

Economic and Marketing Considerations of Freshwater Prawn Production in the U.S.

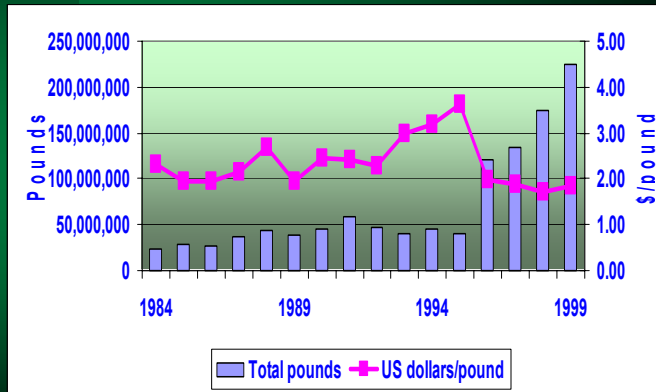


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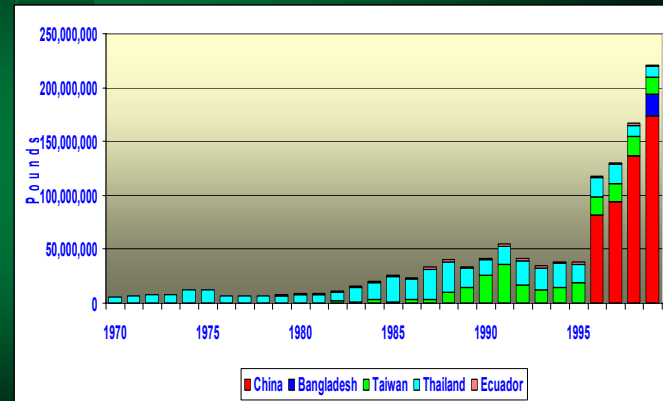
OVERVIEW

- ▼ World production and values
- ▼ Major producing areas and countries
- ▼ US consumption and domestic prices
- ▼ US pond production capacity
- ▼ Marketing options
- ▼ Pond production systems
- ▼ Investment analysis
- ▼ Major constraints facing the pond industry

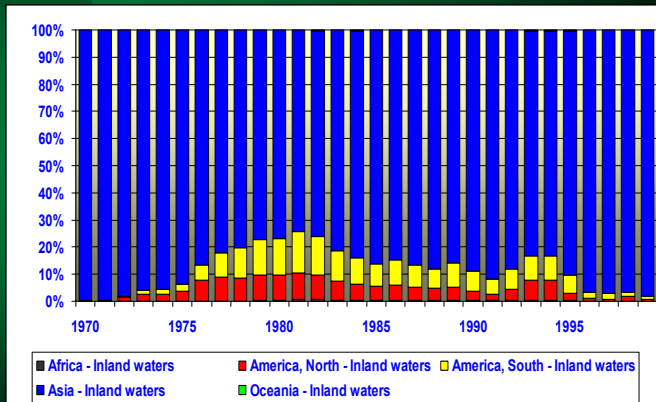
World Giant River Prawn (GRP) Production (FAO)



Top 5 GRP Producing Countries (FAO)



Distribution of World GRP Production by Areas (FAO)

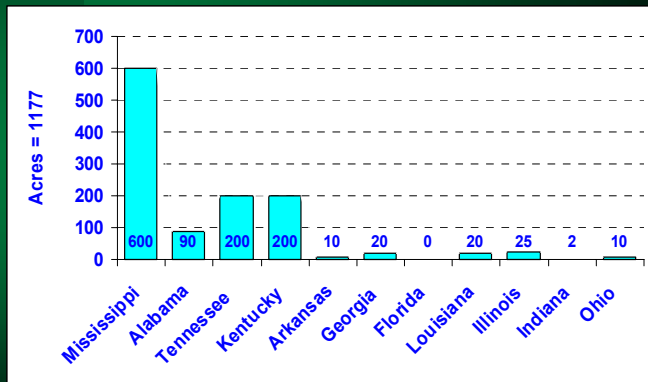


Freshwater Prawn (FWP) Species

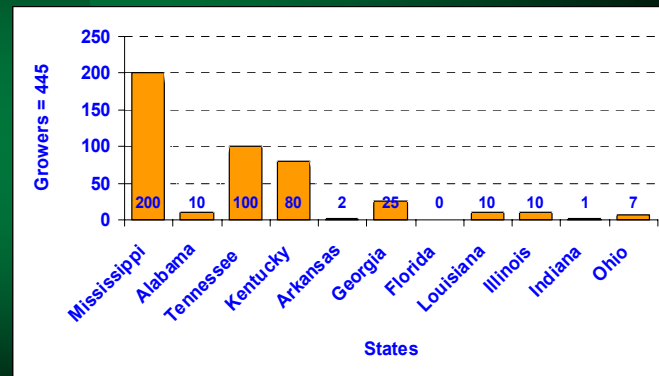
- ▼ Market name
 - Shrimp, Freshwater
- ▼ Scientific name
 - *Macrobrachium rosenbergii*
- ▼ Common name
 - Giant Freshwater Prawn



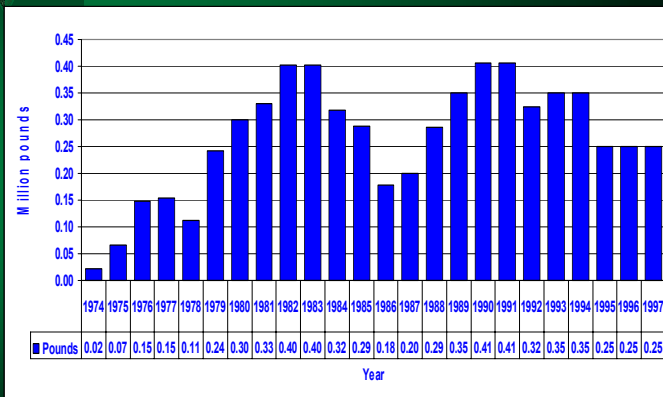
U.S. FWP Acreage, 2002 (USFPSGA)



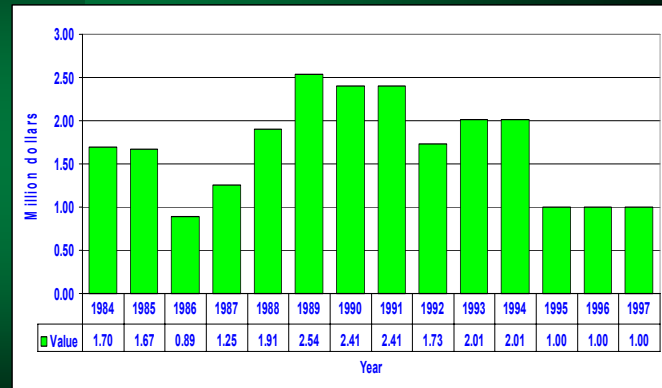
U.S. FWP Growers, 2002 (USFPSGA)



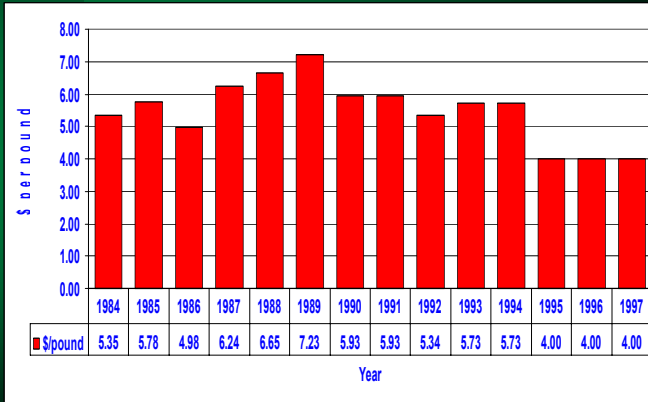
U.S. FWP Production (FAO, NMFS, JSA)



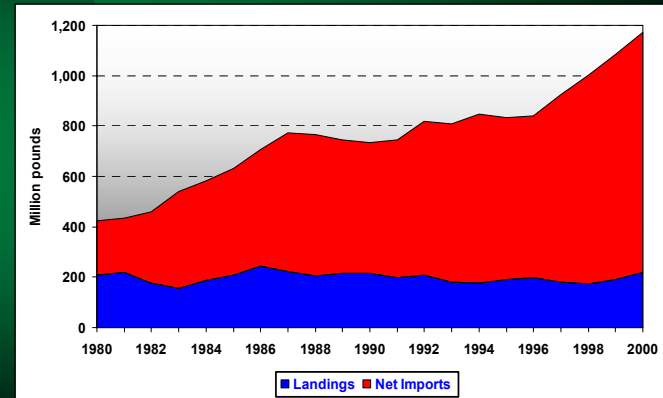
Value of U.S. FWP Production (FAO, NMFS, JSA)



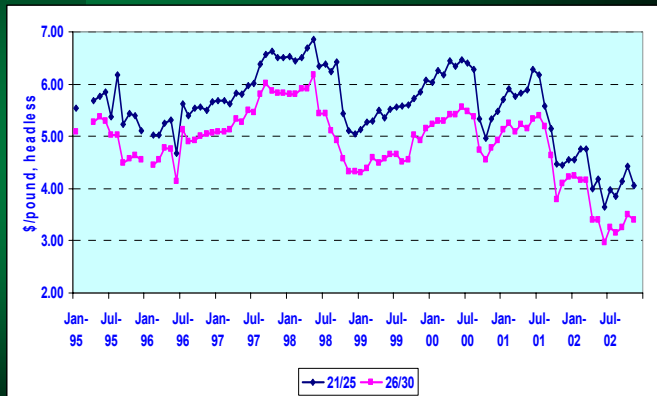
Imputed FWP Final Prices Paid by U.S. Processors and Dealers (FAO, JSA, NMFS)



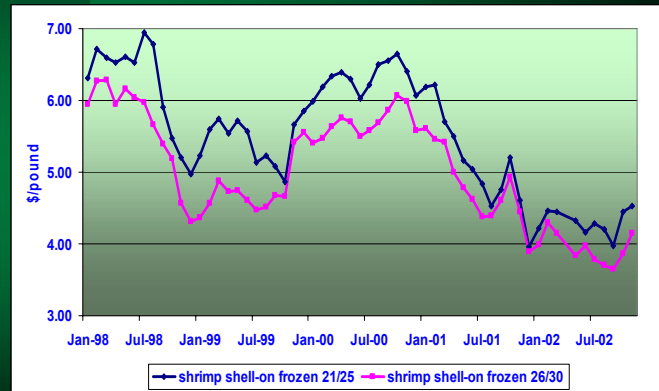
U.S. Shrimp Consumption (NMFS)



Shrimp Ex-vessel Prices Northern Gulf of Mexico, Jan 95-Nov 02 (NMFS)



Imputed U.S. Shrimp Import Prices Jan 98-Nov 02 (NMFS)



FWP Marketing in the U.S. Niche versus Wholesale Commodity Markets

▼ Selling Live FWP

- Costs of production, harvesting, live hauling or shipping
- Hauling or shipping and price risks
- Marketing permit
- Limited market information

▼ Selling Fresh or Frozen FWP

- Costs of production, harvesting, chilling or processing (e.g., IQF), packing and shipping
- Price risks
- Limited market information

FWP Pond Production Systems

- ▼ **Single** vs. multiple enterprises
- ▼ Integrated or **simple** systems
 - Broodstock & Hatchery
 - Nursery
 - **Grow out**
 - Processing & Distribution
- ▼ High, **medium & low** stocking densities
- ▼ Graded vs. ungraded juveniles
- ▼ W/ or **w/out** added substrates
- ▼ Shrimp vs. **catfish** feed

Initial Fixed Investment Requirements



- 61 land acres suitable type, location
- 25 two-water-acre ponds, adequately sloped
- common or single harvesting sumps
- permanent aeration & electrical
- feeding equipment & storage
- water well, pump and plumbing
- weed control equipment
- tractor, truck & storage building

**\$266,704 per farm,
\$10,668 per pond or
\$5,334 per water acre**

Pond Construction Cost



- Earth moving
 - adjacent ponds
 - @ \$0.80/cu yd
- Drainage structure
- Drain channel
- Gravel
- Vegetative cover

**\$60,548 per farm,
\$2,422 per pond or
\$1,211 per water acre**

Risk-Free Pond Grow-out System 20K/A Model Assumptions

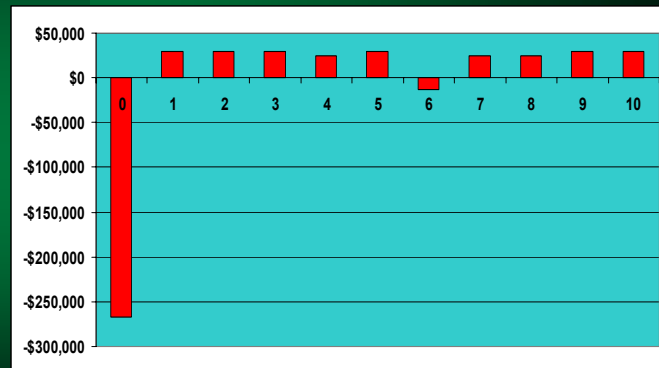
Critical Biological Parameters

Item	Unit	Quantity
Stocking density	PL/acre	20,000.000
Survival rate	%	75.000%
Desired harvest count	#/lb	12.00
Stocking size	g	0.15
Desired harvest size	g	37.83
Gross feed conversion		2.50

Critical Economic Parameters

Item	Unit	Quantity
Farm-gate price, heads-on	\$/lb	3.000
Processing yield, headless	%	45.000%
Number of production ponds	#/farm	25.000
Size of production ponds	acre/pond	2.000
Experimental-commercial yield gap	%	92.000%
Capital outlay index	%	100.000%

Risk-Free Pond Grow-out System 20K/A Model 10-Year Net Cash Flow



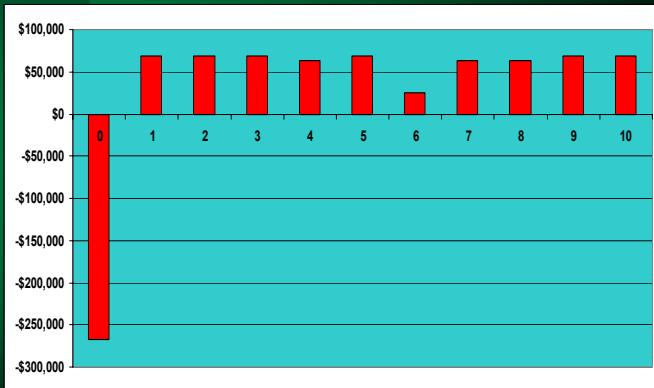
Risk-Free Pond Grow-out System 20K/A Model Results

Model Description		
Item	Unit	Quantity
Number of crops	#/yr	1.000
Operating capital	\$/yr	124,509.649
Initial fixed investment	\$	266,703.500
Juveniles stocked	M/yr	1.000
Average shrimp production	lb/acre	1,150.000
Total shrimp production	lb/yr	57,500.000
Feed required	t/yr	71.875
Model Results		
Item	Unit	Quantity
Net returns above specified expenses	\$/yr	5,521.432
Payback period	yr	9.151
Net Present Value	\$	-109,056.709
Internal Rate of Return	%	-2.365%

Risk-Free Pond Grow-out System 14K/A Model Assumptions

Critical Biological Parameters		
Item	Unit	Quantity
Stocking density	PL/acre	14,000.000
Survival rate	%	75.000%
Desired harvest count	#/lb	10.00
Stocking size	g	0.15
Desired harvest size	g	45.40
Gross feed conversion		2.50
Critical Economic Parameters		
Item	Unit	Quantity
Farm-gate price, heads-on	\$/lb	4.000
Processing yield, headless	%	45.000%
Number of production ponds	#/farm	25.000
Size of production ponds	acre/pond	2.000
Experimental-commercial yield gap	%	92.000%
Capital outlay index	%	100.000%

Risk-Free Pond Grow-out System 14K/A Model 10-Year Net Cash Flow



Risk-Free Pond Grow-out System 14K/A Model Results

Model Description		
Item	Unit	Quantity
Number of crops	#/yr	1.000
Operating capital	\$/yr	106,142.761
Initial fixed investment	\$	266,703.500
Juveniles stocked	M/yr	0.700
Average shrimp production	lb/acre	966.000
Total shrimp production	lb/yr	48,300.000
Feed required	t/yr	60.375
Model Results		
Item	Unit	Quantity
Net Returns Above Specified Expenses	\$/yr	44,588.320
Payback period	yr	3.910
Net Present Value	\$	109,169.759
Internal Rate of Return	%	20.003%



CONSTRAINTS FACING THE POND GROW-OUT INDUSTRY

- ▼ Lack of local nurseries
 - Less than half a dozen nurseries nationwide
 - High price for nursed juveniles
 - Stress during transport to distant sites
 - Need for on-site nursery facilities
- ▼ Low survival in commercial pond grow-out operations
 - Relatively low production, less than 800 lb/A
 - One-crop, limited grow-out season
- ▼ Insufficient processing, transport & marketing infrastructure
 - Except in traditional shrimping areas
 - High transport mortality of live FWP
- ▼ Competition from imported farm raised shrimp
 - Increasing domestic market share