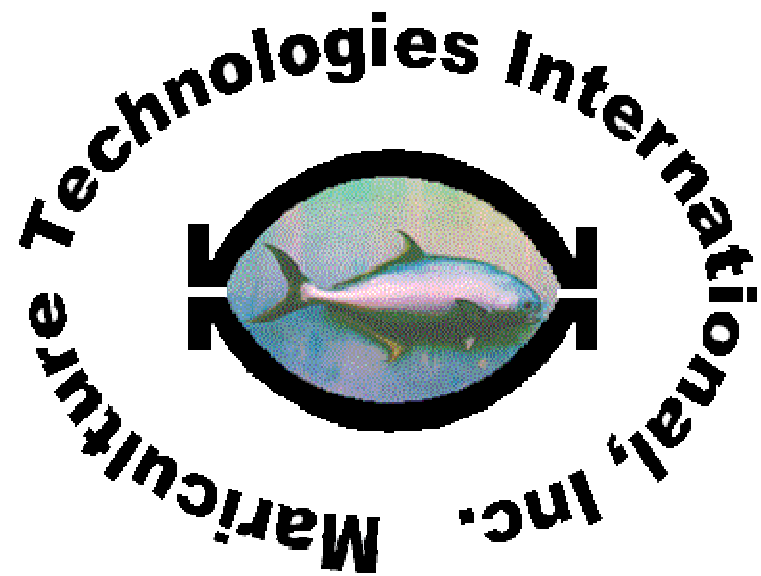




Pompano Farming: Investment Criteria and Analysis.

John F. Coburn*, Michael F. McMaster and Thomas C. Kloth
Mariculture Technologies International, Inc.
Oak Hill, Florida

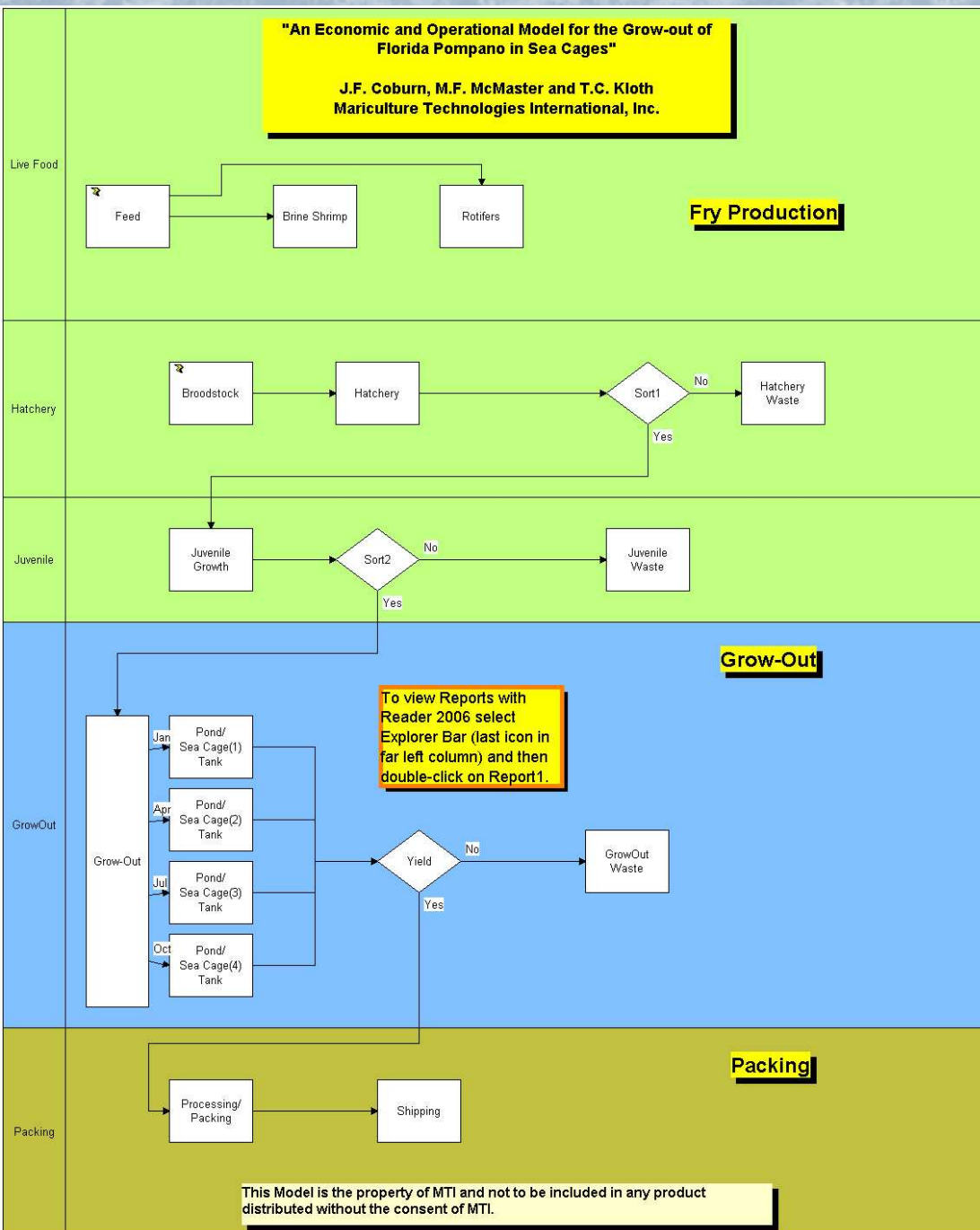
Aquaculture America 2008
Orlando, Florida
February 11, 2008



MTI - Oak Hill, Florida

- Third Generation Pompano Fry in Spring 2008
- Market-size Second Generation in Company Pond
- World Aquaculture Magazine, December 2007
- WWW.PompanoFarms.com

Pompano Process



- World Aquaculture Society Meeting 2007, San Antonio.
- 3rd International Sustainable Marine Fish Conference, 2007, HBOI, Fort Pierce

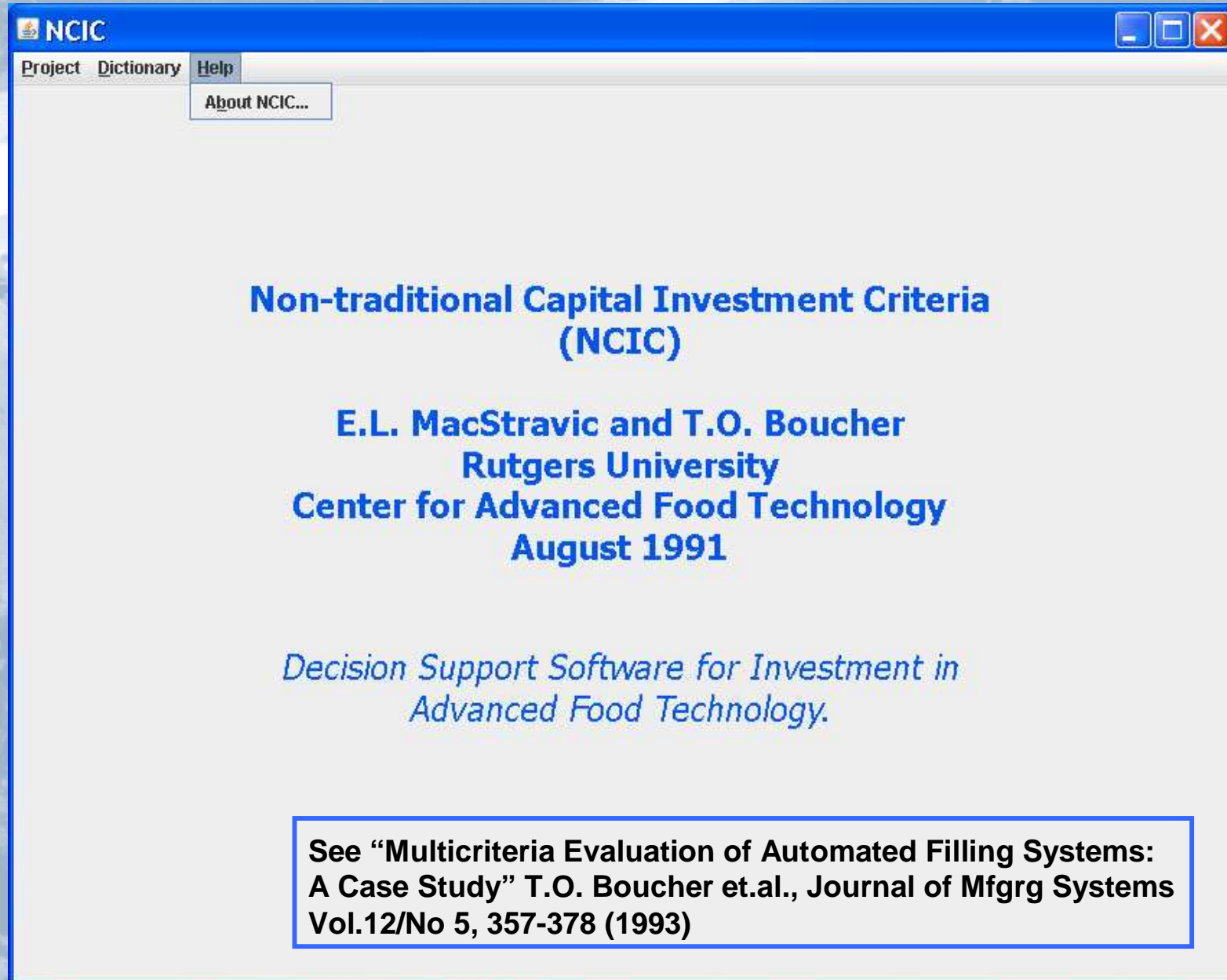
Alternate Grow-out (\$ per 0.5kg Pompano)

	RAS High Density	Pond Low Density	Sea Cage Low Density
	60 fish/M³ 100,000 fish	1.5 fish/M³ 400,000 fish	33 fish/M³ 400,000 fish
Feed (FCR 2.0)	\$ 0.77 (12%)	\$ 0.82 (29%)	\$ 0.82 (31%)
Pompano Fry	\$ 1.50 (23%)		
Labor	\$ 0.79 (12%)	\$ 0.87 (31%)	\$ 0.87 (32%)
Equipment	\$ 1.67 (26%)	\$ 0.51 (18%)	\$ 0.82 (31%)
Electricity	\$ 1.79 (27%)	\$ 0.60 (22%)	\$ 0.16 (6%)
Total	\$ 6.52	\$ 2.80	\$ 2.67

Capital Investment Criteria

- **93% of U.S. Companies surveyed reported consideration of Strategic Factors in Investment Decisions.**
- **57% report that Strategic Factors are more important than Financial Factors.**
- **45% report that they will accept an Investment with positive Strategic Factors even if it has a negative financial return.**

NCIC Version 4.0



Criteria Dictionary

Mixed

Project Edit Alternative Dictionary Help

SEA CAGE EARTHEN POND RAS TANKS

SEA CAGE

- ANNUAL DOLLARS
 - Add new Criteria
 - PRODUCT COST SAVINGS
- PRODUCTION
 - Add new Criteria
 - WASTE TREATMENT
 - OPERATING PERMITS
 - CROP LOSS IMPACT
 - LIFE SUPPORT STABILITY
- PERSONNEL
 - Add new Criteria
 - ENGINEERING SKILLS
 - BIOLOGY SKILLS
- STRATEGIC
 - Add new Criteria
 - DEMAND RESPONSE
 - MARKET FIT
 - QUALITY ENHANCEMENT

Dictionary of Criterion

Choose a Criterion

- BIOLOGY SKILLS
- CROP LOSS IMPACT
- DEMAND RESPONSE
- ENGINEERING SKILLS
- LIFE SUPPORT STABILITY
- MARKET FIT
- OPERATING PERMITS
- PRODUCT COST SAVINGS

Add Edit Delete

Criterion Name: PRODUCT COST SAVINGS

Criterion Unit: Annual Dollars

Description: The annual reduction in cost of the product when replacing Commercial Fishing (\$5.00/lb) with the alternative (100,000 lbs/yr).

Close

Dictionary of Criterion

Choose a Criterion

- DEMAND RESPONSE
- ENGINEERING SKILLS
- LIFE SUPPORT STABILITY
- MARKET FIT
- OPERATING PERMITS
- PRODUCT COST SAVINGS
- QUALITY ENHANCEMENT
- WASTE TREATMENT

Criterion Name: QUALITY ENHANCEMENT

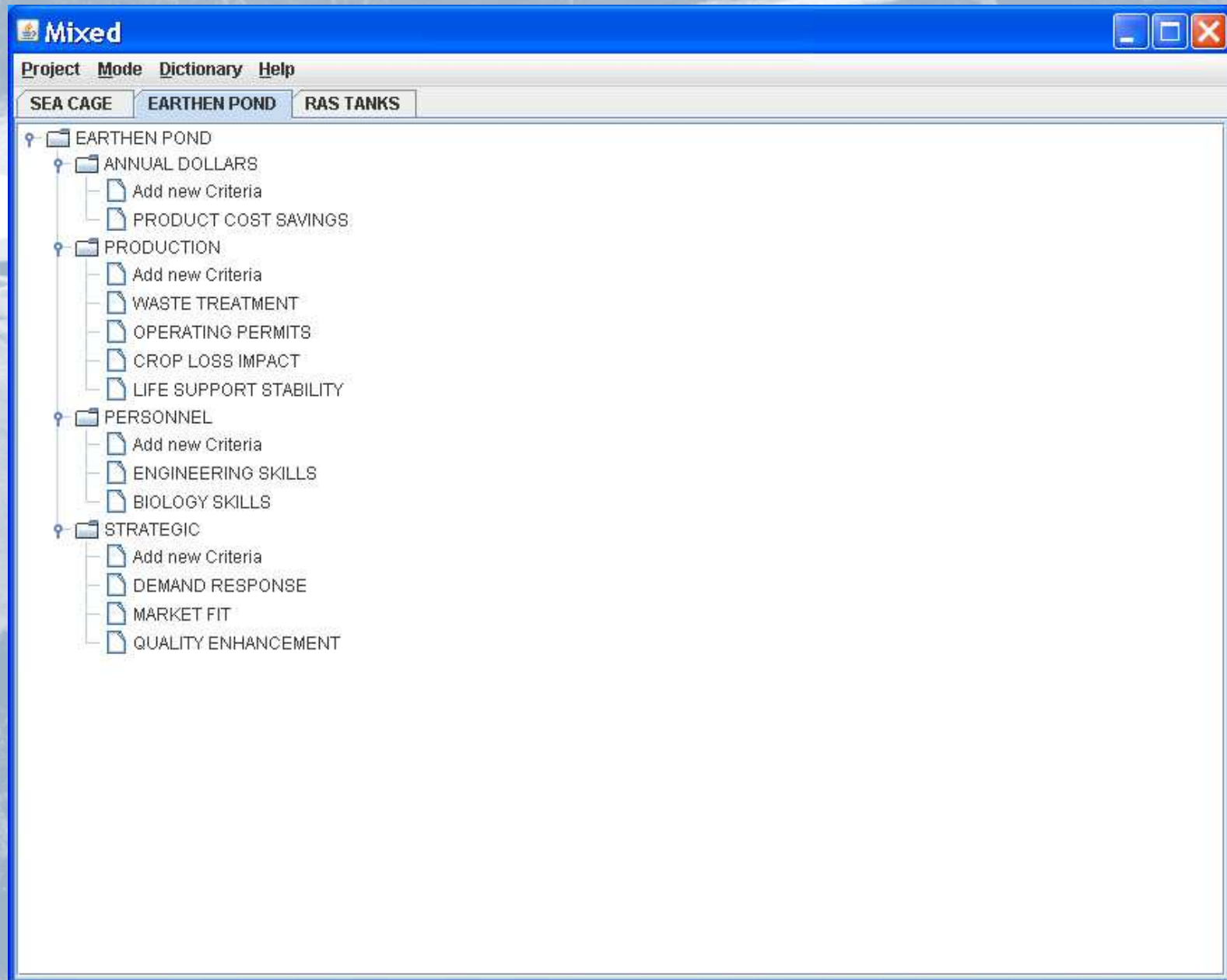
Criterion Unit: Premium Annual Dollars

Description: Potential Premiums for Quality Enhancement to the product. Requires that grow-out of 3rd

See:

www.MaricultureTechnology.com/NCICDictionary.htm

Analytic Hierarchy Process



Pair-wise Comparison Matrix

Mixed

Project Mode Dictionary Help

SEA CAGE EARTHEN POND RAS TANKS

PRODUCTION

	A	B	C	D	E
A - ANNUAL DOLLARS	1	9.85	9.85	8	9.85
B - OPERATING PERMITS	0.10152	1	1.5	0.5	0.125
C - WASTE TREATMENT	0.10152	0.66667	1	0.25	1
D - LIFE SUPPORT STABILITY	0.125	2	4	1	0.4444
E - CROP LOSS IMPACT	0.10152	8	1	2.25023	1

Consistency Ratio: 0.1797

PERSONNEL

	A	B	C
A - ANNUAL DOLLARS	1	9.99	9.99
B - ENGINEERING SKILLS	0.1001	1	1
C - BIOLOGY SKILLS	0.1001	1	1

Consistency Ratio: -0

STRATEGIC

	A	B	C	D
A - ANNUAL DOLLARS	1	3	5	9.85
B - QUALITY ENHANCEMENT	0.33333	1	2	3
C - MARKET FIT	0.2	0.5	1	2
D - DEMAND RESPONSE	0.10152	0.33333	0.5	1

Consistency Ratio: 0.00288

By how much do you prefer the benefit of 270000.0 premium annual dollars of quality enhancement to the benefit of 75.0 percent concurrence of market fit?

Check CR Save Tables Cancel

Ranking of the Alternatives

Mixed

Project Mode Dictionary Help

Consistency Check		Returns to Scale		Rank Alternative		Present Worth	
annual dollars	SEA CAGE		EARTHEN POND		RAS TANKS		
	product cost savings	932000	product cost savings	880000	product cost savings	-152000	
	SubTotal	932000	SubTotal	880000	SubTotal	-152000	
production	waste treatment	-41756.63	waste treatment	-73595.92	waste treatment	-16918.85	
	operating permits	-143127.45	operating permits	-59812.37	operating permits	-16540.73	
	crop loss impact	-459939.96	crop loss impact	-193018.1	crop loss impact	-35780.46	
	life support stability	163765.59	life support stability	126929.48	life support stability	15089.33	
	SubTotal	-481058.44	SubTotal	-199496.91	SubTotal	-54150.71	
personnel	engineering skills	-93293.29	engineering skills	-88088.09	engineering skills	-50664.98	
	biology skills	-93293.29	biology skills	-88088.09	biology skills	-76002.53	
	SubTotal	-186586.59	SubTotal	-176176.18	SubTotal	-126667.51	
strategic	demand response	140999.58	demand response	91178.75	demand response	97466.67	
	market fit	103556.72	market fit	169173.15	market fit	72839.41	
	quality enhancement	115245.24	quality enhancement	300957.81	quality enhancement	315984.9	
	SubTotal	359801.54	SubTotal	561309.71	SubTotal	486290.98	
Total		624156.51		1065636.62		153472.77	

Net Present Value

Mixed

Project Mode Dictionary Help

	Consistency Check	Returns to Scale	Rank Alternative	Present Worth							
SEA CAGE	1	2	3	4	5	6	7	8	9	10	Salvage Value
Benefit	932001	932001	932001	932001	932001	932001	932001	932001	932001	932001	
NCIC Benefit	624157.0	624157.0	624157.0	624157.0	624157.0	624157.0	624157.0	624157.0	624157.0	624157.0	
Investment											
Depreciation	0	0	0	0	0	0	0	0	0	0	
EARTHEN PO...											
Benefit	880000	880000	880000	880000	880000	880000	880000	880000	880000	880000	
NCIC Benefit	1065637.0	1065637.0	1065637.0	1065637.0	1065637.0	1065637.0	1065637.0	1065637.0	1065637.0	1065637.0	
Investment											
Depreciation	0	0	0	0	0	0	0	0	0	0	
RAS TANKS											
Benefit	-152000	-152000	-152000	-152000	-152000	-152000	-152000	-152000	-152000	-152000	
NCIC Benefit	153473.0	153473.0	153473.0	153473.0	153473.0	153473.0	153473.0	153473.0	153473.0	153473.0	
Investment											
Depreciation	0	0	0	0	0	0	0	0	0	0	

Depreciation Years

☐ 3
☒ 5
☐ 7
☐ 10

Depreciation Method

☐ User Input
☒ Straight Line
☐ Ignore

Project life : 10 years

Tax Rate (%): 38

Interest Rate (%): 12

	SEA CAGE	EARTHEN POND	RAS TANKS
Present Value	3264928	3082762	-532477
Present Value + NCIC	2186508	3733074	537637

Calculate

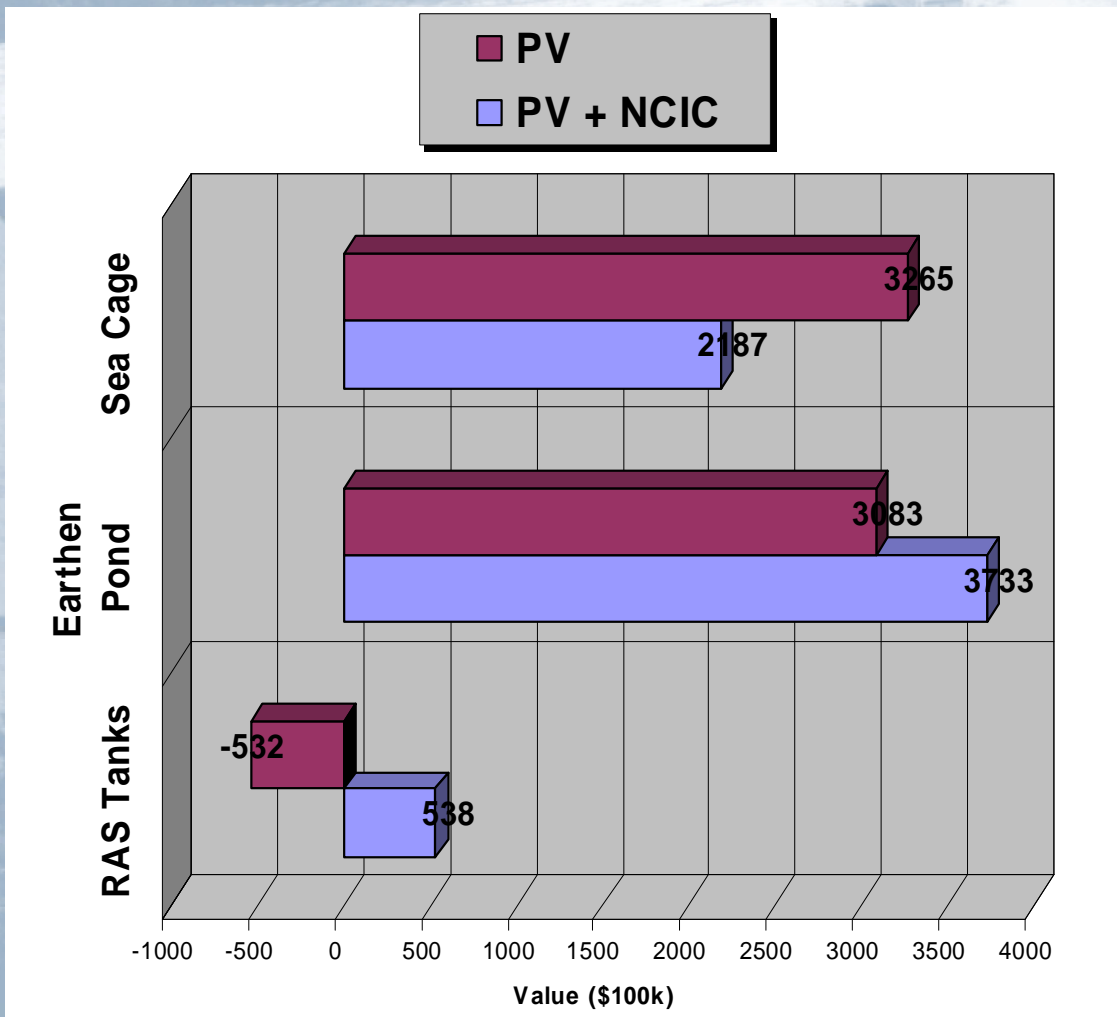
Conclusions

1. Conventional PVs are similar for Cage and Pond.

2. Cage is penalized in NCIC Production Criteria.

3. Pond and RAS benefit considerably in Strategic Criteria.

4. Given current expense, only with Strategic Criteria is RAS PV positive.





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