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Chapter 8

GENERAL FINDINGS AND RECOMMENDATIONS

Throughout their deliberations, the foremost consideration of the members of the Alaska Finfish Farming Task Force has been to ensure that Alaska's stocks of salmon and other species of fish and their pristine environment are not jeopardized. To this end, the task force evaluated all of the major issues; it invited testimony from more than two dozen individuals who are authorities on specific aspects of finfish farming (Appendix C) and reviewed dozens of relevant documents (Appendix F). The products of these examinations are a series of factual findings and recommendations concerning specific issues based on these facts. The issues and recommendations are summarized as follows:

The environmental and biological impacts of finfish farming can be minimized through careful attention to proper siting and enforcement of the conservative regulatory policies outlined in Chapters Two and Four.

Current fisheries management techniques are designed to minimize disease and genetic problems. Risk management of disease and genetic problems found in finfish farms would be no different than for current fisheries management.

The State should retain ownership of its valuable finfish stocks. Ultimately, the goal of finfish farming broodstock development is to use farmed fish as broodstock, thus minimizing continued dependence on publicly owned broodstock. The preferred initial source of initial broodstock is surplus hatchery eggs. Other sources include overescapement, cost recovery fish from nonprofit hatcheries, and allocation by the Board of Fisheries.

The cost of providing adequate regulation of a finfish farming industry would be high, but successful development would bring employment and other benefits to Alaska. Although development of finfish farming eventually might bring in enough revenue to offset the costs to the State, costs would accrue to the State from the permitting and regulatory programs even if the industry fails. The Legislature is the appropriate body for deciding where to rank development of finfish farming in its funding priorities at a time when State revenues remain low and show signs of future declines.

Current market conditions for farmed salmon are poor. However, a developing finfish farming industry in Alaska may find some marketing opportunities.

Markets for Alaska seafood will be adversely affected by the global development of salmon farming, regardless of what happens to salmon farming in Alaska, and a long-term strategy to improve the marketability of Alaska salmon should be developed.

As directed by the enabling legislation, the task force examined various finfish farming activities. It has determined that risks differ among these farming activities. When compared to marine pens, the impacts of upland enclosed systems are greatly reduced by isolation, species limitation, and fewer potential user conflicts.

The potential genetic and socioeconomic impacts of rearing non-salmon species of finfish in marine net pens also appear to be less than those involved with salmon net pen culture, although farming of most of these species is still in the research and development phase.

The task force did not address some of the specific concerns expressed in written public comments on the draft report, because these issues are already covered by existing regulations (e.g., disposal of dead fish in hatcheries, use of antibiotics and food additives, and treatment of diseased fish).

The task force concludes that the findings, Alaska's unique position as a leading seafood producer, and the broad range of potential types of finfish farming activities do not support an unequivocal "yes" or "no" as to whether any particular type of finfish farming should be permitted. That is a political decision that will have to be made by the Legislature. Further study and debate are unlikely to change significantly the task force's findings of fact; consequently, there is no reason to extend the current moratorium beyond its expiration date of July 1990. Therefore, the task force's final recommendation is as follows:

> The Legislature should resolve the issue of finfish farming by statutory permission or prohibition before the moratorium expires.

If the Legislature decides to allow finfish farming, it is imperative that the necessary regulatory framework be in place in advance of any farming activity. If this caveat is satisfied, the task force concludes that fish farming would have little or no adverse effect on wild stocks in the environment. Most of the necessary regulations can be adapted or extended without change from those that are already in effect for the State's ocean ranching and hatchery programs, but additional funding must be provided to extend them to fish farming.

SUMMARY OF RECOMMENDATIONS

Chapter 2

Disease

1. The finfish farming industry can be accommodated without significant threat of disease to wild and hatchery stocks if the State continues to meet its responsibilities in fish disease control and if monies are provided for additional health services or private pathological services are created.

2. Current policies prohibiting importation of live salmonids, including gametes, should be placed into statute and rigorously enforced.

3. To ensure adequate control of disease in the finfish farming industry, the State will need to provide for the development of private pathology services or increase staff and funding for existing State services.

4. If the State allows private pathology services, there should be a licensing or certification process.

5. Water discharged from upland marine and fresh water facilities should be screened and the effluent treated.

Genetics

1. The existing State genetics policy is adequate to protect the genetic integrity of the state's fisheries and should be rigorously applied to fish farming.

2. Current policies prohibiting importation of live salmonids, including gametes, should be placed into statute and rigorously enforced.

3. The State should not permit the siting of finfish farms within a 20 kilometer radius from the mouth of a stream that has significant production of the same species.

4. The task force concurs with the Alaska Chapter of the American Fisheries Society resolution on genetic sanctuaries:

One recommendation for the protection of wild stocks in the Genetic Policy is the establishment of wild stock sanctuaries. These sanctuaries would be areas in which no enhancement activity is permitted except gamete removal for broodstock development. Populations of fish in these areas would represent "gene banks" of wild-type genetic variability. Sanctuary status could also be a conservative use status for the protection of particular significant or unique wild stocks.

5. The State should form an ad hoc committee to determine whether the State is strictly adhering to its genetics policy.

Chapter 3

Ownership of Broodstock

1. The State should not permit private ownership of broodstock.

2. All finfish gametes should remain in the ownership of the State by requiring that hatchery production for finfish farming be done under State permit and authority.

3. All hatcheries within Alaska should be operated under nonprofit status.

4. A new permit allowing the cultivation of eggs and the sale of smolt to the finfish farming industry should be required. Existing hatcheries may be limited or precluded from participation by the conditions of their existing permits.

5. The State should create a new statutory authorization for the operation of finfish farming hatcheries.

6. There should be a statutory ban on the export of indigenous finfish stocks.

Sources of Broodstock

1. All finfish gametes should remain in the ownership of the State by requiring that hatchery production for finfish farming be done under State permit and authority. Cultivation and in-state sale of broodstock and smolt by finfish farmers should not be prohibited.

2. The finfish farming industry should develop its own stocks under new State provisions for nonprofit finfish hatcheries.

3. New private nonprofit hatcheries under State authority would be required to rear broodstock for finfish farming operations.

4. The preferred initial source of broodstock is surplus hatchery eggs. Other sources include overescapement, cost recovery fish, and allocation by the Board of Fisheries.

Chapter 4

Environmental Impacts

1. The State should use existing siting guidelines to develop a set of criteria specifically applicable to finfish net pen farming in Alaska. These include the State of Washington's Recommended Interim Guidelines for the Management of Salmon Net-Pen Culture in Puget Sound and the Alaska Department of Natural Resources' Etolin Island Area Mariculture Pilot Project. Guidelines for siting should also reflect the Alaska Department of Fish and Game's disease and genetics policies.

2. The State should use the Consistency Review Process of the Alaska Coastal Management Program in permitting finfish farm sites. The Alaska Coastal Management Program provides "a framework for local and public participation in State decisions, and a mechanism for the resolution of conflicts between government agencies, individuals, and local communities." However, special provisions for public notice of finfish farming permit applications, including requirements for newspaper display ads with location maps and direct agency notification to interested parties, should be developed to encourage the greatest degree of public involvement.

3. Only nonlethal predator control measures, such as bird and mammal exclosure nets and electric fences, should be allowed for finfish farming.

User Conflicts

1. Area planning represents the best method of determining consistency of uses. However, where area plans do not exist, the consistency review process must allow for expanded public review to ensure consistency with activities that do not require State permits.

2. Fish farms and ancillary use of adjacent uplands must be compatible with zoning and designated uses of the uplands. No finfish farming should be permitted in waters adjacent to State and federal parks.

Chapter 5

1. The State should reduce its regulatory expenses by encouraging the use of private pathology services.

2. The finfish farming industry should pay economic rent for use of public resources. Forms of rent include local and state property taxes, state income taxes, sales taxes, permit fees, tideland leases, and a raw fish tax of three percent of the farm gate value.

3. Special provisions for public notice of finfish farming permit applications, including requirements for newspaper display ads with location maps and direct agency notification to interested parties, should be developed to encourage the greatest degree of public involvement. Applicants should bear the cost of these public notice provisions.

Chapter 6

Costs and Benefits Accruing to Alaska and its Residents

1. The State of Alaska should not subsidize finfish farming beyond the amount needed to regulate the industry.

Chapter 7

Marketability of Alaska Salmon

1. Alaska must develop a strategy to respond to its eroding market share for salmon sales.

2. A mandatory quality assurance and inspection program for the Alaska salmon industry that would include catcher boats, tenders, and processors should be implemented as soon as possible.

3. In conjunction with improved quality, marketing efforts should be expanded to include an aggressive, world-wide marketing program, extolling the virtues of Alaska wild salmon.

Chapter 8

1. The Legislature should resolve the issue of finfish farming by statutory permission or prohibition before the moratorium expires.

APPENDIX A

PRODUCTION SCENARIO FOR A 200 METRIC TON CHINOOK SALMON FARM

Appendix A presents a scenario for the operation of a hypothetical salmon farm in Alaska if enabling legislation were passed in 1990. The scenario is composed of 1) estimated timelines for the development of a marine net pen salmon farm and a fresh water hatchery; 2) an overview of the production of salmon, including a growth/mortality model, a production schedule, and a feeding and marketing model; and 3) an economic review, including a cash flow/operating expenses model and a brief discussion of the economic returns to the state.

The scenario assumes that the most economically viable finfish farm in Alaska would be a salt water net pen salmon facility with the following characteristics:

a. The size of an individual farm site, whether a family-operated farm or a corporate farm, would be between one and two surface acres. It would produce between 200 and 400 metric tons annually (100,000 to 200,000 fish), depending on the size of the fish and production.

b. The farm could be operated by a family with some part-time labor or by a corporation with three to five full-time employees.

c. Major infrastructure for a 200 metric ton farm includes six to eight 15 x 15 meter steel or plastic net pens, nets for each pen, anchors and lines for the farm, work boat, and a storage facility for supplies and fish feed.

I. ESTIMATED TIMELINE FOR THE DEVELOPMENT OF A CHINOOK SALMON FARM IN ALASKA

Table 1 provides an approximate timeline for the major steps in the development of a salmon farm, assuming that legislation providing for finfish farming is enacted in the 1990 legislative session. It includes the time frame for the development of the marine pen facility and for the development of a fresh water hatchery to serve the farm.

Table 1. TIMELINE FOR ESTABLISHING AN ALASKA FINFISH FARM

ACTIVITY	TIME
Finfish Farming Legislation enacted into law[1]	July 1990
Finfish Mariculture Regulations Adopted[2]	January 1991
Potential Applicants Identify Farm Locations, Broodstock Sources and Permit Requirements	July 1990 - April 1991
DNR Publishes Notice of Districts Open for Applications[3]	Prior to April 1, 1991
State Agencies Accept Consolidated Finfish Farm Applications	April 1, 1991 - June 1, 1991
State Review of Applications	June 1, 1991 - Dec. 1, 1991
All Necessary Permits Issued	December 1, 1991
Secure Supplier of Smolts (State or PNP Hatchery)[4]	Winter/Spring 1992
Smolt Supplier Begins Fresh Water Growth of Eggs/Fry	Fall 1992
Net Pens Placed in Water[5]	Spring 1993
Smolts Delivered to Marine Farm Site[6]	April - June 1993
Harvest/Sales Begin[7]	November 1994

[1]Assumes legislation enacted at the beginning of new fiscal year. Could be earlier depending on effective date of enabling legislation.

[2]Assumes agencies can promulgate regulations (similar to existing Aquatic Farm Regulations) in six months.

[3]Assumes finfish farming permit process to be similar to existing Aquatic Farm permit process.

[4]Assumes smolt production to be contracted out to an existing State or PNP hatchery. Eggs could be surplus to the hatchery, from cost recovery fish, or egg take from surplus wild stock.

[5]If surplus smolts were available, pens could go into the water as early as spring 1992.

[6]Assumes one year of fresh water growth for smolt before going into salt water. Another operation is to use "zero-check" smolt (no over winter of fish in fresh water, instead fry are placed directly into salt water).

[7]Sales begin after 19th month in marine growout facility and continue into the 25th month.

TABLE 1. (CONTINUED)

ACTIVITY	TIME
Development of Fresh Water Hatchery Facility:	
Identify Source of Fresh Water and Location of Hatchery[8]	July 1990 - January 1991
Application for Fresh Water Hatchery Permits	January 1991
Permits for Finfish Farm Hatchery Issued	November 1991
Eggs Placed into Hatchery[9]	July - October 1992
Smolt from Finfish Farming Ha[illegible] Placed into Salt Water Pens	April - June 1993
Egg Take from Captive Broodsto[illegible]	July - October 1995, 1996

[8]Assumes the fish farm company will develop its own fresh water hatchery at the same time as it develops the marine growout facility.

[9]Assume sources of eggs to be from one of the following: surplus eggs from existing hatcheries, cost recovery fish from PNPs, or wild egg take.

II. PRODUCTION OVERVIEW

The production cycle includes the following:

-egg take or purchase of fertilized eggs,
-incubation of eggs and the production of fry,
-fresh water rearing of fry to smolts,
-marine growout of juvenile salmon to market size, and
-marine growout of mature salmon for broodstock.

1. EGGS AND SPAWNING

Initial sources of eggs before a farm develops its own broodstock include purchase of either surplus eggs or eggs from cost recovery fish from existing State or private nonprofit hatcheries. A farm that produces 200 metric tons annually will require 100,000 smolt. Fifty-seven female chinook salmon would be required to produce 100,000 smolt, assuming 2,500 eggs per individual salmon and a 30 percent mortality rate from egg to smolt. [100,000 smolt/(2,500 eggs/female x 70% survival rate.]

Assuming a conservative male/female ratio of 1:2, a 200 metric ton farm will require about 85 chinook salmon. Thus, for a 10,000 metric ton industry, 4,250 adult chinook salmon are needed for broodstock annually.

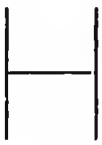
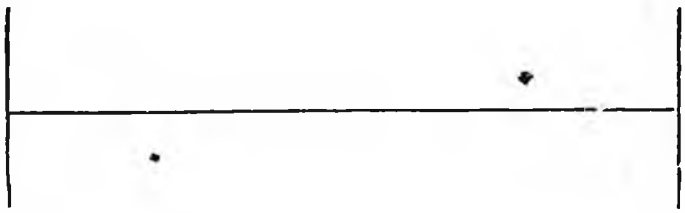
2. SIZES OF FISH

When fry emerge from the substrate and start feeding, they average about 0.4 grams each and are transferred into a freshwater raceway. At an average weight of twelve grams, they are transferred to the growout net pens in sea water. When they reach six to eight pounds, they are slaughtered and sold.

3. SCHEDULING THE PRODUCTION CYCLE

Scheduling is based primarily on the physiological activity of the fish in the different phases of operation and secondarily on economic considerations (e.g., when to harvest). Table 2 provides an outline of one complete production cycle. This table can be cross-referenced with Tables 3 and 4 to determine the sizes and the biomass of the production at various stages of the production cycle.

TABLE 2. PRODUCTION SCHEDULE FOR A SOUTHEAST ALASKA CHINOOK SALMON FARM

TASK	----YEAR 1 ----- JASONDJFMAMJ	----YEAR 2----- JASONDJFMAMJ	----YEAR 3----- JASONDJFMAMJ	----YEAR 4----- JASONDJFMAMJ
FRESH WATER GROWTH •EGG TAKE[1] •SPAWNING •FERTILIZATION •HATCHING[2]				
•FRY EMERGE FROM INCUBATOR[3] •TRANSFER TO PONDS •START FEEDING				
•SMOLTING •TRANSFER TO SALT WATER CAGES[4]				
SALTWATER GROWTH • FEED FISH • SEPERATE BY SIZE • MAINTAIN PROPER DENSITY • MAINTAIN FARM				
HARVEST/SALES START[5]				
BROODSTOCK • SPAWNING • FERTILIZATION • INCUBATION IN FW				

NOTES

1 Wild egg take or purchase from existing hatchery (state or PNP) until development of own broodstock
2 50 to 75 days after fertilization (900 Temp. Units)
3 100 to 150 days after fertilization
4 Smolting occurs 60 - 150 days after emerge from incubator
5 Sales begin after 19th month in marine growout facility

4. GROWTH AND MORTALITY MODELS

Growth and loss patterns are presented in Table 3 for the freshwater rearing stage and Table 4 for the salt water rearing stage. These tables can be used to aid in planning management strategies for stocking, transferring and grading farmed fish, installation of net pens, and timing sales. The tables assume a strategy of getting the largest smolts possible into saltwater as early in the year as possible to take advantage of seasonally warming ocean waters. The strategy also times sales in the winter months when wild salmon are in short supply.

The data in Tables 3 and 4 are based on the following assumptions:

a. The average size of fry is 0.4 grams when "buttoned up," during the month of November, and they are transferred to salt water as 2-gram (average) smolts.

b. The farm will experience a monthly mortality rate of one to two percent (fresh water cumulative mortality of approximately six percent and a salt water cumulative mortality of about 34 percent).

c. The average water temperature is approximately 12 degrees C for fresh water growth, and in salt water, the average temperature is 10 to 15 degrees C during summer months and above 6 degrees C in winter. (These temperatures were taken from data for mean monthly sea surface temperatures in southeast Alaska.)

d. Salt water growth rates for Chinook salmon are based on actual rates experienced in northern B.C. and at the NMFS Little Port Walter station in southeast Alaska.

e. Mortalities assume fish losses due to disease, precocity, predation, algae blooms, and unknowns. The model uses a B.C. industry-wide standard of two percent average mortality per month. Column 10 in Table 4 presents the cumulative mortality expressed in percentage of the original number of fish.

TABLE 3. GROWTH/MORTALITY MODEL FOR FRESH WATER REARING

MODEL OF A 100,000 FISH SALMON FARM

MONTH	MONTHS IN POND	NUMBER OF FISH	AVG WEIGHT FISH (g)	DAILY GROWTH RATE	% MORTALITY (Assumed)
November (start feed)	0	113000	0.4	0.000	0
December	1	110740	1.1	0.034	2
January	2	109633	2.7	0.030	1
February	3	108536	5.0	0.021	1
March	4	107451	8.0	0.016	1
April	5	106376	12.0	0.014	1

TABLE 4. GROWTH/MORTALITY MODEL FOR MARINE GROW OUT

MODEL OF A 100,000 FISH (INITIAL) PACIFIC SALMON FARM IN SOUTHEAST ALASKA

MONTH/YR	MONTHS IN GROWOUT	NUMBER OF FISH	AV. WEIGHT/ FISH (lbs.)	DAILY GROWTH RATE (%)	BIOMASS (lbs.)	MORTALITY % Assumed	NUMBER FISH LOST	BIOMASS LOST	CUMULATIV % MORTALI
January (Year 1)									
February									
March									
April	0	100000	0.026		2600	0	0	0	0
May	1	95000	0.051	2.246	4845	5	5000	255	5
June	2	92150	0.100	2.244	9215	3	2850	285	8
July	3	91229	0.195	2.226	17790	1	922	180	9
August	4	90316	0.381	2.233	34410	1	912	348	10
September	5	89413	0.510	0.972	45601	1	903	461	10
October	6	88519	0.601	0.547	53200	1	894	537	11
November	7	87634	0.702	0.518	61519	1	885	621	12
December	8	86757	0.801	0.440	69493	1	876	702	13
January (Year 2)	9	85022	0.900	0.388	76520	2	1735	1562	15
February	10	83322	1.001	0.355	83405	2	1700	1702	16
March	11	82489	1.201	0.607	99069	1	833	1001	17
April	12	81664	1.450	0.628	118412	1	825	1136	18
May	13	80847	1.800	0.721	145525	1	817	1470	19
June	14	80039	2.600	1.226	208100	1	808	2102	20
July	15	79238	3.604	1.088	285574	1	800	2885	22
August	16	77653	4.350	0.627	337792	2	1585	6894	22
September	17	75324	4.805	0.332	361931	3	2330	11194	13
October	18	73817	5.405	0.392	398983	2	1506	8143	25
November (Sales Begin)	19	73079	5.955	0.323	435187	1	738	4396	26
December	20	72348	6.057	0.057	438214	1	731	4426	27
January (Year 3)	21	70901	6.206	0.081	440014	2	1447	8980	28
February	22	68774	6.305	0.053	433622	3	2127	13411	31
March	23	68087	6.406	0.053	436163	1	688	4406	31
April	24	66725	7.007	0.299	467541	2	1362	9542	33
May	25	66058	7.808	0.361	515778	1	667	5210	33

5. FEEDING AND MARKETING MODEL

The feeding and marketing model presented in Table 5 projects feed consumption, weight of fish, and sales revenue over the production cycle. It can be used to plan feed purchases, storage capacity, and sales revenue.

The model assumes an average conversion rate (pounds of feed required to produce one pound of salmon flesh) of 1.7, with a range of 1.3 to 1.9. This rate is based on actual data from the NMFS Little Port Walter research.

The model utilizes feed cost assumptions for extruded feed from Moore-Clark in LaConner, Washington. Extruded feed is more expensive than dry feed ($.46/lb. versus $.32/lb. FOB Sitka, Alaska).

The model assumes sales occur after the fish reach a six pound average to obtain maximum value for the crop. Thus, sales begin in November (the 19th month) of the second year in salt water and continue at a rate of 15 percent of the biomass through May (25th month).

III. ECONOMIC CONSIDERATIONS AND BUDGET ANALYSIS

Cash flow requirements for a 200 metric ton southeast Alaska Chinook salmon farm are presented in Table 6. Growth, mortality, and feed conversion rates and sales are from Tables 2, 3, and 5.

CAPITAL EXPENSES

Pens. The analysis assumes the use of premanufactured steel net pens, assembled and installed by the supplier. Two 15 x 15 meter net pens, necessary for initial smolt growth and required for the first year, cost $19,000 each. A total of four of these pens are required by the start of the second year. Two large 33 x 33 meter pens valued at $38,000 each are needed during the second year. Cost data are from Viking Pacific Seacage Systems (Oppdrett Service Canada LTD) in North Vancouver, B.C. The cost includes the cost of anchoring the cages. Also included in the model are two 15 x 15 meter wooden net pens in the second year to be used as mobile enclosures to transfer fish from one pen to another and for grading fish.

Nets. Nets for smaller pens are assumed to cost $3,000 each; the larger pens require nets assumed to cost $10,000 each. A space net is planned for each size. The cost also includes the price of a predator net. Nets have a life expectancy of five years. Replacement costs are included.

Power Plant. The model includes the purchase of a 20 kilowatt generator. Cost of maintaining and rebuilding it are included.

Boat. The model assumes a work boat is needed at a cost of $14,000 for boat and motor. Another $5,000 is needed every two years for motor replacement. A replacement boat is planned for year six.

TABLE 5. FEEDING/MARKETING MODEL

MODEL OF A 100,000 FISH (INITIAL) PACIFIC SALMON FARM IN SOUTHEAST ALASKA

MONTH/YR	MONTHS IN GROWOUT	BIOMASS (lbs.)	CONVERSION RATE	FEED CONSUMPTION (lbs./month)	CUMULATIVE FEED CONSUMPTION	FEED COST/ MONTH ($0.46/lb)	CUMULATIVE FEED COST	NUMBER OF FISH SOLD	AV. WEIGHT/ FISH (lbs.)	PRICE ($/lb)	GROSS SALES REVENUES
January (Year 1)											
February											
March											
April	0	2,600	0	0	0	0	$0	0	0.03	$0.00	$0
May	1	4,845	1.3	2,919	2,919	1,343	1,343	0	0.05	0.00	0
June	2	9,215	1.5	6,555	9,474	3,015	4,358	0	0.10	0.00	0
July	3	17,790	1.5	12,862	22,335	5,916	10,274	0	0.20	0.00	0
August	4	34,410	1.5	24,931	47,267	11,468	21,743	0	0.38	0.00	0
September	5	45,601	1.6	17,904	65,171	8,236	29,979	0	0.51	0.00	0
October	6	53,200	1.6	12,159	77,330	5,593	35,572	0	0.60	0.00	0
November	7	61,519	1.6	13,310	90,640	6,123	41,694	0	0.70	0.00	0
December	8	69,493	1.7	13,555	104,196	6,236	47,930	0	0.80	0.00	0
January (Year 2)	9	76,520	1.7	11,946	116,142	5,495	53,425	0	0.90	0.00	0
February	10	83,405	1.7	11,705	127,847	5,384	58,810	0	1.00	0.00	0
March	11	99,069	1.7	26,628	154,475	12,249	71,059	0	1.20	0.00	0
April	12	118,412	1.7	32,884	187,359	15,127	86,185	0	1.45	0.00	0
May	13	145,525	1.8	48,802	236,161	22,449	108,634	0	1.80	0.00	0
June	14	208,100	1.8	112,636	348,797	51,813	160,447	0	2.60	0.00	0
July	15	285,574	1.8	139,453	488,251	64,149	224,595	0	3.60	0.00	0
August	16	337,792	1.8	93,992	582,243	43,236	267,832	0	4.35	0.00	0
September	17	361,931	1.8	43,449	625,693	19,987	287,819	0	4.81	0.00	0
October	18	398,983	1.8	66,693	692,386	30,679	318,498	0	5.41	0.00	0
November (Sales Begin)	19	375,637	1.9	83,980	776,366	38,631	357,128	10,000	5.96	$2.06	$122,673
December	20	317,680	1.9	58,492	834,858	26,906	384,035	10,000	6.06	2.41	145974
January (Year 3)	21	256,925	1.9	8,291	843,149	3,814	387,849	10,000	6.21	2.77	171906
February	22	190,143	1.9	8,780	851,929	4,039	391,887	10,000	6.31	2.77	174649
March	23	127,197	1.9	5,825	855,755	1,759	393,647	10,000	6.41	2.77	177446
April	24	66,277	1.9	2,001	857,755	921	394,567	10,000	7.01	2.77	194094
May	25	0	1.9	0	857,755	0	394,567	9,459	7.81	2.77	216282
TOTAL				857755		$394,567		69,459			1203023

Note: Sales are assumed to begin in November of the second year (19th month) and continue at a rate of 10,000 fish/month through May of year 3 (25th month).
Sale prices are for round fish sold to processors.
This model is intended to represent the complete grow out cycle of one year class of smolts

TABLE 6 . CAPITAL AND OPERATING COSTS AND YEARLY CASH FLOW PROJECTIONS FOR 200 METRIC TON ANNUAL PRODUCTION
(Thousands of U.S. Dollars)

CAPITAL COSTS:	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	TOTAL
Pens	76	86	0	0	0	0	162
Nets	15	32	0	0	0	15	62
Anchoring	5	5	0	0	0	1	11
Automatic feeders	1	1	0	0	0	1	3
Power plant	10	0	2	0	0	10	22
Equipment	8	8	5	10	10	10	51
Accomodations	100	0	0	0	0	0	100
Boat	14	0	5	0	5	9	33
Miscellaneous	20	16	8	8	8	8	68
Depreciation	19	29	29	29	29	29	164
TOTAL CAPITAL EXPENSES	268	177	49	47	52	83	676
OPERATING EXPENSES:							
Smolts ($0.50 each)	50	50	50	50	50	50	300
Feed	48	340	395	395	395	395	1968
Labor	104	104	104	104	104	104	624
Management	50	50	50	50	50	50	300
Insurance	6	52	93	93	93	93	430
Medicine/Vet.	8	8	8	8	8	8	48
Maintainance & Fuel	16	16	16	16	16	16	96
Contingency	24	24	24	24	24	24	144
TOTAL OPERATING EXPENSES	306	644	740	740	740	740	3910
TOTAL EXPENSES	574	821	789	787	792	823	4586
SALES REVENUE	0	441	1203	1203	1203	1203	5253
NET REQUIREMENT	($574)	($380)	$414	$416	$411	$380	$667
CUMULATIVE NET REQUIREMENT	($574)	($954)	($540)	($124)	$287	$667	

Return on investment = net req./total investment

Equipment. This category covers everything from diving gear and hydraulic winches to water testing equipment and rain gear.

Accommodations. The model assumes the farm will conduct support activities from a barge attached to the net-pen structure. The facilities include living quarters, storage shed for feed, work shop, lab, and office. It is budgeted to cost $100,000.

Depreciation. Net pens, accommodations, power plant, and boat are depreciated at 10 percent per year for a ten-year useful life.

OPERATING EXPENSES

Smolts. The model assumes the farm will initially purchase smolts until its own broodstock mature. The cost per smolt is assumed to be $.50.

Feed Costs. Costs are based on quotes from Moore-Clark's Washington plant for container shipments from Seattle, with freight rates for delivery in Sitka provided by Lynden Transfer.

Labor. The cost of a farm manager is budgeted at $50,000.The salaries of five production employees (production supervisor, two culturists, and two laborers) are budgeted at $104,000 per year. The culturist and laborer positions are budgeted at $8 per hour. For both the laborer and culturist positions, one eight-hour shift per day is required during the six months of reduced daylight, and two eight-hour shifts per day are required for the other six months. Supervisor wages are budgeted at $10 per hour and the position is full-time year round.

Insurance. Insurance coverage for fish stocks is calculated at four percent of the market value of the fish held in net pens, which is the B.C. industry standard.

Medicine/Veterinarian. This $8,000 is based upon the expenses of a B.C. farm for vaccinations and pathology services performed by private veterinarians and pathologists.

Sales revenue. The model assumes a farm site price of $2.77 per pound round weight.

ECONOMIC RETURN TO THE STATE OF ALASKA

The state will receive economic rent from the finfish farming industry in the following ways:

Aquatic farm product tax for finfish. This revenue is estimated to be three percent of the farmgate value (gross sales). This tax is similar to the raw fish tax. For a farm that produces 200 metric tons annually, the estimated annual gross sales revenue is $1,203,000 (from Table 6, assuming the farm is operating at capacity). Thus, the aquatic farm product tax for a 200 metric ton farm would be $36,090 annually. For a 10,000 metric ton industry (fifty 200 metric ton farms), the total annual farm product tax is estimated at $1,804,500. Note that the revenue from this tax is split evenly between the local municipality or borough and the State.

Tideland lease from the State. Currently, there are no tideland leases from the State for shellfish farms; as a result, no estimates are available. However, the revenue to the State from the tideland lease is based on the appraised fair market value. An average farm of two surface acres would lease the amount of tideland utilized, which includes the area up to location of the anchors. Thus, depending on depth, current, and location, the area of the lease would range from approximately 10 to 20 acres per farm.

Permit fees. Current fees include a $50 filing fee, $100 annual permit fee, and a $50 per acre fee if utilizing a permit rather than a lease for tideland use.

Corporate income tax. Estimated at $4,500 up to the first $90,000 of net income, plus 9.4 percent of all net income over $90,000.

Local property tax. Varies depending on the municipality or borough in which the farm is located.

Local sales tax or raw fish tax. This revenue varies depending on whether the local taxing authority has a sales or raw fish tax, and whether the farm is located inside a local taxing authority (municipality or borough).

APPENDIX B

IMPACT OF FARMED SALMON PRODUCTION ON SALMON PRICES

Increased worldwide production of farmed salmon has put downward pressure on the price of Alaska wild salmon. Alaska's salmon fishermen are concerned that production of Alaska farmed salmon will further this price erosion. With available data, we can estimate a range for the lost revenue to Alaska commercial fishermen resulting from an increase in the production of farmed salmon.

In Appendix A, the operation of a 200 metric ton salmon farm is described. The task force has envisioned that over a period of 5 to 15 years from the date finfish farming may be permitted, the industry will grow slowly from 10 to 100 fully productive farms of about 200 metric tons each.

Recent estimates of the elasticity of demand for pacific salmon can be used for a rough estimate of the effect that a farmed salmon industry in Alaska could have on the price of Alaska wild salmon.

It is difficult to provide an accurate estimate of the elasticity for salmon since demand for salmon is increasing and the composition of production is changing with more farmed salmon on the market. Also, the elasticity of demand for salmon depends on the markets in which it is sold. The results provided here should be considered ballpark estimates.

From elasticities provided in Anderson (1988), assuming our maximum estimate of 100 farms each producing 200 metric tons, and assuming a world production of 568,000 metric tons with an exvessel price of $3.00 per pound, we get a range of loss to the Alaska commercial fishing industry due to a decline in price of $15-51 million (See Table 1).

The lower end of this range would occur if wild and farmed salmon competed mostly in the Japanese market, a likely scenario. The high end assumes competition only in the expensive seafood restaurant market, less likely since this market could not absorb more than a small fraction of the total production of wild salmon.

These estimates are based on mostly negative assumptions. It is unlikely that the Alaska salmon farming industry would produce 20,000 metric tons for many years to come. Also, most farmed salmon fills market niches that do not compete with wild salmon. Also, the markets that would be targeted by Alaska farmed salmon producers would likely be filled by another producer if Alaska does not permit finfish farming.

The contribution of salmon farms to the economy may be larger than the negative effects. Refer to Appendix A for information on the economic benefits of salmon farming.

TABLE 1
IMPACT OF ALASKA FARMED SALMON ON ALASKA PRICES

	ELASTICITY	CURRENT PRICE PER LB.	WORLD PACIFIC SALMON (MT)	ALASKA CATCH (MT)	HYPOTHETICAL ALASKA FARM OUTPUT (MT)	RESULTING PRICE CHANGE PER LB.	LOSS TO AK COM. FISHING
N.E. SUPERMARKETS	-1.69	$3.00	568,000	200,000	200	(0.00)	($275,023)
N.E. FISH STORES	-2.19	$3.00	568,000	200,000	200	(0.00)	($212,232)
EXPENSIVE SEAFOOD	-0.9	$3.00	568,000	200,000	200	(0.00)	($516,432)
JAPANESE TRADERS	-3.1	$3.00	568,000	200,000	200	(0.00)	($149,932)
N.E SUPERMARKETS	-1.69	$3.00	568,000	200,000	1,000	(0.00)	($1,375,115)
N.E. FISH STORES	-2.19	$3.00	568,000	200,000	1,000	(0.00)	($1,061,161)
EXPENSIVE SEAFOOD	-0.9	$3.00	568,000	200,000	1,000	(0.01)	($2,582,160)
JAPANESE TRADERS	-3.1	$3.00	568,000	200,000	1,000	(0.00)	($749,659)
N.E. SUPERMARKETS	-1.69	$3.00	568,000	200,000	10,000	(0.03)	($13,751,146)
N.E. FISH STORES	-2.19	$3.00	568,000	200,000	10,000	(0.02)	($10,611,615)
EXPENSIVE SEAFOOD	-0.9	$3.00	568,000	200,000	10,000	(0.06)	($25,821,596)
JAPANESE TRADERS	-3.1	$3.00	568,000	200,000	10,000	(0.02)	($7,496,592)
N.E. SUPERMARKETS	-1.69	$3.00	568,000	200,000	20,000	(0.06)	($27,502,292)
N.E. FISH STORES	-2.19	$3.00	568,000	200,000	20,000	(0.05)	($21,223,230)
EXPENSIVE SEAFOOD	-0.9	$3.00	568,000	200,000	20,000	(0.12)	($51,643,192)
JAPANESE TRADERS	-3.1	$3.00	568,000	200,000	20,000	(0.03)	($14,993,185)

(1) FROM "WORLD MARKETS FOR SALMON: PEN REARED SALMON IMPACTS"

ELASTICITIES ARE FROM P.189.
PACIFIC SALMON PRODUCTION IS FOR 1987 P.73.

THESE IMPACTS ASSUME ALASKA FARMED SALMON COMPETES ONLY WITH PACIFIC SALMON AND DOES NOT ACCOUNT FOR INCREASING DEMAND FOR SALMON.

TO THE EXTENT THAT ALASKA FARMED SALMON COMPETES WITH ATLANTIC SALMON AND AS DEMAND INCREASES, THE IMPACT ON ALASKA COMMERCIAL FISHING INDUSTRY DIMINISHES.

APPENDIX C

SUMMARY OF TASK FORCE ACTIVITIES

CREATION OF THE TASK FORCE

The Alaska Finfish Farming Task Force was created by the Alaska Legislature under Chapter 145, SLA 1988; the effective date of the act was June 9, 1988.

Under Ch. 145, SLA 1988, the task force was charged with providing an interim report, due by January 30, 1989, and a final report, due by January 30, 1990, to the Legislature addressing "finfish farming in fresh water, in marine environments, and in tanks or other enclosed structures that contain marine water and that are located on land." The task force was also to consider related hatchery operations.

The legislation directed the task force to examine:

(1) whether the farming of finfish can be conducted in a manner that protects the health of the state's fishery resources;

(2) criteria for the siting of finfish farms to minimize land use conflicts and to protect the environment;

(3) net economic costs and benefits of finfish farming in the state to state residents, including jobs created or lost for state residents, tax revenue (assuming an appropriate tax rate), cost of State regulation and monitoring, and effects on markets for salmon caught by the state's commercial fishing fleets;

(4) the cost of providing adequate regulation of finfish farming to protect wild stocks, the environment, public health, and existing beneficial uses of the state's coastal water and land, and the role of the private sector in providing pathological and other services;

(5) identification and analysis of appropriate sources of supply of stock for finfish farms, including but not limited to private nonprofit hatcheries, private for-profit hatcheries, and wild stocks, and their likely effect on existing state policy; and

(6) strategies for improving the marketability of Alaska salmon, particularly those high-value species competing with farmed salmon for domestic and export sales.

No funds were appropriated for task force operations until the 1989 legislative session. As a result, the original deadline for the interim report passed before the task force was established.

Following the 1989 legislative session, the Office of the Governor began organizing the task force. For administrative purposes, the task force was located in the Office of the Governor, Division of Administrative Services. A project coordinator was hired in late June.

TASK FORCE MEMBERS

In late July 1989, Governor Cowper appointed the following task force members: Ken Castner, representative of commercial salmon fishermen; Mary Lou Cooper, public member; Gordon Harrison, private economist; Theodore Merrell, fisheries biologist; and Brent Paine, aquatic farming advocate. Mary Lou Cooper was designated chairman.

In August 1989, Gordon Harrison resigned from the task force to take a job as director of the Legislative Research Agency. Under Ch. 145, SLA 1988, State employees were not permitted to serve as task force members. John Weddleton was appointed as Mr. Harrison's replacement in September 1989.

On October 16, 1989, Mary Lou Cooper resigned as chairman while continuing to serve on the task force. Theodore Merrell was elected chairman by unanimous consent of the task force.

FUNDING

During the 1989 session, the Legislature appropriated $50,000 to the task force. Of this, $16,600 was appropriated for FY 89 and $33,400 was appropriated for FY 90. Because task force activity did not commence until after July 1, 1989, the appropriation for FY 89 lapsed.

In September 1989, the task force received $10,000 from the Department of Commerce and Economic Development through a reciprocal service agreement (RSA). In early November 1989, the Legislative Council awarded $10,000 to the task force. In total, the task force had $53,400 to spend on its efforts.

TASK FORCE MEETINGS

The task force held a series of meetings for the purpose of collecting information and developing its report to the Legislature.

The meetings are briefly described below. A list of persons testifying at each meeting is provided. For additional information, see the minutes of the meetings in Appendix D.

July 31, 1989, Juneau

Topics: Review enabling legislation and budget; develop goals and objectives; plan future activities.

Individual Testifying:

Deborah Greenberg, Special Assistant, Alaska Department of Fish and Game

September 6 & 7, 1989, Anchorage

Topics: Disease, genetics, and broodstocks; report format.

Note: While in Anchorage, task force members also attended various sessions of the American Fisheries Society Convention concerning aquatic farming and related issues.

Individuals Testifying:

Conrad Mahnken, National Marine Fisheries Service, Northwest and Alaska Fisheries Center
Dr. Lee Harrell, National Marine Fisheries Service, Northwest and Alaska Fisheries Center
Dr. Brian Allee, Director of Fisheries Rehabilitation, Enhancement and Development, Alaska Department of Fish and Game
Alex Wertheimer, National Marine Fisheries Service, Auke Bay Laboratory

September 27 & 28, 1989, Juneau

Topics: Siting and marketing; presentation from Tim Kennedy, Cordova fisherman and part owner of fish farms in Washington and British Columbia; presentation from Bill Heard, with the National Marine Fisheries Service, Auke Bay Laboratory.

Individuals Testifying:

Laura Dameron, Southeast Alaska Conservation Council
Rodger Painter, Alaska Mariculture Association
Diane Mayer, Office of the Governor, Division of Governmental Coordination
Janet Burleson, Department of Natural Resources, Division of Land and Water Management
Brian Allee, Department of Fish and Game, FRED Division
Sonja Corazza, United Fishermen of Alaska
Tim Kennedy, commercial fisherman and salmon farm owner
Paul Peyton, Department of Commerce and Economic Development, Division of Business Development
Bill Atkinson, Private Consultant on Japanese markets for seafood (by teleconference)
Bill Heard, National Marine Fisheries Service, Auke Bay Laboratory

October 16 & 17, 1989, Juneau

Topics: Review of previous findings; broodstock ownership, siting, disease, genetics; and commercial fisheries economics, regulation, and management.

Individuals Testifying:

Dr. Anthony Gharrett, University of Alaska and National Marine Fisheries Service
Gale Good, Alaska Trollers' Association
Sonja Corazza, United Fishermen of Alaska (by teleconference)
Ken Parker, Director, Alaska Department of Fish and Game, Division of Commercial Fisheries
Rodger Painter, Alaska Mariculture Association

November 5 & 6, 1989, Juneau

Topics: Regulating finfish farming; costs and benefits of a finfish farming industry; marketing issues; findings and recommendations.

Individuals Testifying:

Chip Toma, private citizen
Rick Harris, Sealaska Corporation

December 5, 1989, Work Session by Teleconference

Topic: Review of draft report and public comments received.

December 18, 19 & 20, 1989

Topic: Finalize report to Legislature.

ADDITIONAL ACTIVITIES

September 24 - 26, 1989, Tour of Puget Sound Fish Farms

On September 24, 25, and 26, task force members Ken Castner, Mary Lou Cooper, Theodore Merrell, and Brent Paine toured finfish farms in the Puget Sound area. Also present on the tour were Rick Harris, Sealaska, Tom Moyer, Legislative Aide to Sen. Bettye Farhenkamp, and Jon Sherwood, project coordinator for the task force.

On the afternoon of September 24, the task force visited the Squaxin Island marine pen fish farm and ocean ranching facility and viewed the proposed site of Swecker Farms marine pen fish farm, both in south Puget Sound.

On the morning of September 25, the task force visited Swecker Farms' processing facility in Olympia and its fresh water tank farm and hatchery facility in Rochester. That afternoon, the task force visited the Sea Farms Washington marine pen fish farm at Port Angeles. In addition, the task force conducted an aerial inspection of several marine pen operations in north Puget Sound.

On the evening of September 25, the task force met with representatives of the Marine Environmental Coalition, a group opposed to most aquatic farming in Puget Sound.

On the morning of September 26, the task force met with several members of the University of Washington faculty, addressing to them questions on disease, genetics, broodstock development, environmental impacts and research activities.

The faculty members were Dr. Ken Chew, Dr. Marsha Landolt, Dr. Bill Hershberger, Dr. Bob Stickney, and Dr. Donald Weston.

The trip to Puget Sound was hosted by Sealaska Corporation. The task force paid for its airfare to and from Seattle and for its food and accommodations. Sealaska Corporation paid for transportation within Washington and for the rental of a meeting room at the University of Washington campus for the morning of September 26. (An ethics report is on file with the Department of Law.)

November 17, 1989, Draft Report Released

On November 17, the task force released its interim report, including the draft version of its final report, to the Alaska Legislature. By November 20, copies of the report were mailed to the 130 people on the task force's mailing list, as well as all of the Legislative Information Offices.

A press release announcing the release of the report was also sent out. The task force received additional requests for the report. Eventually, a total of approximately 300 copies of the report were distributed to interested parties.

The task force received over seventy separate written comments on the draft report.

Throughout its existence, the task force gathered relevant information on finfish farming. Individual task force members collected data on various related topics, and information sent the task force from any source was distributed to the task force or (in the case of a few lengthy documents) summarized for the task force by the project

coordinator or a task force member. (See Appendix F, Bibliography, for a complete listing of sources.)

The task force developed a mailing list numbering approximately 150, including legislators, state and federal officials, various advocacy groups, and interested members of the press and public. Anyone who asked was put on this mailing list. After each meeting, the task force sent out letters summarizing the meeting and setting forth upcoming task force activities.

APPENDIX D

MINUTES OF MEETINGS

ALASKA FINFISH FARMING TASK FORCE
July 31, 1989

MINUTES

The meeting was called to order at 9:00 by Mary Lou Cooper, Chairperson of the Task Force. Task Force members present were: Mary Lou Cooper, Ken Castner, Gordon Harrison, Ted Merrell, and Brent Paine. No members were absent.

Mary Lou Cooper introduced the members of the task force and staff to the audience. Members of the audience identified themselves.

Mary Lou Cooper reviewed the rules and methods of operation of the Task Force.

Jon Sherwood, project coordinator for the Task Force, provided a brief overview of the legislation authorizing the Task Force. He explained that the Task Force is to produce an interim report by December 1, 1989 and a final report by January 15, 1990. He also reviewed the Task Force's budget. The Task Force is funded for $33,000.

Task Force members then engaged in a discussion of their goals and how they would like to achieve them. Ted Merrell stated that the American Fisheries Society was holding its annual meeting in Anchorage in September and there would be a symposium on pen rearing salmon at the meeting. The Task Force decided to meet in Anchorage during the AFS meeting to take advantage of the expertise that would be available there.

Deborah Greenberg, Special Assistant with the Department of Fish and Game, addressed the Task Force on the legislative history of aquatic farming in Alaska. She then explained the Cowper administration position on mariculture. She also summarized the issue papers on finfish farming prepared by the interagency working group on mariculture. The issues included land use, water quality, disease, brood stock, habitat protection and product wholesomeness.

Ted Merrell asked whether minutes of the meetings would be provided. The Task Force decided that minutes indicating who spoke, the general topics, any formal decisions, and a list of observers should be kept.

The Task Force held a discussion of the topics for consideration included in its authorizing legislation. Members asked questions and exchanged information on finfish farming. Much of this discussion focused on the issue of minimizing land use conflicts. The task force identified a number of people to contact for additional information on this issue.

At 12 p.m., the Task Force adjourned for lunch.

The meeting was reconvened at 1:20 p.m. The task force members continued their discussion of the issues contained in the authorizing legislation. As each issue was discussed, contact persons were identified.

The issue of broodstock was addressed briefly. The task force then returned to their discussion of land use conflicts and siting.

Mary Lou Cooper raised the cost-benefit issue. Gordon Harrison stated that it would be a major task and depend on the assumptions made by the task force. Task force members discussed loss of jobs in the fishing industry, market niches, reasons for farming finfish, the cost of regulation, taxation of finfish farming, and the need to look at the three possible types of farming operations: freshwater, upland tanks, and marine pens.

Jon Sherwood handed out travel authorization forms for reimbursement of travel and per diem costs. He also passed out an article on salmon farming provided to the task force by Frank Homan, of Senator Sturgulewski's staff.

The task force discussed the cost of regulation issue contained in the authorizing legislation. Ken Castner said that this issue duplicated parts of the cost-benefit issue, except that it addressed the role of private sector in regulation. He stated that this role is a policy question. A brief discussion was held on this issue.

Mary Lou Cooper raised the issue of broodstock sources. Ken Castner suggested that the task force should review the debate before the Board of Fisheries in December of 1988. Brent Paine stated that he had put together papers on broodstock supplies while working for the Legislature. The task force discussed the practical and policy issues associated with supply of broodstock.

The task force discussed the issue of improving the marketability of Alaska salmon. Ken Castner suggested calling the producers of the Seafood Report radio program in Kodiak for the name of a good marketing person. Mary Lou Cooper mentioned ASMI as a possible resource. Ted Merrell suggested contacting the Alaska Trollers Association.

Ken Castner commented on how the task force members should conduct themselves in public. He said he did not want to see the task force members be perceived as public experts, and suggested that task force members keep their comments private. He stated that he did not want to do anything to poison or damage the quality of the task force's report.

Following the discussion of the issues, it was decided to divide the topics for consideration into five subjects: siting, cost-

benefit analysis, the amount and cost of regulation, broodstock-genetics-disease.

The task force discussed how to proceed. It was decided that each member would take one topic and work with Jon Sherwood to prepare a presentation for one of the meetings.

Ken Castner stated that he would like to teleconference with the other task force members for an hour or so before the next meeting. The task force agreed to do so, acknowledging that Gordon Harrison, and possibly Ted Merrell, would be unavailable to participate.

Mary Lou Cooper offered to take the marketability issue, Brent Paine the broodstock-genetics-disease issue, Gordon Harrison the cost-benefit analysis, Ted Merrell the siting issue, and Ken Castner the cost of regulations.

The task force briefly discussed the structure and intent of the marketability issue.

The task force decided to address the regulation and broodstock-genetics-disease issues at the next meeting. It was decided that the siting and marketing issues would be addressed at a meeting in the last week in September, and the cost-benefit issue would be addressed in an October meeting.

Ken Castner stated that he would like to have Jon Sherwood begin working on early drafts of the report soon. He said that the task force should devote 25 percent of its time to discuss writing.

The task force members updated their addresses and phone numbers for one another. The meeting was adjourned at approximately 5:30 p.m.

List of persons in attendance

Greg Erickson
Deborah Greenberg
Rick Harris
Sheila Helgath
Frank Homan
Eric King
Karl Ohls
Sandy Perry

APPROVED 9/7/89

ALASKA FINFISH FARMING TASK FORCE

September 28 & 29, 1989

MINUTES

The meeting was called to order at 8:35 a.m. on Thursday, September 28, by Mary Lou Cooper, Chairman. All task force members were present: Mary Lou Cooper, Ken Castner, John Weddleton, Ted Merrell, and Brent Paine.

Members of the task force introduced themselves to the new task force member, John Weddleton. Jon Sherwood introduced Fran Armon, who assists Jon in the office, providing administrative support for the task force.

Ken Castner reviewed the task force's past activities for John Weddleton. He listed the five catagories of issues under consideration: broodstock, genetics, and disease; siting; cost of regulation; markets/marketing; and benefits and costs. Brent Paine reviewed the minutes from the last meeting for John Weddleton to provide a general idea of what the task force has accomplished to date.

The task force discussed siting issues, including local control, conflict minimization, environmental concerns, and the Washington interim guidelines for siting.

The task force members identified questions for Bill Atkinson, a fish marketing consultant, to be faxed to Atkinson so he would be prepared to answer them during the conference call on Friday.

Laura Dameron, with SEACC, spoke with the task force stating her concerns: impacts of the coastal environment and socio-economics and lifestyle impacts. SEACC opposes all fish farming because of upland impacts, pollution, water demands, and the potential loss of desire for habitat protection.

Rodger Painter, with the Alaska Mariculture Association, spoke with the task force on the need for rational policy guidelines for siting of finfish farms. He pointed out that state regulations for shellfish farming provide for local control and that the Washington interim siting guidelines address important siting criteria. He also offered his thoughts concerning the economic viability of finfish farming and how state regulation might affect it.

The task force adjourned for lunch and reconvened at 1:30 p.m.

Diane Mayer, with the Division of Governmental Coordination, discussed the state's Project Consistency Review procedures for use of coastal waters.

Janet Burleson, with the Division of Land and Water Management, discussed how the state's permitting process works for aquatic farms.

The task force addressed several questions to Brian Allee, Director of the FRED Division, Department of Fish and Game.

Sonja Corazza, with United Fishermen of Alaska, discussed negative impacts of finfish farming. Her concerns were that pens change the habitat of wild fish, that fish escape in large numbers, and that marketing farmed salmon on Alaska wild salmon quality is wrong. She also addressed siting issues, stating that area planning is very important. She suggested requesting mapping positions with the Department of Natural Resources and the Department of Fish and Game to consolidate habitat and use charts for public use.

The meeting was adjourned at 5:15 p.m.

The meeting was reconvened Friday at 8:30 a.m. by Ken Castner. Due to illness, Mary Lou Cooper was not present; all other members were present.

The task force approved the minutes of the last meeting with amendments. They then discussed the draft of the report's introduction and health of the fisheries section and suggested changes to be incorporated by the project coordinator.

Tim Kennedy, commercial fisherman and salmon farm owner, spoke with the task force. He stated that Alaska finfish farming would not be economically viable without raising Atlantic salmon, and noted that he would not start a fish farm up here.

Paul Peyton, with the Division of Business Development, discussed the economics of fish food production and addressed the outlook for salmon in world markets.

The meeting was adjourned for lunch at 11:25 a.m. and reconvened at 12:45 p.m.

The task force reviewed the siting issues discussed the previous day.

Bill Atkinson, expert on Japanese markets for seafood, was contacted via a conference call. Atkinson addressed several questions on Japanese markets for seafood and the impacts of farmed salmon on these markets.

Bill Heard, with the National Marine Fisheries Service at Auke Bay Laboratories, addressed research in raising salmon at Osprey Bay. He stated that indigenous species could be raised successfully, although he could not speak about the economic viability.

The meeting was adjourned at 5:00 p.m.

Minutes approved October 17, 1989

List of persons in attendance:

Brian Allee, Department of Fish and Game
Susan Bradley, Coastal Zone Management
Janet Burleson, Division of Land and Water/Department of Natural Resourses
Sonja Corazza, United Fishermen of Alaska
Laura Dameron, Southeast Alaska Conservation Council
Bill Heard, National Marine Fisheries, Auke Bay Laboratories
Sheila F. Helgath, Legislative Research
Frank Homan, Senator Sturgulewski's staff
Bill Janes, Environmental Conservation
Tim Kennedy, Fish Farm Owner
Amy Kruse, Environmental Conservation
Diane Mayer, Division of Governmental Coordination/Office of the Governor
Robert Mikol, Northern Deep Sea Fisheries, Inc.
Rodger Painter, Alaska Mariculture Association
Sheila Peterson, Senator Eliason's staff
Paul Peyton, Commercial Fisheries Development/Department of Commerce and Economic Development
Rick Reed, Habitat Division/ Department of Fish and Game
Lana Shea, Habitat Division/ Department of Fish and Game
John S. Thiede, Department of National Resources

ALASKA FINFISH FARMING TASK FORCE
September 6 & 7, 1989

MINUTES

The meeting was called to order at approximately 1:30 p.m. on September 6 by Mary Lou Cooper, Chairperson. Task force members present were Mary Lou Cooper, Ken Castner, Ted Merrell, and Brent Paine. No members were absent.

Mary Lou Cooper noted that Gordon Harrison had resigned his position on the task force to take a job with the Legislative Research Agency. She stated that the Governor's Office had not found a replacement for Mr. Harrison at that time.

The task force discussed the questions it wanted to resolve at the meeting, a proposal from Sealaska Corporation to tour operating farms in the Puget Sound area, and correspondence received from Sen. Fahrenkamp regarding the task force.

Conrad Mahnken, with the National Marine Fisheries Service, Northwest and Alaska Fisheries Center (NWAFC), joined the task force in a discussion of the genetic and broodstock issues. Both Atlantic and Pacific salmon were discussed..

Dr. Lee Harrell, fish pathologist with NWAFC, discussed the incidence of disease in pen-reared salmon and the potential for spreading disease to the wild stock.

At approximately 5 p.m., the task force adjourned for the afternoon.

The task force reconvened at 9 a.m. on September 7. Dr. Brian Allee, director of the Alaska Department of Fish and Game FRED Division, discussed disease, genetics, and broodstock issues with the task force.

Dr. Allee spoke to the state's existing hatchery programs, efforts to cultivate indigenous species of finfish, and the concept of creating areas free of salmon farming near critical salmon streams.

After breaking for lunch, the task force continued their discussion of Sealaska's invitation to take the task force on a tour of finfish farming operations in Puget Sound. The task force decided to accept the invitation.

The task force discussed the report with project coordinator, Jon Sherwood, who outlined some of the options for structuring the report. The task force directed the project coordinator to begin writing the report using an issue-by-issue format.

Alex Wertheimer, with the National Marines Fisheries Service, Auke Bay Laboratories, spoke to the task force regarding protection of the wild salmon stocks from disease.

The task force approved the minutes of the last meeting. Ken Castner requested that the word "produces" on p. 2 be corrected to "producers." The task force concurred.

The task force discussed developing its preliminary recommendations on the disease, genetics, and broodstock issues.

The task force then enacted its preliminary recommendations as follows:

-- Only indigenous broodstocks should be used in finfish farming in Alaska. No stocks should be imported from out of state.

-- The State will need to allow the use of private pathology services for the finfish farming industry to grow.

-- Current state policies on disease control should be applicable to finfish farming.

The meeting was adjourned at approximately 5 p.m.

ALASKA FINFISH FARMING TASK FORCE
October 16 & 17, 1989

MINUTES

The meeting was called to order in Juneau at 8:34 a.m. on October 16 by Mary Lou Cooper, Chairman. Task force members present included Ken Castner, Mary Lou Cooper, Ted Merrell, Brent Paine, and John Weddleton.

Ms. Cooper announced her resignation as chairman and asked for the selection of a new chairman. By unanimous consent, the members approved Ted Merrell as the new chairman of the task force. Brent Paine took over as chairman of this day's meeting.

Jon Sherwood, project coordinator of the task force, apprised the members that state ethics requirements compel the members to report the services they received from Sealaska Corporation during the September meeting. Although the services do not constitute a conflict of interest, each member must report receipt of those services. Jon Sherwood will submit the required report on behalf of task force members.

Mr. Castner presented an Alaska Native Brotherhood resolution opposing finfish farming and a 1987 study on how commercial fishing affects Homer.

After reading various materials, the members discussed the format of the task force report. They reviewed a series of questions to ask Dr. Anthony Gharrett, a biologist with the University of Alaska Southeast Auke Bay Laboratory and the National Marine Fisheries Service. Mr. Gharrett made comments concerning the destrction of discrete genetic pools in the Pacific Northwest and encouraged the task force to prevent that occurence in Alaska.

Mr. Merrell recounted his interviews with state officials regarding the relationship among state resource agencies, the permitting process, siting issues, and the establishment of sanctuaries. The members talked about these issues, the role of infrastructure for the economic survival of mariculture, and the question of public versus private ownership of broodstock.

The task force then discussed siting. Mr. Castner stressed the importance of this issue by stating that "siting is everything in this game" and that any legislation authorizing finfish farming should contain a fiscal note that reflects the costs of siting. Mr. Paine agreed and said that conflict and confrontation can be diffused if siting is set up properly.

Members concurred that the proper siting of finfish farms should address the transference of disease, genetic interference with wild stocks, environmental degradation, aesthetic degradation, conflicts with existing users, avoidance of marine mammals, avoidance of water-borne organisms lethal to the farmed stock, and avoidance of conflict with designated uplands or neighborhood uses.

Members also wanted to include mention of the state of Washington's interim guidelines for siting and of the Alaska Coastal Zone Management Plan's permitting process for resolving siting issues.

Mr. Paine suggested that siting and the permitting process should be addressed as two separate issues. Mr. Merrell suggested that the Alaska Coastal Zone Management Plan's permitting process be used as a model for the finfish farming permitting process. He then asked for clarification on the structure of the task force report. Mr. Sherwood outlined the distinctions between conclusions and findings. Conclusions, he explained, should be statements of public policy. Findings should be points of agreement among the task force members on matters of fact.

Members then discussed the permitting process. Ms. Cooper and Mr. Merrell supported the inclusion of maps in the public notification process. Questions then arose about the adequacy of the state's inventory of sites.

At 10:30 a.m., Dr. Anthony Gharrett discussed disease and genetics among salmon, the homing habits of various salmon species, siting, how the Alaska Department of Fish and Game enforces its genetics guidelines, the genetic differences that exist among lakes within the same area, patentable gamete production, and the aquaculture research by Japan and the Soviet Union. He distributed a proposal calling for the Alaska Department of Fish and Game to implement its genetic policy by establishing, on a regional basis, sanctuaries for wild fish populations. Mr. Gharrett entertained questions from the members until 11:35. Discussion then returned to siting and permitting.

After lunch, the task force members heard testimony from Gale Good, member of the Alaska Trollers' Association. Mr. Good described his industry and voiced his opposition to finfish farming.

The members spent the rest of the day discussing findings and conclusions relating to siting. Specific issues addressed were: water quality; effluents; water circulation; the use of uplands; predation; disease; aesthetics;

pollution; user conflicts; having finfish farmers produce annual performance reports to governmental agencies; the distinctions among marine pens, marine upland tank facilities, and freshwater upland facilities; distances between farms and wild anadromous streams; distances between farms; and, the incremental implementation of finfish farming.

The meeting was adjourned at 5:14 p.m.

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The task force reconvened at 8:45 a.m. on October 17. John Weddleton presided over the day's meeting. Task force members present included Ken Castner, Ted Merrell, Brent Paine, and John Weddleton. Due to illness, Mary Lou Cooper was absent.

The members adopted, with corrections, the minutes from the September 28 and 29 task force meeting and briefly discussed broodstock issues.

At 9:00 a.m., the task force members listened to United Fishermen of Alaska's Sonja Corazza's testimony on the history of the Alaska fishing industry, the limited entry program, the ocean ranching program, and the implementation of the 200-mile limit. She pointed out that in Anchorage alone, 3900 fishermen contributed $126 million to the economy. Because of the underfunding of the Alaska Department of Fish and Game, she claimed that errors in fisheries management have incurred losses to fishermen. She ended her testimony by voicing her opposition to finfish farming.

After listening to Ms. Corazza's testimony, the members resumed their discussion on broodstock selection for enclosed freshwater systems, the importation of eggs, the use of Atlantic salmon in the Pacific Northwest, the selling of smolt, and other broodstock issues.

At 10:10 a.m., the members heard testimony from Ken Parker, Director of the Division of Commercial Fisheries, Alaska Department of Fish and Game. Mr. Parker presented a fiscal history of his division and described its duties. He provided information about the catches and ex-vessel values among various fisheries; the number of fisheries permits, licenses, and processors and buyers. He showed the relationship between receipts and expenditures for commercial fisheries management before entertaining questions from the members.

Mr. Parker's testimony ended at 11:15 a.m. The members continued their discussion on broodstock issues.

At 11:35 a.m., Rodger Painter, President of the Alaska Mariculture Association addressed the task force, urging support for the development of finfish farming in Alaska. In addition to handing out the latest edition of the "Alaska Mariculture Report" (Volume 3, No. 6), he distributed a paper responding to concerns relating to the permitting process, the ability of regulatory agencies to deal with finfish farming issues, the impacts on wild stocks, disease control, support of adequate funding for regulatory programs, the demands on Alaska's environment by every industry -- from tourism to logging, public use issues, Alaska's declining market share of salmon, and the obtaining of salmon eggs for mariculture. He also addressed the role of private non-profit groups in the cultivation of broodstock. Citing his past experience at the Alaska Seafood Marketing Institute, he noted how the state still has a poor quality assurance program.

After the lunch break, the task force members discussed their agenda, the testimony they had received, developing strategies for retrieving Alaska's 1988 market share of salmon, and issues relating to quality, allocation, habitat, broodstock, costs/benefits, recapitalizing the fishing fleet, permit costs, and marketing.

After a brief break at 3:00, the members established the following meeting dates and deadlines:

November 5 & 6.....Task Force Meeting in Juneau
November 17.....Release of Draft Report
December 5.....Work Session on Draft Report
December 13.....Deadline for Public Comments
December 17 & 18.....Task Force Meeting in Juneau

Citing previous testimony, the members summarized their findings on marketing issues.

The meeting was adjourned at 5:35 p.m.

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The following people attended the task force meetings:

Sonja Corazza, United Fishermen of Alaska*
Laura Dameron, Southeast Alaska Conservation Council

Dr. Anthony Gharrett, Biologist, University of Alaska Southeast Auke Bay Laboratory and the National Marine Fisheries Service
Gale Good, Alaska Trollers' Association
Deborah Greenberg, Special Assistant, Alaska Department of Fish and Game
Sheila Helgath, Legislative Research Agency, Alaska State Legislature
Frank Homan, Aide, Senator Arliss Sturgulewski
Michael Kaill, Biologist, Fisheries Rehabilitation, Enhancement, and Development Division, Alaska Department of Fish and Game
Dale Kelly, Alaska Trollers' Association
Eric King, Alaska Trollers' Association
Richard Lauber, Pacific Seafood Processors' Association
Lynn Morley, Teleconference Moderator, Legislative Affairs Agency, Alaska State Legislature
Dave Moses, Aide, Senator Paul Fischer*
Karl Ohls, Aide, Senator Fred Zharoff
Rodger Painter, President, Alaska Mariculture Association
Ken Parker, Director, Division of Commercial Fisheries, Alaska Department of Fish and Game
Sheila Peterson, Aide, Senator Dick Eliason
Chip Thoma, Observer

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* Participated via teleconference

Minutes were approved 12/19/89.

ALASKA FINFISH FARMING TASK FORCE
November 5 & 6, 1989

MINUTES

The meeting was called to order in Juneau at 9:45 a.m. on Sunday, November 5, 1989 by Ted Merrell, Chairman. Task force members present included Ken Castner, Ted Merrell, Brent Paine, and John Weddleton. Mary Lou Cooper was absent.

Jon Sherwood, project coordinator of the task force, distributed copies of a required "ethics" report on task force activities and the draft report of findings and recommendations dated October 29, 1989. He discussed the maintenance of task force records and announced that on Friday, November 3, the Alaska State Legislature's Legislative Council approved $10,000 additional funding for the task force.

The members discussed task force staffing and agreed to have Mr. Sherwood on contract to testify on behalf of the task force before committees during the upcoming legislative session. They also discussed how to distribute the draft report, the press release that would accompany the report, and what an interim report should contain.

Mr. Merrell announced that Mary Lou Cooper spoke to him about the possibility of her resigning from the task force and that he had requested that she not do so. Members concurred with having her remain on the task force.

At 10:20 a.m., Chip Thoma addressed the task force. He voiced his strong opposition to allowing finfish farming in Alaska. He stated that finfish farming would undermine the marketing of Alaska salmon as a "pure, fresh, cold" commodity that would benefit from the "increasing trend in consumer buying and eating habits [by] stay[ing] away from raised or harvested foods that are linked with pesticides, toxins, or additives..."

The task force then discussed the costs of regulation caused by the introduction of finfish farming to Alaska. Mr. Paine cited fiscal notes from earlier legislation authorizing finfish farming. The members discussed this, the fiscal demands of siting requirements, the number of possible permits to administer, the fiscal impact on other resource programs with the introduction of finfish farming, and the spin-offs of those new demands to other regulatory agencies such as the Board of Fish.

Discussion then resumed on the draft report the task force planned to release on November 17. Several members voiced their concern about the public misconstruing the document as

being conclusive or as representing each individual member's position.

Mr. Sherwood suggested having a cover letter accompany the draft report, in which the task force could solicit public comment while emphasizing that the document is only a draft.

After lunch, the task force discussed costs/benefits issues, including: the volatility of salmon prices; market niches for farmed and wild salmon; the history and purpose of the limited entry program and its conservational and economic repercussions; marketing strategies; the threat finfish farming poses to the livelihood of fishermen; the effects on the market of price, quality, and consistency of supplies; the possible losses to wild salmon stocks from using gametes to start farming operations; finfish farming as an allocation issue; having hatcheries profiting from the sale of smolts; the possible benefits of sharing facilities between finfish farmers and ocean ranchers; incremental start-up of finfish farming; establishing genetic reserves; and, the production of fish meal.

At 4:25 p.m., Rick Harris, of Sealaska Corporation, spoke in support of allowing finfish farming in Alaska and its possible benefit to coastal areas. He argued that finfish farming can help market Alaska salmon as a commodity that is available year-round. Mr. Harris suggested that one form of economic rent would be the servicing of a remote site net pen for common property benefit. The fish would be provided by the state or non-profit hatcher. The finfish farmer would beed the fish until their release and provide and faintain the pen facility.

After a brief break, the task force members resumed their discussion of costs/benefits.

The meeting was adjourned at 6:10 p.m.

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The task force reconvened on Monday, November 6, 1989, and was called to order at 8.43 a.m. by Chairman Ted Merrell. Task force members present were Ken Castner, Ted Merrell, Brent Paine and John Weddleton. Mary Lou Cooper was absent.

The task force began discussing the profile of finfish farmers and the role they would play in the various aspects of the fishing industry. Mr. Castner was concerned that they might not defend the issues that affected the commercial fishing industry, but rather look after only their personal interests. Mr. Paine disagreed, stating that good

The task force adopted the November 2, 1989 draft labeled "Draft with Ted's Changes" for purposes of discussion.

It was decided that costs and benefits needed to be broken into two categories: 1) State of Alaska; and 2) the industry. It was determined that a time line to show the development of a fish farm to market stage was needed for inclusion in the report.

Mr. Castner requested that duplicate references under a heading be footnoted, for purposes of cross-referencing.

The task force decided that the costs associated with the beginning of the industry (insurance, markets, etc.) needed to be included in the report. Time frame estimates were predicated on a 1991 allocation, leaving site approval for 1991, with smolt and fish availability in 1992.

After a brief break, the task force discussed marketing. Findings were clarified and regrouped. The task force decided that separate findings were required for fresh and frozen markets.

The task force discussed: competition between farmed and wild salmon; improved marketing of wild salmon through quality assurance programs; and marketing wild salmon as natural, chemical-free salmon.

The task force recessed for lunch at 12:18 p.m. and reconvened at 1:30 p.m.

The task force briefly returned to its discussion of quality assurance.

Mr. Castner recommended that the report introduction contain a section on the make-up of the task force. He also thought definitions were needed on mariculture, aquaculture and finfish farming.

Several findings in the draft report were amended to provide clarifying language.

Having completed its review of the draft report, the task force verified the November 17, 1989 release of the draft report.

The meeting was adjourned at 5:22 p.m.

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The following people attended the task force meetings:

Laura Dameron, Southeast Alaska Conservation Council
Deborah Greenberg, Special Assistant, Alaska Department of Fish and Game
Rick Harris, Sealaska Corporation
Frank Homan, Aide, Senator Arliss Sturgulewski
Tom Moyer, Aide, Senator Bettye Fahrenkamp
Sheila Peterson, Aide, Senator Dick Eliason
Kate Tesar, Aide, Representative Fran Ulmer
Chip Thoma, Observer

Minutes were approved 12/19/89.

ALASKA FINFISH FARMING TASK FORCE
December 5, 1989
WORK SESSION

MINUTES

The work session teleconference was called to order at 2:20 p.m. on Tuesday, December 5, 1989, by Ted Merrell, Chairman. Task force members present were Ted Merrell, Mary Lou Cooper, Ken Castner, Brent Paine and John Weddleton.

Opportunities for public comment and participation were discussed. A request by Chuck Piedra, of Elfin Cove, to expand the public comment period and testimony methods, was noted. It was decided to continue the same comment procedures as in previous meetings of the task force. No written comments relative to substantive changes in factual findings in the draft report had been directed to the task force as of the December 5 meeting. The task force reiterated that written comments on the draft report should be received by December 13, 1989, to ensure consideration.

The task force reviewed and edited the final chapters of the draft report. Jon Sherwood, project coordinator, discussed the format and content of the final chapter of the report.

The work session was adjourned at 4:42 p.m.

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The following people observed the task force meeting:

In Juneau--

Chip Thoma, Observer
Mary McDowell, Aide to Senator Dick Eliason
Frank Homan, Aide to Senator Arliss Sturgulewski
Gordy Williams, Angoon
Karl Ohls, Aide to Senator Fred Zharoff

In Anchorage--

Valerie Brown, Alaska Wildlife Alliance
Jay Nelson, Aide to Representative Cliff Davidson
Bryce Edgemon, Aide to Representative George Jacko
Charles McKee, Observer

Minutes were approved 12/19/89.

ALASKA FINFISH FARMING TASK FORCE
December 18-20, 1989

MINUTES

The Alaska Finfish Farming Task Force meeting was called to order on December 18, 1989, in Juneau, at 1:19 p.m., by Ted Merrell, Chairman. Members present were Ted Merrell, Mary Lou Cooper-Elton and John Weddleton. Brent Paine and Ken Castner were absent due to weather and eruption of Redoubt Volcano causing flight cancellations.

Format and appendices of the final report were discussed. Mr. Merrell noted patterns to the public comment received. Members felt that comments from the public sector about the draft report indicated a need for clarification of numerous points, but no significant changes in format or content. Minutes of October 16-17, November 5-6, and December 5, 1989 meetings were reviewed and corrected. Final approval was postponed pending Mr. Castner's approval.

Brent Paine arrived at 2:28 p.m. The task force recessed at 2:30 p.m., returned at 3:29, and adjourned at 3:30 p.m.

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Ted Merrell called the task force to order on December 19, 1989 at 8:53 a.m. Members present were Ted Merrell, John Weddleton, Mary Lou Cooper-Elton and Brent Paine. Ken Castner was absent but arrived later at 9:34 a.m.

Members began reviewing the revised draft on an item by item basis, starting with the Cost of Regulation (Ch. 5). The consensus was that the actual costs will depend on the legislation that is passed.

Discussion of regulatory costs continued, including taxation and public notice costs. A recommendation limiting predator control to non-lethal methods was adopted. The task force addressed the compatibility of wilderness areas and national monuments (Ch. 4) with finfish farming, and modified the recommendation on that subject.

The task force recessed for lunch at 12:30 p.m. and reconvened at 1:45 p.m.

Minutes of October 16-17, November 5-6 and December 5, 1989 meetings were approved as corrected.

The task force continued its review of public comments on the draft report and adopted many changes in wording to clarify the findings and recommendations.

Brent Paine's Production Model draft and timeline of a typical finfish farm was discussed. The task force agreed that a clear

description of a finfish farm should be included in the production model section.

The Health of Fisheries (Ch. 2) was taken up next. Disease transmission, genetics and risks were clarified. A consensus was reached on content and format of the final chapter of the report: All recommendations in the body of the report should be repeated; the facts do not support an unequivocal "yes" or "no" to finfish farming in Alaska; the legislature should not extend the current moratorium; and finfish farming could be done without harming fishery resources if strictly regulated. Ted Merrell agreed to prepare a draft of the chapter for review by the task force next morning.

The task force was adjourned at 6:45 p.m.

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Ted Merrell reconvened the task force at 8:15 a.m. on December 20, 1989. Members present were Ted Merrell, John Weddleton, Ken Castner, Brent Paine and Mary Lou Cooper-Elton.

The task force completed Chapter 8, General Findings and Recommendations. Costs and Benefits (Ch. 6) were considered and clarified. Marketing (Ch. 7) was discussed and it was decided that it needed to be revised and expanded to reflect numerous comments by the public. John Weddleton agreed to rewrite this section and return a revised draft to Jon Sherwood as soon as possible.

Jon Sherwood will prepare a final draft of the task force's report, incorporating all the changes that were adopted and the additional sections from Brent Paine and John Weddleton. This draft will be sent to task force members for approval by the first week of January, 1990.

No further meetings of the task force will be necessary, but a final teleconference to approve any changes in the report to the legislature, may be required.

The meeting was adjourned by Chairman Ted Merrell at 1:05 p.m.

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The following people attended the task force meeting:

Rodger Painter, Alaska Mariculture Association
Mary McDowell, Aide to Senator Dick Eliason
Frank Homan, Aide to Senator Arliss Sturgulewski
Sheila Helgath, Legislative Research Agency
Kate Tesar, Aide to Representative Fran Ulmer
Barnaby Dow, Aide to Representative Mike Davis
Chip Thoma, Observer
Gordon Williams, Self/Alaska Trollers/Angoon F&G Adv. Committee

APPENDIX E

LIST OF PERSONS SUBMITTING COMMENTS ON DRAFT REPORT

ALASKA FINFISH FARMING TASK FORCE

PUBLIC COMMENT TO DRAFT REPORT

#	Name	Organization	Address
1.	James Kallander		PO Box 2272, Cordova, AK 99574
2.	Joe Craig		Box 941, Douglas, AK 99824
3.	Lonnie Haughton	F/V China Cove, Inc.	PO Box 3006, Ketchikan, AK 99901
4.	News articles	Seattle P.I. &	Alaska Fisheries Journal
5.	William Royce	AFS	10012 Lake Shore Blvd NE,SEA,WA 98125
6.	Paul Zimmerman	Keener Packing Co.	PO Box 890, Kenai, AK 99611
7.	Sen. Zharoff	State Legislature	PO Box 405, Kodiak, AK 99615
8.	Barry Griffin	Nor'Eastern Trawl	7910 NE Day Rd W, Bainbridge Is, WA
9.	William Wilson	AIFRB	13611 Capstan Dr., Anc., AK 99516
10.	Rep. Jacko	State Legislature	PO Box 47001, Pedro Bay, AK 99647
11.	James Mackovjak	Pt. Adolphus Seafoods	PO Box 63, Gustavus, AK 99826
12.	Concerned citizens	Elfin Cove	Elfin Cove
13.	Charles Piercy	F/V Tuckahoe	PO Box 1025, Ward Cove, AK 99928
14.	Charles Piedra		Box 4, Elfin Cove, AK 99825
15.	Jeff Hetrick		PO Box 7, Moose Pass, AK 99631
16.	Joseph Mehrkens	SE AK Nat Res Center	PO Box 20212, Juneau, AK 99802
17.	Kathryn Troll	SE AK Seiners Asso.	PO Box 9579, Ketchikan, AK 99901
18.	Brian Paust-see#60	Coop Ext Svc-Sea Grant	PO Box 1329, Petersburg, AK 99833
19a.	Ralph Mackie	Craig Fishery Adv Com	(see #28 below-dupl.)
19b.	Julie Hursey	F/V Thunder	Box 213, Petersburg, AK 99833
19c.	Debra Lyons		Box 296, Petersburg, AK 99833
20.	Chris Nerison	Cordova Dist Fshrmn Un	PO Box 939, Cordova, AK 99574
21.	Charles Piedra		Box 4, Elfin Cove, AK 99825
22.	Shirley Piedra		Box 4, Elfin Cove, AK 99825
23.	Denby Lloyd	Office of Governor	Box A, Juneau, AK 99811
24.	Rosemary Enderle		PO Box 10, Elfin Cove, AK 99825
25.	David Bedford		PO Box 1211, Petersburg, AK 99833
26.	Ralph Guthrie		Box 595, Petersburg, AK 99833
27.	Chris Sharpsteen		Box 1255, Petersburg, AK 99833
28.	Ralph Mackie	Craig Fishery Adv Com	PO Box 252, Craig, AK 99921
29.	Sid Cox	United Cook Inlet Drft	Box 4649, Kenai, AK 99611
30.	Jerry Wickstrom		3605 Arctic #745, Anc, AK 99503
31.	Pete Granger	Seafood Producers Coop	2875 Roeder Ave, Bellingham, WA 98225
32.	Mardi Hutchens		11340 Borealis, Eagle River, AK 995 2
33.	Chip Thoma		
34.	Nick Yurko	Gast Channel F&G Adv C.	9412 Longrun Dr., Juneau, AK 99801
35.		United Fishermen of AK	211 4th St. Ste 106, Juneau, AK 99801
36.	Cheryl Sutton	Kenai Pen Fshmns Asso	Box 546, Soldotna, AK 99669
37.	Wolf Benson	Benson Sea Farms	PO Box 1541, Petersburg, AK 99833
38.	Laura Dameron	SE AK Conservatn Cil	PO Box 21692, Juneau, AK 99802
39.	Roger Painter	AK Mariculture Asso	130 Seward St., Ste 201, Juneau, AK
40.	Cathy Conner	Juneau Audubon Society	PO Box 21725, Juneau, AK 99802
41.	David Rogers	Sea Culture of AK Inc	130 Seward St., Ste 504, Juneau, AK
42.	Paul Barnes	AK Fish Trade	Box 211121, Auke Bay, AK 99821
43.	Rebecca Knight		PO Box 1331, Petersburg, AK 99833
44.	Robert Martin	T&H Reg Electrical Aut	PO Box 210149, Auke Bay, AK 99821
45.	Wallace Fields	Kodiak Reg Aquaculture	Box 1691, Kodiak, AK 99615
46a.	Sen. Fahrenkamp	Sen. Resources Com	PO Box V, Juneau, AK 99811
46b.	Sheila Helgath	Leg. Research Agency	PO Box Y, Juneau, AK 99811-3100

#	Name	Organization	Address
47.	Sen. Jones	State Legislature	352 Front St., Ketchikan, AK 99901
48.	Scott Swanson		3800 Valley Ave, Juneau, AK 99801
49.	Valerie Brown	AK Wildlife Alliance	PO Box 202022, Anchorage, AK 99520
50.	Paul Peyton		1647 Harbor Way, Juneau, AK 99801
51.	David McFadden	F/V Sand Dab	PO Box 668, Petersburg, AK 99833
52.	Geron Bruce	Unit SE AK Gillnetters	PO Box 021186, Juneau, AK 99802
53.	Oliver Holm	Kodiak Reg Aquaculture	Box 3407, Kodiak, AK 99615
54.	John Nielsen	AK Shellfish Grower's	Box 220029, Anchorage, AK 99522
55.	William Heard	(replcemnt) NMFS-AukeB	PO Box 210155, Auke Bay, AK 99821
56.	Sen. Eliason	State Legislature	PO Box V, Juneau, AK 99811
57.	Rep. Ulmer	State Legislature	PO Box V, Juneau, AK 99811
58.	Bruce Smith		PO Box 45, Gustavus, AK 99826
59.	Steve Pennoyer	NOAA, Marine Fish.	PO Box 21668, Juneau, AK 99802-1668
60.	Brian Paust's art.	Coop. Ext. Svc.	(see #18)
61.	Rep. Davidson	House Resources Com.	PO Box V, Juneau, AK 99811
62.	Richard Harris	SEALASKA Corp.	One Sealaska Plaza, Juneau, AK 99801
63.	Neil Kinney		(Homer?)
64.	Brad Pierce		
65.	Dennis Watson	City of Craig	PO Box 23, Craig, AK 99921
66.	Rebecca Knight		PO Box 1331, Petersburg, AK 99833
67.	Dan Hull		310 N 46th #402, Seattle, WA 98103
68.	Nick Barlett		Box 4032, Homer, AK 99603
69.	Jim Green		1033 Millar St., Ketchikan, AK 99901
70.	Dan Berkshire		13010 Sher Circle, Anc, AK 99516
71.	Nevin Holmberg	US F&W Svc	PO Box 021287, Juneau, AK 99802-1287
72.	Doris Howe	(From Sen. Eliason)	Box 67, Gustavus, AK 99826
73.	Brian Allee	ADF&G, FRED Div.	PO Box 3-2000, Juneau, AK 99802-2000
74.	Chip Toma	(articles from indiv.)	
75.	Dale Kelley	AK Trollers Asso.	130 Seward St.,#213, Jnu, AK 99801
76.	Concerned citizens		Juneau, Douglas, Auke Bay, Hoonah,Tok

APPENDIX F

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9/20/90

Joint Hearing Senate Resources & Senate Special Committee on Oil & Gas

TABLE OF CONTENTS

SENATE RESOURCES COMMITTEE
AND
SENATE SPECIAL COMMITTEE ON OIL AND GAS

JOINT HEARING

SEPTEMBER 20, 1990
9AM TO 4PM

NOEL WIEN LIBRARY, FAIRBANKS

FACT SHEET

PART I

THE STATE OF ALASKA BY TEMPORARY SUSPENSION ORDERS OF THE PIPELINE COORDINATOR MAY AT ANYTIME ORDER THE TEMPORARY SHUT DOWN OF ANY OF THE TRANS ALASKA PIPELINE FACILITIES IF SUCH A SUSPENSION IS NECESSARY TO PROTECT THE PUBLIC HEALTH OR ENVIRONMENT (SEE SECTION 24, RIGHT-OF-WAY LEASE FOR THE TRANS-ALASKA PIPELINE, TEMPORARY SUSPENSION ORDERS OF THE PIPELINE COORDINATOR).

ALYESKA PIPELINE SERVICE COMPANY COULD FEEL COMPELLED TO SUSPEND OPERATIONS OF THE PIPELINE IN ORDER TO AVOID FINDING ITSELF IN NON-COMPLIANCE OF STATE OR FEDERAL REGULATIONS.

ON AT LEAST THREE OCCASIONS SINCE THE GROUNDING OF THE EXXON VALDEZ, THERE HAS BEEN THE THREAT OF A NON-SCHEDULED SHUT DOWN.

WHAT WOULD BE THE POTENTIAL ECONOMIC EFFECT OF A TEMPORARY SHUTDOWN OF THE TRANS ALASKA PIPELINE?

PART II

OVER THE PAST DECADE THERE HAS BEEN $131,430,000 APPROPRIATED TO THE ALASKA DEPARTMENT OF LAW TO LITIGATE REVENUE DISPUTES BETWEEN THE STATE AND VARIOUS OIL COMPANIES. $44,289,000 OF THIS WAS USED JUST TO LITIGATE ROYALTY SUITS.

CAN THE PRESENT SYSTEM OF CRUDE OIL VOLUME MEASURMENT FROM WELL-HEAD TO TANKER BE SUBSTANTIALLY IMPROVED?

SENATE RESOURCES COMMITTEE
AND
SENATE SPECIAL COMMITTEE ON OIL AND GAS

JOINT HEARING

SEPTEMBER 20, 1990
9AM TO 4PM

NOEL WIEN LIBRARY, FAIRBANKS

PART I

SUBJECT: "ALASKA'S ECONOMY AND THE POTENTIAL EFFECTS OF A SHUTDOWN OF THE PIPELINE."

WITNESSES SCHEDULED:

KEITH BURKE, MANAGER, ALYESKA FAIRBANKS OPERATIONS

LARRY DIETRICK, DIRECTOR, ENVIRONMENTAL QUALITY, ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

JAMES EASON, DIRECTOR, DIVISION OF OIL AND GAS, ALASKA DEPARTMENT OF NATURAL RESOURCES

BUKI WRIGHT, VICE PRESIDENT, MAPCO ALASKA PETROLEUM

MARK NECESSARY, VICE PRESIDENT, REFINING, TESORO ALASKA PETROLEUM

JAMES BOLTZ, VICE PRESIDENT, REFINING, PETRO STAR INC.

ROYCE WELLER, ASSISTANT COMMISSIONER, ALASKA DEPARTMENT OF REVENUE

BRUCE BOTHELLO, ASSISTANT ATTORNEY GENERAL, ALASKA DEPARTMENT OF LAW

STATEMENT OF
KEITH D. BURKE
MANAGER, FAIRBANKS OPERATIONS
ALYESKA PIPELINE SERVICE COMPANY
BEFORE THE
SENATE RESOURCES COMMITTEE
SEPTEMBER 20, 1990

My name is Keith Burke. I have worked for Alyeska Pipeline Service Company since 1975 in various accounting and logistics management positions. In 1980 I became Manager of the Operations and Pipeline Logistics Support Department. My responsibilities in that position extended to a number of the contractors that provided support services to the pipeline, such as Earthmovers of Fairbanks, the equipment maintenance contractor, and Helilift, the aviation support contractor. In the recent Alyeska reorganization chartered by our new president, Jim Hermiller, I was assigned as Manager of Fairbanks Operations, and am pleased to be making my home in Fairbanks now. This is a new position that recognizes Alyeska's increasing presence here and the importance of Fairbanks to the operation and maintenance of the trans Alaska pipeline system.

Alyeska welcomes this occasion to testify for several reasons. First and foremost, Alyeska considers itself a good citizen that is responsive to public concerns and the need for information. Yet too often all one hears or reads about are the unusual or out-of-the ordinary events that make news because they deviate from the norm. We are proud of our accomplishments day in and day out in operating and maintaining the trans Alaska pipeline. Our record is superb and second to none worldwide as an oil transportation system.

In addition, we recognize in particular the importance of Fairbanks to Alyeska as the communications, transportation, education, and business center of interior Alaska. Fairbanks has been a key

contributor to the success of Alyeska before, during and since construction. We use Fairbanks today as a railhead and transshipment hub for our facilities along the pipeline route. We also operate a pipe fabrication and welding facility here as well as maintaining our Northern District Security Office and substantial warehousing facilities in Fairbanks. Of course, Pump Stations 7 and 8 are operated by personnel residing in Fairbanks and its surrounding communities.

Another way Fairbanks has served Alyeska is through the tremendous resources available at the University of Alaska on subjects ranging from arctic engineering and permafrost to marine sciences. Use of these resources did not stop with the completion of construction. The expertise available through the University is an important component of Alyeska's ongoing activities.

The specific topic you have asked Alyeska to address today is the impact of a shutdown of the trans Alaska pipeline on the Alaskan economy. By far the greatest impact would be the stopping of oil production with resulting loss of revenue to the State of Alaska. That is not a subject which Alyeska will be addressing, and we note from the list of proposed witnesses today that there are others who will cover the impacts that relate to lost production.

Before attempting to demonstrate the financial impact of a pipeline shutdown from Alyeska's perspective, let me emphasize as strongly as I possibly can that we believe a shutdown of the trans Alaska pipeline for any period other than of short duration is highly unlikely. Alyeska is doing everything in its power through vigorous management and attention to preventive maintenance to minimize the need for pipeline shutdown for routine repairs. Alyeska has developed plans for any number of contingencies that could occur

affecting pipeline or terminal facilities, and we are ready to respond to these contingencies, including catastrophic events, which could threaten the safe and continuous flow of North Slope oil from Pump Station 1 to the Valdez Marine Terminal.

In the Fairbanks area, Alyeska has a pipeline contingency repair operation, an equipment/light vehicle maintenance center, pipeline fabrication facility, engineered materials storage yard, and a pipeline control system maintenance and repair center, employing over 500 contractor and Alyeska employees with an annual payroll exceeding $40 million.

The impact of a pipeline shutdown hinges on the length of the event. The pipeline has been shut down for limited periods of time ranging from a few hours to a day or two. These shutdowns are necessary for planned maintenance and are coordinated with the producing fields. No immediate impact on Alyeska's direct expenditures results from these interruptions.

If a shutdown extends beyond several days, the first impact will be a reduction of purchases necessary for the operation of the mainline turbines, such as fuel and DRA expenditures, and the ancillary costs of transportation for those commodities. I have attached to this testimony a summary of impacts that might flow from a shut down lasting several weeks. As you can see, the estimate of an average reduction in expenditures would be approximately $1 million per week.

Also attached is a second scenario which assumes the pipeline is shut down for a period of one year or more. We cannot even imagine a set of facts that might lead to such an occurrence, and we caution the

committee and all others who have access to this testimony that the likelihood of such an event is next to zero. But for the purposes of responding to this committee's inquiry, we have included the scenario.

Under this long term shutdown scenario, facilities are mothballed, contracts reduced and employees furloughed. The impact on Alaska business in terms of moneys not spent on goods and services would be significant and not localized. Based on the 1991 projected expenditures, Fairbanks alone would lose about $93 million in direct payments to area businesses. Alyeska payroll statewide exceeds $103 million with employees living as residents in all communities along the pipeline as well as in the Kenai-Soldotna, Anchorage and Matanuska-Susitna Boroughs. Although the loss of public oil revenue would still dwarf the loss of direct expenditures, those expenditures alone well exceed one half billion dollars--an amount many Alaskans, including members of the Alyeska family, would find difficult to replace.

I hope this testimony has been helpful to the committee. In concluding I would like to state again that I am pleased to be here and intend to become an active member of the Fairbanks community. I lived here before and worked on the original pipeline construction project from 1975-77. Alyeska has become part of Fairbanks and the Interior. We at Alyeska are here for the long haul, as your neighbors. I hope that when you have questions about us or just want to visit, you'll give me a call or drop by. That's what neighbors do, and that's what I will be doing too. Thank you.

/jbm

ALYESKA PIPELINE SERVICE COMPANY
ALASKA SPENDING ASSUMPTIONS
SCENARIO 1

ASSUMPTIONS

- PIPELINE BROUGHT BACK TO FULL OPERATION WITHIN SEVERAL WEEKS
- NO LAYOFFS OF ALYESKA PERSONNEL - UNSCHEDULED OVERTIME ELIMINATED
- NO TANKER LOADINGS DURING THE ENTIRE PERIOD
- NO CONTRACT CANCELLATIONS
- NO PROJECT CANCELLATIONS
- FULL OIL SPILL RESPONSE CAPABILITIES RETAINED
- AIR EMISSIONS OBSERVERS NOT REQUIRED DURING AFFECTED PERIOD
- ANALYTICAL LABORATORY SERVICES NOT REQUIRED DURING AFFECTED PERIOD
- DRA TRANSPORTATION AND FUEL PURCHASES NOT REQUIRED DURING AFFECTED PERIOD

IMPACT

- PROJECTED AVERAGE WEEKLY EXPENDITURE REDUCTION EXCEEDS ONE MILLION DOLLARS

OTHER IMPACTS TO CONSIDER

- MULTIPLIER EFFECT
- ROYALTY PAYMENTS
- OIL FIELD PRODUCTION SLOWDOWN
- EFFECTS ON FUTURE SPENDING

ALYESKA PIPELINE SERVICE COMPANY
ALASKA SPENDING ASSUMPTIONS
SCENARIO 2

ASSUMPTIONS

- PIPELINE BROUGHT BACK TO FULL OPERATION IN ONE YEAR
- OPERATIONS WORK FORCE REDUCED BY AN AVERAGE OF 85% OVER THE AFFECTED PERIOD
- ADMINISTRATIVE WORKFORCE REDUCED BY AN AVERAGE OF 45% OVER THE AFFECTED PERIOD
- OPERATIONS, MAINTENANCE AND ADMINISTRATIVE SPENDING LEVELS REDUCED BY 90% WITH THE FOLLOWING EXCEPTIONS:
  - -- ALL LEASED VESSELS, MACHINERY, EQUIPMENT AND FACILITIES RETAINED
  - -- NO DISPOSAL OF VEHICLES AND EQUIPMENT
  - -- OIL SPILL RESPONSE TEAMS NOT REQUIRED
  - -- NO CANCELLATIONS OF MAJOR CONTRACTS
  - -- NO CHANGE IN SECURITY REQUIREMENTS
  - -- ANALYTICAL LABORATORY SERVICES NOT REQUIRED
- ALL PROJECTS NOT IN PROGRESS CANCELLED

IMPACT

- PROJECTED EXPENDITURE REDUCTION EXCEEDS $650 MILLION

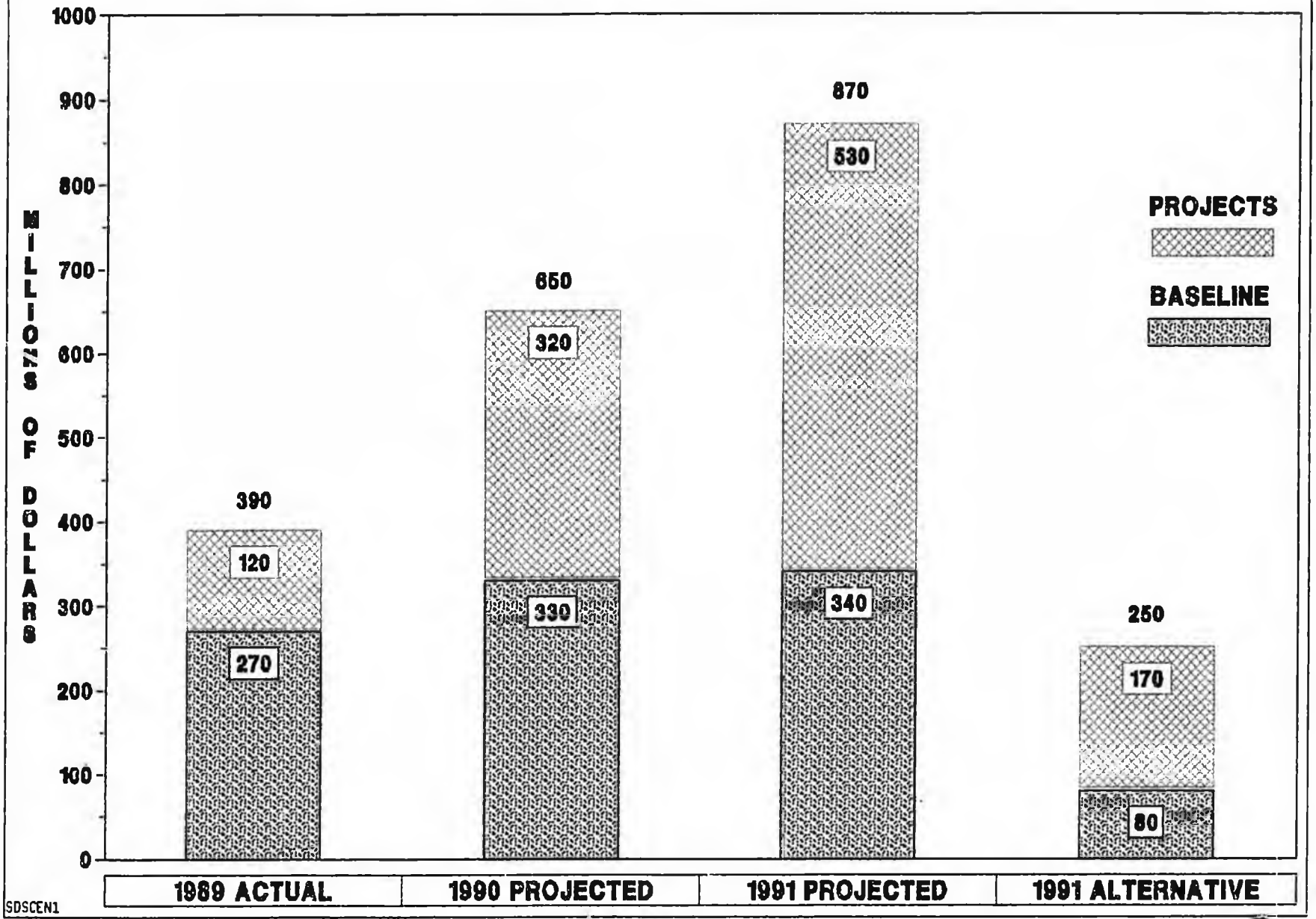
OTHER IMPACTS TO CONSIDER

- MULTIPLIER EFFECT
- ROYALTY PAYMENTS
- OIL FIELD PRODUCTION SHUTDOWN
- EFFECTS ON FUTURE SPENDING

ALYESKA PIPELINE SERVICE COMPANY

OPERATING EXPENDITURES

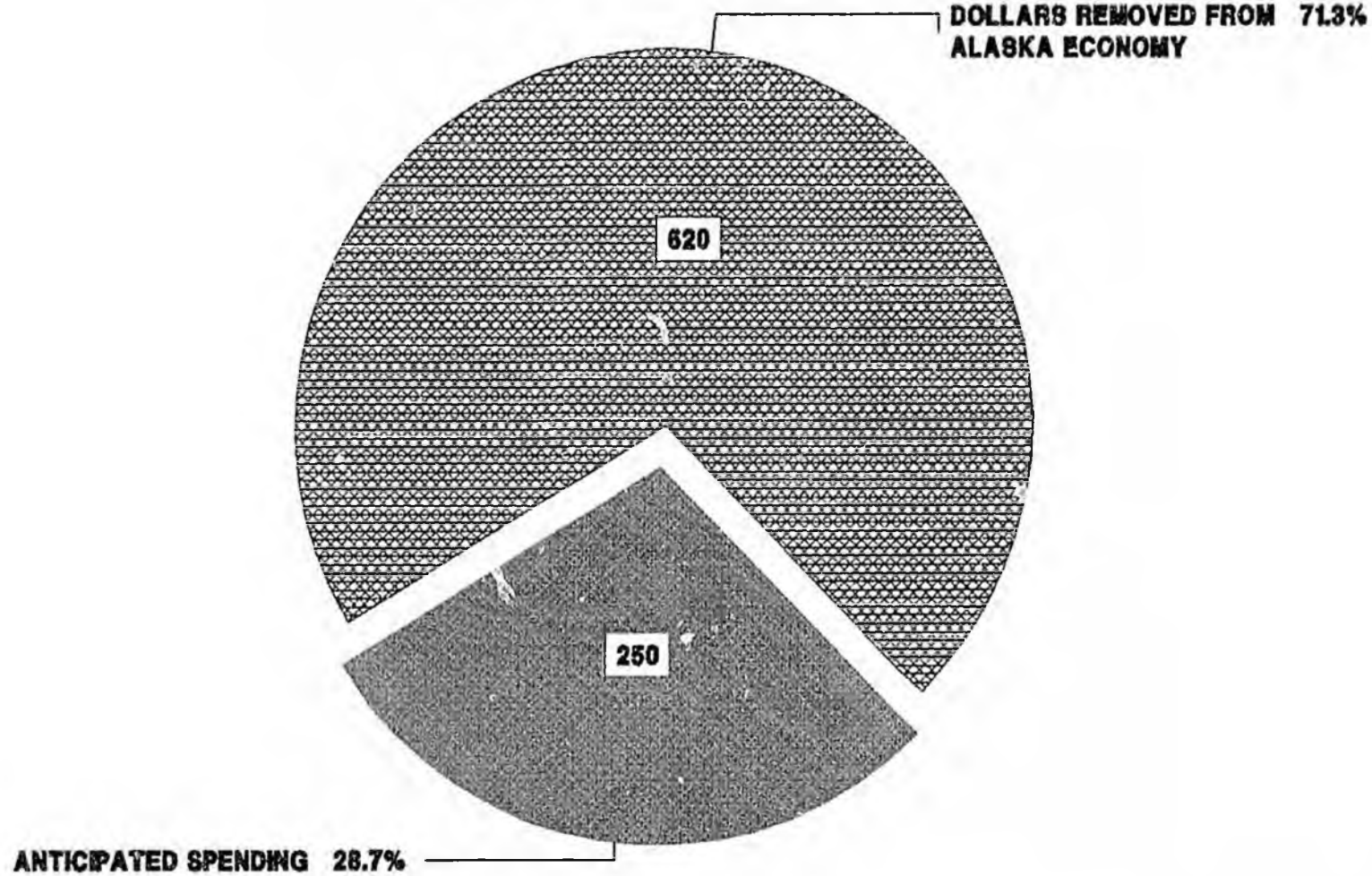
ALASKA SPENDING



SDSCEN1

ALYESKA PIPELINE SERVICE COMPANY

1991 OPERATING EXPENDITURES
ALASKA SPENDING
MILLIONS OF DOLLARS



$870 MILLION

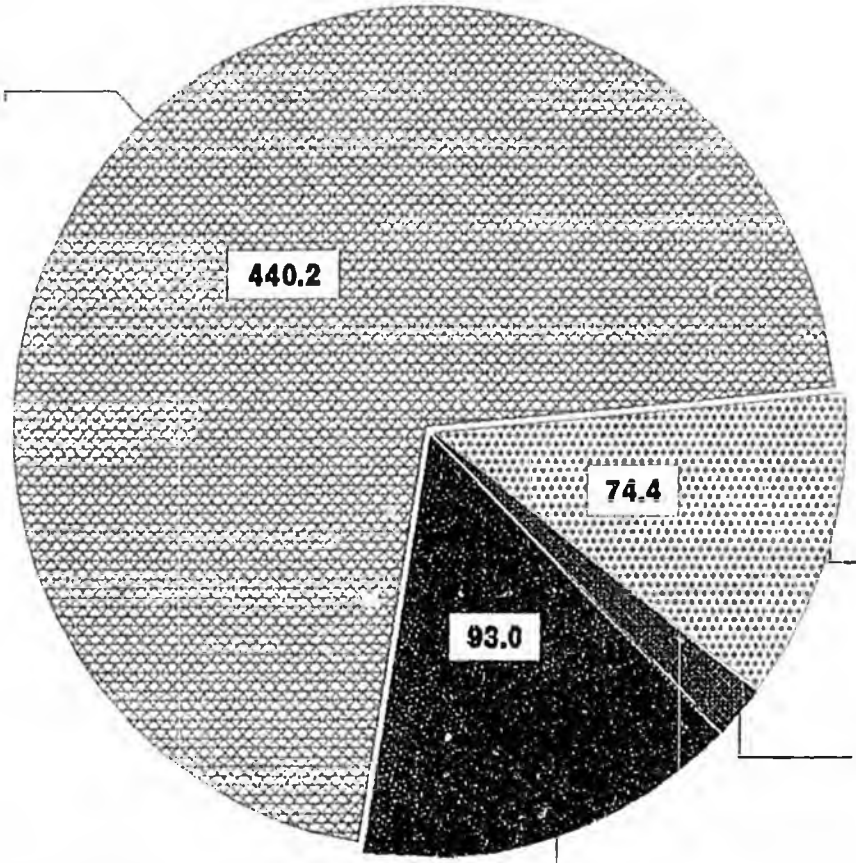
SD3CEN1A

ALYESKA PIPELINE SERVICE COMPANY

DISTRIBUTION OF DOLLARS REMOVED FROM ALASKA ECONOMY

ALASKA SPENDING

MILLIONS OF DOLLARS



$620 MILLION

SDSCEN1B

STEVE COWPER, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL QUALITY
P.O. BOX O, JUNEAU, ALASKA 99811-1800

Telephone:
(907) 465-2640

September 17, 1990

The Honorable Bettye Fahrenkamp, Chairman
Senate Resources Committee
P.O. Box V
Juneau, AK 99811

Dear Senator Fahrenkamp:

I would like to confirm that I will be able to attend the September 20, 1990 hearing of the Senate Special Committee on Oil and Gas in Fairbanks. I have discussed our testimony with Dan Austin of your staff and it is my understanding that you would specifically like us to address our statutory authority for shutting down the pipeline. The Department does not have a role in the other issues on the agenda for the hearing ie; measuring throughput of the pipeline or evaluating consequences to revenue flow as a result of a shutdown of the Trans Alaska Pipeline.

With regard to shutting down the pipeline, the Department has no express statutory authority to shut down the operations of any business, including the Trans Alaska Pipeline system.

Virtually all of DEC's programs for regulating environmental pollution are structured by statute and regulation such that before a person or company can start operations the person or company must first secure a permit or approval under the relevant regulations. Once the permit or approval is obtained, the operator must comply with the permit or approval's conditions. If a condition of a permit or approval is violated during the business' operations, DEC in conjunction with the Department of Law may seek appropriate administrative or judicial orders to halt the violation. In that context the relief sought would not be framed in terms of a request for the issuance of an order to completely shut down the business. Instead, the relief requested would be for an order requiring the business to come back into compliance with the condition of the permit or approval currently being violated.

By way of example, Alyeska Pipeline Service Company's Valdez Marine Terminal needs an approved oil spill contingency plan before Alyeska may load crude oil onto a tanker. Having received an approved plan, if the company were to violate one of its conditions, the state could seek an order requiring that the company come back into compliance. Once the order has been issued, Alyeska would need to correct the deficiencies identified in the order. They may choose to shut down operations, if allowed by other state law, in lieu of correcting deficiencies.

This is the testimony that will be presented at the hearing in Fairbanks.

We appreciate the opportunity to participate in a discussion of these most important issues.

Please contact me if you have any questions or need additional information.

Sincerely

Larry Dietrick

Larry Dietrick
Director

Discussion Notes of

James E. Eason, Director
Division of Oil and Gas
Alaska Department of Natural Resources

Before the
Senate Resources Committee
and
Senate Special Committee on Oil and Gas

September 20, 1990

What Are the Economic Consequences of a Shutdown of the Trans Alaska Pipeline?

(Morning Session)

1. First, the obvious--if the pipeline is shut down, North Slope oil production ceases. Once production is stopped, royalty payments attributable to that production also stop. In addition, refiners that rely on Alaska North Slope (ANS) production must find alternative sources for their refinery feedstock. Refineries that can not secure alternative feedstocks will cease to operate during the shutdown.

2. Oil and gas royalties are production based payments. No production, no payment. Royalty payments are due to the state at the end of the month following the month of production. As a result, the immediate financial effect of a shutdown would not be felt at the state's bank until the end of the month following the shutdown. There also would be a corresponding lag of 30 days in the resumption of royalty payments once production resumed. Unlike the royalty in value payments, the actual royalty in kind oil taken by the state's purchasers (Mapco, GVEA, Petro Star, Chevron and Tesoro) would cease flowing the moment the pipeline is shut down. Some inventory at the Valdez terminal may or may not be available to those purchasers who use the terminal depending on the purchaser's current lifting status. Unfortunately, there is not similar storage capability at the GVEA connection.

3. Cook Inlet production only accounts for two percent of the statewide daily oil output. In addition, there is no cheap and easy way to move Cook Inlet crude oil to the North Pole refineries.

4. July production from the North Slope was 52,655,633 barrels for an average of 1,698,569 barrels per day. Royalty revenue reported for that month was $53.5 million dollars. Year-to-date production from the North Slope is 379,481,099 barrels as of July 31. Year-to-date royalty revenue from that North Slope production is $484.5 million.

5. A shutdown and restart of TAPS has its own operational and mechanical problems. The Alyeska representative can more fully address those concerns. Although at a much smaller scale, similar concerns apply to the Milne Point, Kuparuk and Endicott pipelines.

6. Apart from the pipeline issues, a shutdown and restart of the five North Slope oil fields will have its own unique problems and concerns. While shutting down or restarting TAPS is a major job in itself, shutting down or restarting an oil field the size of Prudhoe Bay is a monumental task--especially if it has to be done on short notice. Contingency plans exist to implement such an action, but it is still no easy job to accomplish. Conoco went through this exercise when it shut in Milne Point field in 1986. Conoco had the advantage of having no immediate deadlines or dictum to satisfy. It set the timeline it had to follow. Conoco, BP and ARCO should be consulted concerning the unique problems that are faced in an immediate shutdown situation. For example, well bores need to be protected against freeze back, and pipelines and vessels need to be purged to protect against freezing or corrosion. A large amount of gas will undoubtedly be flared during any shutdown or start-up operation, and it may be necessary to flare hydrocarbon liquids or discharge them into pits. In an emergency situation, safety will take precedent over the environment.

7. Long-term impacts to the oil reservoirs from a long-term shutdown are largely unknown at this time. The return to production for the Cook Inlet fields shut down by the volcano has been encouraging.

8. There is very limited oil storage capacity on the North Slope. There are two surge tanks at Pump Station #1, and both the Kuparuk and Milne Point fields have a limited amount of on-site storage. Prudhoe Bay field really has no on-site storage capacity. If TAPS shuts down, the North Slope producers have to begin to take immediate action to shut down.

9. The refineries in Fairbanks have no alternative crude oil supply or method to dispose of the return oil. The Cook Inlet refineries at least have potential alternative supplies of crude oil available to them in the event of an extended shutdown of TAPS.

10. The Division of Oil and Gas has no authority to order a shutdown of TAPS, nor do we have any authority to order Alyeska to continue to operate in the event it planned a shutdown of TAPS.

11. In the event of an extended shutdown of TAPS there would be a few collateral issues that the Division would have to address. These include requests for suspension of operations and suspension of production for the affected leases and requests for lease extensions and unit agreement extensions. The exact circumstances at issue would have to be considered prior to issuing any rulings. For instance, suspensions were granted when operations were disrupted in Cook Inlet by the Mt. Redoubt eruption.

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Testimony of

A.L. BUKI WRIGHT, JR.

VICE PRESIDENT

MAPCO ALASKA PETROLEUM Inc.

before

THE SENATE RESOURCES COMMITTEE

and

THE SENATE SPECIAL COMMITTEE ON OIL AND GAS

September 20, 1990

Thank you for the opportunity to testify before you on the subject at hand. And, at the outset, I'd like to express my appreciation to you for deciding to hold this hearing, in the first place.

The possibility of a complete shutdown of the Alyeska Pipeline has surfaced twice in the last eighteen months.

In both instances, the potential impact was described in terms of financial impact on the State of Alaska and on the producers of the oil flowing through the line. So, it is especially gratifying that your two committees are looking into the impact of a potential shutdown on the "People" of Alaska, and not just on the "State" of Alaska.

The direct and immediate impact, of course, would be felt by the refiners in the state, and their ability to continue to operate. Virtually all of Alaska's fuel supply comes from in-state refineries, all of which run on ANS crude, or a combination of Cook Inlet and ANS crude. Although impact and timing of impact would vary by refinery, the burden on individual Alaskans and on the Alaskan economy would be severe.

Obviously, some information about our specific operating capabilities, specific production information, and the like are proprietary. But, with that in mind, let me tell you a little bit about our business in the state.

MAPCO is a major supplier of refined petroleum products in Alaska. In addition to thirteen (13) company-owned retail gasoline units in the Anchorage area, and three (3) in Fairbanks, MAPCO markets a wide variety of fuels on a wholesale basis in the Interior and in Anchorage. We operate retail heating fuel businesses in Fairbanks, Nenana, Healy and Galena.

We are the jet fuel supplier at the Fairbanks International Airport and supply a significant portion of the jet fuel at the Anchorage Airport.

MAPCO supplies, under contract, jet fuel to all four military bases in the Anchorage and Fairbanks areas.

On a direct or indirect basis, MAPCO supplies considerable fuel to the villages along the Yukon River system and out into Western Alaska.

Now with that as a background, let me address the question of a potential pipeline closure.

In particular, our refinery in the Interior would be immediately crippled by a shutdown of the pipeline. MAPCO's North Pole Refinery is directly on the Trans Alaska Pipeline, and a pipeline shutdown results in the almost immediate shutdown of this 115,000 barrel per day refinery. Also, because of our location far from tidewater, we have access to not other crude supply other than ANS crude through the pipeline.

The impact on individual product availability would vary, depending on product, and on time of year. For example, heating fuel and diesel are consumed faster in the winter months, gasoline in the summer. But, in any case, even if all our tanks at the refinery and in Anchorage were full at the shutdown, we would begin running out of fuel in a matter of days, and short of some form of rationing, would be totally out within a couple of weeks.

The Fairbanks Airport would have fuel for less than two weeks with controlled liftings. The Anchorage Airport would probably run out

in a matter of days. Alaska's reputation for reliability as an international refueling base is already on delicate ground because of the recent eruptions of Mt. Redoubt. What message would a disruption of airport service caused by a fuel shortage send to the aviation community about Alaska's desire to be a major international refueling stop?

If a shutdown were to happen during the summer months, depending on timing, the impact on the Bush could be incalculable. Most of the Interior River communities and Northern and Western Alaska are ice-locked during the winter. The delivery of their fuel supplies for the entire winter begins generally in July and August. In many villages, fuel barges arrive only one or two times each summer. If the fuel isn't delivered on the Fall barge, there just isn't a second chance.

In summary, if the pipeline shuts down, the entire state of Alaska - except possibly Southeast - would be completely out of gasoline, and other fuels for transportation, heat, and electrical generation possibly within a matter of days and certainly within weeks. We would not be able to resupply from the West Coast, as they would be suffering shortages of their own caused by the shutdown.

The point I'd like to leave you with is this...Shutting down the Trans Alaska Pipeline will impact more than just the oil companies and the "State" of Alaska. It will have a very direct, immediate

and personal effect on every Alaskan.

So, the bottom line is...when there are disputes, and certainly there will be, from time to time...causing the pipeline to be shut down should not be an option. That's just going too far.