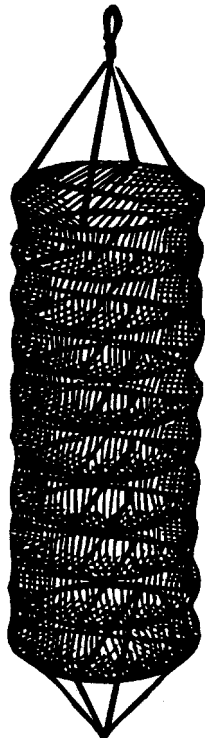
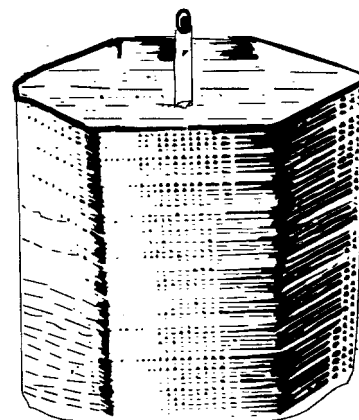
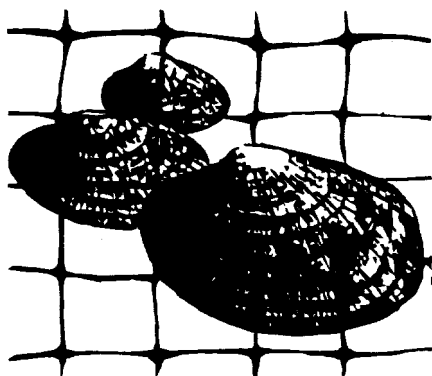


AQUATIC FARMING IN ALASKA



Alaska Department of Fish and Game
Commercial Fisheries Management and Development Division
Juneau, Alaska
February, 1994



**Report to the Board of Fisheries
1993 Reporting Year**

REPORT TO THE BOARD OF FISHERIES
1993 STATEWIDE AQUATIC FARMING PROGRAM



Alaska Department of Fish and Game
Division of Commercial Fisheries Management and Development
Juneau, Alaska

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This report is provided in order to accommodate timely reporting of recently collected information. It has undergone limited internal review and may contain preliminary data. This information may subsequently be finalized and published in the formal literature. Consequently this report should not be cited without prior approval of the author or the Division of Commercial Fisheries Management and Development.

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Background

The Aquatic Farm Act (Section 19, Chapter 145, SLA 1988) was signed into law on June 8, 1988, authorizing the commissioner of ADF&G to issue permits for the construction or operation of aquatic farms, and hatcheries to supply aquatic plants or shellfish to aquatic farms. The intent of the legislation was to create an industry in the state that would contribute to the state's economy and strengthen the competitiveness of Alaska seafood in the world marketplace, broadening the diversity of products and providing year-round supplies of premium quality seafood. The law allowed aquatic farming of shellfish and aquatic plants and placed a moratorium on finfish farming. In 1990 CSHB 432 became law, prohibiting farming of finfish in the state.

Regulations to administer the aquatic farm program were developed by the resource agencies during 1988 and 1989. The Department of Natural Resources (DNR) divided coastal Alaska into eleven districts. The law required that each district be opened annually for 60 days for farmsite application. Permits for farm or hatchery sites not located on state land may be applied for at any time.

ADF&G Mariculture Program

- in cooperation with ADF&G Habitat and Restoration Division (H&RD), coordinate the permitting process for aquatic farms and hatcheries
- review of aquatic farm and hatchery permit applications for site suitability and technical and operational feasibility
- issue and administer aquatic farm and hatchery permits
- coordinate the department's aquatic farm program
- administer and coordinate aquatic stock acquisition permits for the purpose of supplying brood stock and seed stock to aquatic farms and hatcheries
- administer and coordinate the shellfish and aquatic plant transport permit system
- administer and coordinate research permits for aquatic farming and hatchery activities
- provide technical assistance to other divisions, agencies and the public sector
- coordinate aquatic farm and hatchery research activities statewide

Farm Permit Process

The State is required to accept applications for aquatic farmsites during a 60-day period each year. The open period has been held in March - April since 1991 and is not expected to be changed. A public comment period and public hearings are held by DNR during October and early November for current applications. Permit decisions are made following receipt of public

comments, generally by late January of the year following submittal of the application. Approved permits are effective March 1. Figure 1 diagrammatically shows the process.

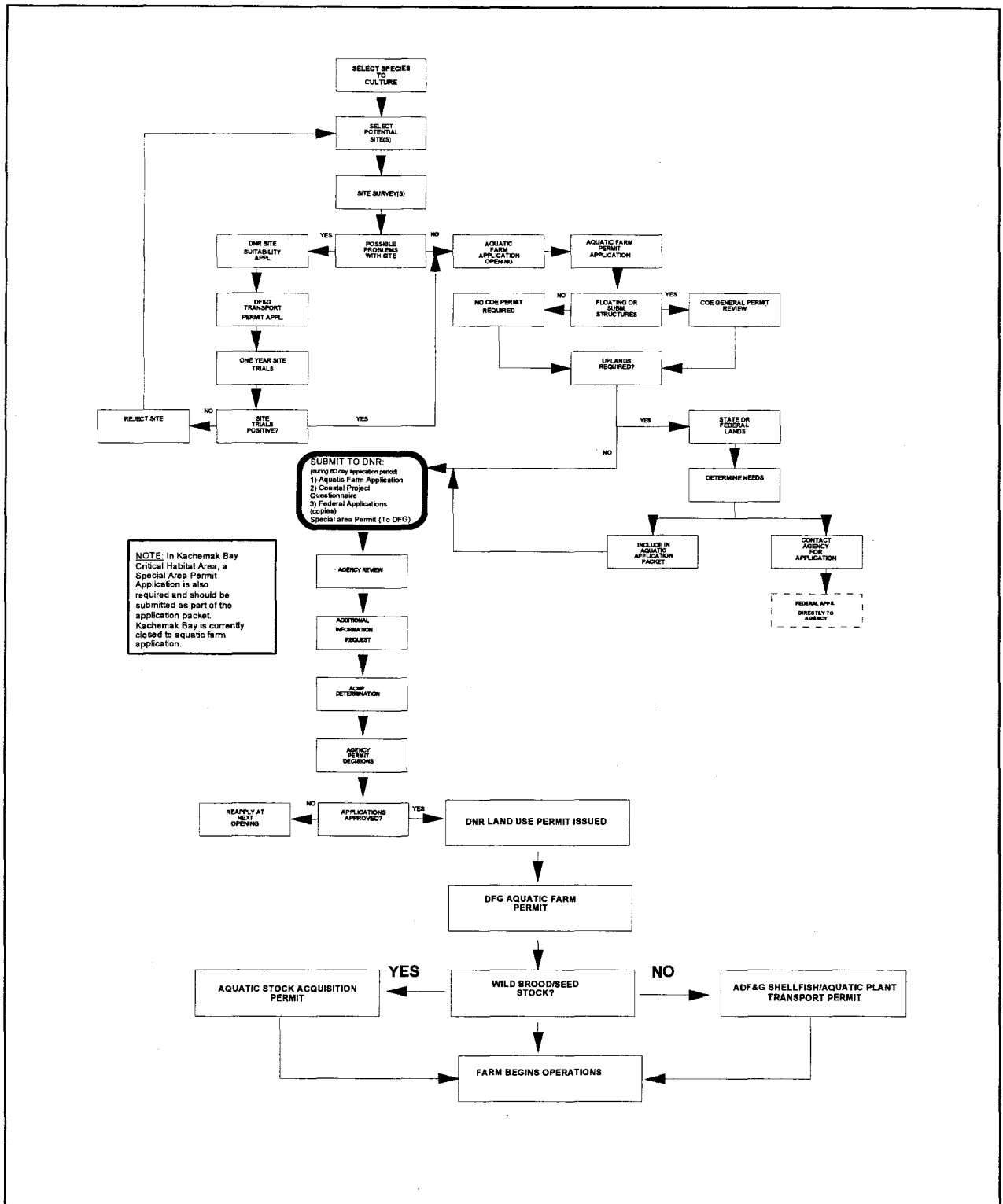


Figure 1. Aquatic farm permit review process.

Program Implementation

Considerable interaction with the other resource agencies, including the Department of Environmental Conservation (DEC), DNR, and the Division of Governmental Coordination (DGC) is necessary to address current issues and ensure coordination of effort. The Interagency Mariculture Work Group (IAMWG) was reestablished in 1993 at the request of the Alaskan Shellfish Grower's Association (ASGA). Commercial Fisheries Management and Development

Table 1. 1993 Aquatic farm permit data.

OPERATIONS	Southeast	Southcentral	TOTAL
Aquatic farm permit applications	6	7	13 ¹⁾
Permits issued	1	6	7
Permits pending or still in process	5	13	18
Total permitted aquatic farms	21	41	62
Shellfish/aquatic plant hatcheries	0	1	1
Farms reporting activity	17	32	49
Farm permits expiring	19 ²⁾	0	19
Farm permit renewals received	12	0	12
Acreage permitted for aquatic farming	91	17 ³⁾	262
RESEARCH			
Permit applications	0	0	0
SHELLFISH AND AQUATIC PLANT ACQUISITION/TRANSPORT			
Permit applications	20	66	86
Permits issued	19	57	76
Permits pending or still in process	1	0	1

¹⁾ Includes one major amendment to an existing farm permit
²⁾ Eight farm permits expired on 12/31/93.
 No permit actions were taken on permit renewals or expirations in 1993 due to staff constraints
³⁾ Includes 20 acres in Kachemak Bay State Park

(CFMD) Division and H&RD coordinated the farm permitting process. CFMD Division facilitated the overall department program, reviewed permit applications, and issued aquatic farm permits. H&RD coordinated the department Alaska Coastal Management Program (ACMP) reviews.

Thirteen new aquatic farm applications and twelve renewals were received and processed this year. Seven new farm operation permits were issued. By year's end 62 permit files were still open, distributed from southern Prince of Wales Island in Southeast to Kachemak Bay and Kodiak (Figure 2.) Forty-nine of these farms reported activity

in 1993, up from 46 in 1992. Eighteen permits were still pending including seven in appeal in Kachemak Bay. Three operational permits in Peterson Bay near Homer were also appealed in 1993. A negotiated settlement between the parties was agreed upon in December. No scientific/educational (research) permits were processed in 1993, primarily due to the ability of researchers to accomplish their projects at permitted farm sites, allowing commercial use of the

end product. The number of stock acquisition and transport permit applications continued to increase (Table 1.) and are expected to rise again in 1994, reflecting the increase in active farms.

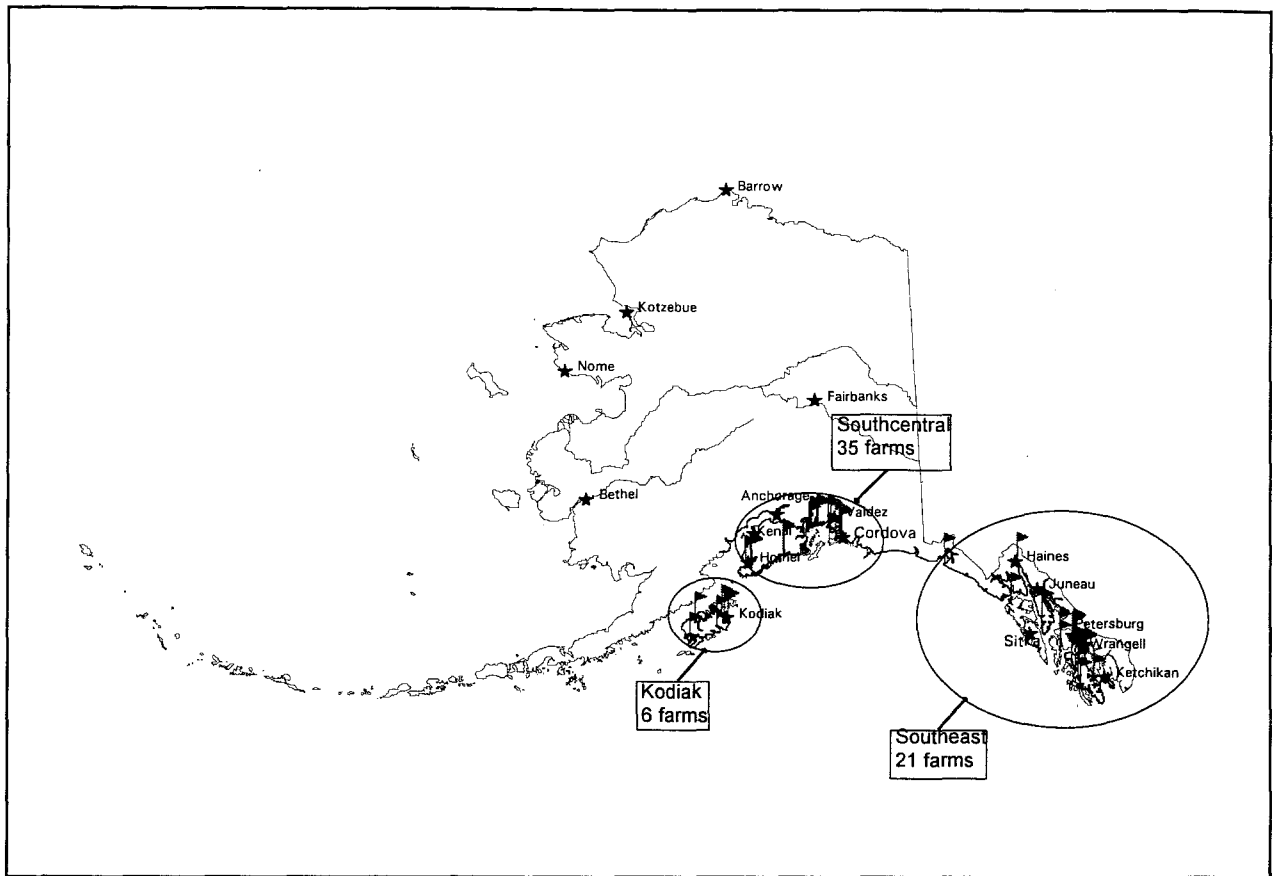


Figure 2. Aquatic farms in Alaska as of December 31, 1993.

In cooperation with DNR, DEC, DGC and department staff, inspections were conducted at most farms, statewide. Permit compliance was determined for each farm. When possible we met with the farm owner and discussed concerns and limitations affecting the farmer's efforts. We attempted to extend cooperation between farmers and the department. Inspection of farms not accomplished in 1993 will occur in 1994. Farms found in non-compliance with department permits were issued warnings. ADF&G worked with the other permitting agencies and the industry on compliance issues.

Funds were appropriated to the department for a Mariculture Technical Center, shellfish hatchery, and aquatic farm nursery research (HCS CSSB 183(FIN)) by the 1993 Alaska Legislature "... to aid in the restoration of subsistence resources or services, lost or diminished as a result of the Exxon Valdez oil spill ..." The technical center and hatchery will be located on the lower Kenai Peninsula at a site determined by feasibility studies in 1994. The shellfish nursery research will be conducted in Kachemak Bay. The technical center will be a central facility providing assistance to aquatic farmers through practical research and development, providing indigenous seed stocks not available from commercial sources, and space for private mariculture development projects. The center will also be useful for certain oil-spill restoration projects in areas affected by the Exxon Valdez spill. The shellfish hatchery will be constructed by the State

and leased to private enterprise to produce seedstocks on a commercial basis. The shellfish nursery project will be accomplished by cooperative agreement between the ADF&G and shellfish farmers in the spill-affected area. As of December, 1993 ADF&G was working with the Kachemak Shellfish Mariculture Association (KSMA) on a draft agreement for the 1994 research year.

Aquatic Farm Operations

Nineteen ninety-three (1993) was a year of transition for the aquatic farm industry in Alaska. The first series of farm permits, issued in 1990, expired. Of the nineteen permits expiring, 12 renewal applications and one farmsite relocation application were received. Six farmers chose to relinquish their permits. All of these first generation farms were located in Southeast. In 1994 twenty-seven farm permits expire, all from the first group of Southcentral farms, permitted in 1991.

Aquatic farmers continued their trend of investment and growth though the growth rate slowed considerably. At market size, the value of the year-end inventory was estimated at over \$5.0 million, up 5.7% from 1992 (Figure 3.). Aquatic farm

sales increased again in 1993 by 20.5% to over \$237,000 (Table 2.) Production was almost exclusively oysters, with a few farmed mussels produced in southcentral Alaska. Large numbers of farmed Alaska oysters should be available for sale in 1994. Very few blue mussels are expected to be produced in the coming year.

Southeast farmers received an average of \$0.35/oyster, up slightly from the \$0.32 received in 1992. The Southcentral oyster value was, as last year, slightly higher at \$0.39/oyster, down from \$0.48/oyster received by Southcentral farmers in 1992. For purposes of blue mussel value projections, \$1.50/lb seemed attainable (Table 2.) All prices were based upon reported value at the farms and do not include shipping and other costs.

Table 2. 1993 Aquatic farm operations data.

MARKET SALES			
	Southeast	Southcentral	TOTAL
Oysters (ind.)	328,290	286,580	614,870
Value	\$114,908	\$114,405	\$229,313
Mussels (lbs)	150	4,000	4,150
Value	____ ¹⁾	____ ¹⁾	\$7,975
Total aquatic farm market sales			\$237,288
HATCHERY/NURSERY PRODUCTION			
Oysters (ind.)	0	180,000	180,000
Value	\$0	____ ¹⁾	____ ¹⁾
END OF YEAR INVENTORY²⁾			
Oysters (ind.)	7,125,000	6,484,000	13,609,000
Value	\$2,636,250	\$2,399,080	\$5,035,330
Mussels (lbs)	9,000 ³⁾	11,000 ³⁾	20,000
	\$17,000	\$21,000	\$38,000
Total Aquatic Farm Inventory Value			\$5,073,330
EMPLOYMENT SUMMARY			
Number of employees	44	50	94
Days worked	3,511	2,439	5,950

¹⁾ Single producer, financial information confidential
²⁾ A small inventory of other species, primarily scallops (<5,000 organisms) exists
³⁾ Estimate. Mussel inventory, units not consistent between farms

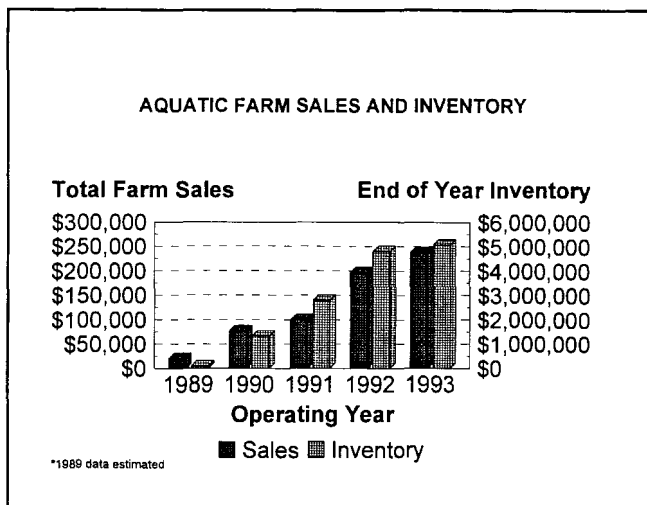


Figure 3. Aquatic farm sales and inventory by year

A growing facet of the aquatic farm industry was employment opportunities provided by farm operations. Excluding owner-operators and nonresident managers or consultants, 94 individuals, an increase of 32.4% from 1992, were employed by the farm industry this year, working over 5,900 person-days (Table 2.). No figures for jobs in the processing sector were available.

Industry Projections

The increase in sales and inventory value demonstrated another year of growth for the industry. The change was not as dramatic as previous years, an indication of maturation

and stabilization of Alaskan aquatic farms. Southeast was again the largest oyster producer. This should change as more of Southcentral's inventory reaches harvestable size in 1994. Oysters available for sale will increase dramatically in 1994. Whether the farmers can find markets for all the available inventory remains a question. The generic marketing promotions funded by the State and the Alaskan Shellfish Grower's Association (ASGA) should be of considerable value in marketing efforts.

An **instate shellfish nursery** became operational in 1993, producing a small number of seed (Table 2.) The production from this facility is expected to increase in 1994. The owners/operators of this facility also began work on a shellfish hatchery to compliment the nursery facility.

Nationwide, shellfish production is constrained by pollution and competition for limited coastal resources. The major eastern U.S. production areas, such as Chesapeake Bay, have ceased to be a major factor in shellfish production. Washington state continued to be the largest oyster producer in the United States. Even there, increasing effects of pollution, upland development and user conflicts are occurring and will limit growth of the industry. Washington has approximately half the number of permitted aquatic farms that Alaska has, though they are considerably larger in both physical (*as of December 31, 1993 the area permitted for aquatic farming in Alaska was 262 acres or 4.2 acres/farm – Table 1.*) and economic size. British Columbia's industry is growing, receiving considerable support from the public and private sectors. Alaska, with its clean waters and large amount of protected coastline, has immense potential for becoming a major aquatic farming area. Investment capital, the logistics of producing and selling product, and lack of a vertically integrated industry are constraints that will have to be addressed before this will occur.

Hatcheries

A major component lacking in Alaska is a hatchery industry to provide a dependable supply of seed to aquatic farms. The first Alaskan shellfish hatchery began operations in Seward, Alaska in 1993. At year's end it had begun producing feed (algae/diatoms) and adult animals were being

held in the facility. The first Alaskan hatchery production of shellfish is expected from this facility in 1994. In 1993 all oyster seed was imported from the Lower 48. Dependence on out-of-state vendors is not without peril, as demonstrated by the 1992 decertification of the primary supplier of Pacific oyster seed to the Alaska industry for non-compliance with their approved operational plan. Though the situation was successfully resolved and they did supply oyster seed to Alaska's farmers in 1993, the incident was indicative of the uncertainties of the current seed supply situation. Collection of seed from indigenous stocks, such as blue mussels, is also uncertain, being susceptible to the vagaries of nature. The development of other species of shellfish for use on farms has been constrained by the lack of instate hatchery facilities. The Seward shellfish hatchery and the new Mariculture Technical Center/Shellfish Hatchery funded in 1993 should do much to alleviate the potential shortage of oyster seed and allow development of new species for use by the industry.

Issues

Issues facing the industry are changing as it evolves. User group conflicts are increasing in the more populated areas, such as Kachemak Bay. Decreasing State revenues resulted in several proposals for programmatic changes and changes in the laws governing the industry. With the advent of an instate shellfish hatchery concerns regarding transport of stocks between brood sources, hatcheries and farm sites will have to be addressed.

ASGA requested the Governor to reestablish the Interagency Mariculture Working Group (IAMWG) at the policy level, with industry representation. The group was re-formed to report to the Resources Cabinet (ADF&G, DNR, DEC, DCED, OMB) and the Department of Community and Regional Affairs (DCRA). It was chaired by a representative from the Department of Commerce and Economic Development (DCED).

The IAMWG met several times in 1993 to discuss issues presented by ASGA. Issues discussed and resolution proposals passed on to the Resources Cabinet included: paralytic shellfish poisoning testing (PSP) -- DEC; shellstock shipping facilities -- DEC; farm boundary surveys -- DNR; farm leases -- DNR; shellfish genetic policy -- ADF&G; research and development -- ADF&G; farm permit amendments -- DEC, ADF&G, DGC, DNR; farm inspections -- DEC, ADF&G, DGC, DNR.

Rural Development

The benefits of aquatic farming as a source of income and economic stability in rural, coastal Alaska continued to grow. The industry's need for clean, uncontaminated water makes it, by definition, a rural endeavor. As the farms grow and mature, the industry workforce grows accordingly. In 1993 the total number of farm employees increased 32.4%, providing employment for 94 individuals. Though few of these positions were full time, they did provide seasonal income in many areas where employment opportunities are very limited.

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