12 - 17+mm $30.00/1000

Answering questions before they are asked

- Disease problems….sometimes…it happens, get used to it.
- Competition with natural clam populations …..absolutely not…..may actually enhance stocks.

The Future?

- Industry must work with University and agencies to remain "Green" and show positive impacts of clam farming.
- Industry could work more closely to understand that competition is more external than internal.
- Formation of shellfish growers' cooperatives.
- Infusion of seafood into CSAs.
- Diversify marketing because of competition with Virginia product.

Questions?