

**HB**

**208**

**Cover Sheet for Fiscal Notes for HB208**

Year	02	03	04	05	06	07	08
DEC	0	0	0	0	0	0	0
DNR	98.3	123.9	0	0	0	0	0
F&G/Com Fish	90.0	*	*	*	*	*	*
F&G/Habitat	72.5	36.5	*	*	*	*	*
<b>TOTAL</b>	260.8	159.4					*

DNR estimates \$55,000 revenue within 3-4 years

\*may be additional long-term costs

Note: On 4/16/02 F&G notified Rep. Scalzi that the ComFish note would be lowered by approximately \$50,000. Fiscal note forthcoming.

# FISCAL NOTE

STATE OF ALASKA  
2002 LEGISLATIVE SESSION

Fiscal Note Number: 1  
Bill Version: CSHB 208(FSH)  
(H) Publish Date: 3/6/02

Revision Date/Time (Note if correction): \_\_\_\_\_ Dept. Affected: Environmental Conservation  
Title An Act Relating to Aquatic Farming of Shellfish BRU Environmental Health  
Component Food Safety and Sanitation  
Sponsor Representative Scalzi  
Requester House Fisheries Component No. 2343

### Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
Personal Services	0.0	0.0	0.0	0.0	0.0	0.0
Travel	0.0	0.0	0.0	0.0	0.0	0.0
Contractual	0.0	0.0	0.0	0.0	0.0	0.0
Supplies	0.0	0.0	0.0	0.0	0.0	0.0
Equipment	0.0	0.0	0.0	0.0	0.0	0.0
Land & Structures	0.0	0.0	0.0	0.0	0.0	0.0
Grants & Claims	0.0	0.0	0.0	0.0	0.0	0.0
Miscellaneous	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL OPERATING</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

CAPITAL EXPENDITURES						
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CHANGE IN REVENUES ( )						
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### FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts	0.0	0.0	0.0	0.0	0.0	0.0
1003 GF Match	0.0	0.0	0.0	0.0	0.0	0.0
1004 GF	0.0	0.0	0.0	0.0	0.0	0.0
1005 GF/Program Receipts	0.0	0.0	0.0	0.0	0.0	0.0
1037 GF/Mental Health	0.0	0.0	0.0	0.0	0.0	0.0
Other (Specify Type-Do not abbreviate)	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

Estimate of any current year (FY2002) cost: 0.0

Check this box (X) if funding for this bill is included in the Governor's FY 2003 budget proposal:

### POSITIONS

Full-time	0	0	0	0	0	0
Part-time	0	0	0	0	0	0
Temporary	0	0	0	0	0	0

### ANALYSIS: (Attach a separate page if necessary)

This fiscal note was developed using information from testimony on the Senate companion bill (SB 141). During this testimony, it became clear that "suitable" did not mean already certified as a growing area under the National Shellfish Sanitation Program (NSSP), therefore the department does not expect any increased costs during the years covered by this fiscal note. Certification under the NSSP normally takes place shortly before commercial harvesting begins. Currently the industry pays for part of the cost to certify growing areas and we would expect that to be the case if this bill passes. However, even with industry support for some of the certification costs, there will be an increased cost to the department when any of the growing sites permitted under this legislation need to be certified under the NSSP.

Prepared by: Janice Adair, Director Phone (907) 269-7644  
Division Division of Environmental Health Date/Time 2/28/02 3:49 PM  
Approved by: Kurt Fredriksson Deputy Commissioner Date 2/28/2002  
Agency Department of Environmental Conservation

# FISCAL NOTE

STATE OF ALASKA  
2002 LEGISLATIVE SESSION

Fiscal Note Number: \_\_\_\_\_  
Bill Version: CSHB 208(RES)

( ) Publish Date: \_\_\_\_\_

Revision Date/Time (Note if correction): 3/12/2002 Dept. Affected: Natural Resources  
Title: Aquatic Farms for Shellfish BRU: Minerals, Land & Water Dev  
Component: Claims, Permits and Leases

Sponsor: Rep. SCALZI, Chenault, Lancaster, Harris, Hudson, James  
Requester: (H) FIN Component Number: 2460

**Expenditures/Revenues** (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
Personal Services	82.8	110.4				
Travel	5.0	10.0				
Contractual	2.5	2.5				
Supplies	1.0	1.0				
Equipment	7.0	0.0				
Land & Structures						
Grants & Claims						
Miscellaneous						
<b>TOTAL OPERATING</b>	<b>98.3</b>	<b>123.9</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

CAPITAL EXPENDITURES						
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CHANGE IN REVENUES ( )	0.0	13.9	27.8	41.7	55.5	55.5
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**FUND SOURCE** (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF	98.3	123.9				
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type)						
<b>TOTAL</b>	<b>98.3</b>	<b>123.9</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

Estimate of any current year (FY2002) cost: none  
Check this box (X) if funding for this bill is included in the Governor's FY2003 budget proposal:

**POSITIONS**

Full-time	2	2				
Part-time						
Temporary						

**ANALYSIS:** (Attach a separate page if necessary)  
This bill creates a one-time disposal program of at least 90 aquatic farmsites and requires DNR to condition leases for sites that culture wild stocks of indigenous shellfish to restore the wild stock upon termination or expiration of the lease to the population level that existed prior to issuance of the lease. It provides an attempt at a new type of mariculture program -- one that is modeled on DNR's existing land disposal program where state agencies do all of the up-front work and an applicant bids for a site. DNR and DF&G would solicit nominations; pick the areas and sites; prepare best interest finding and coast zone consistency, then put the sites up for bid. With respect to the DNR lease, the applicant could, in the best of circumstances, bid for the site, submit an operating plan and obtain the site with little or no additional work by the agency. This is very different than the 9-month long process currently required of an applicant. As the agencies do the work up front, significant up-front expenses are necessary.  
[CONT.]

Prepared by: Bob Loeffler Phone 269-8600  
Division: Mining, Land and Water Date/Time 12-Mar-02  
Approved by: Pat Pourchot Date 12-Mar-02  
Agency: Natural Resources

**ANALYSIS: (continued)**

DNR's current aquatic farm program, which is very different from the procedures envisioned in this bill, operates with one employee and brings in approximately \$48.0 a year. It would continue to operate while this bill is implemented.

DNR's current mariculture staff consists of one person who is working at full capacity with the current program. Implementing the bill would require a new unit consisting of two employees to pick sites and complete the work.

Total estimated costs for DNR's portion of a one-time mariculture disposal: \$222,200, over two fiscal years.

Changes in revenue (annually): \$13,900+ for the first year, eventually reaching \$55,500+ over a period of 3-4 years.

It is unlikely that the market could absorb 90 aquatic farmsites at once. We come to this conclusion because the average number of applications received during an opening is approximately 15 to 20. For purposes of projecting revenue, we estimate that one-quarter of the sites, or 22, would be taken the first year, and the remainder would be taken "over the counter" over the subsequent three years. Rent for 22 three-acre sites would total approximately \$13,900. If half of the 90 sites, or 45, are taken initially, the possible annual revenue could be \$27,800. The total annual revenue after 90 sites are taken would be \$55,600. This estimate is based on an average 3-acre suspended culture site x 60 sites = \$33,000 and an average of 5-acre on-bottom culture site x 30 sites = \$22,500. (As of August 2, 2001, the aquatic farm lease fee was adjusted to \$350 for the first acre, plus \$100 for each additional acre.)

Personal Services New Position Detail

DRAFT

Department of Natural Resources

Scenario: DNR FY2003 Fiscal Notes - for Positions (2481)  
 Component: Claims, Permits & Leases (2460)  
 BRU Name: Minerals, Land, and Water Development (330)

PCN	Job Class Title	Time Status	Retire Code	Barg Unit	Location	Salary Sched	Range & Steps	Budgeted Months	Split / Annual Count Salary	COLA	Premium Pay	Annual Benefits	Total Costs
10-#075	Natural Resource Mgr I	FT	A	GG	Anchorage	2A	18 C	9.0	35,154	565	0	12,959	48,678
Justification:							Funding Detail:						
HB208							1004 General Fund Receipts						
											100.00%	48,678	
											Total Funding:	100.00%	48,678
10-#077	Natural Resource Tech II	FT	A	GG	Anchorage	2A	12 C	9.0	23,247	373	0	10,519	34,139
Justification:							Funding Detail:						
HB208							1004 General Fund Receipts						
											100.00%	34,139	
											Total Funding:	100.00%	34,139

Component Summary:

Total New Positions: 2

Fund Description	Fund Percent	Fund Amount
1004 General Fund Receipts	100.00%	82,817
Total Funding:	100.00%	82,817

Note: If a position is split, an asterisk (\*) will appear in the Split/Count column. If the split position is also counted in the component, two asterisks (\*\*) will appear in this column.

# FISCAL NOTE

**STATE OF ALASKA**  
**2002 LEGISLATIVE SESSION**

Fiscal Note Number: 3  
 Bill Version: CSHB 208(RES)  
 (H) Publish Date: 3/13/02

Revision Date/Time (Note if correction): \_\_\_\_\_ Dept. Affected: Fish and Game  
 Title Aquatic Farms For Shellfish BRU Commercial Fisheries  
 Component Fisheries Development  
 Sponsor Representative Scalzi  
 Requester House Resources Component No. 1942

**Expenditures/Revenues** (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
Personal Services	40.0	25.0	*	*	*	*
Travel	10.0	5.0	*	*	*	*
Contractual	30.0	10.0	*	*	*	*
Supplies	5.0	3.0	*	*	*	*
Equipment	5.0	2.0	*	*	*	*
Land & Structures						
Grants & Claims						
Miscellaneous						
<b>TOTAL OPERATING</b>	<b>90.0</b>	<b>45.0</b>	*	*	*	*

<b>CAPITAL EXPENDITURES</b>						
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<b>CHANGE IN REVENUES ( )</b>						
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**FUND SOURCE** (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF	90.0	45.0				
1005 GF/Program Receipts						
1037 GF/Mental Health						
<b>TOTAL</b>	<b>90.0</b>	<b>45.0</b>	*	*	*	*

Estimate of any current year (FY2002) cost: 0.0

Check this box (X) if funding for this bill is included in the Governor's FY 2003 budget proposal:

**POSITIONS**

Full-time					
Part-time					
Temporary	2				

**ANALYSIS:** (Attach a separate page if necessary)

ADF&G is required to provide consultation to DNR regarding the suitability of various sites before they are offered for lease. The Mariculture Program Leader and Assistant will lead and coordinate, in conjunction with industry nominations, the selection of sites to survey as well as field activities with ADF&G regional staff, and staff from other participating agencies. To accomplish site surveys for suitability, ADF&G will conduct dive surveys on potential sites. Personnel costs include funding for a seasonal Fisheries Biologist I, certified divers associated with dive surveys and inspections at proposed aquatic farm sites, and laboratory testing of samples taken from the sites. Travel costs include per diem and transport of department staff, including certified divers, to proposed and existing farm sites. Contractual costs include vessel time to conduct surveys and

Prepared by: Doug Mecum Phone 465-6100  
 Division: Director Date/Time 3/5/02 3:15 PM  
 Approved by: Gordy Williams for Commissioner Frank Rue Date 3/5/2002  
 Agency: Fish and Game

FISCAL NOTE

STATE OF ALASKA  
2002 LEGISLATIVE SESSION

BILL NO. CSHB 208 (RES) - FN#3

ANALYSIS CONTINUATION

Inspections of proposed farm sites, and laboratory work for the analysis of water quality samples and PSP and Domolc Acid analysis for growing area certifications. Supplies include materials necessary for dive surveys, scientific supplies and data processing supplies, and assistance with regional mariculture plan development.

Additional time and funding needed to complete the work associated with identification of new areas in FY 2004 are roughly estimated at 50% of the FY 2003 costs.

\* There will also be increasing costs associated with any large increases in mariculture permitting and support. Many services, such as water quality and product testing, currently provided at little or no cost to aquatic farm operators by various state facilities, resources, and personnel, will probably not be fiscally possible as the number of mariculture operations increases, unless funding is provided. These are essential to meet statutory requirements. Since such impact is completely contingent on the number of new farms and the size of the farms, these costs are impossible to estimate. This fiscal note merely identifies the likelihood of additional long-term costs.

NOTE: ADFG Division of Habitat and Restoration has also submitted a fiscal note.

# FISCAL NOTE

**STATE OF ALASKA**  
**2002 LEGISLATIVE SESSION**

Fiscal Note Number: \_\_\_\_\_  
 Bill Version: CSHB 208 (RES)  
 () Publish Date: \_\_\_\_\_

Revision Date/Time (Note if correction): 4/19/2002 Dept. Affected: Fish and Game  
 Title Aquatic Farms For Shellfish BRU Commercial Fisheries  
 Component Fisheries Development  
 Sponsor Representative Scalzi  
 Requester Senate Resources Component No. 1942

**Expenditures/Revenues** (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
Personal Services	40.0	25.0	*	*	*	*
Travel	5.0	5.0	*	*	*	*
Contractual			*	*	*	*
Supplies	5.0	3.0	*	*	*	*
Equipment		2.0	*	*	*	*
Land & Structures						
Grants & Claims						
Miscellaneous						
<b>TOTAL OPERATING</b>	<b>50.0</b>	<b>35.0</b>	*	*	*	*

<b>CAPITAL EXPENDITURES</b>						
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<b>CHANGE IN REVENUES ( )</b>						
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**FUND SOURCE** (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF	50.0	35.0				
1005 GF/Program Receipts						
1037 GF/Mental Health						
<b>TOTAL</b>	<b>50.0</b>	<b>35.0</b>	*	*	*	*

Estimate of any current year (FY2002) cost: 0.0

Check this box (X) if funding for this bill is included in the Governor's FY 2003 budget proposal:

**POSITIONS**

Full-time						
Part-time						
Temporary	2					

**ANALYSIS:** (Attach a separate page if necessary)

ADF&G is required to provide consultation to DNR regarding the suitability of various sites before they are offered for lease. The Mariculture Program Leader and Assistant will lead and coordinate, in conjunction with industry nominations, the selection of sites to survey as well as field activities with ADF&G regional staff, and staff from other participating agencies. To accomplish site surveys for suitability, ADF&G will conduct dive surveys on potential sites. Personnel costs include funding for a seasonal Fisheries Biologist I, certified divers associated with dive surveys and inspections at proposed aquatic farm sites, and laboratory testing of samples taken from the sites. Travel costs include per diem and transport of department staff, including certified divers, to proposed and existing farm sites.

{Continued}

Prepared by: Doug Mecum Phone 465-6100  
 Division: Director Date/Time 4/19/02 11:00 AM  
 Approved by: Gordy Williams for Commissioner Frank Rue Date 4/21/2002  
 Agency: Fish and Game

**FISCAL NOTE**

**STATE OF ALASKA  
2002 LEGISLATIVE SESSION**

**BILL NO. CS HB 208 (RES)**

**ANALYSIS CONTINUATION**

Supplies include materials necessary for dive surveys, scientific supplies and data processing, and assistance with regional mariculture plan development.

Additional time and funding needed to complete the work associated with identification of new areas in FY 2004 are roughly estimated at 50% of the FY 2003 costs.

\* There will also be increasing costs associated with any large increases in mariculture permitting and support. Many services, such as water quality and product testing, currently provided at little or no cost to aquatic farm operators by various state facilities, resources, and personnel, will probably not be fiscally possible as the number of mariculture operations increases unless funding is provided. These are essential to meet statutory requirements. Since such impact is completely contingent on the number of new farms and the size of the farms, these costs are impossible to estimate. This fiscal note merely identifies the likelihood of additional long-term costs.

NOTE: ADFG Division of Habitat and Restoration has also submitted a fiscal note.

# FISCAL NOTE

**STATE OF ALASKA**  
**2002 LEGISLATIVE SESSION**

Fiscal Note Number: 4  
 Bill Version: CSHB 208(RES)  
 (H) Publish Date: 3/13/02

Revision Date/Time (Note if correction): \_\_\_\_\_ Dept. Affected: ADF&G  
 Title Aquatic farms for shellfish BRU Habitat and Restoration  
 Component Habitat  
 Sponsor Representative Scalzi  
 Requester House Resources Component No. 486

**Expenditures/Revenues (Thousands of Dollars)**

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
Personal Services	65.5	33.0	*	*	*	*
Travel	5.0	2.5	*	*	*	*
Contractual	2.0	1.0				
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
<b>TOTAL OPERATING</b>	<b>72.5</b>	<b>36.5</b>	*	*	*	*

CAPITAL EXPENDITURES						
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CHANGE IN REVENUES ( )						
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**FUND SOURCE (Thousands of Dollars)**

1002 Federal Receipts						
1003 GF Match						
1004 GF	72.5	36.5	*	*	*	*
1005 GF/Program Receipts						
1037 GF/Mental Health						
Interagency Receipts from DNR						
<b>TOTAL</b>	<b>72.5</b>	<b>36.5</b>	*	*	*	*

Estimate of any current year (FY2002) cost: 0.0  
 Check this box (X) if funding for this bill is included in the Governor's FY 2003 budget proposal:

**POSITIONS**

Full-time	1				
Part-time					
Temporary	2				

**ANALYSIS:** (Attach a separate page if necessary)

CSHB 208 (FSH) creates a one-time offering of at least 90 aquatic farm sites for lease.

In addition to the requirements in the bill, the requirements of other State and Federal statutes may affect sites that could be offered. These may include, but are not limited to, the Alaska Coastal Management Plan, District Plans, legislatively designated areas statutes and regulations, and 16.40.100-199 which requires that the physical and biological characteristics of a site be suitable for shellfish farming, that a farm site not require significant alterations in traditional fisheries or other existing uses of fish and wildlife resources, and may not affect fisheries, wildlife or their habitats (cont)

Prepared by: Chlp Dennerlohn Phone 465-3065  
 Division: Habitat and Restoration Date/Time 3/5/02 12:30 PM  
 Approved by: Gordy Williams for Commissioner Frank Rue Date 3/5/2002  
 Agency: Fish and Game

FISCAL NOTE

STATE OF ALASKA  
2002 LEGISLATIVE SESSION

BILL NO. CSHB 208(RES) - FN#4

ANALYSIS CONTINUATION

In an adverse manner. ADNR aquatic farm statutes and guidelines have specific requirements for such things as avoidance of eagle nests, marine mammal and seabird rookeries, and commercial seining areas. ADF&G maintains this information.

Identifying and evaluating 90 permitable lease sites will require intensive effort and additional staff will be needed. A Habitat Biologist III is needed to work with ADNR, ADEC, and ADF&G CFMD to identify potential lease sites. Existing fish and wildlife, habitat and public use data on sites will be collected and evaluated. Potential lease sites will be identified and surveyed in the field to determine suitability. The biologist will: review land use plans, coordinate with ADF&G Wildlife Conservation and Subsistence Divisions, ADNR, ADOL, local governments, and federal agencies; prepare site reports; attend public meetings and hearings; and issue Special Area permits as necessary. A 3-month FT III will aid in habitat site evaluations in the field, and one month of Cartographer 2 time will be needed to enter data into the GIS system.

\* Costs for administration and oversight of additional levels of mariculture activity in subsequent years may be significant, but are difficult to quantify at this time.



# Alaska State Legislature

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Official Business

REPRESENTATIVE DREW SCALZI

State Capitol

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## HB 208

### Aquatic Farms for Shellfish

*"An Act relating to aquatic farming of shellfish; and providing for an effective date."*

The mariculture industry has the potential to increase the availability of fresh seafood to Alaskans, strengthen the competitiveness of Alaskan seafood products in the world marketplace and provide a premium product year-round.

Mariculture is new to Alaska. The permitting process is complex due to the number of agencies that oversee aquatic farming, i.e., Fish and Game, Environmental Conservation, Natural Resources and Governmental Coordination. With cooperation from these entities, this industry, which has proven extremely successful in other states, can certainly enhance economic development in our coastal communities with year-round employment for farmers and processors.

In a good faith effort to encourage good relationships between government agencies and the industry, HB 208 is being introduced as companion legislation to Senator John Torgerson's SB141.

HB 208 requires the Department of Natural Resources to offer public leases on 60 suspended shellfish sites, 20 clam sites and 10 geoduck sites. These lease sites are in addition to those already permitted. Security bonds must be posted according to the value of the product on-site and will be returned upon termination of the lease. Farmers must abide by the sustained yield principle of management when harvesting the wild stock. The Commissioner of DNR must solicit nominations from industry for sites that do not interfere with established commercial, subsistence or personal use.

HB208 is the means for encouraging the state to develop another resource that will add economic diversity to our coffers -- while protecting the right of Alaskans to harvest a common property resource.

Glen Haight, Fisheries Development Specialist

April 9, 2002

**Introduction**

House Bill 208 calls for the designation of 90 aquaculture farm sites by the Department of Natural Resources (DNR) by February 2004. The bill has a fiscal note to cover the cost of DNR and Department of Fish & Game's (ADF&G) work in designating these sites. This analysis measures the cost of this fiscal note in FY 2003 and FY 2004 against the expected future income stream the State might expect from aquaculture operations created from this bill.

This analysis utilizes a technique called "net present valuation". A net present valuation takes future cash flows, positive or negative, and discounts them to a present day value through a risk factor (interest rate) appropriate for the nature of the investment. The analysis and supporting assumptions are attached.

The analysis indicates a return to the state through lease fees and taxes. This return is less than 8% and does not consider additional administrative costs that might come from additional farm operations. From a pure investment perspective, the extent of assumptions and duration in the forecast might be too great for such a small return. However, the Legislature has the ability to view the social and economic benefits from this activity apart from the return to the state.

Uncharted in this analysis are the benefits expected by the shellfish industry and ancillary businesses. Based on the revenue growth rate assumptions, there will be an increase in gross profits to the farm operations of \$9 million by the time full grow out takes place. Current farm values for the existing industry is \$400,000.<sup>1</sup> This growth rate assumes an increased effort by the State to better educate and assist potential new entrants into the industry, as well as increased assistance to existing participants.

While not quantified in this analysis, there is an expectation of increased business for freight companies, gear supplier and other input providers such as the Qutechak Shellfish Hatchery in Seward. Further, much of the farming activity occurs in rural

increase buying power and lower the cost of goods and services into these communities as the volume of purchases increase.

As you know, much of the likelihood of success in meeting the assumptions of this analysis is predicated on a host of events yet to occur. That aside, this particular bill appears to have a number of benefits beyond simply kick starting a budding Alaska industry. Its usefulness as an economic development-building device appears strong and its downstream impact to communities may be very important.

**Estimated Gross Revenues from the Additional Sites**

2005 \$	43,200
2006 \$	155,520
2007 \$	311,040
2008 \$	559,872
2009 \$	1,074,954
2010 \$	1,827,422
2011 \$	3,031,371
2012 \$	4,721,199
2013 \$	6,965,701
2014 \$	8,300,010
2015 \$	8,700,010
2016 \$	9,000,010

**Assumptions**

**General Assumptions**

Shellfish aquaculture operations will begin to function more efficiently and profitably than the historical norm for Alaska aquaculture operations. This is based on various factors:

- The State will shift its focus from establishing this industry, to maximizing the value of the industry.
- Expected reduction in employment from salmon fisheries (and likely other wild catch fisheries with the advent of black cod and halibut farms) will put a greater emphasis on alternative coastal employment opportunities.
- With greater production, efficiencies and market advantages will likely occur. Efficiencies might include, spreading out of fixed costs with more operations and lower freight rates through greater volumes. Greater volumes should increase producer's leverage in market negotiation.

**Costs**

Fiscal Note for 2003 = \$254,500 (DNR - \$92,000; F&G - \$162,500)

Fiscal Note for 2004 = \$196,500 (DNR - \$115,000; F&G - \$81,500)

<sup>1</sup> For reference, the statewide ex-vessel value of the salmon industry in 2001 was \$216 million. Herring roe was about \$11 million (includes spawn on kelp and sac). In 2000, halibut measured at \$134 million, shellfish \$142 million, and groundfish at \$564 million.

Agencies are expecting additional administrative expenses from the increase in farm sites, but cannot provide estimates until the farms are actually operating.

### **Farm Development**

The bill calls for 60 suspended culture sites, including oysters and scallops.

The bill calls for 20 littleneck clam sites.

The bill calls for 10 geoduck sites.

### **Grow out rates**

Oysters are assigned a conservative grow-out rate of 4 years.

Scallops are assigned a grow-out rate of 4 years.

Littleneck clams are assigned a conservative grow-out rate of 5 years.

Geoducks are assigned a conservative grow-out rate of 7 years.

### **Permitting Schedule**

- The sites will be determined by February 2004.
- Actual permitting and development on the sites will not begin until 2005.
- There will be an approximate pro rata development of species along the lines of the bill.
  - 2005 = 10 farms (7 suspended, 2 little neck, 1 geoduck)
  - 2006 = 20 farms (14 suspended, 4 little neck, 2 geoduck)
  - 2007 = 20 farms (14 suspended, 4 little neck, 2 geoduck)
  - 2008 = 20 farms (13 suspended, 5 little neck, 2 geoduck)
  - 2009 = 20 farms (12 suspended, 5 little neck, 3 geoduck)
- Permitting rates exceed historical rates given increased ease of permitting from this bill and increased focus and attention on industry.

### **Closures**

Despite increased focus and assistance to start-up operations, it is expected some level of closures of farm sites will occur.

### **Closure rates**

- 20% of farm sites within one year,
- 10% in the second year, and
- none thereafter.

### **Resale rate**

Farm sites that close will be resold to other farmers.

- In order to maintain salability, original farmers will bear the costs of DNR lease fees.
- The sale will occur one year after closure.

- These closed operations will not have any product. Purchased farm sites will undergo grow out rates starting from the time of purchase.

### **Acreage**

The analysis sets farm average farm acreage at 5. DNR records show current average is 3.5. However, some farm sites are not operating at maximum efficiency. Upon advice of industry, 5 acres are set at an optimum minimal size.

### **Owner/Business Per Farm Site**

For the purposes of the analysis, every two farms will be operated by a single owner/company. This will increase efficiencies in the operation, yet decrease business licensing fees to the state.

### **Farm Revenue**

Some of the more efficient farms in Alaska today net in excess of \$20,000/acre. However, DNR information provides that the average revenue per acre was approximately \$2,400. For this analysis, we assume a starting revenue/acre of \$2,400 in 2002 and increase it at 20% until it reaches \$20,000. At that point, future revenue streams are capped at \$20,000. Industry reports a well-maintained farm of littleneck clams and oysters are capable of achieving this level of profitability at this time. Scallops and geoducks are less certain.

For on-bottom operations, once permitting occurs, harvests of standing stocks will be allowable. This revenue stream will continue up until the time that the farmed stock is harvested. This activity will trigger water quality inspections.

### **State Fees**

DCED business licenses = \$25/owner

DNR permitting fees (first acre/acres thereafter) = \$350/\$100

DNR caretaker fee = left out for this analysis.

### **State Fisheries Tax**

Assumed 75% of all product will be exported and taxed.

Oysters/scallops = 3% of farm value

Littleneck clams = 1%

Geoducks = 1%

Rate of return set at different levels to understand the return at various levels of risk. That concludes the list of assumptions used in this analysis.

Department of Community & Economic Development

**State Revenue Projections From HB208**

	Fiscal Year													
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>State Revenues</b>														
DNR Permit	\$ -	\$ -	\$ 7,500	\$ 22,500	\$ 37,500	\$ 52,500	\$ 67,500	\$ 67,500	\$ 67,500	\$ 67,500	\$ 67,500	\$ 67,500	\$ 67,500	\$ 67,500
Business License	\$ -	\$ -	\$ 125	\$ 350	\$ 563	\$ 800	\$ 1,050	\$ 1,050	\$ 1,100	\$ 1,125	\$ 1,125	\$ 1,125	\$ 1,125	\$ 1,125
Business Tax	\$ -	\$ -	\$ 65	\$ 233	\$ 467	\$ 840	\$ 2,150	\$ 4,999	\$ 9,771	\$ 16,276	\$ 24,587	\$ 29,213	\$ 30,158	\$ 30,225
<b>Total</b>	\$ -	\$ -	\$ 7,690	\$ 23,083	\$ 38,529	\$ 54,140	\$ 70,700	\$ 73,549	\$ 78,371	\$ 84,901	\$ 93,212	\$ 97,838	\$ 98,783	\$ 98,850
<b>State Costs</b>														
Fiscal Note	\$ 254,500	\$ 196,500												
Additional Management Costs														
Identified State Costs	\$ 254,500	\$ 196,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Net Income (Loss)</b>	<b>-\$254,500</b>	<b>-\$196,500</b>	<b>\$ 7,690</b>	<b>\$ 23,083</b>	<b>\$ 38,529</b>	<b>\$ 54,140</b>	<b>\$ 70,700</b>	<b>\$ 73,549</b>	<b>\$ 78,371</b>	<b>\$ 84,901</b>	<b>\$ 93,212</b>	<b>\$ 97,838</b>	<b>\$ 98,783</b>	<b>\$ 98,850</b>
NPV at 0% return	\$368,644													
NPV at 5% return	\$89,567													
NPV at 7.5% return	\$2,177													
NPV at 10% return	(\$62,683)													
NPV at 12.5% return	(\$110,935)													
NPV at 15% return	(\$146,837)													
NPV at 17.5% return	(\$173,488)													
Internal Rate of Return	7.57%													



Rodger Painter, vice president  
P.O. Box 20704 Juneau, AK 99802  
Phone/Fax: (907) 463-3600  
rodgerpainter@hotmail.com

## Questions and Answers about HB 208

**What is the purpose of the legislation? Why not just allow applications to be submitted during scheduled openings?**

Aquatic farming is one of the most promising opportunities for coastal Alaskans to establish renewable, year-round businesses, but the application process has been difficult and contentious. Proposed sites often are rejected by regulatory agencies for a wide variety of purposes after the applicant has invested nearly two years into the process. HB 208 will virtually ensure applicants of success during a shortened permitting process, and provide coastal communities seeking to diversify their economy with a tool to attract entrepreneurs.

**HB 208 is an expensive piece of legislation. Will the treasury be repaid?**

House Bill 208 was patterned after the state oil and gas lease sales where the state identifies tract available for development by the private sector. It is meant to be an investment by the state that will bring in revenues to the treasury and stimulate economic activity. In this case, the state will be making an investment in resource inventory and land use management. The investment of \$350,000-\$400,000 in funding the fiscal notes of HB 208 will be repaid in the form of lease and tax revenues. Increased employment and economic activity in coastal Alaska will be other benefits. Sen. John Torgerson, author of the companion measure SB 141, describes the aquatic farm site lease sale as an investment by the state in one of its important natural resources. [An analysis of potential revenues from the lease sale by the Alaska Department of Community and Economic Development has been provided to the legislature.]

**Why is the state identifying sites? Shouldn't that be the role of the private sector?**

The legislation provides for nominations of farm sites by industry, local communities and individuals, again following the pattern of oil and gas lease sales. HB 208 is designed for the selection process to be a partnership between the state, industry and local residents. The industry is already working with the University of Alaska to conduct surveys of potential aquatic farm sites and this effort will be expanded if HB 208 is enacted.

**Who will be protecting important competing values, such as established fisheries, anchorages and sensitive habitats, during the selection process?**

One of the most critical features of HB 208 is that it takes no shortcuts in the established public process under the coast zone management program. The fiscal notes attached by HB 208 will fund a comprehensive planning process and series of public hearings on all 90 sites prior to the lease sale. The 1988 Aquatic Farm Act established siting criteria that provide a high degree of protection for established uses, the environment, and fish and wildlife resources.



Rodger Painter, vice president  
P.O. Box 20704 Juneau, AK 99802  
Phone/Fax: (907) 463-3600  
rodgerpainter@hotmail.com

## **Payback of Fiscal Notes for SB141/HB208**

### **Lease fees**

Aquatic farmers pay DNR \$350 for the first acre and \$250 for each additional acre in annual lease fees. For a five-acre farm this equates to \$1,350 per year. For 90 5-acre farms, this would amount to \$121,500 in annual revenues.

### **Fisheries Business Taxes**

Aquatic farmers are subject to the Fisheries Business Tax. If each of the 90 farms were to generate \$100,000 in gross sales per year, the tax liability per farm would be \$3,000. For 90 farms, the total would be \$270,000.

### **Other Annual Licensing and Permitting Fees**

Fisheries Business License = \$25 per farm. Shellfish shipping permits from DEC = \$100. Growing area certification (DEC) = \$300. Total per farm = \$425. Total for 90 farms = \$38,250.

### **Total Annual Lease Fees, Taxes and Licensing Fees**

Per 5-acre Farm = \$4,775. Annual total for 90 Farms = \$429,750.

### **Economic Contribution**

If each farm generated \$100,000 in gross revenues, 90 farms would contribute \$9 million to the economy. If farm supports two jobs, a total of 180 new jobs would be created.

**FISCAL NOTE PAYBACK ESTIMATE**

## QUTEKCAK SHELLFISH HATCHERY

PO Box 369  
101 Railway Avenue  
Seward, AK 99664  
907-224-5181 fax 224-5282  
[qshatch@arctic.net](mailto:qshatch@arctic.net)

February 28, 2002

Dear Representative Scalzi,

On behalf of the Qutekcak Native Tribe and the hatchery, I would like to express our support for HB-208, and our appreciation for your sponsoring this important legislation.

The economics of coastal communities have been negatively impacted in the recent past for a variety of reasons too numerous to recount here. What's important is to look for possible solutions, and we feel the shellfish farming industry has demonstrated the potential to bring needed economic diversity to these communities. That potential is enhanced due to the fact that many of the individuals who have been hardest hit are commercial fishermen who already possess many of the necessary skills and equipment.

Over the past few years we have witnessed an increased awareness of this industry's potential in Alaska, and have managed to dispel some perceptions that draw inaccurate parallels between finfish farming and shellfish farming. We have not been as successful in streamlining the permitting process in a way that will allow the industry to reach the "critical mass" necessary to support the hatchery as our research nears completion and the funding for that research needs to be replaced by marketing the developed product.

We recognize that there is no magic wand, and that the proper course for our industry is incremental and steady improvements in regulation and understanding, and in further demonstrating the economic benefits of the industry. This legislation represents an important step along that course of improvement by making available sites that will increase our customer base. We are cognizant that some investment in the form of agency budgets will be necessary on the State's part to make this legislation work, but are confident that we can provide returns over time on that investment many times over.

Thank you for your support and best regards,

Ron Long,  
Director

**Letters of Support**

# MARINE ADVISORY PROGRAM

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UNIVERSITY OF ALASKA FAIRBANKS

SCHOOL OF FISHERIES AND OCEAN SCIENCES

2221 E. NORTHERN LIGHTS BLVD., #110  
ANCHORAGE, ALASKA 99508-4140

April 5, 2002

PHONE: 907-274-9691

FAX: 907-277-5242

To: Representative Drew Scalzi  
State Capitol, Room No.13  
Juneau, AK 99801-1182

From: Raymond RaLonde  
Aquaculture Specialist

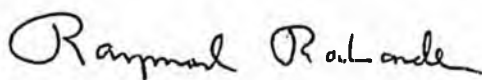
Subject: Supporting information for HB 208

In support of the HB 208, I can contribute substantial support within the University to assist with planning of shellfish aquaculture expansion. Specifically, I have received funding for aquatic farm site evaluations from the following sources and amounts

Source	Funding amount	Project duration
Alaska Sea Grant	\$81,350	2002-04
UAF President's Resources Fund	\$20,000	2002-2004
Alaska Cooperative Extension Service	\$4,200	2002
Alaska Cooperative Extension Service	\$20,000	2003

The initiative to identify and open additional sites for shellfish aquaculture development that you addressed in HB 208 exactly matches the goals of the aquatic site evaluation projects described here. Over the next two years, I and a team of scientists, state agency personnel, industry representatives, and coastal Alaska citizens hope to work together to identify and scale up shellfish aquaculture development in a systematic and environmental responsible manner to improve the economic plight of our coastal communities.

Good luck with your efforts to carry HB 208 through the legislature. Thank you for your support.



Raymond RaLonde



# Southeast Conference



P.O. Box 21989 Juneau Alaska 99802-1989 Tel. (907) 463-3445 Fax (907) 463-5670

April 11, 2002

Honorable Drew Scalzi  
State Capitol, Room 13  
Juneau, AK 99801-1182

**RE: Support of HB 208, Aquatic Farms For Shellfish**

Dear Representative Scalzi:

Southeast Conference strongly supports the aquatic farm lease sale provided for in CSHB 208 (Resources). This measure complements ongoing efforts by Southeast Conference to develop a strong shellfish farming industry in the region.

The economies of many Southeast communities have been devastated by the collapse of the timber industry and declining economics of the salmon fisheries. Shellfish farms provide viable opportunities for rural communities to diversify their economic base with year-round jobs.

Shellfish mariculture development is one of our key legislative priorities this year. Southeast Conference has initiated a pilot project on Prince of Wales Island to create "Aquaculture Development Zones" where shellfish farming would be encouraged. Participants in our project include the University of Alaska, the community of Naukati, the Prince of Wales Community Action Council, the Alaskan Shellfish Growers Association, the U.S. Forest Service, and the Alaska Departments of Natural Resources and Fish and Game, and Division of Governmental Coordination.

Passage of HB 208 would solve one of the biggest challenges faced by our informal working group: identifying high potential sites where applicants can be assured of obtaining leases and permits. Since we already have initiated site surveys on Prince of Wales Island, we will be prepared to assist in providing detailed site-specific environmental and biological data along with our areas nominations provided for in HB 208.

We wish to thank you for your efforts to encourage economic development in our coastal communities.

Sincerely,



Loren Gerhard  
Executive Director

# *Legends* of the Mountain

412 Washington Street  
Seward, Alaska 99664

To Whom It May Concern:

I am currently re-opening a full service restaurant in Seward, Alaska. We are a semi-casual concept with a focus on steaks and fresh seafood.

It has been my experience that local Alaskans and tourists alike look specifically for Alaskan products. Therefore, it is very important to me to have local seafood available not only to make my customers happy, but also to help keep my purchasing dollars in the State that I live in.

I think it is time for us to seriously support aquatic farming projects within the State of Alaska. This should create a renewable source that will benefit everybody now and in the future.

Sincerely,

Jeff Kilgore  
Executive Chef/General Manager

Honorable Drew Scalzi  
State Capitol, Room 13  
Juneau, AK 99801-1182

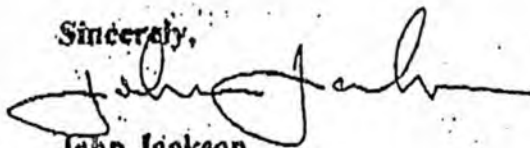
Dear Rep. Scalzi:

Sagaya Corporation is delighted to learn that you have sponsored legislation to increase the number of shellfish farms in Alaska. The oysters and clams we purchase from shellfish growers are among the finest seafood we feature in our stores, and they're the only local products we can obtain fresh on a year-round basis.

The potential for growth in the market for Alaska oysters and clams is great. We recently increased our efforts to push Alaska steamer clams and the response from customers has been very positive. During a recent promotion, customers snapped up about 1,000 pounds of Alaska clams over the weekend.

Increasing the number of aquatic farms in the state is the best gift you can give to seafood consumers in Anchorage and the rest of Alaska. House Bill 208 is a winner in our books.

Sincerely,



John Jackson

**Subject: HB 208**

**Date: Thu, 11 Apr 2002 16:18:52 -0800**

**From: Greg Favretto <greg@favco.net>**

**To: "pat\_hartley@legis.state.ak.us" <Pat\_Hartley@legis.state.ak.us>**

Honorable Drew Scalzi  
State Capitol, Room 13  
Juneau, AK 99801-1182

Dear Rep. Scalzi:

Your legislation designed to increase the number of aquatic farms in Alaska (House Bill 208) should prove to be one of the best things the state has done for Alaska seafood consumers, both residents and visitors.

We have worked closely with aquatic farmers for about 15 years and are delighted to have played a role in the marketplace receiving some of the world's best oysters.

Of the wide array of wonderful seafood products harvested from our waters, only two are available fresh on a year-round basis: oysters and littleneck clams, and both come from shellfish growers.

I wish you good luck with your legislation, as Alaska needs more shellfish farms to satisfy a growing demand for Alaska oysters and clams.

Sincerely, Greg Favretto



Rodger Painter, vice president  
P.O. Box 20704 Juneau, AK 99802  
Phone/Fax: (907) 463-3600  
rodgerpainter@hotmail.com

February 11, 2002

Senator John Torgerson  
State Capitol, Room 427  
Juneau, AK 99801-1182

Dear Senator Torgerson:

After carefully considering your comments on our proposed "aquaculture development zone" concept, we have decided that your approach on Senate Bill 141 is superior. We'd like to work closely with you and Rep. Scalzi in getting the legislation approved this session.

There is one amendment to SB 141 that we believe is vital to accomplishing the intent of the legislation: removal of the section on lease valuation. Here's the language we'd like to have deleted:

**In determining the fair market value of a lease for an aquatic farming site where shellfish indigenous to the site are cultured, the department shall consider the value of the harvestable shellfish resource on the site and the potential productivity of the site for cultured shellfish.**

Here's our rationale for removal of the language:

- Adoption of regulations by ADF&G subsequent to development of SB 141 has effectively rendered this section moot. Under current ADF&G procedures, the harvestable "standing stock" of native shellfish on an aquatic farm site must be harvested under commercial fishing permits prior to transfer of the site to the applicant. In addition, ADF&G policies prohibit applicants from obtaining sites with significant numbers of wild geoducks. Insertion of this language could confuse the validity of these practices.
- SB 141 also contains language codifying current ADF&G regulations and permit conditions requiring growers to replace standing stocks prior to relinquishing the site. The practical effect of putting both sections into law would be to require growers to pay for standing stocks twice, in addition to paying the state the same fisheries business tax rates of commercial fishermen AND lease fees for use of state land and waters.
- The existing language could create concerns for growers attempting to farm mussels and other species not subject to commercial fisheries. If the shellfish is not subject to commercial fisheries and we have a great abundance of the species, the state shouldn't create disincentives for utilizing surplus natural resources.
- The final clause of the section includes "potential productivity of the site" as a reason for increasing lease valuations. ASGA has objected strongly to this

language in ADF&G regulations and we will seek to have it removed when a more friendly administration takes office. The "potential productivity" of a site is an extremely elusive concept that is extremely troublesome for the industry.

- Alaska already has some of the highest tidelands lease fees for aquatic farm sites of any jurisdiction in North America, and we have been attempting to convince DNR to bring them more in line with our competitors. The existing language in SB 141 has the potential for increasing existing lease fees and moving us away from our goal.

After discussing your intent behind SB 141, we have become convinced it is a very good approach to moving the industry forward. DNR confirms the sites will remain "in the bank" following the initial offering and that it is possible to obtain annual offerings or even an over-the-counter approach. DNR also says it will be possible to divide a large site between two or more applicants.

We were unaware of these attributes of the state's land disposal process. We appreciate your vision in putting together this package and apologize for taking so long to get solidly behind the legislation. We look forward to working with you and Rep. Scalzi in getting SB 141 approved during this legislative session.

Sincerely,

**Rodger Painter**

c.c. Rep. Drew Scalzi  
Sen. Robin Taylor  
Rep. Lesil McGuire



Rodger Painter, vice president  
P.O. Box 20704 Juneau, AK 99802  
Phone/Fax: (907) 463-3600  
rodgerpainter@hotmail.com

February 20, 2002

Honorable John Torgerson  
State Capitol, Suite 427  
Juneau, AK 99801-1182

Dear Senator Torgerson:

Your efforts to create a "bank" of aquatic farm sites are greatly appreciated by aquatic farmers throughout the state. The committee substitute for SB 141 you have developed has made good bill even better, and we are enthusiastic about working with you to move it through the process this year.

We are particularly grateful for the changes in the committee substitute. We believe SB 141 represents a wise investment in creating new economic development opportunities in coastal Alaska with the use of one of the state's most abundant natural resources. What a better way to bolster the sagging economies of coastal regions than promote an environmentally friendly industry supporting year-round jobs.

We believe this approach to aquaculture development may become a model for the rest of the country. We again thank you.

Sincerely,

Rodger Painter  
Vice President

# STATE OF ALASKA

TONY KNOWLES, GOVERNOR

## DEPT. OF ENVIRONMENTAL CONSERVATION

DIVISION OF ENVIRONMENTAL HEALTH  
DIRECTOR'S OFFICE  
555 CORDOVA STREET  
ANCHORAGE, ALASKA 99501  
<http://www.state.ak.us/dec/deh>

Telephone: (907) 269-7644  
Fax: (907) 269-7654  
e-mail: [Janice\\_Adair@envircon.state.ak.us](mailto:Janice_Adair@envircon.state.ak.us)

March 1, 2002

The Honorable Drew Scalzi  
Alaska House of Representatives  
Room 13, Capitol Building  
Juneau, AK 99801

Re: HB 208, an Act relating to aquatic farming of shellfish

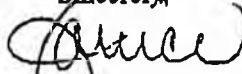
Dear Representative Scalzi:

Enclosed please find a copy of a letter I recently sent to Senator Torgerson regarding SB 141 which, as you know, is the companion bill to yours referenced above.

Although the Department of Environmental Conservation (DEC) has now submitted zero fiscal notes on both pieces of legislation, it is important that everyone understand that any shellfish sites must be certified by DEC under the National Shellfish Sanitation Program (NSSP) before the product can be sold in commerce. We are required by both state law (AS 17.20.005(6)) and federal law to comply with the NSSP. There are significant costs associated with certification, some of which are currently borne by the farmers themselves. The rest is covered in DEC's operating budget. Should either of these bills pass, down the road there will be increased costs to DEC for this certification. In the interest of full disclosure, I wanted you and the rest of the committee members to know that.

I do not plan to be on line for the hearing on HB 208 unless you'd like me to be available to answer questions, which I would be happy to do. You or your staff can reach me at 269-7644 or via email at [Janice\\_Adair@envircon.state.ak.us](mailto:Janice_Adair@envircon.state.ak.us) to let me know.

Sincerely,



Janice Adair  
Director

Enclosure:

- Letter to Senator Torgerson dated February 28, 2002

*Safe Food, Safe Water, Healthy Communities*

**DEC Comments**

# STATE OF ALASKA

TONY KNOWLES, GOVERNOR

## DEPT. OF ENVIRONMENTAL CONSERVATION

DIVISION OF ENVIRONMENTAL HEALTH  
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Fax: (907) 269-7654  
e-mail: [Janice\\_Adair@envircon.state.ak.us](mailto:Janice_Adair@envircon.state.ak.us)

February 28, 2002

The Honorable John Torgerson  
Chairperson, Senate Resources Committee  
Room 427, Capitol Building  
Juneau, AK 99801

Re: SB 141, Shellfish Growing Areas

Dear Senator Torgerson:

I have had a chance to discuss the above-referenced legislation with Rodger Painter with the Alaska Shellfish Grower's Association. As you know, we did include a fiscal note on this bill because we interpreted "suitable" to mean certified under the National Shellfish Sanitation Program (NSSP).

While the definition of "suitable" was not discussed in any of the testimony on the bill that I heard, Rodger did point out some very legitimate problems with certifying an area so early in the process. Therefore, I will be submitting a zero fiscal note on the committee substitute when it arrives in the Senate Finance Committee. Certification under the NSSP normally takes place shortly before commercial harvesting begins. Although the industry currently pays for a part of the cost to certify growing areas and we would expect that to remain the case, there will be an increased cost to the department when certification of growing areas is required. However, from talking with Rodger, I believe those costs will be incurred after the time frame covered by the fiscal note form.

I hope our misunderstanding of the bill and the resultant fiscal note did not cause you any undue problems in moving this legislation, and please accept my sincere apologies if it did.

Sincerely,



Janice Adair  
Director

cc: Michele Brown, Commissioner

*Safe Food, Safe Water, Healthy Communities*

## Why Clam Farming?

Alaska has enormous potential as a supplier of littleneck clams, often called steamer clams, to the seafood market. Past and current efforts to develop a commercial fishery on the abundant clam resources of Alaska have resulted in limited harvest caused by logistics and economic problems associated with managing the fishery. At present, only Kachemak Bay has a commercial harvest of littleneck clams, and because of depleted stocks, the fishery is limited to only 25,000 pounds annually.

The topic of clam farming in Alaska first appeared as an agenda item at the 1987 4<sup>th</sup> Alaska Sea Grant Aquaculture Conference. With high worldwide consumer demand for steamer clams and short supply of littleneck clams for the Alaska seafood market, new and existing farms are eager to pursue clam farming.

In 1991, Alaska's original clam farmers were allowed to harvest clams only under commercial fisheries regulations of the Alaska Department of Fish and Game (ADF&G). The first official clam farms were permitted in 1993. Expecting broader interest in clam farming a conference, titled Broadening Shellfish Farming Opportunities in Alaska, was sponsored in 1996 by the ADF&G, the Alaskan Shellfish Growers Association, and the University of Alaska Marine Advisory Program. The purpose of the conference was to begin development of a regulatory program for on-bottom aquaculture in Alaska. At the conference, ADF&G representatives issued a clear statement that the department did not have the resources to manage a commercial clam fishery beyond that existing in Kachemak Bay and favored development of clam farming.

By the end of 1997, three aquatic farmers have obtained tidelands leases to farm littleneck clams in southeastern Alaska. Their combined 1998 harvest was 35,014 pounds of clams worth nearly \$87,535.

## What is Clam Farming?

Farming clams requires application of well established farming practices to an existing clam population that will increase the beach productivity and allow for a sustained harvest of the enhanced clam population. In Alaska, farming activities include:

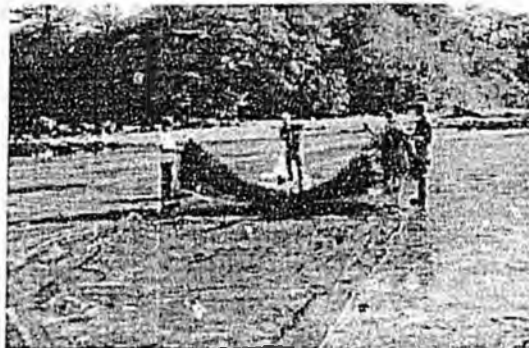
1. Regular inventories of standing stock and determination of the size composition of the clams.
2. Optimizing growth and production of clams by controlling their density by harvest planning, redistribution of seed from overstocked parts of the bed, and/or planting hatchery produced clam seed.
3. Reducing clam mortality by appropriate use of predator exclusion netting.
4. Maintaining the beach free of major deposits of large debris and improving the substrate quality.
5. Harvesting clams to maximize their value and marketability.
6. Complying with the required Alaska Department of Environmental Conservation water quality testing program, and marine toxin certification of farmed product.

Performance of these farming activities, is far beyond what is required of a commercial clam harvester.

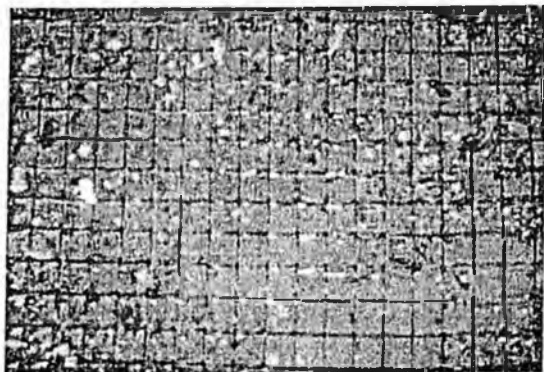
## What is a clam farm? A pictorial tour



Clam farming may require application of predator exclusion netting. In this picture, a trench has been dug to anchor the margins of the net.



Predator exclusion netting is rolled out over the prepared plot.



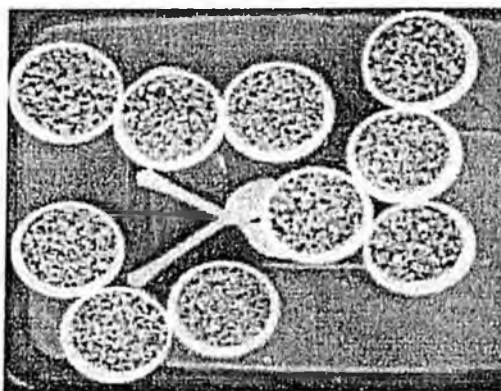
Predator netting is about 1" square mesh. It is not intended to exclude all predators. Crabs and starfish are the farmers primary concern. Birds can feed through the netting



Predator nets anchored and ready for seeding clams.



The farm plot after a few months. Predator netting is partially covered by sediment and algae growth.



Measured quantities of clam seed ready for planting the farm.



Planting clam seed over the netting. Clams are smaller than the net mesh and will dig themselves in as the tide covers them.



In Alaska, clam harvesting is done by hand.

## Impacts of clam farming

**Environmental (Statements in parenthesis are editorial comments needed for clarification).**

Mojica, R. and W.G. Nelson. 1993. Environmental effects of a hard clam (*Mercenaria mercenaria*) aquaculture site in the Indian River Lagoon, Florida. *Aquaculture*. Volume 113, page 326.

- "Measurements of water column nutrients and chlorophyll concentrations gave no indication of changes..."
- "sediment differences were not associated with significant changes in benthic dwelling organisms."
- "Differences in mobile macrofauna were minimal ..." (between aquaculture and natural sites)

Spencer, B.E., M.J. Kaiser, and D.B. Edwards. 1997. Ecological effects of intertidal Manila clam cultivation: observations at the end of the cultivation phase. *Journal of Applied Ecology*. Number 34. Page 451.

"Our results suggest that the biotic and abiotic changes caused as a result of clam cultivation are relatively benign compared to other forms of marine cultivation..."

Kaiser, M.J., I. Laing, S.D. Utting, G.M. Burnell. 1998. Environmental impacts of bivalve mariculture. *Journal of Shellfish Research*. Volume 17. Number 1. Page 63.

"...the benthic community within dredged plots was indistinguishable only 3 months after harvesting regardless of the scale of disturbance..."

Brooks, K. 1996. Intensive clam culture and the environment. *Proceedings of the conference: Broadening Alaska's shellfish farming opportunities: A conference and workshops focusing on public issues involved with the development of on-bottom culture of indigenous shellfish*. University of Alaska Marine Advisory Program. Anchorage, Alaska. Page 41.

"Of all the forms of aquaculture, intertidal shellfish culture is undoubtedly the most benign. If you minimize encroachment on eel grass beds and find effective methods of predator control, the several hundred pages of literature reviewed in preparing this talk suggest only positive environmental affects associated with either intensive clam or oyster culture."

### **Economic impacts**

The current commercial harvest limit for littleneck clams in Kachemak Bay is 40,000 lbs. Local management has set the commercial harvest at 25,000 lbs having a market value at \$2.50/lb or \$62,500. Actual 1998 harvest was less than 20,000 lbs.

An aquatic farm can produce, with predator protection and seeding, about 10 times the biomass of clams as a natural population. By any definition, this level of production increase would be considered enhancing the clam population of the beach.

Aquatic farming in can produce an estimated conservative production of 12 harvestable clams per square foot per year. From a 10 acre plot, the annual harvest would be 435,000 lbs. worth approximately \$1.1 million.

#### What is the market?

##### Homer

- Lands End during the summer buys 6,000 lbs and had indicated that they could sell more than 20,000 lbs if more clams were available.
- His Catch Seafood, Homer, Alaska indicated a sales potential of over 40,000 lbs. annually.

##### Anchorage

- Favco, Anchorage's largest seafood wholesaler, estimates the Anchorage market demand for littleneck clams at over 1,000,000 lbs. annually.

##### Western Region of U.S. (Aquaculture situation outlook, Western Regional Aquaculture Center)

- "In 1997, it is estimated that over 5.4 million pounds of clams were produced at an estimate of over \$13.7 million." Farmers are converting oyster production into clam farms, and by 2002 production will increase to 7.7 million pounds

##### United States

- The long term trend (1988-1998) for clam landings showed an overall decrease, however, imports have increased.

##### Export market

- The long term trend of clam exports (1988-1998) have shown an increase of 196.16% from 661 metric tons to 1,958 metric tons.
- Recently, exports of clams have been somewhat variable depending on the economic circumstances in Asia. In 1998 exports rose 8% while in first half of 1999, exports declined by 15%. We do know, however, that water quality in Asia is a great concern, and shellfish grown in clean water will have an economic advantage.

#### Effect clam farming on other clam fisheries in Alaska

- There is no littleneck clam fishery outside of Kachemak Bay
- The Kachemak Bay clam commercial fishery is very limited
- In a hearing before the Alaska Legislature: House Resources Standing Committee Mr. Kevin Duffy, acting deputy director of the ADF&G Division of Commercial Fisheries Management and Development was asked by Representative Harris.

Rep Harris: "Is there anything about this industry that has a negative effect on any other seafood industries that it works around or that it's processed around?"

Kevin Duffy: "The clear answer to that is no."

## Where Alaska's Aquatic Farm Dollars Go?

(as a percentage of gross annual revenue)

Local Economy (Prince of Wales Island)	53%
Region (Southeast, including POW)	74%
State Treasury (license fees, taxes, licensing)	3.5%
Alaska	96.5%

Source: Based upon 2001 expenditures of Torres Pazo Shellfish Company, an oyster and clam farm located on Prince of Wales Island.

## Economic Impact

\$20,000 gross revenues per acre for Alaska oyster and clam farms

[Based upon performance of 6-acre S.E. and 1-acre Kachemak Bay farms over a five-year period.]

At this rate, Alaska would require only 5,000 acres of coastline to create a \$100 million industry!

## Commercial Fishermen and Farming

- 16 Active farms in Kachemak Bay
- 12 farms operated by current or former commercial fishermen
- 8 active



## What the Qutekcak Shellfish Hatchery Needs to Succeed

- Bottom line - We need customers in the form of permitted farms!
- Enhancement opportunities for depleted stocks
- Technology does not pay the bills
- Supporting statutes and regulations



## Florida Clam Farming

- Statewide in 1998
- 1,440 acres of farms
- 50 nurseries
- 300 growers

### Cedar Key Florida

- 50 million clams
- 150 acres of farms
- \$25,000 annually
- \$750,000 annually



Partnerships That Work to the Local Economy

### Florida Clam Production

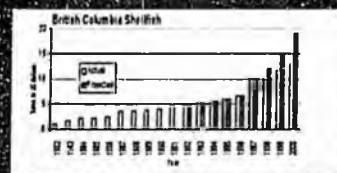


## British Columbia

British Columbia's Shellfish Farming Initiative

Coopers & Lybrand  
Western Economic Diversification Canada  
Economic Development of the British Columbia  
Marine Aquaculture Industry Phase 2 - Shellfish  
August 2001

Aquaculture:  
Its Role in  
British Columbia's  
Seafood Industry



Goal  
\$100 Million Dollar Industry  
By 2006

## Where Alaska's Aquatic Farm Dollars Go?

(as a percentage of gross annual revenue)

Local Economy (Prince of Wales Island)	53%
Region (Southeast, including POW)	74%
State Treasury (lease fees, taxes, licensing)	3.5%
Alaska	96.5%

Source: Based upon 2001 expenditures of Tetra Pak, Shellfish Company, in South-Central farm farm located on Prince of Wales Island.

## Economic Impact

\$20,000 gross revenues per acre for Alaska oyster and clam farms

(Based upon performance of 6-acre S.E. and 1-acre Kachemak Bay farms over a five-year period.)

At this rate, Alaska would require only 5,000 acres of coastline to create a \$100 million industry!

## Commercial Fishermen and Farming

- 16 Active farms in Kachemak Bay.
- 12 farms operated by current or former commercial fishermen
- 8 active



## What the Qutekcaq Shellfish Hatchery Needs to Succeed

- Bottom line: We need customers in the form of permitted farms!
- Enhancement opportunities for depleted stocks
- Technology does not pay the bills
- Supporting statutes and regulations



AS 14/1/00 200

## Florida Clam Farming

- Statewide in 1996
- 1,440 acres of farms
- 50 nurseries
- 300 growers

Cedar Key Florida

50 million clams

Average farmer

clears

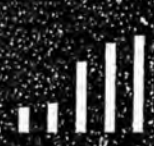
\$20,000 annually

\$7.5 million annually

Partnerships That Work to the local economy

State of Florida

Florida Clam Production

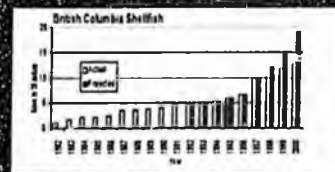


## British Columbia

British Columbia Shellfish Farming Initiative

Coopers & Lybrand Western Economic Diversification Canada Economic Program of the British Columbia Marine Aquaculture Industry Phase 1 - 2000/01

Aquaculture: Its Role in British Columbia's Seafood Industry



Goal

\$100 Million Dollar Industry By 2006

## Where Alaska's Aquatic Farm Dollars Go?

(as a percentage of gross annual revenue)

Local Economy (Prince of Wales Island)	53%
Region (Southeast, including POW)	74%
State Treasury (lease fees, taxes, licensing)	3.5%
Alaska	96.5%

Source: Alaska Dept. 2001 report, Initiative of Prince of Wales, Shelikof Company, an oyster and clam farm located on Prince of Wales Island.

## Economic Impact

\$20,000 gross revenues per acre for Alaska oyster and clam farms

[Based upon performance of 6 acre S.E. and 3 acre Kachemak Bay farms over a five-year period.]

At this rate, Alaska would require only 5,000 acres of coastline to create a \$100 million industry!

## Commercial Fishermen and Farming

- 16 Active farms in Kachemak Bay
- 12 farms operated by current or former commercial fishermen - 8 active



## What the Qutekcaq Shellfish Hatchery Needs to Succeed

- Bottom line: We need customers in the form of permitted farms!
- Enhancement opportunities for depleted stocks
- Technology does not pay the bills
- Supporting statutes and regulations



## Florida Clam Farming

- Statewide in 1998
- 1,440 acres of farms
- 50 muscles
- 300 growers

Center Key Florida



Partnerships That Work to its total economic

Florida Clam Production



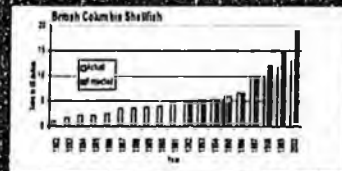
## British Columbia

British Columbia's Shellfish Farming Initiative

Coopers & Lybrand

Western Economic Diversification Canada  
Economic Program of the British Columbia  
Marine Aquaculture Industry Plan 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Aquaculture:  
12 Years in  
British Columbia  
Seafood Industry



Goal  
\$100 Million Dollar Industry  
By 2006

## Where Alaska's Aquatic Farm Dollars Go?

(as a percentage of gross annual revenue)

Local Economy (Prince of Wales Island)	53%
Region (Southeast, including POW)	74%
State Treasury (lease fees, taxes, licensing)	3.5%
Alaska	96.5%

Source: Based upon 2004 expenditures of Tedious, Peter, South of Columbia, and other aquaculture farms in the Prince of Wales Island.

## Economic Impact

\$20,000 gross revenues per acre for Alaska oyster and clam farms

(Based upon performance of 5 acre S.E. and 1 acre Kachemak Bay farms over 3 five-year period.)

At this rate, Alaska would require only 5,000 acres of coastline to create a \$100 million industry!

## Commercial Fishermen and Farming

- 16 Active farms in Kachemak Bay
- 12 farms operated by current or former commercial fishermen
- 8 active



## What the Qutekcak Shellfish Hatchery Needs to Succeed

- Bottom line: We need customers in the form of permitted farms!
- Enhancement opportunities for depleted stocks
- Technology does not pay the bills
- Supporting statutes and regulations
- SB 141 is key



## Florida Clam Farming

Statewide in 1998:  
1,440 acres of farms  
50 nurseries  
300 growers

Cedar Key Florida

50 million clams  
Average farmer  
\$30,000 annually  
\$75 million annually



Partnerships That Work to the local economy

Florida Clam Production

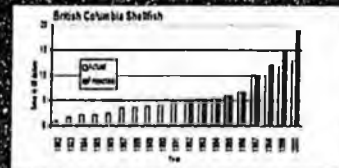


## British Columbia

British Columbia's Shellfish Farming Initiative

Coopers & Lybrand  
Written Economic Development Canada  
Economic Program of the British Columbia  
Marine Transportation Policy Panel / - Shellfish  
June 1997

Aquaculture:  
Its Role in  
B.C.'s Commercial  
Seafood Industry



Goal  
\$100 Million Dollar Industry  
By 2006

## Where Alaska's Aquatic Farm Dollars Go?

(as a percentage of gross annual revenue)

Local Economy (Prince of Wales Island)	53%
Region (Southeast, including POW)	74%
State Treasury (lease fees, taxes, licensing)	3.5%
Alaska	96.5%

Source: Based upon 2007 gross revenues of 16 active farms in Kachemak Bay, Alaska. (Based on Prince of Wales Island)

## Economic Impact

\$20,000 gross revenues per acre for Alaska oyster and clam farms

(Based upon performance of 6-acre S.E. and 1-acre Kachemak Bay farms over a five-year period.)

At this rate, Alaska would require only 5,000 acres of coastline to create a \$100 million industry!

## Commercial Fishermen and Farming

- 16 Active farms in Kachemak Bay
- 12 farms operated by current or former commercial fishermen
- 2 active



## What the Qutekac Shellfish Hatchery Needs to Succeed

- Bottom line: We need customers in the form of permitted lands!
- Enhancement opportunities for depleted stocks
- Technology does not pay the bills.
- Supporting statutes and regulations.

MSB 141 HB 2006



## Florida Clam Farming

- Statewide in 1996
- 1,440 acres of farms
- 50 nurseries
- 300 growers

### Cedar Key Florida

- 50 million clams
- Average farmer
- 300,000 annually
- 27 million annually

Partnerships That Work

State of Florida  
Aquaculture Industry  
Commercial Fisheries

### Florida Clam Production



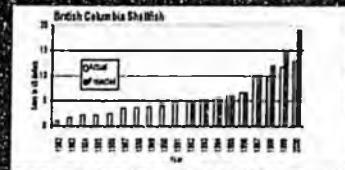
## British Columbia

### British Columbia's Shellfish Farming Initiative

Coopers & Lybrand

Aquatic Economic Diversification Canada  
Economic Potential of the British Columbia Marine Aquaculture Industry Phase 1 - The Shellfish  
August 2007

Aquaculture: Its Role in British Columbia's Seafood Industry



Goal  
\$100 Million Dollar Industry  
By 2006

## Where Alaska's Aquatic Farm Dollars Go?

(as a percentage of gross annual revenue)

Local Economy (Prince of Wales Island)	53%
Region (Southeast, including POW)	74%
State Treasury (lease fees, taxes, licensing)	3.5%
Alaska	96.5%

Source: Based upon 2004 expenditures of Tofino P.A., Shellfish Growers, 40 oyster and clam farms located on Prince of Wales Island.

## Economic Impact

\$20,000 gross revenues per acre for Alaska oyster and clam farms

[Based upon performance of 6-acre S.E. and 1-acre Kachemak Bay farms over a five-year period.]

At this rate, Alaska would require only 5,000 acres of coastline to create a \$100 million industry!

## Commercial Fishermen and Farming

- 16 Active farms in Kachemak Bay
- 12 farms operated by current or former commercial fishermen
- 8 active



## What the Qutekcaq Shellfish Hatchery Needs to Succeed

- Bottom line: We need customers in the form of permitted farms!
- Enhancement opportunities for depleted stocks
- Technology does not pay the bills
- Supporting statutes and regulations



## Florida Clam Farming

- Statewide in 1998
- 1,440 acres of farms
- 50 nurseries
- 300 growers

Cedar Key, Florida

50 million clams

Average yield

\$10,000 annually

per grower annually



Partnerships That Work to the local economy

State of Florida

Florida Clam Production

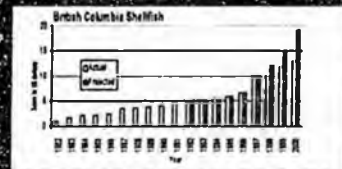


## British Columbia

British Columbia Shellfish Farming Initiative

Coopers & Lybrand  
Western Economic Diversification Canada  
Economic Potential of the British Columbia Marine Aquaculture Industry Phase 1 - Final Report  
June 2001

Aquaculture: Its Role in British Columbia's Seafaring Industry



Goal - \$100 million Dollar Industry By 2006



## Where Alaska's Aquatic Farm Dollars Go?

(as a percentage of gross annual revenue)

Local Economy (Prince of Wales Island)	53%
Region (Southeast, including POW)	74%
State Treasury (lease fees, taxes, licensing)	3.5%
Alaska	96.5%

Source: Based upon 2001 performance of Tenac, P.O. Shellfish Community, an 6-acre and 1-acre farm located on Prince of Wales Island.

## Economic Impact

\$20,000 gross revenues per acre for Alaska oyster and clam farms

(Based upon performance of 6-acre S.E. and 1-acre Kachemak Bay farms over a five-year period.)

At this rate, Alaska would require only 5,000 acres of coastline to create a \$100 million industry!

## Commercial Fishermen and Farming

- 16 Active farms in Kachemak Bay
- 12 farms operated by current or former commercial fishermen
- 8 active



## What the Qutekcaq Shellfish Hatchery Needs to Succeed

- Bottom line: We need customers in the form of permitted farms!
- Enhancement opportunities for depleted stocks
- Technology does not pay the bills
- Support by statutes and regulations

ES 14-09B-208



## Florida Clam Farming

- Statewide in 1998
- 1,440 acres of farms
- 50 nurseries
- 300 growers

### Cedar Key Florida

- 20 multiple farms
- Average farmer
- 500,000 annually
- \$7.5 million annually



Partnerships That Work to the benefit of the community

### Florida Clam Production



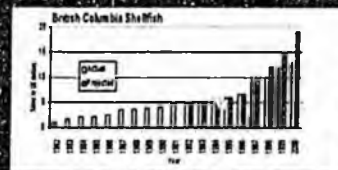
## British Columbia

British Columbia's Shellfish Farming Initiative

Coopers & Lybrand

Western Economic Diversification Canada  
Economic Program of the British Columbia  
Marine Aquaculture Industry Plan / - Multi-Step  
June 1997

Aquaculture:  
Its Role in  
British Columbia's  
Seafood Industry



Goal  
\$100 Million Dollar Industry  
By 2006

## Where Alaska's Aquatic Farm Dollars Go?

(as a percentage of gross annual revenue)

Local Economy (Prince of Wales Island) *	53%
Region (Southeast, including POW)	74%
State Treasury (lease fees, taxes, licensing)	3.5%
Alaska	96.5%

Source: Based upon 2004 performance of Teon's Prawn Shellfish Company, an oyster and clam farm located on Prince of Wales Island.

## Economic Impact

\$20,000 gross revenues per acre for Alaska oyster and clam farms

[Based upon performance of 6-acre S.E. and 1-acre Kachemak Bay farms over a five-year period.]

At this rate, Alaska would require only 5,000 acres of coastline to create a \$100 million industry!

## Commercial Fishermen and Farming

- 16 Active farms in Kachemak Bay
- 12 farms operated by current or former commercial fishermen
- 8 active



## What the Qutekoc Shellfish Hatchery Needs to Succeed:

- Bottom line: We need customers in the form of permitted farms
- Enhancement opportunities for depleted stocks
- Technology does not pay the bills.
- Supporting statutes and regulations.



## Florida Clam Farming

Statewide in 1998  
1,440 acres of farms  
50 nurseries  
300 growers

Partnerships That Work

Cedar Key Florida  
50 million clams  
Acetate filter  
cells  
\$30,000 annually  
\$2.5 million annually  
to the local economy



Florida Clam Production

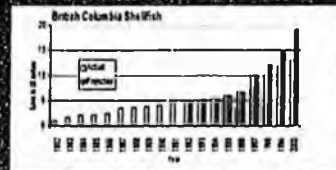


## British Columbia

British Columbia Shellfish Farming Initiative

Coopers & Lybrand  
Western Economic Diversification Canada  
Economic Partnership of the British Columbia  
Climate-Sensitive Industry Plan 1 - Pacific  
Coast

Agreement:  
Its Role in  
British Columbia  
Seafood Industry



Goal  
\$100 Million Dollar Industry  
By 2006

## Where Alaska's Aquatic Farm Dollars Go?

(as a percentage of gross annual revenue)

Local Economy (Prince of Wales Island)	53%
Region (Southeast, including POW)	74%
State Treasury (lease fees, taxes, licensing)	3.5%
Alaska	96.5%

Source: Based upon 2001 expenditures of Frank's Place Shell and Oyster Farm, a 1-acre and 1/2-acre farm located on Prince of Wales Island.

## Economic Impact

\$20,000 gross revenues per acre for Alaska oyster and clam farms

(Based upon performance of 6-acre S.E. and 1-acre Kachemak Bay farms over a five-year period.)

At this rate, Alaska would require only 5,000 acres of coastline to create a \$100 million industry!

## Commercial Fishermen and Farming

- 16 Active farms in Kachemak Bay
- 12 farms operated by current or form commercial fishermen
  - 8 active



## What the Qutekcak Shellfish Hatchery Needs to Succeed

- Bottom line: We need customers in the form of permitted farms!
- Enhancement opportunities for depleted stocks
- Technology does not pay the bills!
- Supporting statutes and regulations



## Florida Clam Farming

- Statewide in 1998
- 1,440 acres of farms
- 50 nurseries
- 300 growers

### Cedar Key Florida

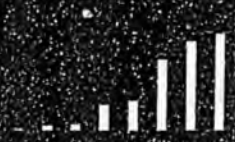
- 70 miles of farms
- Average farms: 10 acres
- 240,000 annually
- 57 Growers annually



### Partnerships That Work

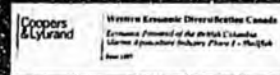


### Florida Clam Production

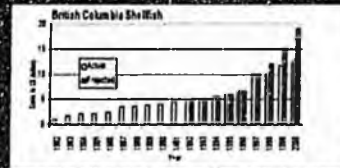


## British Columbia

### British Columbia Shellfish Farming Initiative



Western Economic Diversification Canada  
Economic Development of the British Columbia  
Marine Aquaculture Industry Phase I - Shellfish  
June 2001



Goal  
\$100 Million Dollar Industry  
By 2006

## Where Alaska's Aquatic Farm Dollars Go?

(as a percentage of gross annual revenue)

Local Economy (Prince of Wales Island)	53%
Region (Southeast, including POW)	74%
State Treasury (lease fees, taxes, licensing)	3.5%
Alaska	96.5%

Source: Based upon 2001 experience of the Alaska Shellfish Company, and by the 100 Acres Farm located on Prince of Wales Island.

## Economic Impact

\$20,000 gross revenues per acre for Alaska oyster and clam farms

(Based upon performance of 6-acre S.E. and 1-acre Kachemak Bay farms over a five-year period.)

At this rate, Alaska would require only 5,000 acres of coastline to create a \$100 million industry!

## Commercial Fishermen and Farming

- 15 Active farms in Kachemak Bay
- 12 farms operated by current or former commercial fishermen
- 8 active



## What the Qutekcaq Shellfish Hatchery Needs to Succeed

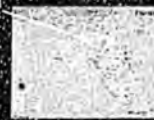
- Bottom line: We need customers in the form of permitted farms.
- Enhancement opportunities for depleted stocks.
- Technology does not pay the bills.
- Supporting statutes and regulations.



## Florida Clam Farming

- Statewide in 1998
- 1,440 acres of farms
- 50 fisheries
- 300 growers

- Central Key Florida
- 90 million clams
- Average farmer
- 100 acres
- \$30,000 annually
- \$7 million annually to the local economy



Partnerships That Work

Florida Clam Production

1990-1998

1990-1998

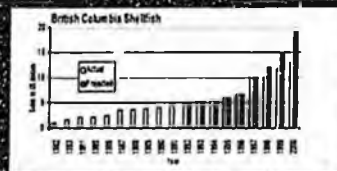


## British Columbia

British Columbia's Shellfish Farming Initiative

Coopers & Lybrand  
Western Economic Development Canada  
Economic Program of the British Columbia Marine Aquaculture Industry Phase 1, 1997-2001

Aquaculture: Its Role in British Columbia's Food Industry



Goal: \$100 Million Dollar Industry By 2005