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**ALASKA FISHERIES
ENHANCEMENT PROGRAM
1994 ANNUAL REPORT**

Compiled by

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and Development Division
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Commercial Fisheries Management and Development Division
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TITLE/SUBTITLE Alaska Fisheries Enhancement Program, 1994 Annual Report, RIR No. 5J95-06		CONFIDENTIALITY <input checked="" type="checkbox"/> AVAILABLE TO PUBLIC <input type="checkbox"/> AVAILABLE TO LEGISLATURE ONLY
ABSTRACT (100 words maximum) The Commercial Fisheries Management and Development (CFMD) Division oversees and regulates all state and private sector salmon rehabilitation and enhancement projects. Protection of Alaska's natural salmon stocks requires biologically thorough permitting processes. Geneticists, pathologists, and biologists review all fisheries projects prior to the issuance of a permit to operate a salmon ranching facility, transfer eggs or fish, or release any fish into Alaska waters. The CFMD Division also maintains limnology, coded wire tag and otolith processing, genetic, and pathology laboratories to provide both diagnostic information to department fisheries managers inseason and technical expertise to the private sector. The CFMD Division cooperates with the private sector for region-wide salmon planning. Over 1.7 billion salmon eggs were collected by Alaska hatchery operators in 1994. In addition, 1.3 billion fish were released and 35 million fish were harvested in the common property fisheries as a result of the ocean ranching program. This harvest represents 19% of the record-breaking 1994 commercial harvest of 196 million fish. The ocean ranching program provides hundreds of Alaskans with seasonal and full-time jobs. Used as a proactive form of management, CFMD Division development initiatives reach beyond the success of the finfish program to implement programs required by the mariculture (shellfish and aquatic plant) industry, and to develop rural economies through developing fisheries. In recent years, the CFMD Division has been actively involved in rural economic development in many remote villages.		SUBJECT CATEGORY <input checked="" type="checkbox"/> NATURAL RESOURCES <input type="checkbox"/> EDUCATION <input type="checkbox"/> SOCIAL SERVICES <input type="checkbox"/> HEALTH <input type="checkbox"/> TRANSPORTATION <input type="checkbox"/> LAW ENFORCEMENT <input type="checkbox"/> COMMERCE & INDUSTRY <input type="checkbox"/> GENERAL GOVERNMENT <input type="checkbox"/> LOCAL GOVERNMENT <input type="checkbox"/> OTHER
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FUNCTIONS AND SERVICES

Alaska's fisheries enhancement program has undergone a transformation over the past six years. The private sector has become the primary producer of salmon to enhance the state's fisheries. The State of Alaska has moved away from hatchery production to concentrate on planning, permitting, technological development, data management, and technical services to the fisheries enhancement community.

In 1993 the Fisheries Rehabilitation Enhancement and Development (FRED) Division merged with the Commercial Fisheries Division to form the Alaska Department of Fish and Game's (ADF&G) new Commercial Fisheries Management and Development (CFMD) Division. The statutory responsibilities of the former FRED Division remained, and CFMD Division staff will continue providing those same services and functions, although with a diminished role in hatchery

production. Those FRED hatcheries that had concentrated on production of sport fish were transferred to the department's Sport Fish Division, and an additional state hatchery is expected to be transferred to the private sector by the end of fiscal year (FY) 1995.

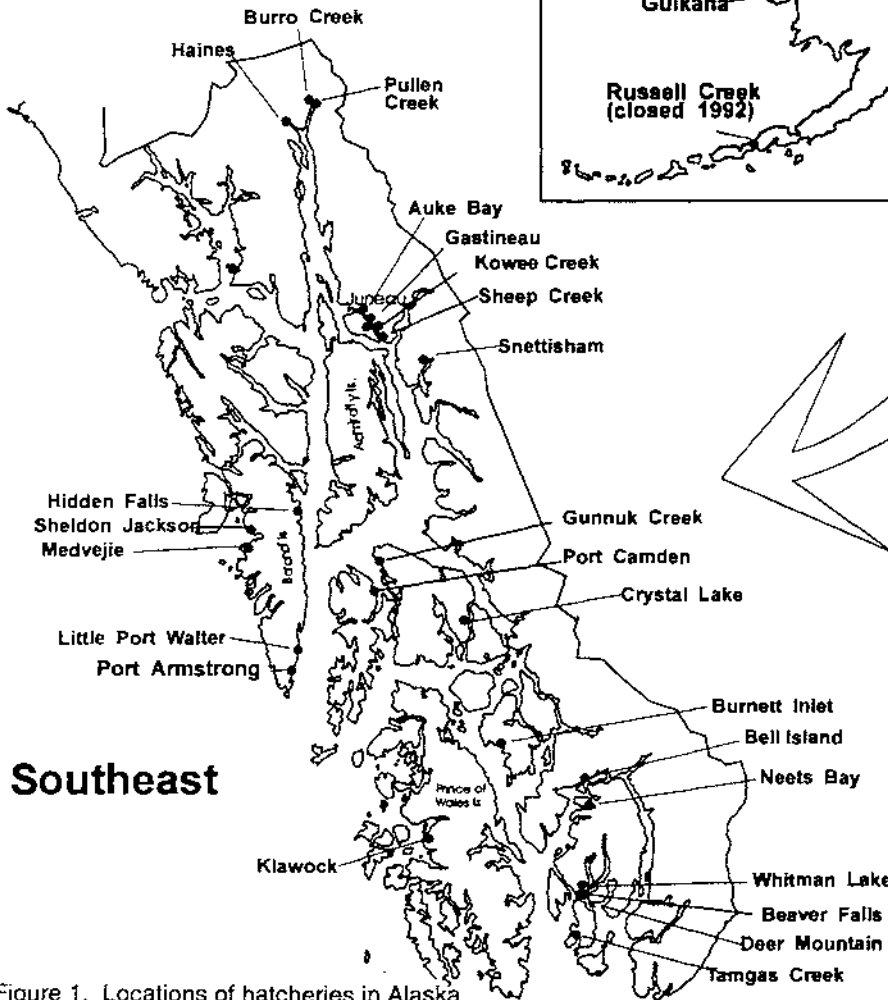
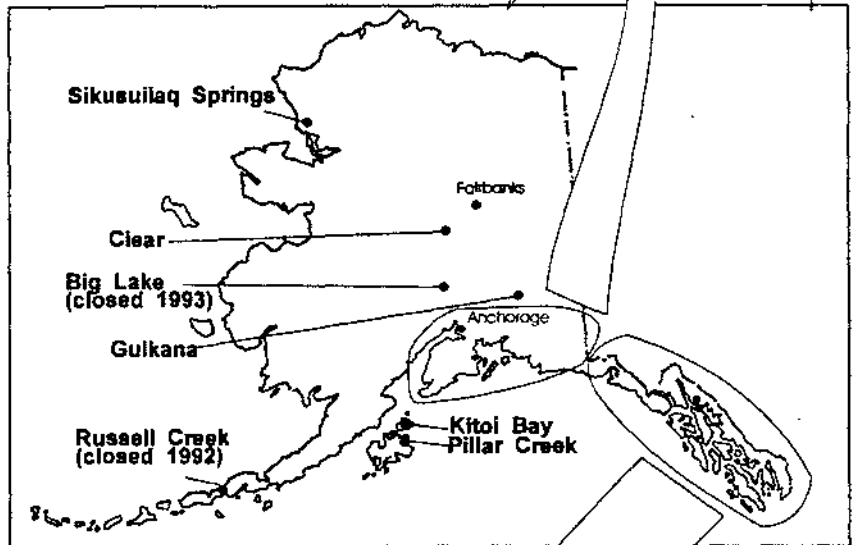
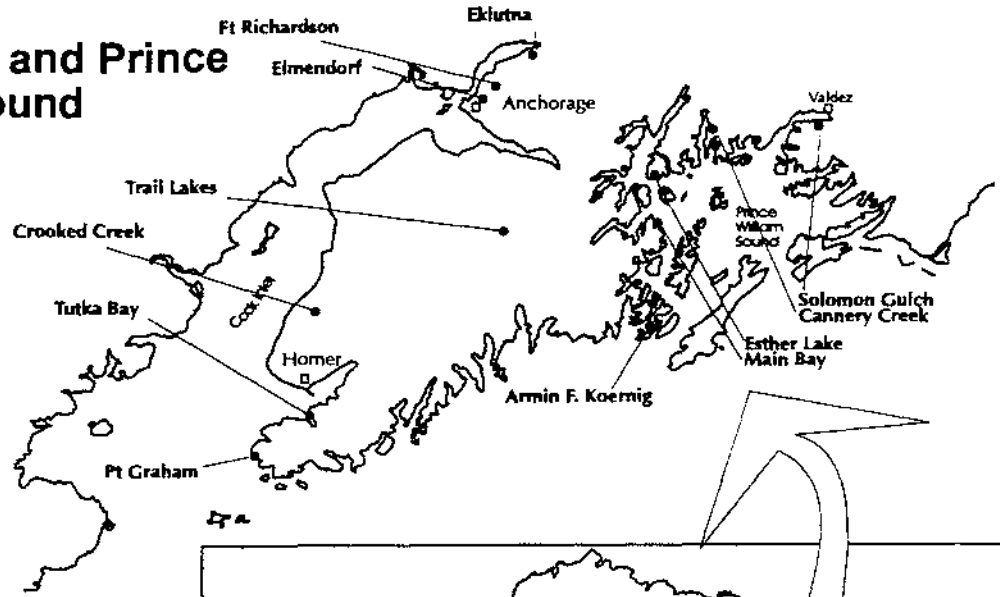
Enhancement-related services the CFMD Division provides include working with the private sector on region-wide salmon planning; overseeing the statewide aquaculture industry; collecting and disseminating data; issuing all permits required by statute to operate hatcheries, transferring eggs or fish, or releasing fish into state waters; and providing technical services through pathology, genetics, limnology, coded wire tag, or otolith processing laboratories. The CFMD Division operates four hatcheries—Crystal Lake, Snettisham, Clear, and Sikusuilag Springs—and the Sport Fish Division operates two hatcheries—Fort

Alaska's Hatchery Operators^{1/}

State	Private Nonprofit (Regional Aquaculture Association)	
<p>Clear Crystal Lake Elmendorf Ft. Richardson^{2/} Sikusuilag^{4/} Snettisham</p>	<p>Armin F. Koernig (PWSAC) Beaver Falls^{3/} (SSRAA) Bell Island Burnett Inlet Burro Creek Cannery Creek^{3/} (PWSAC) Crooked Creek^{3/} (CIAA) Deer Mountain^{3/} Eklutna (CIAA) Gastineau Gulkana^{3/} (PWSAC) Gunnuk Creek Haines Projects (NSRAA) Hidden Falls^{3/} (NSRAA) Kitoi Bay^{3/} (KRAA) Klawock^{3/}</p>	<p>Kowee Creek Main Bay^{3/} (PWSAC) Medvejie Creek (NSRAA) Neets Bay (SSRAA) Pillar Creek^{3/} (KRAA) Port Armstrong Port Camden (NSRAA) Port Graham Sheep Creek Sheldon Jackson Solomon Gulch Trail Lakes^{3/} (CIAA) Tutka^{3/} (CIAA) Wally Noerenberg (PWSAC) Whitman Lake (SSRAA)</p>
<p>Federal</p> <p>Auke Lake Little Port Walter Tamgas Creek</p>		

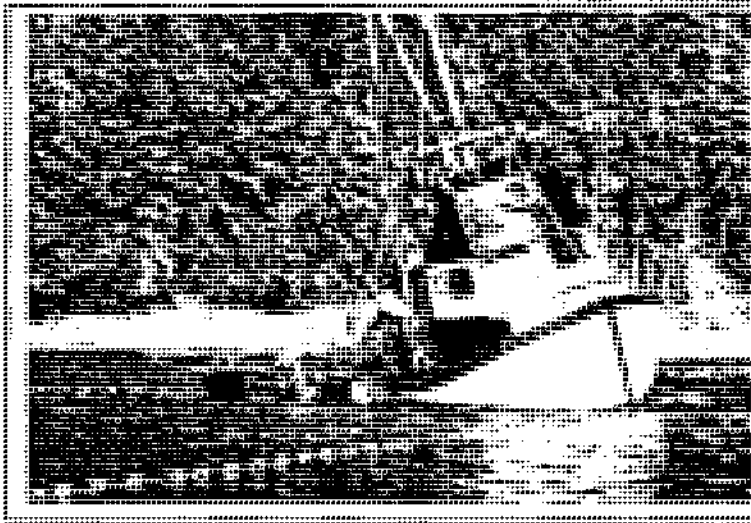
^{1/} See Figure 1 for locations.
^{2/} In 1994 Fort Richardson Hatchery merged with the Broodstock Development Center.
^{3/} Contracted state hatchery.
^{4/} State-operated with funds from Bering Sea Fishermen's Association.

Cook Inlet and Prince William Sound



Locations of Hatcheries within Alaska

Figure 1. Locations of hatcheries in Alaska.



A purse seine fishing vessel.

Richardson and Elmendorf. The Broodstock Development Center has merged with the Fort Richardson Hatchery.

The private nonprofit (PNP) enhancement program consists of 31 hatcheries operated by

regional aquaculture associations and other groups, such as the City of Klawock and the Ketchikan Indian Corporation. The federal enhancement program includes research stations at Auke Creek and Little Port Walter. The Metlakatla Indian Corporation also operates a hatchery at Tamgas Creek on Annette Island.

There are presently 40 salmon hatcheries operating in Alaska: 6 operated by the state, 31 by the PNP sector, 1 by the Metlakatla Indian Community, and 2 research facilities by the federal government. Each year these hatcheries contribute millions of fish to Alaska's commercial, sport, subsistence, and personal-use fisheries—56 million fish in 1994. There are also numerous other enhancement projects, ranging from lake enrichment sites and fish ladders to spawning channels and streamside incubators.



A sport fisherman admiring her catch: a Tutka Hatchery pink salmon.

HATCHERY ENHANCEMENT

The Alaska fisheries enhancement program had an outstanding year in 1994 (Figures 2 and 3; Tables 1 and 2). Records were established for not only the largest commercial catch but also for the number of enhanced fish in that catch. Approximately 20% of the record catch was composed of enhanced fish; nearly 25% of the pink salmon and 37% of the chum salmon harvested were from enhancement projects. More adult chum, pink, and coho salmon from enhancement-related projects returned than ever before.

Coupled with the abundance of fish were low prices for some species of salmon; consequently, PNP operators are investigating new value-added products, such as salmon ham and salmon nuggets, that are proving to be very successful. Developing new markets has benefits for the entire salmon fishing industry. Cost-recovery harvest revenues were impacted by these low prices, and roe stripping became a major alternative to whole-fish sales as a means for hatcheries to recover their costs.

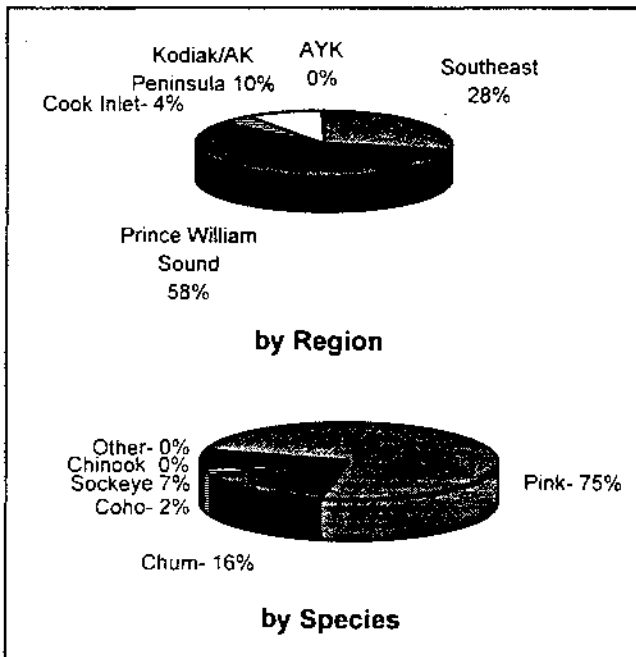


Figure 2. Total returns to enhancement projects in 1994.

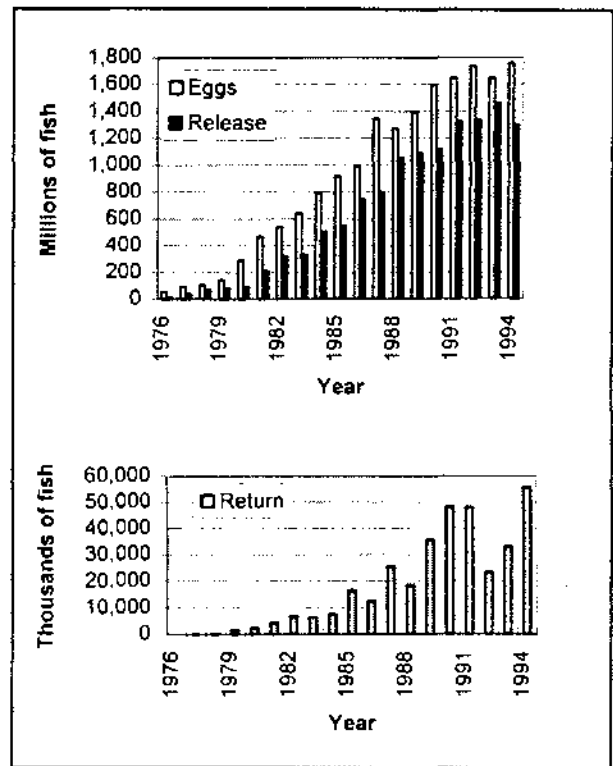


Figure 3. Total egg takes, releases, and returns to the CFMD enhancement program.

Key points of the 1994 hatchery enhancement program follow:

Southeast

- Due to outstanding oceanic conditions, Southeast Alaska had record wild and hatchery coho salmon returns. At 22.6% Hidden Falls Hatchery had one of the highest survival rates for released smolts surviving to adult.
- The Klawock and Deer Mountain Hatcheries were transferred from the state to private operators. Negotiations are underway for the contracting of Snettisham Hatchery to the

Northern Southeast Regional Aquaculture Association (NSRAA).

- Crystal Lake Hatchery will be transferred from the CFMD Division to the Sport Fish Division at the end of FY 95.

Prince William Sound

- Prince William Sound pink salmon also had excellent returns. A higher-than-expected survival rate of 9% for pink salmon at Solomon Gulch Hatchery created an abundance of fish for fishermen.

Kodiak

- Spiridon Lake, a previously barren lake on Kodiak Island, had its first evaluated adult return. The commercial harvest there was over 250,000 sockeye salmon. This success is due to both the fry stocking program at Pillar Creek Hatchery and intensive lake enrichment by ADF&G limnology staff.

Cook Inlet

- The Sport Fish Division merged the Broodstock Development Center with Fort Richardson Hatchery. It now operates Fort Richardson and Elmendorf Hatcheries.

Arctic-Yukon-Kuskokwim

- State funding for Sikusuiiq Springs Hatchery was eliminated in 1994. Subsequently, the hatchery has been minimally staffed and funded primarily by the Bering Sea Fishermen's Association.
- Instream incubators have been placed in the Nome, Snake, and Solomon Rivers. Since 1992, these incubators have produced more than 120,000 chum salmon fry. Studies are underway in Norton Sound to investigate the feasibility of using (1) recirculating incubators for areas not suitable for instream incubation, and (2) lake enrichment techniques to increase sockeye salmon production in Salmon and Glacial Lakes.

Table 1. Total egg takes, releases, and returns to Alaska's salmon enhancement program in 1994.

1994 estimated egg takes from Alaskan hatcheries, in millions							
	Pink	Chum	Coho	Chinook	Sockeye	Other	Total
Southeast	121.48	396.12	21.34	10.74	22.08	0.02	571.77
Prince William Sound	691.13	110.68	5.01	0.46	46.42	0.00	853.70
Cook Inlet	89.73	0.00	2.62	1.97	34.31	3.42	132.05
Kodiak/AK Peninsula	173.97	12.92	2.23	0.00	11.27	0.00	200.38
AYK	0.00	9.09	0.33	0.00	0.00	2.61	12.03
TOTALS	1,076.31	528.82	31.51	13.17	114.08	6.04	1,769.93
detailed information available in Appendix							
1994 estimated releases from Alaskan hatcheries, in millions.							
	Pink	Chum	Coho	Chinook	Sockeye	Other	Total
Southeast	72.76	289.42	12.75	7.03	21.31	0.05	403.32
Prince William Sound	489.10	106.11	2.40	0.79	32.95	0.00	631.34
Cook Inlet	62.40	0.00	1.58	1.92	12.67	2.23	80.79
Kodiak/AK Peninsula	163.19	6.50	0.40	0.00	8.71	0.00	178.80
AYK	0.00	8.95	0.21	0.00	0.00	1.02	10.17
TOTALS	787.44	410.97	17.34	9.73	75.64	3.30	1,304.42
detailed information available in Appendix							
1994 total returns attributable to Alaskan hatcheries and enhancement projects.							
	Pink	Chum	Coho	Chinook	Sockeye	Other	Total
Southeast	6,516,276	7,724,936	1,025,418	72,234	329,701	260	15,668,825
Prince William Sound	30,686,352	975,407	120,260	1,567	413,327	0	32,196,913
Cook Inlet	1,737,113	82,848	80,044	45,970	344,382	98,816	2,389,173
Kodiak/AK Peninsula	2,368,447	49,200	73,347	0	3,080,106	0	5,571,100
AYK	0	80,108	0	0	0	11,279	91,387
TOTALS	41,308,188	8,912,499	1,299,069	119,771	4,167,516	110,355	55,917,398
detailed information available in Appendix							

Table 2. 1994 common-property commercial harvest of enhanced fish.

Alaska Department of Fish and Game- FRED Division								
Alaskan enhancement- common property commercial harvest of enhanced fish (in thousands)								
Year	Area	Harvest (1)	Chinook	Sockeye	Coho	Pink	Chum	Total
1994	Southeast	Total Commercial	231	2,387	5,560	57,343	9,972	75,493
		-Cost Recovery	10	3	192	3,472	1,647	5,323
		Adj Comm total	221	2,384	5,368	53,871	8,325	70,170
		Enhanced	28	160	736	1,864	5,242	8,029
		% Enhanced	12.5%	6.7%	13.7%	3.5%	63.0%	11.4%
	Prince William Sound	Total Commercial	49	1,514	1,012	36,654	1,058	40,287
		-Cost Recovery	1	79	22	7,951	377	8,431
		Adj Comm total	48	1,435	990	28,703	681	31,856
		Enhanced	0	215	57	21,138	474	21,884
		% Enhanced	0.7%	15.0%	5.8%	73.6%	69.6%	68.7%
	Cook Inlet	Total Commercial	21	3,641	579	2,170	298	6,709
		-Cost Recovery		51	6	959	25	1,041
		Adj Comm total	21	3,590	573	1,211	273	5,668
		Enhanced	1	206	21	604	50	882
		% Enhanced	5.7%	5.7%	3.6%	49.9%	18.3%	15.6%
	Kodiak/ Chignik/ Aleut AK Peninsula	Total Commercial	56	9,331	1,057	18,836	3,234	32,514
		-Cost Recovery						0
		Adj Comm total	56	9,331	1,057	18,836	3,234	32,514
		Enhanced		2,243	48	2,075	5	4,371
		% Enhanced	0.0%	24.0%	4.6%	11.0%	0.2%	13.4%
Bristol Bay	Total Commercial	140	35,265	179	91	833	36,508	
	Enhanced	0	0	0	0	0	0	
	% Enhanced	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Arctic/Yukon/Kuskokwim	Total Commercial	145	191	958	1,067	611	2,972	
	Enhanced	0	0	0	0	20	20	
	% Enhanced	0.0%	0.0%	0.0%	0.0%	3.2%	0.7%	
	Total Commercial	642	52,329	9,345	116,161	16,006	194,483	
	-Cost Recovery	11	133	220	12,382	2,049	14,794	
1994 Total	Adj Comm total	631	52,196	9,125	103,779	13,957	179,689	
	Enhanced	29	2,823	862	25,681	5,791	35,186	
	% Enhanced	4.6%	5.4%	9.4%	24.7%	41.5%	19.6%	

(1). Total commercial harvest includes fish caught by all commercial gear types, which includes cost recovery harvested fish.

TECHNOLOGY AND DEVELOPMENT

Technology and development have been key elements in Alaska's modern fisheries enhancement program. A great deal of the program's success, as well as a means of measuring its differences with programs of other states, has been the State of Alaska's adherence to guidelines developed by the division's technology and development staff: fisheries professionals working in four disciplines—genetics, pathology, limnology, and coded wire tag or otolith marking—at five laboratories and numerous field projects around the state.

Genetics

The need for stock identification, wild stock protection, and information concerning interaction between hatchery and wild stocks has led to an expansion of the genetics program within the CFMD Division. In 1994 the remodeling of the Raspberry Road complex included an expansion of the genetics laboratory. A major effort of time was devoted to reviewing permits for the movement of fish and eggs around the state. Genetic considerations, because of potential wild and hatchery stock interactions, are of paramount interest in the permit reviews. Work continued on oil spill-related damage assessment projects on pink salmon in Prince William Sound and on genetic stock identification of sockeye salmon in Cook Inlet.

Pathology

The CFMD Division's pathology program consists of two diagnostic laboratories located in Anchorage and Juneau. A major responsibility of pathology program staff is to provide disease

diagnostic services for all species of finfish and shellfish statewide; this encompassed examining over 14,000 animals and performing over 24,000 tests during 1994. Pathology program staff conducted 23 annual hatchery inspections and made recommendations for 300 transport permits for moving fish and shellfish.

Pathology program staff continued to work extensively with the distribution and epizootiology of viral hemorrhagic septicemia virus in Pacific herring and the Bitter Crab Disease Syndrome in Southeast *bairdi* Tanner crabs. Unlike 1993, hatchery losses due to infectious hematopoietic necrosis virus in sockeye salmon were considerably lower in 1994, although vigorous testing for the virus continues.

Limnology

Limnology program staff provide statewide technical support for all lake enrichment and sockeye fry stocking programs (Figure 4). It also



Salmon fry.

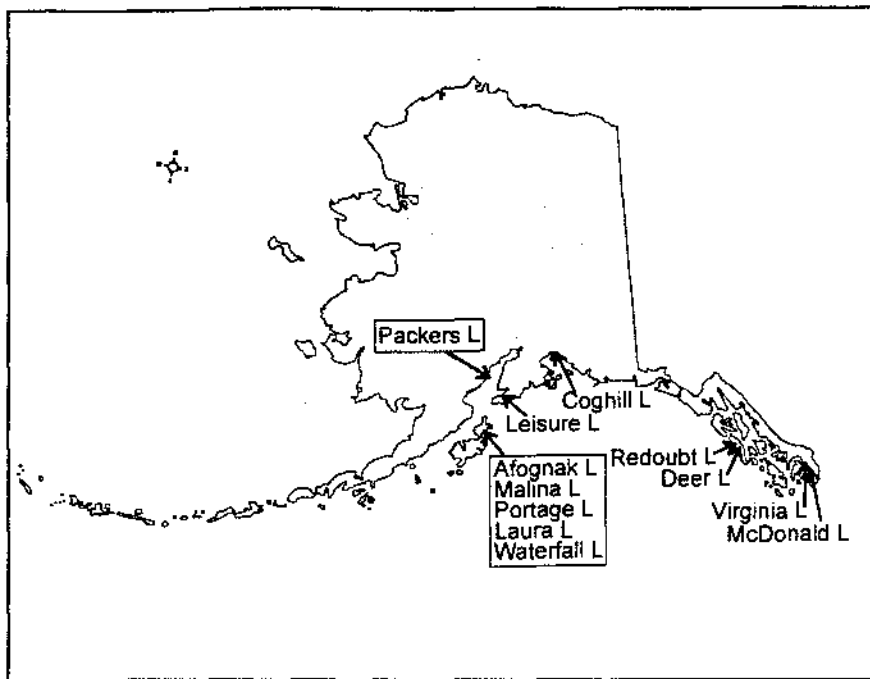


Figure 4. Location of 1994 lake fertilization projects.

participates in cooperative projects with state and federal agencies, PNP aquaculture associations, universities, and commercial fishing organizations. Since 1979 the limnology program has operated a laboratory in Soldotna that provides research and analytical services for statewide projects. In 1994 the laboratory staff processed over 40,000 water-quality, zooplankton, and juvenile fish samples. In addition to providing support for lake enrichment and stocking programs, the limnology staff continued studies on impacts of sockeye over-escapement in the Kenai River and Kodiak Island lake systems resulting from the 1989 *Exxon Valdez* oil spill. They also participated in discussions on biological escapement goals for sockeye salmon systems in Cook Inlet and Bristol Bay.

Program highlights in 1994 include (1) return of the first adults from a sockeye fry stocking program at Spiridon Lake; (2) treatment of 12 lakes with nutrients to enhance sockeye and coho salmon populations; (3) assessment of 8 lakes via hydroacoustic and limnological sampling to evaluate the success of sockeye salmon recolonization/enhancement efforts; and (4) initiation of a cooperative project with the Bering Sea Fishermen's Association to conduct limnological and fishery investigations in Salmon and Glacial Lakes (the world's northernmost lakes supporting sockeye salmon) in Norton Sound and determine

the productivity potential of these sockeye systems.

Other new or expanded projects include investigations of several shallow, marine-influenced lakes along the Alaska Peninsula to determine potential sockeye production as well as collaborative work with the University of Montreal-Biological Station and the University of Alaska. The limnology program has also expanded its participation in the Environmental Protection Agency's (EPA) Clean Lakes Program to investigate possible degradation of water quality or decreased productivity in several urban lakes on the Kenai Peninsula and Kodiak Island.

Coded Wire Tag and Otolith Processing

In 1994 the department's two unique stock identification labs merged into one unit, the Coded Wire Tag and Otolith Processing Laboratory. Record salmon catches in many areas of the state were mirrored by a near-record number of coded wire tags processed, making 1994 the second busiest season ever. Southeast Alaska projects contributed the largest share of the 71,000 samples processed, followed by projects in Prince William Sound and Cook Inlet. Lab staff continued to provide timely stock contribution data to assist fishery and hatchery managers in making their inseason fisheries management decisions.

The lab's otolith work is primarily funded by federal dollars to support U.S./Canada Salmon Treaty obligations. To determine the age of groundfish species that are under joint federal and state jurisdiction, additional federal funding is received from the National Marine Fisheries Service (NMFS) through the Pacific States Marine Fisheries Commission's Pacific Coast Fisheries Information Network (PacFIN). Smaller cooperative agreements and contracts, including one with Gastineau Hatchery, contributed to the remainder of the lab's otolith work.

With the initial success in estimating the enhanced proportion of several fisheries in Southeast Alaska, interest in thermally mass marking hatchery production is growing rapidly. To meet this need, research continues to develop new techniques for marking otoliths, cataloging the marks produced, providing efficient and rapid mark recovery, establishing quality-control methods, applying innovative approaches to sampling and data analysis, and integrating the

data into an effective management tool. Thermal marks appear to be a good complement to the coded wire tag, especially for species released as fry. All fry from a given lot can be cheaply provided with a distinct thermal mark. Coded wire tagging these species and sampling the necessary large numbers of adults are both time consuming and expensive processes. Combined, these two technologies provide a wide range of alternatives for stock identification.

U.S./CANADA TRANSBOUNDARY RIVER ENHANCEMENT AND OTOLITH MARKING

When the United States and Canada entered into a treaty governing harvest of salmon stocks of joint concern, they also committed to jointly undertake enhancement efforts designed to benefit both countries. In Alaska, the major joint enhancement projects are for sockeye salmon lake stocking on two transboundary rivers, the Taku and Stikine. Canadians collect eggs from sockeye salmon in their lakes and transport them to Snettisham Hatchery. ADF&G provides the incubation services and transportation of the fry back to Canada. The program is in its sixth year. Each year a team of scientists from both countries evaluates and modifies the program to reflect what has happened in the enhanced systems. At present, fish planted in lakes of the Stikine River system have been producing large numbers of smolts, whereas efforts on the Taku River have been slowed by several factors. In 1994 the first significant number of enhanced adult sockeye salmon returned to these systems. Alaska fishermen caught about 20,000 of them in gillnet fisheries at the mouth of the Stikine River. When this project reaches full production, about 200,000 adult sockeye salmon will return annually.

Otolith marking plays an important role in this work. Otoliths are "ear" bones inside the fishes' head. Manipulation of the water temperature during incubation produces a thermal mark on the otoliths of 100% of these fish. Thermal marks from otoliths are used to evaluate the success of this program. Thermal marks provide identification of the proportion of enhanced fish in mixed-stock terminal fisheries and facilitate allocation of enhanced fish to U.S. and Canadian fishermen. The 1994 fishing season marked the first test for the otolith-processing facility to meet these objectives. Coded wire tag and otolith processing laboratory staff provided managers with an inseason estimate of the proportion of enhanced sockeye salmon in 52 commercial openings over a 10-week period. These initial estimates were made by processing 4,653 otoliths from seven different statistical areas. Information was given to managers in time for their next opening. Additional otoliths were processed post season to firm up initial estimates, allow for replicate readings for quality control, and provide overall estimates of contribution of enhanced sockeye salmon to commercial fisheries.

RECENT HATCHERY CONTRACTS AND TRANSFERS

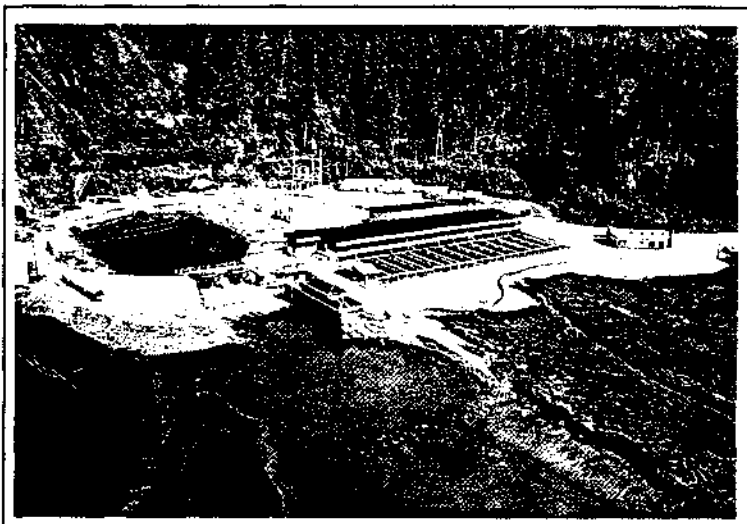
In 1994 ADF&G fully operated six hatcheries. The primary sport fish production facilities, Fort Richardson/Broodstock Development Center and Elmendorf, were operated by the department's Sport Fish Division. Clear, Sikusuiq, Snettisham, and Crystal Lake Hatcheries were operated by the CFMD Division. Twelve state-owned hatcheries have been contracted to private-sector entities. Two facilities, Russell Creek and Big Lake, have been closed since 1988, although Big Lake may be reopened.

In 1994 Deer Mountain and Klawock Hatcheries were transferred to the private sector. Ketchikan Tribal Hatchery Corporation assumed operation of Deer Mountain Hatchery on July 1. The new operator scaled back the hatchery program and eliminated programs that had no potential for paying their own way. Tourism programs are expected to be the major means of recovering hatchery costs. In June 1993 the state ceased direct operations for Klawock Hatchery; however, it provided funds to the City of Klawock to continue hatchery operations during FY 94. During this transition year, Klawock River Hatchery, Inc., was formed as a PNP corporation and granted a PNP Hatchery Permit (June); it began operating on July 1. New program directions promise to more fully integrate this hatchery's production potential with its biological and social environment.

Other state programs were also transferred to the private sector. In 1994 the Southern Southeast Regional Aquaculture Association (SSRAA) assumed the McDonald Lake enrichment program, and SSRAA staff applied 12,600 gallons of fertilizer to the lake. In July 1994 the recreational chinook project at Snettisham Hatchery was transferred to Gastineau Hatchery in Juneau. Through transfer of

that program, ADF&G expects to provide an increased number of adult chinook salmon for recreational anglers in northern Southeast and enable the Snettisham Hatchery to concentrate on sockeye salmon production. ADF&G staff are currently working with NSRAA staff to develop a plan for transfer of Snettisham Hatchery to NSRAA in July 1995.

Crystal Lake Hatchery is in the process of being transferred from the CFMD Division to the Sport Fish Division of ADF&G in July 1995. In 1994 Big Lake Hatchery, which previously had been closed by the state, was surplus and ownership was assumed by the Matanuska-Susitna Borough, who is seeking an operator to reopen it as an educational and tourism facility. The state has entered into a cooperative agreement with the borough to use existing hatchery equipment. In 1994 the legislature passed a statutory amendment to AS 16.10.480, which allows the contractor of a state hatchery to utilize funds from the sale of fish returning to the contracted facility in much the same manner it uses any other funding received by the corporation.



Snettisham Hatchery.

Table 3. Fishery enhancement program timeline of events.

Year	Event	# State	# PNP	# Federal
1934	Federal research station Little Port Walter constructed			1
1950	Federal hatchery at Auke Creek constructed			2
1953	1 territorial hatchery constructed (Kitoi)	1		
1954	1 territorial hatchery constructed (Deer Mtn)	2		
1958	1 territorial hatchery constructed (Ft Richardson)	3		
1965	1 state hatchery constructed (Fire Lake)	4		
1969	1 state hatchery constructed (Crystal L)	5		
1971	FRED created by legislature			
1973	2 state hatcheries constructed (Crooked Cr, Gulkana)	7		
	State enhancement projects at Starrigavan and Halibut Cove started			
1974	2 state hatcheries constructed (Beaver Falls, East Cr)	9		
	Legislature authorizes permits for PNP to salmon ranch			
1975	4 PNP permits issued (Sheldon Jackson(#3), Port San Juan(#2), Perry Isl(#1), Sandy Bay (#4))		4	
	2 state hatcheries constructed (Big Lake, Tutka)	11		
1976	AS 16.10.375 passed, designating regions in state for RPTs and enhancing salmon			
	1 state hatchery constructed (Elmendorf)	12		
	2 PNP permits issued (Burnett Inlet(#5), Kowee Cr(#6))		6	
1977	1 PNP permit issued (Gunnuk Cr(#7))		7	
	2 state hatcheries constructed (Klawock, Russell Cr)	14		
	State enhancement project at Kariuk started			
1978	1 PNP permit issued (Whitman Lake(#8))		8	
	2 state hatcheries constructed (Cannery Cr, Hidden Falls)	16		
1979	3 PNP permits issued (Sheep Cr(#11), Meyers Chuck(#10), Salmon Cr(#9))		11	
	1 state hatchery constructed (Snettisham)	17		
	1 state hatchery closed (Fire Lake)	16		
1980	1 PNP permit issued (Burro Cr(#12))		12	
	2 state hatcheries constructed (Clear, Main Bay)	18		
	1 hatchery at Tamgas Creek constructed (Metlakatla Indian Community/BIA)			3
1981	1 state hatchery closed (East Creek)	17		
	2 state hatcheries constructed (Sikusuilaq, Trail Lakes)	19		
	4 PNP permits issued (Medveje(#16), Pt Armstrong(#13), Solomon Gulch(#15), Salmon Cr (#14))		16	
	1 PNP permit revoked (Salmon Cr(#9))		15	
1982	2 PNP permits issued (Eklutna(#17), Favorite Bay(#18))		17	
1983	3 PNP permits issued (Neets Bay(#19), Crittenden Creek(#22), Esther(#20))		20	
	1 state hatchery completed (Broodstock Development Center[BDC])	20		
1984	1 PNP permit issued (Santa Anna(#21))		21	
1985	1 PNP permit issued (Port Camden(#23))		22	
1986	1 PNP permit issued (Beaver Falls(#24))		23	
1987	1 PNP permit issued (Gastineau(#25))		24	
1988	Aquatic Farm Act signed			
	Statute passed that allows contracting of hatchery operations			
	4 state hatcheries contracted to private sector (Kitoi, Trail L, Cannery, Hidden Falls)	16		
	4 PNP permits issued (Hidden Falls(#28), Cannery Cr(#26), Trail L(#27), Kitoi(#29))		28	
	1 state hatchery constructed (Pillar Creek)	17		
	2 PNP permits revoked (Sandy Bay (#4), Salmon Creek(#14))		26	
1990	CSHB432 becomes law prohibiting finfish farming			
	1 PNP permit issued (Bell Island(#30))		27	
1991	5 state hatcheries contracted to private sector (Main Bay (#31), Tutka, Gulkana(#39), Pillar Creek (#38), Beaver Falls(#24))	12		30
	Portions of 6 state hatcheries paid for by private or federal funds			
1992	1 state hatchery closed (Russell Creek)	11		
	2 PNP permits issued (Haines projects (#34), Pt Graham(#33))		32	
	1 PNP permit revoked (Meyers Chuck(#10))		31	
1993	3 state hatcheries transferred from CFMD to Sport Fish (BDC, Elmendorf, Ft Rich)			
	2 state hatcheries contracted (Crooked Creek, Klawock)	9		
	1 state hatchery closed (Big Lake)	8		
1994	4 PNP permits issued (Tutka(#32), Crooked Cr (#35), Klawock (#36), Deer Mtn (#37))		35	
	1 state hatchery contracted (Deer Mountain)	7		
	Ft Richardson Hatchery merged with BDC	6		

Note: Crittenden Creek, Santa Anna, Favorite Bay, and Perry Isl are not active PNP sites

PRIVATE NONPROFIT (PNP) PERMITTING, PLANNING, AND DEVELOPMENT PROGRAM

The PNP program is administered by the CFMD Division, and PNP program staff organize and implement regional comprehensive salmon plans through regional planning teams (RPT) that are composed of members from ADF&G and regional aquaculture associations. In those regions where aquaculture associations have not formed, nondepartmental RPT representatives include members from fisheries gear groups, municipalities, and boroughs. Staff also coordinate the review of PNP hatchery applications as well as management of statewide enhancement data and reporting, annual facility management plans for 38 facilities, and the permitting process for hatchery, fish transport, fish resource, and scientific/educational permits.

In 1994 the regional salmon planning process was actively conducted in 9 regions of the state: (1) Southern Southeast, (2) Northern Southeast, (3) Prince William Sound, (4) Cook Inlet, (5) Kodiak, (6) Chignik, (7) Area M, (8) Norton Sound, and (9) Yukon River (Figure 5). With the exception of Norton Sound and the Yukon River, this planning process has been ongoing for a number of years.

During 1993 the department and the Norton Sound Economic Development Corporation (NSEDC) cooperatively worked together to initiate informational, educational, and stock status assessment programs as a precursor to developing a comprehensive salmon plan for the region. The Norton Sound RPT was established by the commissioner in December 1993, the organizational meeting occurred in May 1994, and two subsequent meetings were held in 1994. Community informational meetings are scheduled to occur in early 1995, and RPT members will continue meeting during 1995 as they complete development of the comprehensive plan.

The department has been working with the Yukon River Drainage Fisheries Association (YRDFFA) under a cooperative agreement that focuses on evaluating opportunities for conservation, restoration, and enhancement of salmon stocks in the Yukon River drainage. The initial focus was on developing a regional educational and informational program. In early February 1994, the Yukon River RPT was formed by the commissioner to focus on the development of a

long-range comprehensive salmon plan. The organizational RPT meeting occurred in late February 1994, two subsequent RPT meetings were held in October 1994, and RPT members will continue meeting throughout 1995 as they develop the regional comprehensive salmon plan.

An additional component of the planning program includes direct participation in salmon treaty negotiations. The Pacific Salmon Treaty (PST) was signed in 1985 by the U.S. and Canada to rebuild chinook salmon stocks and to address problems of

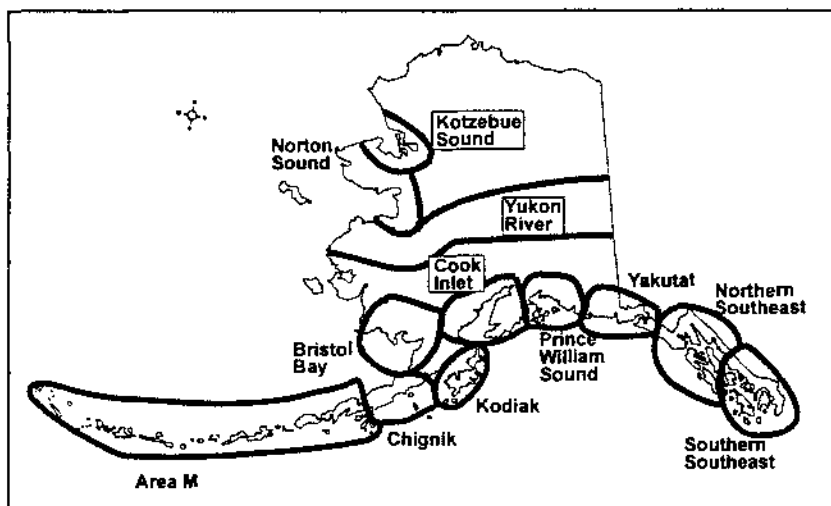
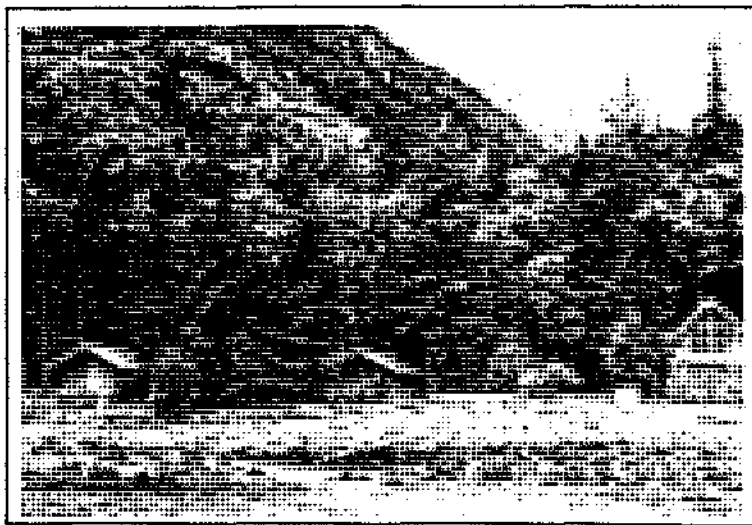


Figure 5. Comprehensive salmon planning regions in Alaska.

mutual concern relating to the intermingling salmon stocks. The PST consists of (1) general principles regarding conservation, optimum production, and equitable harvest sharing; and (2) fishery and stock management arrangements that implement PST principles. The Pacific Salmon Commission (PSC), the implementing body of the PST, has no direct fishery management authority; however, the PSC makes recommendations to the respective governments regarding fishery and stock management arrangements that, when adopted by the governments, are implemented by the managing jurisdictions of each country.



The Burro Creek Hatchery in Skagway.

The PSC meets annually to develop and negotiate fishery and other management arrangements related to intermingling salmon stocks. Alaska is represented on the PSC by a 12-member panel with representatives from the state and federal governments as well as various fishing groups. During 1994 a PNP program staff member chaired the panel. Most treaty fishing arrangements have currently expired and must be renegotiated. The PSC is attempting to negotiate longer-term, multi-year arrangements to provide more stability and to focus more attention on developing improved, longer-term salmon management approaches; however, the process has been delayed because of conflicting interpretations of the equity issue.

In southern Southeast Alaska and northern British Columbia, negotiations will focus primarily on (1) harvest sharing and enhancement of sockeye salmon stocks of the transboundary Taku and Stikine Rivers and Canadian catch limits for coho salmon on these two rivers; (2) sockeye salmon fishery limits for Southeast Alaska's District 4 (Noyes Island) purse seine fishery prior to the latter part of July; (3) pink salmon fishery limits for Canada's Area 1 troll fishery; and (4) continuation of a rebuilding program for Portland Canal chum salmon stocks. Renegotiation of provisions of a coastwide chinook salmon rebuilding program will also affect Southeast Alaska fisheries through continuation of an all-gear chinook catch ceiling.

Cost-Recovery Methods

PNP hatcheries are allowed by law to harvest returning fish to help recover their operating costs. Traditionally, the most common method is to seine adult fish in special harvest areas and sell the whole fish to processors. This method has accounted for more than 99% of the cost-recovery revenue in the past; however, with decreases in fish prices, PNP operators are looking toward other means for recovering costs. One method that came to the forefront in 1994 was roe stripping. Roe is removed from female salmon, processed, and sold as either bait or prepared food. Salted salmon roe, especially chum salmon roe, is a delicacy in Japan. The leftover carcass may either be salvaged or disposed of in a means compliant with Alaska Department of Environmental Conservation regulations. Operators receive up to \$5.00/lb for quality salmon roe, often making the roe more valuable than the rest of the fish. Roe sales from PNP operators in 1994 totaled \$1.9 million.

MARICULTURE

The Aquatic Farm Act of 1988 authorized ADF&G to issue permits for the construction and operation of aquatic farms or hatcheries for shellfish and aquatic plants. More than 150 applications for farm sites have been received since the legislation was implemented in 1989.

In 1994 six aquatic farm permit applications were received. The decrease in application numbers appeared primarily due to a departmental moratorium on new applications for Kachemak Bay farm sites. Two new farm permits were issued. One application for a site near Sitka was found inconsistent with the Alaska Coastal Management Program (ACMP). Two applications for sites near Seward are in the Department of Natural Resources' (DNR) appeal process. The remaining 1994 application was approved and is pending issuance.

One hatchery and 58 farms held permits to operate, and 46 of those farms were active in 1994 (Figure 6). Seventeen renewal applications were received; six renewals were issued; and four permits were closed, reducing total permitted acreage from 262 in 1993 to 252 in 1994 (Table 4). Aquatic farm sales in 1994 were \$244,803, an increase of 3.2% over those in 1993. The estimated value of the in-water inventory at the end of 1994 was \$3,999,000 (Table 5), representing the first time since the program's inception in 1989 that farm

inventory has decreased. Four large farms had serious operating difficulties that contributed to the small overall increase in production and the decrease in inventory. Problems included labor shortages, inability to market product, predation, vandalism, and theft.

The one shellfish hatchery permitted in 1992 continued operating in 1994. Oyster larvae purchased from Lower 48 suppliers were set and grown out for sale to Alaska farms. Littleneck clams were successfully spawned and set, apparently for the first time outside a laboratory environment. This makes clam farming a potentially viable opportunity for an industry in need of product diversity.

Three out-of-state oyster spat suppliers were certified in 1994. One of those experienced high larval mortalities in its hatchery and was unable to supply all of the spat ordered. In spite of this shortage, seed stock supplies were good because of

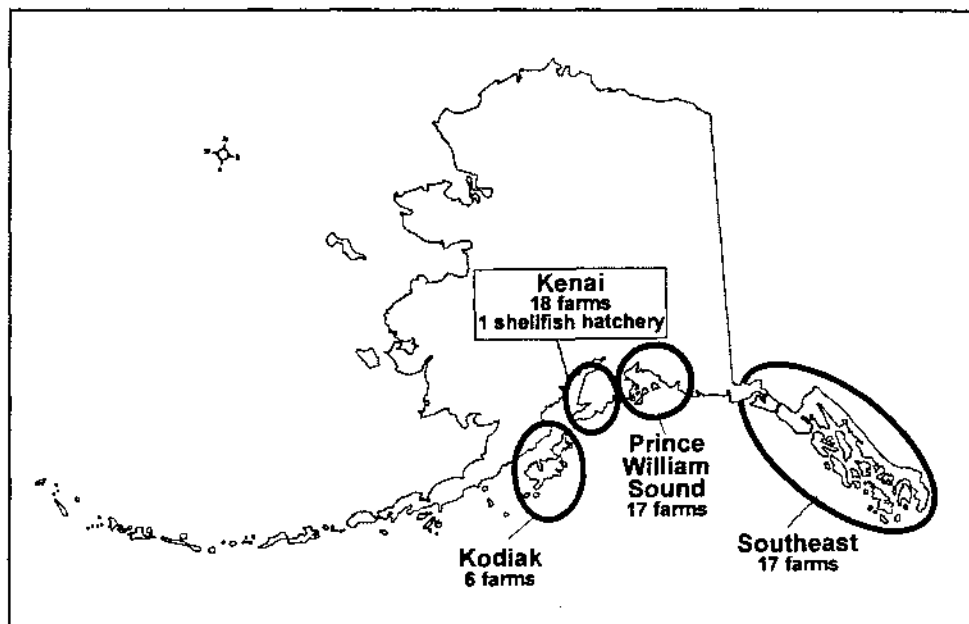


Figure 6. Locations of permitted aquatic farms.

the addition of a third Lower 48 supplier and the instate hatchery.

In 1993, \$3.25 million was appropriated from the *Exxon Valdez* criminal settlement to (1) design and construct a mariculture technical center and shellfish hatchery, and (2) conduct shellfish nursery research projects in Kachemak Bay. The feasibility study required by the legislation was accomplished in 1994, and the final report was released on September 29. A site within the University of Alaska's Seward Institute of Marine Science was recommended and accepted by the commissioner. Proposals for designing/engineering of the facility were advertised in December. The design contract is scheduled for completion in May 1995, and facility construction will begin in August. The scheduled completion date is May 1996.



A shellfish farmer cleans a lantern net filled with oysters.

Table 4. Aquatic farm permit data, 1994.

	Southeast	Southcentral	TOTAL
OPERATIONS			
Aquatic farm permit applications	3	3	6 ¹⁾
New Farm Permits issued	1	1	2
Permits pending or still in process	2 ²⁾	3	5
Total permitted aquatic farms	17	41	58
Shellfish/aquatic plant hatcheries	0	1	1
Farms reporting activity	19	27	46
Farm permit renewals received	4	13	17
Farm permit renewals issued	4	2	6
1993 renewals pending/still in process	7	0	7
Acreage permitted for aquatic farming	67	185 ³⁾	252
RESEARCH			
Permit applications	1	1	2
SHELLFISH AND AQUATIC PLANT ACQUISITION/TRANSPORT			
Permit applications	31	57	88
Permits issued	27	52	79
Permits pending or still in process	4	4	8
1) Includes one shellfish hatchery application.			
2) One Southeast farm application found inconsistent with the ACMP.			
3) Includes 20 acres in Kachemak Bay State Park.			

Table 5. Aquatic farm operations data, 1994.

	Southeast	Southcentral	TOTAL
MARKET SALES			
Oysters	528,540 ¹⁾	227,777	756,317
Value	\$138,993	\$98,652	\$237,646
Mussels (lbs)	200	3,063	3,263
Value	— ³⁾	\$7,158	\$7,158
Total aquatic farm market sales			\$244,803
HATCHERY/NURSERY PRODUCTION			
Oysters	0	867,000	867,000
Value	\$0.00	— ³⁾	—
END OF YEAR INVENTORY			
Oysters	3,328,366 ¹⁾	7,335,510	10,663,876
Value	\$1,231,495	\$2,714,139	\$3,945,634
Mussels (lbs)	>1 ¹⁾	35,339 ⁴⁾	35,339
Value	— ³⁾	\$53,009	\$53,009
Oysters (hatchery stock)	0	1,100,000	1,100,000
Value	0	— ³⁾	—
Littleneck clams (hatchery stock)	0	540,000	540,000
Value	0	— ³⁾	—
Total End-of-Year Aquatic Farm Inventory Value			\$3,998,643
EMPLOYMENT SUMMARY			
Number of employees	37	48	85
Days worked	3,652	2,694	6,346
<p>1) Southeast production data preliminary.</p> <p>2) A small inventory of other species, primarily scallops (<5,000 organisms) exists.</p> <p>3) Single producer, financial information confidential.</p> <p>4) Estimate. Mussel inventory methods vary widely between farms.</p> <p>5) Does not include owner/operator work days.</p>			

OTHER METHODS USED TO ENHANCE ALASKA'S FISHERIES

Streamside Incubation

Many techniques for fishery enhancement do not require the large capital outlay of cash that hatcheries do. One of the most successful of these techniques is streamside (or instream) incubation, which involves the use of large incubation boxes placed in or beside streams. Natural upwelling water or flow of the stream provides the necessary movement of water through the incubation boxes. These boxes are seeded with eggs in the fall, and the fry volitionally outmigrate in the spring. The advantage of streamside incubators over natural production is the protection of eggs from disruption and predation prior to their hatching and emergence. Site selection for streamside incubators must be done carefully, because water must continue flowing through the incubation boxes during the winter to (1) provide eggs with sufficient oxygen, and (2) prevent them from freezing. Surprisingly, streamside incubators are being used successfully as far north as Nome.

The largest complex of streamside incubators is Gulkana Hatchery near Glennallen. This facility was developed by the state; however, it is now run by the Prince William Sound Aquaculture Corporation (PWSAC). Gulkana Hatchery produces as



Placing Christmas trees for bank stabilization and to enhance fish habitat.

Locations of Streamside Incubators

Nome River	Nome
Snake River	Nome
Solomon River	Nome
8 Mile Spring	Kaitag
Gulkana River	Glennallen
Port Camden Creeks	Sitka
Big Boulder Creek	Haines
Chilkat Lake Inlet	Haines
Klehini River Trib	Haines
Harding River	Petersburg

many as 26 million sockeye salmon fry yearly. Egg-to-fry survival in streamside incubators is not normally as good as those in hatcheries, although streamside incubators placed by NSRAA in creeks near Haines had egg-to-fry survivals in 1994 of more than 90%.

Restoration

Another method of fisheries enhancement involves restoring streams degraded by human-use activities. Habitat restoration work was

Locations of Restoration Project Sites

Big Boulder Creek	Haines
Haines Highway Reconstruction	Haines
31 Mile Creek	Haines
Duck Creek	Juneau
Ophir Creek	Yakutat
Pullen Creek	Skagway
Verstovia Elementary School	Sitka
Campbell Creek	Anchorage
Little Susitna River	Big Lake
Cottonwood Creek	Wasilla
Box Canyon Creek	Seward
Nome Area	Nome

accomplished at several sites around Alaska, including installing tree revetments for stabilizing and rebuilding streambanks to inhibit erosion, reviewing construction plans that might affect streams, and conducting studies associated with analyzing the potential for and probable success of restoration efforts at specific areas.

Public Education/Classroom Incubators

Public education and involvement are critical to the success of these projects, and ADF&G biologists work on environmental education trails, make school presentations, and set up classroom



Student proudly displaying salmon fry.

incubators. Public education about salmon life cycles is an important tool for ensuring responsible attitudes toward Alaska's fishery resources. There are presently more than 70 scientific/educational permits issued, and many schools have incubation boxes. ADF&G staff visit schools around the state to help educate students on the responsible use of our state's fishery resources.



Boy Scouts planting trees at Campbell Creek to restore bank stabilization.

ACKNOWLEDGMENTS

The editor wishes to acknowledge the efforts of many people within the CFMD Division for their contributions to this report. First, many area and hatchery personnel have assembled data reports that are the basis of this document. Thanks go to

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APPENDIX

Appendix 1. 1994 egg takes for Alaskan hatcheries, in millions.

REGION / LOCATION		Pink	Chum	Coho	Chinook	Sockeye	Other	TOTAL
SOUTHEAST								
SSRAA	Whitman Lake		32.42	2.34	1.03	*		35.79
	Neets Bay		75.74	1.54				77.27
	Beaver Falls					4.09		4.09
NSRAA	Hidden Falls		84.01	4.14	1.43			89.58
	Medvejie Creek	0.21	33.81	2.65	1.53			38.20
	Port Camden		6.02					6.02
	Haines Projects		0.90			0.60		1.50
AAI	Burnett Inlet	39.98	22.00	*	*			61.98
AKI	Port Armstrong	59.45		1.02				60.47
BCF	Burro Creek	1.04	0.01	0.02	0.07			1.14
DIPAC	Kowee Creek	*	*					0.00
	Sheep Creek	*	29.64	*				29.64
	Gastineau	8.99	88.11	0.91	1.04			99.05
KIC	Deer Mountain			0.16	0.34		0.01	0.51
KNFC	Gunnuk Creek		20.95	0.04				20.99
KOC	Klawock			3.20		2.90	0.01	6.10
SJC	Indian River	10.80	0.22	0.16	0.12			11.30
MIC	Tamgas Creek		2.30	4.70	1.50			8.50
FED	Little Port Walter				1.87			1.87
	Auke Creek	1.00		0.01				1.01
ADFG	Crystal Lake			0.47	1.80			2.27
	Snettisham					14.49		14.49
SOUTHEAST TOTALS		121.48	396.12	21.34	10.74	22.08	0.02	571.76
PRINCE WILLIAM SOUND								
PWSAC	Armin F. Koernig	125.48	*					125.48
	Esther Lake	188.11	109.17	2.74	0.46	*		300.48
	Cannery Creek	158.29	*					158.29
	Main Bay					8.44		8.44
	Gulkana					37.97		37.97
VFDA	Solomon Gulch	219.25	1.52	2.27				223.03
PWS TOTALS		691.13	110.68	5.01	0.46	46.42	0.00	853.70
COOK INLET								
CIAA	Pt Graham	0.53				1.41		1.94
	Eklutna			0.10		7.75		7.85
	Trail Lakes			0.80	*	11.02		11.82
	Tutka Bay	89.20				0.55		89.75
	Crooked Creek			*	*	13.58		13.58
ADFG	Elmendorf			0.82	1.59			2.40
	Ft Richardson			0.90	0.38		3.42	4.71
COOK INLET TOTALS		89.73	0.00	2.62	1.97	34.31	3.42	132.05
KODIAK								
KRAA	Kitoi Bay	173.97	12.92	2.13		1.26		190.27
	Pillar Creek			0.10		10.01		10.11
KODIAK TOTALS		173.97	12.92	2.23	0.00	11.27	0.00	200.38
ARCTIC/YUKON/KUSKOKWIM								
ADFG	Clear		0.39	0.33			2.61	3.33
	Sikusuilag		8.70					8.70
AYK TOTALS		0.00	9.09	0.33	0.00	0.00	2.61	12.03
STATEWIDE TOTALS		1,076.31	528.82	31.51	13.17	114.08	6.04	1,769.92

Note 1. If eggs were transferred, they are listed by the hatchery that received them.

Note 2. * indicates permitted species but no egg take this season.

Note 3. individual hatchery egg takes may not add up to the regional or statewide totals because of rounding.

Appendix 2. 1994 releases from Alaskan hatcheries, in millions of fish.

REGION/LOCATION		Pink	Chum	Coho	Chinook	Sockeye	Other	TOTAL
SOUTHEAST								
SSRAA	- Whitman Lake			0.30	0.12	*		0.42
	Carroll Inlet				1.15			1.15
	Kendrick Bay		9.07					9.07
	Naket Inlet		15.15	0.10				15.24
	Earl West Cove		7.44	0.19	0.32			7.95
	- Neets Bay		62.42	2.32	0.22			64.95
	- Beaver Falls							0.00
	Shrimp Bay					0.76		0.76
	Margaret Lake					0.10		0.10
	Virginia Lake					0.92		0.92
	Salmon Lake					0.81		0.81
	Badger Lake					1.03		1.03
	Hugh Smith Lake					0.65		0.65
NSRAA	- Hidden Falls		33.16	1.61	1.05			35.82
	Takatz		27.07					27.07
	- Medveje Creek	0.03	18.04	2.24	1.08			21.39
	Deep Inlet		11.23	0.05				11.28
	- Port Camden		4.98					4.98
	- Haines Projects		0.99			0.59		1.57
AAC	- Bell Island			0.01				0.01
AAI	- Burnett Inlet	18.19	13.90	*	*			32.09
AKI	- Port Armstrong	43.00		0.83				43.83
BCF	- Burro Creek	0.25	0.05	0.01	0.01			0.32
DIPAC	- Sheep Creek	*	*	0.13				0.13
	- Gastineau	8.92	5.87	0.38	0.27			15.45
	Sheep Creek		14.64	0.56				15.20
	Amalga Harbor		34.82					34.82
	Boat Harbor		6.46					6.46
	Limestone Inlet		5.83					5.83
	Chilkat River				0.03			0.03
KIC	Deer Mountain			0.10	0.08		0.03	0.18
KNFC	- Gunnuk Creek	2.00	7.14					9.14
	Southeast Cove		6.84					6.84
SJC	- Indian River	0.35	0.20	0.10	0.10			0.75
MIC	Tamgas Creek		4.13	3.21	1.28			8.62
	Klawock			0.36		0.53	0.00	0.89
FED	Little Port Walter	0.02			0.15			0.17
	Auke Creek						0.00	0.00
ADFG	Crystal Lake			0.28	0.89		0.02	1.17
	Snettisham				0.28	8.90		9.18
	-Canada lakes					7.03		7.03
SOUTHEAST TOTALS		72.76	289.42	12.75	7.03	21.31	0.05	403.32
PRINCE WILLIAM SOUND								
PWSAC	- Armin F. Koernig	92.72	*					92.72
	- Esther Lake	162.39	100.11	1.28	0.54	*		264.32
	Whittier			0.10	0.10			0.20
	Cordova			0.10	0.10			0.20
	Chenega				0.05			0.05
	- Cannery Creek	84.62	*					84.62
	- Main Bay					3.25		3.25
	Coghill					1.22		1.22
	Eshamy					0.69		0.69
	Gulkana					27.79		27.79
VFDA	- Solomon Gulch	149.37	6.00	0.92				156.29
PWS TOTALS		489.10	106.11	2.40	0.79	32.95	0.00	631.34

Appendix 2. Continued.

REGION/LOCATION		Pink	Chum	Coho	Chinook	Sockeye	Other	TOTAL
COOK INLET								
CIAA	Pt Graham	1.30				0.82		2.12
	Crooked Creek			0.21	0.30	0.21		0.71
	- Eklutna			0.06		5.00		5.06
	- Trail Lakes							0.00
	Chelatna Lake					1.33		1.33
	Packers Lake					3.34		3.34
	Bear Lake/Creek			0.32		0.17		0.49
	Hidden Lake					1.80		1.80
ADFG	- Tutka Bay	61.10						61.10
	Elmendorf			0.69	1.24			1.92
	Ft Richardson			0.31	0.38		2.23	2.92
COOK INLET TOTALS		62.40	0.00	1.58	1.92	12.67	2.23	80.79
KODIAK								
	Kitoi Bay	163.19	6.50	0.26		2.00		171.95
	Pillar Creek			0.14		6.71		6.85
KODIAK TOTALS		163.19	6.50	0.40	0.00	8.71	0.00	178.80
ARCTIC/YUKON/KUSKOKWIM								
ADFG	Clear		0.20	0.21			1.02	1.42
	Sikusuilag		8.75					8.75
AYK TOTALS		0.00	8.95	0.21	0.00	0.00	1.02	10.17
STATEWIDE TOTALS		787.44	410.97	17.34	9.73	75.64	3.30	1,304.42

Note 1: * indicates permitted species but no releases this season.

Note 2: individual hatchery releases may not add up to the regional or statewide totals because of rounding.

Appendix 3. 1994 estimated adult returns, by species, to Alaskan enhancement projects (including common property harvests) as reported by operators.

REGION / LOCATION	Pink	Chum	Coho	Chinook	Sockeye	Other	TOTAL
SOUTHEAST							
SSRAA Whitman Lake		497,402	74,835	11,061			583,298
Neets Bay		1,462,573	182,231	4,309			1,649,113
Beaver Falls					262,136		262,136
NSRAA Hidden Falls		3,207,872	97,719	9,027			3,314,618
Medvejie Creek		1,306,387	327,381	21,375			1,655,143
Haines Projects		5,094			3,447		8,541
AAI Burnett Inlet	819,823	43,682					863,505
AKI Port Armstrong	1,760,758		3,805	925			1,765,488
BCF Burro Creek	4,884	38	142	32			5,096
DIPAC Sheep Creek	34,128	284,087					318,215
Kowee Creek							0
Gastineau	3,027,870	766,657	177,676	3,063			3,975,266
KNFC Gunnuk Creek	266,638	71,185					337,823
AACI Bell Island			123				123
SJC Indian River	297,719	324	780	1,280			300,103
KHC Klawock			42,134		19,896	250	62,280
MIC Tamgas Creek		30,828	77,433	2,391			110,652
Auke Creek					3,000		3,000
Little Port Walter				1,251			1,251
ADFG Crystal Lake			19,320	6,030		10	25,360
Deer Mountain			8,309	1,106			9,415
Sneltisham		33,871	1,335	10,055	41,222		86,483
Fishpass/other	304,456	14,936	12,195	329			331,916
SOUTHEAST TOTALS	6,516,276	7,724,936	1,025,418	72,234	329,701	260	15,668,825
PRINCE WILLIAM SOUND							
PWSAC Armin F. Koernig	1,786,966						1,786,966
Esther Lake	6,094,141	969,422	75,793	1,567			7,140,923
Cannery Creek	9,451,170						9,451,170
Main Bay					372,583		372,583
Gulkana					40,744		40,744
VFDA Solomon Gulch	13,354,075	5,985	44,467				13,404,527
PWS TOTALS	30,686,352	975,407	120,260	1,567	413,327	0	32,196,913
COOK INLET							
CIAA Ekiutna		82,848	2,188		20		85,056
Trail Lakes			8,322		240,926		249,248
Tutka	1,737,113						1,737,113
Crooked Creek			5,753		103,436		109,189
ADFG Big Lake			11,615				11,615
Elmendorf			23,596	24,143			47,739
Ft Richardson			28,570	21,827		98,816	149,213
COOK INLET TOTALS	1,737,113	82,848	80,044	45,970	344,382	98,816	2,389,173
KODIAK							
KRAA Kitoi Bay	2,295,079	49,200	60,081		16,730		2,421,090
Pillar Creek					267,750		267,750
ADFG Fishpass/other	73,368		13,266		2,795,626		2,882,260
KODIAK TOTALS	2,368,447	49,200	73,347	0	3,080,106	0	5,571,100
ARCTIC/YUKON/KUSKOKWIM							
ADFG Clear						11,279	11,279
Sikusuiq		80,108					80,108
AYK TOTALS	0	80,108	0	0	0	11,279	91,387
STATEWIDE TOTALS	41,308,188	8,912,499	1,299,069	119,771	4,167,516	110,355	55,917,398

Appendix 4. Projected total adult returns, by species, to Alaskan enhancement projects for 1995.

REGION/LOCATION		Pink	Chum	Coho	Chinook	Sockeye	Other	TOTAL
SOUTHEAST								
SSRAA	- Whitman Lake			21,900	1,900			23,800
	Earl West Cove		197,000	20,000	8,500			225,500
	Nakat Inlet		414,000	9,200				423,200
	Carroll Inlet				7,500			7,500
	Kendrick Bay		332,000					332,000
	- Neets Bay		1,260,000	219,000	7,400			1,486,400
	- Beaver Falls							0
	Shrimp Bay					21,000		21,000
	Virginia Lake					11,554		11,554
	Hugh Smith Lake					14,064		14,064
	Bakewell/Badger Lake					808		808
	Salmon Lake					18,946		18,946
	McDonald Lake					74,669		74,669
	Margaret Lake					550		550
NSRAA	- Hidden Falls		1,600,000	242,000	17,500			1,859,500
	Takatz Bay		1,100,000					1,100,000
	- Medvejie Creek		65,000	600	20,500			86,100
	Deep Inlet		370,000	6,000				376,000
	Mist Cove			140,000				140,000
	Shamrock Bay			18,600				18,600
	- Port Camden		34,091					34,091
	- Haines Projects		4,353			28,028		32,381
AAI	- Burnett Inlet	240,000	240,000					480,000
	Anita Bay	480,000	10,800					490,800
AKI	- Port Armstrong	1,290,000		66,256	6,195			1,362,451
BCF	- Burro Creek	2,514	3,361	3,361	230			9,466
DIPAC	- Sheep Creek		1,054,000		1,300			1,055,300
	Gastineau	217,000	446,000	38,000	3,000			704,000
	Sheep Creek		1,054,000	56,000	1,300			1,111,300
	Amalga Harbor		1,343,000					1,343,000
	Boat Harbor		273,000					273,000
	Limestone Inlet		325,000					325,000
KIC	Deer Mountain			4,149	1,027			5,176
	-Ward Creek			3,588				3,588
KNFC	- Gunnuk Creek	49,900	64,725					114,625
	Southeast Cove		28,550					28,550
AAC	- Bell Island			433	28			461
SJC	- Indian River	6,940	4,020	3,845	1,033			15,838
ADFG	Deer Mountain			4,149	1,027			5,176
	Klawock			47,500		13,500		61,000
	Crystal Lake			3,500	6,800		100	10,400
	Earl West Cove				8,500			8,500
	Farragut R				50			50
	Harding River				50			50
	Ohmer Creek				10			10
	Jerry Myers				700			700
	Snettisham		13,500					13,500
	Crescent Lake					6,200		6,200
	Sweetheart Lake					26,300		26,300
	Juneau/DJ				2,500			2,500
	Taku River					21,600		21,600
	Stikine R					117,800		117,800
	Twin Lakes				5,000			5,000
	Tahini River				140			140
SOUTHEAST TOTALS		2,286,354	10,236,400	908,081	102,190	355,019	100	13,888,044

Appendix 4. Continued.

REGION/LOCATION	Pink	Chum	Coho	Chinook	sockeye	Other	TOTAL
PRINCE WILLIAM SOUND							
PWSAC - Armin F. Koernig	4,232,991						4,232,991
- Esther Lake	7,281,000	1,229,000	75,000	6,005			8,591,005
Cordova			5,740	2,260			8,000
Whittier			6,022	2,120			8,142
- Cannery Creek	3,418,838						3,418,838
- Main Bay					262,960		262,960
Coghill					71,782		71,782
Eshamy					194,882		194,882
Marsha					9,680		9,680
-Gulkana					234,349		234,349
VFDA - Solomon Gulch	5,825,430	11,310	73,207				5,909,947
PWS TOTALS	20,758,259	1,240,310	159,969	10,385	773,653		22,942,576
COOK INLET							
CIAA - Eklutna		78,125	3,120		117,315		198,560
- Trail Lakes							
Packers Lake					116,300		116,300
Hidden Lake					102,000		102,000
Bear Lake			3,810		92,500		96,310
Cheiatna Lake					NA		0
- Tutka Bay	1,700,000						1,700,000
- Port Graham	40,000				20,000		60,000
Crooked Creek					2,500		2,500
Chenik Lake					40,000		40,000
China Foot					60,000		60,000
Tustumena Lake					53,000		53,000
Leisure/Hazel					40,000		40,000
Paint R					10,000		10,000
Kirschner Lake					10,000		10,000
Bruin Lake					20,000		20,000
Elmendorf			23,000	24,000			47,000
Ft Richardson						95,000	95,000
Willow Creek				4,450			4,450
Little Susitna			35,100				35,100
Ninilchik River				4,410			4,410
COOK INLET TOTALS	1,740,000	78,125	65,030	32,860	683,615	95,000	2,694,630
KODIAK							
Kariuk					1,351,000		1,351,000
Kitot	8,214,597	174,000	25,900		18,750		8,433,247
Frazer					725,000		725,000
Kodiak other	100,000		10,750		137,350		248,100
Pillar Creek					189,500		189,500
KODIAK TOTALS	8,314,597	174,000	36,650	0	2,421,600	0	10,946,847
ARCTIC/YUKON/KUSKOKWIM							
Clear						5,000	5,000
Sikusuilag		82,000					82,000
AYK TOTALS	0	82,000	0	0	0	5,000	87,000
STATEWIDE TOTALS	33,099,210	11,810,835	1,169,730	145,435	4,233,887	100,100	50,559,097

Appendix 5. Cumulative state loans and enhancement funds returned to associations (through December 31, 1994), and annual fish sales for private nonprofit hatcheries.

Region/Corporation (number of permits)	State Loans				Enhancement Funds Generated through		Estimated Revenue from 1994 Sales of Fish Returning to Special Harvest Areas
	For Capital Construction		For Operations		Assessments, Returned to Associations via Contract		
	1994	Cumulative	1994	Cumulative	1994	Cumulative	
SOUTHERN SOUTHEAST							
Southern Southeast Regional Aquaculture Assoc.-SSRAA (3)		\$9,093,000	\$896,250	\$3,745,192	\$1,712,430	\$20,249,261 note 1	\$1,371,456
Alaska Aquaculture, Inc.-AAI (1)	\$950,000	\$3,262,020	\$132,000	\$3,744,784		N/A	\$113,160
Meyers Chuck Aquaculture Association-MCAA(0)		\$10,000				N/A	N/A
NORTHERN SOUTHEAST							
Northern Southeast Regional Aquaculture Assoc.-NSRAA (4)		\$2,724,265		\$1,816,496	\$1,092,056	\$12,512,165 note 1	\$2,783,205
Armstrong-Keta, Inc.-AKI (1)	\$450,000	\$3,581,645	\$246,450	\$2,708,350		N/A	\$1,765,565
Burro Creek Farms, Inc.-BCF(1)		\$51,500		\$332,875		N/A	\$4,762
Douglas Island Pink and Chum, Inc.-DIPAC (3)		\$9,336,000	\$1,845,000	\$11,417,000		N/A	\$2,032,158
Kake Nonprofit Fisheries Corp.-KNFC(1)	\$400,000	\$1,900,724	\$259,000	\$2,876,060		N/A	\$41,670
Sheldon Jackson Col.-SJC(1)		\$362,254		\$61,370		N/A	\$32,769
Tlingit and Haida Fisheries Development Corp.-THFDC (0)		\$1,464,000		\$89,860		N/A	N/A
Klawock Hatchery Corporation-KHC (1)						N/A	\$720
PRINCE WILLIAM SOUND							
Prince William Sound Aquaculture Corp.-PWSAC (3)		\$21,475,419		\$1,085,500	\$335,740	\$10,827,544 note 2	\$6,932,588
Valdez Fisheries Development Assoc.-VFDA (1)		\$3,193,830	\$1,400,000	\$5,986,543		N/A	\$2,933,248
COOK INLET							
Cook Inlet Regional Aquaculture Assoc.-CIAA (4)		\$2,338,881		\$683,369	\$633,053	\$13,577,332 note 2	\$640,946
KODIAK							
Kodiak Regional Aquaculture Assoc.-KRAA (2)					\$669,698	\$6,709,607 note 2	\$6,558
CHIGNIK							
Chignik Regional Aquaculture Assoc.-CRAA (0)					\$181,815	\$655,140 note 2	N/A
	\$1,800,000	\$58,793,538	\$4,778,700	\$34,547,399	\$4,624,792	\$64,531,049	\$18,658,805

source: DCED: Becky Fredrick, Dave Massey; PNP annual reports

note 1: 3% mandatory assessment tax collected from commercial fishermen.

note 2: 2% mandatory assessment tax collected from commercial fishermen.

N/A: Not applicable

Appendix 6a. Summary of salmon production from Alaskan hatcheries and enhancement projects.

Year	Egg take	Fry release	Total return	Year	Egg take	Fry release	Total return
1965	#N/A			1980	293,418,000	91,183,000	2,428,170
1966	#N/A	170,000	0	1981	471,521,000	213,610,000	4,535,820
1967	#N/A	538,000	0	1982	545,509,000	326,024,000	6,940,109
1968	#N/A	588,400	0	1983	647,905,000	333,651,000	6,579,528
1969	#N/A	1,025,900	0	1984	798,845,000	506,431,000	7,696,292
1970	#N/A	891,700	0	1985	920,352,000	551,175,000	16,652,790
1971	#N/A	1,045,000	0	1986	992,334,000	746,393,000	12,827,937
1972	#N/A	782,000	0	1987	1,349,423,000	801,298,000	25,609,232
1973	2,106,000	192,000	0	1988	1,275,603,000	1,056,531,000	18,626,764
1974	8,095,000	1,514,780	0	1989	1,400,625,000	1,091,804,000	35,793,036
1975	28,890,000	4,490,000	17,650	1990	1,601,780,000	1,116,526,000	48,361,688
1976	55,711,000	14,436,780	38,200	1991	1,651,865,000	1,328,257,000	48,146,000
1977	92,407,000	37,687,000	175,318	1992	1,738,632,000	1,335,537,000	23,372,246
1978	105,594,000	71,949,000	322,682	1993	1,650,710,000	1,463,320,000	33,313,166
1979	144,557,000	80,716,000	1,653,570	1994	1,763,890,300	1,301,117,903	55,807,043
				TOTAL	15,775,882,000	11,177,766,560	293,090,198

NA=not available Table does not include non-anadromous species

Appendix 6b. Summary of chum salmon production from Alaskan hatcheries and enhancement projects.

Year	Egg take	Fry release	Total return	Year	Egg take	Fry release	Total return
1973	#N/A			1984	256,584,000	105,827,000	1,809,000
1974	1,424,000	7,780		1985	242,906,000	198,997,000	1,404,000
1975	4,966,000	967,000		1986	345,567,000	181,850,000	1,938,000
1976	7,163,000	2,370,000		1987	343,065,000	276,477,000	2,005,000
1977	7,036,000	2,590,000	800	1988	388,463,000	235,231,000	2,650,000
1978	9,554,000	3,917,000	2,810	1989	281,078,000	318,116,000	1,347,000
1979	18,466,000	6,095,000	5,730	1990	450,327,000	208,000,000	2,039,000
1980	75,789,000	8,658,000	16,100	1991	490,173,000	373,892,000	2,260,000
1981	81,684,000	47,315,000	33,100	1992	519,425,000	434,198,000	3,192,708
1982	123,386,000	58,924,000	153,000	1993	468,890,000	460,120,000	6,563,000
1983	155,995,000	93,457,000	301,000	1994	528,818,000	410,972,922	8,912,499

Appendix 6c. Summary of sockeye salmon production from Alaskan hatcheries and enhancement projects.

Year	Egg take	Fry release	Total return	Year	Egg take	Fry release	Total return
1972	#N/A	17,000		1983	67,880,000	52,513,000	230,000
1973	1,548,000	192,000		1984	82,622,000	51,778,000	389,000
1974	1,567,000	506,000		1985	108,039,000	72,407,000	757,000
1975	7,934,000	997,000		1986	101,251,000	77,086,000	1,146,000
1976	23,889,000	2,172,000		1987	106,584,000	60,726,000	1,099,000
1977	18,299,000	13,801,000	318	1988	107,237,000	67,707,000	1,780,000
1978	34,977,000	15,997,000	1,640	1989	107,524,000	75,552,000	2,111,000
1979	31,892,000	17,104,000	9,990	1990	99,265,000	73,190,000	4,120,000
1980	37,342,000	15,236,000	74,290	1991	112,683,000	68,984,000	6,374,000
1981	50,812,000	27,560,000	71,640	1992	105,043,000	75,125,000	3,899,000
1982	58,792,000	45,292,000	57,540	1993	120,860,000	57,680,000	5,018,000
				1994	114,078,100	75,640,180	4,167,516

Appendix 6d. Summary of pink salmon production from Alaskan hatcheries and enhancement projects.

Year	Egg take	Fry release	Total return	Year	Egg take	Fry release	Total return
1973	558,000			1984	433,384,000	336,738,000	5,298,000
1974	4,949,000	448,000		1985	536,349,000	261,434,000	14,158,000
1975	15,460,000	1,429,000	17,550	1986	511,330,000	468,734,000	9,044,000
1976	23,441,000	10,200,000	16,200	1987	857,901,000	442,647,000	21,960,000
1977	64,281,000	18,433,000	175,000	1988	735,699,000	728,907,000	13,838,000
1978	60,085,000	49,658,000	321,000	1989	974,893,000	674,870,000	31,754,000
1979	90,060,000	54,885,000	1,591,000	1990	1,013,590,000	808,955,000	41,207,000
1980	173,940,000	64,285,000	2,310,000	1991	1,008,890,000	861,978,000	38,132,000
1981	327,599,000	134,652,000	4,371,000	1992	1,079,763,000	801,770,000	14,879,000
1982	343,955,000	217,604,000	6,610,000	1993	1,028,760,000	919,680,000	20,693,000
1983	406,393,000	178,220,000	5,939,000	1994	1,076,306,200	787,438,000	41,308,188

Appendix 6e. Summary of coho salmon production from Alaskan hatcheries and enhancement projects.

Year	Egg take	Fry release	Total return	Year	Egg take	Fry release	Total return
1967	#N/A			1980	3,839,000	2,211,000	21,210
1966	#N/A	506,000		1981	9,782,000	3,350,000	54,960
1967	#N/A	930,000		1982	16,100,000	3,266,000	107,609
1968	#N/A	846,000		1983	11,553,000	7,917,000	96,278
1969	#N/A	828,000		1984	17,688,000	8,811,000	179,462
1970	#N/A	614,000		1985	19,426,000	14,273,000	307,580
1971	#N/A	442,000		1986	23,715,000	12,665,000	659,587
1972	#N/A	1,657,000		1987	25,456,000	13,718,000	453,332
1973	#N/A	1,909,000		1988	26,951,000	15,579,000	284,461
1974	#N/A	1,824,000		1989	22,629,000	15,277,000	501,756
1975	#N/A	3,470,000	100	1990	21,051,000	16,446,000	885,308
1976	#N/A	3,120,000	22,000	1991	21,521,000	16,119,000	1,258,000
1977	#N/A	4,922,000		1992	21,364,000	14,625,000	1,280,000
1978	#N/A	3,191,000		1993	22,670,000	14,620,000	928,000
1979	2,347,000	2,483,000	48,560	1994	31,513,700	17,335,428	1,299,069

Appendix 6f. Summary of chinook salmon production from Alaskan hatcheries and enhancement projects.

Year	Egg take	Fry release	Total return	Year	Egg take	Fry release	Total return
1965	#N/A			1980	2,508,000	793,000	6,570
1966	#N/A	170,000		1981	1,644,000	733,000	5,120
1967	#N/A	538,000		1982	3,276,000	938,000	11,960
1968	#N/A	82,400		1983	6,084,000	1,544,000	13,250
1969	#N/A	95,900		1984	8,567,000	3,277,000	20,830
1970	#N/A	45,700		1985	13,632,000	4,064,000	26,210
1971	#N/A	217,000		1986	10,471,000	6,058,000	40,350
1972	#N/A	151,000		1987	16,417,000	7,730,000	91,900
1973	#N/A	328,000		1988	17,253,000	9,107,000	74,303
1974	155,000	553,000		1989	14,501,000	7,989,000	79,280
1975	530,000	155,000		1990	17,547,000	9,935,000	110,380
1976	1,218,000	233,000		1991	18,598,000	7,284,000	122,000
1977	2,791,000	1,016,000		1992	13,037,000	9,819,000	121,538
1978	978,000	804,000	42	1993	9,530,000	11,220,000	111,166
1979	1,792,000	1,215,000	3,220	1994	13,174,300	9,731,373	119,771

Appendix 7a. Summary of statewide salmon production (all species) from PNP hatcheries as reported by operators.

Year	Egg Take	Fry release	Total return	Special harvest	Hatchery revenue
1975	809,1395				
1976	16,622,881	3,719,741			
1977	37,008,186	12,360,354	160,147	108,718	\$130,726
1978	37,346,167	26,796,238	160,967	114,188	\$141,799
1979	54,295,879	29,131,774	356,501	244,555	\$309,612
1980	125,740,500	35,587,200	1,506,466	346,168	\$436,171
1981	223,600,000	101,600,000	2,563,913	850,293	\$1,274,640
1982	234,390,000	126,990,000	5,340,720	1,370,110	\$1,165,608
1983	261,310,000	170,375,000	4,285,989	744,767	\$669,838
1984	372,880,000	217,730,000	4,764,144	1,048,701	\$1,668,788
1985	469,960,000	302,320,000	8,106,485	1,853,483	\$1,878,348
1986	522,200,000	380,890,000	7,903,526	1,211,620	\$1,867,054
1987	868,250,000	461,170,000	19,096,871	4,172,700	\$6,557,877
1988	1,045,620,000	819,800,000	14,343,654	2,499,557	\$9,266,780
1989	1,108,700,000	860,190,000	24,044,699	14,849,608	\$28,985,391
1990	1,249,160,000	925,210,000	42,405,072	10,387,754	\$13,644,041
1991	1,325,990,000	1,087,070,000	40,264,749	12,377,204	\$6,396,187
1992	1,427,710,000	1,075,180,000	18,174,631	7,277,620	\$10,424,579
1993	1,613,220,000	1,426,480,000	27,781,066	4,827,710	\$7,917,685
1994	1,725,820,000	1,267,520,000	52,022,989	14,812,269	\$15,625,954
Cumulative hatchery revenue from special harvest:					\$108,361,079

Appendix 7b. Summary of chum salmon production from PNP hatcheries.

Year	Egg Take	Fry release	Total return	Special harvest	Hatchery revenue
1975	77,000				
1976	347,275	66,075			
1977	1,614,574	264,068			
1978	1,684,930	1,064,000	543		
1979	6,782,864	924,400	3		
1980	26,850,000	3,340,000	1,588		
1981	32,400,000	21,900,000	20,518	6,115	\$24,640
1982	46,130,000	23,590,000	22,133	378	\$302
1983	68,790,000	41,770,000	126,783	35,099	\$37,120
1984	122,170,000	54,780,000	1,001,449	436,617	\$690,393
1985	119,450,000	97,880,000	525,088	123,215	\$209,208
1986	181,450,000	100,490,000	779,637	188,754	\$303,080
1987	234,500,000	149,790,000	955,294	487,605	\$1,162,579
1988	369,610,000	186,050,000	1,835,164	469,754	\$2,180,685
1989	267,030,000	286,770,000	1,102,191	183,340	\$754,806
1990	425,410,000	216,860,000	1,632,539	369,985	\$1,411,640
1991	441,530,000	359,270,000	1,958,538	403,603	\$1,269,087
1992	495,360,000	394,260,000	3,078,557	741,276	\$2,449,107
1993	457,690,000	451,720,000	6,386,907	1,781,764	\$4,864,415
1994	520,120,000	402,220,000	8,783,080	2,049,000	\$5,088,624

Appendix 7c. Summary of sockeye salmon production from PNP hatcheries

Year	Egg Take	Fry or smolt release	Total return	Special harvest	Hatchery revenue
1985	310,000	0	0	0	\$0
1986	1,295,700	102,000	0	0	\$0
1987	1,570,000	750,000	0	0	\$0
1988	10,590,000	1,000,000	66,499	0	\$0
1989	14,740,000	8,030,000	39,832	39,831	\$254,215
1990	11,780,000	8,140,000	101,216	8,513	\$35,506
1991	27,480,000	8,070,000	153,606	5,023	\$21,167
1992	25,530,000	15,960,000	783,508	170,629	\$1,653,004
1993	102,720,000	37,060,000	838,805	156,159	\$433,147
1994	100,080,000	59,710,000	1,053,800	133,280	\$580,055

Appendix 7d. Summary of pink salmon production from PNP hatcheries.

Year	Egg Take	Fry release	Total return	Special harvest	Hatchery revenue
1975	8002395				
1976	16,251,456	3,853,666			
1977	35,383,112	12,093,184	160,147	108,718	\$130,726
1978	34,851,807	25,732,238	160,397	114,188	\$141,799
1979	46,582,015	28,204,674	356,498	244,555	\$309,612
1980	98,030,000	31,690,000	1,504,878	346,168	\$436,171
1981	188,000,000	78,800,000	2,491,345	838,037	\$1,200,000
1982	185,170,000	102,550,000	5,253,378	1,354,732	\$1,084,806
1983	185,520,000	126,890,000	4,086,552	701,399	\$613,618
1984	241,760,000	159,340,000	3,637,927	583,185	\$741,673
1985	339,910,000	199,490,000	7,404,789	1,698,732	\$1,320,320
1986	324,570,000	271,960,000	6,767,984	948,624	\$1,012,420
1987	618,350,000	299,260,000	17,963,785	3,624,586	\$4,711,068
1988	645,100,000	625,820,000	12,257,959	2,007,720	\$6,715,887
1989	805,870,000	553,090,000	22,561,056	14,519,987	\$27,380,703
1990	788,710,000	684,790,000	39,919,911	9,846,364	\$10,846,114
1991	830,860,000	704,330,000	37,081,341	11,574,828	\$2,890,652
1992	882,920,000	648,470,000	13,200,079	6,009,343	\$3,917,463
1993	1,028,760,000	919,680,000	19,844,303	2,736,262	\$1,733,572
1994	1,075,310,000	787,440,000	40,939,000	12,398,000	\$8,587,514

Appendix 7e. Summary of coho salmon production from PNP hatcheries.

Year	Egg Take	Fry or smolt release	Total return	Special harvest	Hatchery revenue
1975	12000				
1976	24,150				
1977	10,500	3,102			
1978	809,430	0	27		
1979	931,000	2,700	0		
1980	666,500	557,200	0		
1981	2,800,000	900,000	52,050	6,141	\$50,000
1982	2,870,000	700,000	61,709	11,500	\$80,500
1983	6,200,000	1,570,000	71,781	7,396	\$19,100
1984	6,300,000	3,230,000	121,112	27,310	\$233,466
1985	4,100,000	4,220,000	168,427	29,530	\$293,820
1986	8,300,000	4,280,000	344,749	72,960	\$535,203
1987	9,280,000	5,440,000	169,149	58,333	\$625,547
1988	13,310,000	4,720,000	122,186	13,383	\$178,771
1989	13,740,000	9,040,000	305,048	88,702	\$271,181
1990	14,470,000	10,730,000	691,680	140,728	\$939,671
1991	16,120,000	11,500,000	1,001,338	372,612	\$1,873,709
1992	16,510,000	10,280,000	1,070,086	338,725	\$2,051,466
1993	19,150,000	11,100,000	657,208	128,771	\$503,420
1994	24,280,000	12,640,000	1,189,140	221,291	\$1,248,600

Appendix 7f. Summary of chinook salmon production from PNP hatcheries.

Year	Egg Take	Fry or smolt release	Total return	Special harvest	Hatchery revenue
1980	194000				
1981	400,000				
1982	220,000	150,000	3,500	3,500	N/A
1983	800,000	140,000	872	872	N/A
1984	2,730,000	380,000	3,656	1,589	\$3,256
1985	6,180,000	720,000	8,181	2,006	\$55,000
1986	6,580,000	4,050,000	11,156	1,282	\$16,351
1987	4,550,000	5,940,000	8,643	2,176	\$58,684
1988	7,010,000	2,210,000	23,246	8,700	\$191,436
1989	7,330,000	3,270,000	36,572	17,748	\$324,487
1990	8,790,000	4,700,000	59,726	22,164	\$411,109
1991	10,000,000	3,900,000	69,926	21,138	\$333,572
1992	7,400,000	6,210,000	42,401	17,647	\$353,539
1993	4,900,000	6,920,000	53,843	24,754	\$383,131
1994	6,030,000	5,510,000	57,969	10,698	\$121,161

N/A = information not available

Appendix 8. 1994 commercial salmon fishery harvest weight and prices.

Are	Species	Avg Harvest		Are	Species	Avg Harvest	
		weight (lb)	price(per lb)			weight(lb)	price(per lb)
Arctic/Yukon/Kuskokwim				AK Peninsula			
	Chum (Kotz)	7.8	0.20		Chinook	18.4	0.75
Cook Inlet					Sockeye	5.5	1.25
	Chinook	36.0	1.00		Coho	8.2	0.70
	Sockeye	6.0	1.35		Pink	3.4	0.15
	Coho	7.0	0.75		Chum	6.7	0.20
	Pink	3.5	0.13	Prince William Sound			
	Chum	8.0	0.40		Chinook	22.5	1.42
Kodiak					Sockeye	5.8	1.22
	Chinook	13.9	0.55		Coho	9.8	0.73
	Sockeye	5.0	1.35		Pink	3.1	0.17
	Coho	8.6	0.45		Chum	8.5	0.47
	Pink	3.8	0.12	Southeast			
	Chum	7.4	0.25		Chinook	16.2	1.67
					Sockeye	6.0	1.12
					Coho	7.6	0.88
					Pink	3.0	0.18
					Chum	7.6	0.28

data from CFMD as of 11/21/94, Herman Savikko; based on total commercial fishery

Appendix 9. State hatchery FY 94 operating budgets, in thousands.

		FY 94 Authorized		FY 94 Actual	
		Total	GF	Total	GF
Elmendorf Hatchery	1,2	\$571.40	\$0.00	\$545.00	\$0.00
Ft Richardson Hatchery	1,2	\$922.70	\$0.00	\$949.00	\$0.00
Broodstock Development Center	1,2	\$259.80	\$0.00	\$253.70	\$0.00
Clear Hatchery	3	\$501.40	\$65.10	\$501.40	\$94.60
Sikusuilag Hatchery	3	\$386.20	\$386.20	\$386.20	\$386.20
Kitot Hatchery	3	\$81.70	\$81.70	\$81.70	\$81.70
Pillar Creek Hatchery	3	\$79.80	\$79.80	\$79.80	\$79.80
Snettisham Hatchery	2	\$775.10	\$494.70	\$807.32	NA
Crystal Lake Hatchery	2	\$571.80	\$0.00	\$574.50	NA
Deer Mountain Hatchery	2	\$233.50	\$70.00	NA	NA
Total FRED operating budget		\$9,850.90	\$7,738.30	\$9,755.10	\$7,840.20
Total FRED fulltime employees		97		97	
Total FRED parttime employees		85		85	

1) Elmendorf, Ft Richardson, and Broodstock Development Center are part of Sport Fish Division and are not included in total FRED budget, or with FRED employees.

2) Taken from internal budget documents

3) Taken from OMB budget documents

Appendix 10. Detailed return information, by species, to 1994 Alaskan enhancement program projects.

Appendix 10a. 1994 estimated chinook salmon returns to Alaskan hatcheries (including common-property harvests) as reported by operators.

REGION/LOCATION	Common Property Harvest				Pers Use		Brood	SHA Harvest	Other Escapement	Total	SHA	
	Seine	Gillnet	Trotl	Sport	Subsis	Other					Revenue	Comment
SOUTHEAST												
SSRAA	Whitman Lake	1	14	80	59		235			389		5
	-Carroll inlet	2	54	1,000	516				200	1,772		5
COOP	-Earl West Cove	690	7,320	590	300					8,900		5
	Neets Bay		136	1,473	482			2,218		4,309	\$35,714	5
NSRAA	Medvejie Creek		16	6,516	1,515		363	5,994	6,971	21,375	\$62,624	5, 7
	Hidden Falls	1,195	843	1,017	512		678	151	4,506	8,902	\$2,686	5, 7
	-Tahini	13	2	20	1			3	86	125		5
AKI	Port Armstrong	82	153	294	67			309	20	925	\$4,807	5
BCF	Burro Creek						32			32		
DIPAC	Gastineau	40	386	71	300		730	250	1,273	3,050	\$8,466	5, 7
	-Sheep Creek								13	13	\$403	5, 7
KIC	Deer Mountain Hatchery		37	110	283	427	46		170	1,073		5
	-Big Salt L			2						2		5
	-Thorne Bay		1	21	9					31		5
SJC	Indian River			319	219		109	49	584	1,280		5
MIC	Tamgas Creek	292	1	222	198		789	889		2,391		5
FED	Little Port Walter	196	294	761						1,251		5
ADFG	Crystal Lake Hatchery	70	190	860	120		1,266		3,194	5,700		5
	-Ohmer Creek			200					130	330		5
	Harding River	2		2						4		5
	Farragut River	10	3							13		5
	Jerry Myers		11	2	3		37		120	173		
	Snettisham Hatchery		1,190	105	201				257	1,753		
	- Juneau DJ	40	591	64	1,366				1,241	3,302		
	-Twin Lakes				5,000					5,000		
	Tahini R		7	2	5				28	42		
	Lutak Inlet		38		13				46	97		
SOUTHEAST TOTALS		2,633	11,287	13,731	11,169	427	0	4,285	9,863	18,839	72,234	\$114,699
PRINCE WILLIAM SOUND												
PWSAC	Esther Lake	360					372	835		1,567	\$11,462	5
PWS TOTALS		360	0	0	0	0	0	372	835	0	1,567	\$11,462
COOK INLET												
ADFG	Elmendorf		1,200		21,597		1,346			24,143		5
	Ft Richardson									0		
	-Willow Cr				4,000		177		205	4,382		2
	-Ninilchik R				4,235		105		205	4,545		2
	-Statewide LL Lakes				12,900					12,900		1
COOK INLET TOTALS		0	1,200	0	42,732	0	0	1,628	0	410	45,970	\$0
STATEWIDE TOTALS		2,993	12,487	13,731	53,901	427	0	6,285	10,698	19,249	119,771	\$126,161

Appendix 10b. 1994 estimated chum salmon returns to Alaskan hatcheries (including common-property harvests) as reported by operators.

REGION/LOCATION		Common Property Harvest				Pers Use		Brood	SHA Harvest	Other Escapement	Total	SHA	
		Selne	Gillnet	Troll	Sport	Subsis	Other					Revenue	Comment
SOUTHEAST													
SSRAA	Whitman Lake-Nakat/fall	13,348	56,662								70,010		5
	-Nakat Inlet-summer	51,605	92,753								144,358		5
	-Earl West Cove-summer	15,878	44,666								60,544		5
	-Kendrick Bay-summer	210,492	11,998								222,490		5
	Neets Bay -summer	60,076	75,798				214,350	712,859			1,063,083	\$1,021,339	5
	Neets Bay-Fall	47,057	13,332				91,023	248,078			399,490	\$202,978	5
NSRAA	Medveje Creek	527,822	159,493	270,566	2,158		19,613	279,902	46,833		1,306,387	\$674,309	4, 7
	Hidden Falls	2,855,275					88,290	204,043	60,264		3,207,872	\$1,242,347	4, 7
	Haines Projects		1,740				754		2,600		5,094		
AAI	Burnett Inlet	5,175	13,830				14,978		9,899		43,682	\$10,160	5, 7
BCF	Burro Creek	19					15		4		38		3
DIPAC	Sheep Creek	43,388	107,971		3,000		71,899	5,055	52,774		284,087	\$118,973	5, 7
	Gastineau	6,116	24,445		1,171		79,015	37,641	25,316		173,704	\$102,800	5, 7
	-Limestone Inlet		52,388						3,146		55,534		5
	-Boat Harbor	35,526	135,640								171,166	\$110,648	5
	-Amalga	76,653	164,606					124,994			366,253		5
KNFC	Gunnuk Creek	9,587		13,465		150	23,964	1,198	3,732		52,096	\$1,654	5
	- Southeast Cove	3,523		4,948			290	7,788	2,540		19,089	\$14,421	5
SJC	Indian River						294		30		324		
MIC	Tamgas Creek	1,285	1,158				3,285	25,100			30,828		5
ADFG	Marx Cr Spwn Ch	714	3,222			1,108				9,535	14,579		
	Dog Salmon River									357	357		
	Snettisham Hatchery	100	283							785	1,168		5
	-Limestone Inlet	2,200	27,896							2,607	32,703		5
SOUTHEAST TOTALS		3,965,839	987,681	288,979	6,329	1,258	0	607,770	1,646,658	220,422	7,724,936	\$3,499,628	
PRINCE WILLIAM SOUND													
PWSAC	Esther Lake	473,711					117,267	374,375	4,069		969,422	\$1,541,136	3, 7
VFDA	Solomon Gulch				200		2,316	2,858	611		5,985	\$12,417	7
PWS TOTALS		473,711	0	0	200	0	0	119,583	377,233	4,680	975,407	\$1,553,553	
COOK INLET													
CIAA	Eklutna		49,909		6,588		1,535	24,816			82,848	\$34,794	
COOK INLET TOTALS		0	49,909	0	6,588	0	0	1,535	24,816	0	82,848	\$34,794	
KODIAK													
KRAA	Kitoi	5,007					34,693		9,500		49,200	\$648	
KODIAK TOTALS		5,007	0	0	0	0	0	34,693	0	9,500	49,200	\$648	
ARCTIC/YUKON/KUSK													
ADFG	Sikusuilag		19,608		500		6,280		53,720		80,108		
AYK TOTALS		0	19,608	0	500	0	0	6,280	0	53,720	80,108	\$0	
STATEWIDE TOTALS		4,444,557	1,057,198	288,979	13,617	1,258	0	769,861	2,048,707	288,322	8,912,499	\$5,088,624	

Appendix 10c. 1994 estimated coho salmon returns to Alaskan hatcheries (including common-property harvests) as reported by operators.

REGION/LOCATION	Common Property Harvest			Sport	Pers Use		Brood	SHA Harvest	Other Escapement	Total	SHA Revenue	Comment
	Selne	Gillnet	Troll		Subsis	Other						
SOUTHEAST												
SSRAA	Whitman Lake	3,293	3,417	17,746	2,014		1,995	13		28,478	\$35	5
	-Earl West Cove	3,293	13,402	22,552						39,247		5
	-Nakat inlet	438	1,986	4,686						7,110		5
	Neets Bay	17,753	25,951	109,610	11,067		1,274	16,576		182,231	\$101,914	5
	Bell Island	17	36	16	54					123		5
NSRAA	Medvejie Creek	15	12	360	21		9	50	310	777		5
	-Deer Lake	52,731	299	114,433	1,200			93,876	2,431	264,970	\$653,217	5, 7
	-Deep Inlet	1,740	499	13,896	2,592		139	196	166	19,228		5
	-Shamrock Bay	1,289	24	39,687	1,275		23		108	42,406		5
	Hidden Falls	18,711	377	41,578	1,831		2,515	17,338	15,369	97,719	\$136,254	5, 7
AKI	Port Armstrong	465	21	2,033			1,127		159	3,805		5
BCF	Burro Creek	55			25		14		48	142		3
DIPAC	Gastineau	10,759	29,614	70,811	12,899		2,295	36,847	14,492	177,717	\$220,539	5, 7
	Sheep Creek								25	25		
KIC	Deer Mountain	555	1,627	880	378	1,666	32		550	5,688		5
	-Ward Lake	286	1,401	358	281	39	156		100	2,621		5
SJC	Indian River	18	25	315	88		89		245	780		5
KIC	Klawock Hatchery	3,560		22,366	3,245		1,779	1,683	9,501	42,134	\$770	5
MIC	Tamgas Creek	10,275	10,125	34,835	926		4,272	17,000		77,433		5
ADFG	Reflection L (DM)	20	407	87	63	8				585		5
	Cable Cr (KL)	415		1,177	98		743			2,433		5
	Tunga L (KL)	1,088	38	2,625	1,500		2,249			7,500		5
	Rio Roberts (KL)	104	146	644						894		5
	Dog Salmon R								783	783		
	Crystal Lake Hatchery	1,870	6,880	8,150	180	440	288		1,512	19,320		5
	Snettisham-Indian Lake		191	620					524	1,335		5
SOUTHEAST TOTALS		128,750	96,478	509,465	39,737	2,145	8	18,999	183,579	46,323	1,025,484	\$1,112,729
PRINCE WILLIAM SOUND												
PWSAC	Esther Lake	57,096					5,439	9,089	4,169	75,793	\$48,333	3, 7
VFDA	Solomon Gulch				10,000	1,000	11,352	13,019	9,096	44,467	\$67,949	7
PWS TOTALS		57,096	0	0	10,000	1,000	0	16,791	22,108	13,265	120,260	\$116,282
COOK INLET												
CIAA	Eklutna		1,313		175		60	640		2,188	\$573	
	Trail Lakes				1,600		731	4,967	1,024	8,322	\$16,899	
	Crooked Creek		2,875		575			250	2,053	5,753	\$134	
ADFG	Elmendorf	175			19,161		224			19,560		
	-Landlocked lakes				4,036					4,036		1
	Ft Rich-Little Susitna R		16,296		7,730		382		4,162	28,570		3, 5
	Big Lake-LL lakes				11,615					11,615		
COOK INLET TOTALS		175	20,484	0	44,892	0	0	1,397	5,857	7,239	80,044	\$17,606
KODIAK												
KRAA	Kitoi	45,884			500	4,000	5,237		4,460	60,081	\$1,983	7
ADFG	Paul's/Portage Fishpass	2,516			750				10,000	13,266		
KODIAK TOTALS		48,400	0	0	1,250	4,000	0	5,237	0	14,460	73,347	\$1,983
STATEWIDE TOTALS		234,421	116,962	509,465	95,879	7,145	8	42,424	211,544	81,287	1,299,135	\$1,248,600

Appendix 10d. 1994 estimated pink salmon returns to Alaskan hatcheries (including common-property harvests) as reported by operators.

REGION/LOCATION	Common Property Harvest			Pers Use		Brood	SHA Harvest	Other Escapement	Total	SHA			
	Seine	Gillnet	Troll	Sport	Subsids					Other	Revenue	Comment	
SOUTHEAST													
AAI	Burnett Inlet	519,217	21,870	5,465			49,328	159,000	64,943	819,823	\$91,750	7	
AKI	Port Armstrong	500,000					116,642	1,127,491	16,625	1,760,758	\$766,272		
BCF	Burro Creek	2,442					2,342		100	4,884		3	
DIPAC	Sheep Creek				1,000		4,715		28,413	34,128			
	Gastineau	295,000			9,898		12,502	2,032,940	677,530	3,027,870	\$1,464,069	7	
KNFC	Gunnuk Creek	30,300		1,595		5,000	7,028	13,628	4,047	61,598	\$19,752	7	
	-Southeast Cove	97,395		5,125				51,958	50,562	205,040	\$5,843		
SJC	Indian River	148,037			200		26,208	87,274	36,000	297,719	\$32,769	6	
ADFG	Ketchikan Cr	134,000	50,000	16,000					50,000	250,000			
	Dog Salmon Cr								8,061	8,061			
	Sunny Cr	37,116							9,279	46,395			
SOUTHEAST TOTALS		1,763,507	71,870	28,185	11,098	5,000	0	218,765	3,472,291	945,560	6,516,276	\$2,380,455	
PRINCE WILLIAM SOUND													
PWSAC	Armin F Koernig	574,066						221,396	943,735	47,769	1,786,966	\$873,821	3, 4, 7
	Esther Lake	4,165,555						327,177	1,534,132	67,277	6,094,141	\$1,790,739	3
	Cannery Creek	6,751,362						375,357	2,290,973	33,478	9,451,170	\$289,675	3, 7
VFDA	Solomon Gulch	9,647,154			60,000			266,877	3,182,247	197,797	13,354,075	\$2,852,882	4
PWS TOTALS		21,138,137	0	0	60,000	0	0	1,190,807	7,951,087	346,321	30,686,352	\$5,807,117	
COOK INLET													
CIAA	Tutka	487,412	11,024		5,500			153,966	959,064	14,546	1,631,512	\$396,015	
	-Halibut Cove	101,252	4,349								105,601		
COOK INLET TOTALS		588,664	15,373	0	5,500	0	0	153,966	959,064	14,546	1,737,113	\$396,015	
KODIAK													
KRAA	Kitoi	2,051,375						207,704		36,000	2,295,079	\$3,927	7
ADFG	Paul's Fishpass									20,000	20,000		
	Waterfall Fishpass	23,368								30,000	53,368		
KODIAK TOTALS		2,074,743	0	0	0	0	0	207,704	0	86,000	2,368,447	\$3,927	
STATEWIDE TOTALS		25,565,051	87,243	28,185	76,598	5,000	0	1,771,242	12,382,442	1,392,427	41,308,188	\$8,587,514	

Appendix 10e. 1994 estimated sockeye salmon returns to Alaskan hatcheries (including common-property harvests) as reported by operators.

REGION/LOCATION	Common Property Harvest			Sport	Pers Use Subsis	Other	Brood	SHA Harvest	Other Escapement	Total	SHA Revenue
	Selne	Gillnet	Troll								
SOUTHEAST											
SSRAA	Beaver Falls	75	75							150	
	-Shrimp Bay	1,375	3,361					2,219		6,955	\$9,476
	-Salmon L			200	1,000		428			1,628	
	-Margaret L								347	347	
	-Hugh Smith L	4,169	5,908	156					8,915	19,148	
	-Virginia L		479		200	482				1,161	
	-McDonald L	59,192	56,871		200	10,000	1,422		105,062	232,747	
KIC	Klawock Hatchery	2,826		942		5,000		1,986		9,142	19,896
NSRAA	Haines Project-Chilkat		1,632					346		1,088	3,066
	Haines Project-Gilbert Bay								381	381	\$9,315
FED	Auke Creek Hatchery								3,000	3,000	
ADFG	Snettisham -Sweetheart	518	2,398		500	7,500	0	206		10,000	21,122
	Snettisham -Stikine		20,000			na	na	na	0	na	20,000
	Snettisham -Taku		100			na	na	na	0	na	100
SOUTHEAST TOTALS											
PRINCE WILLIAM SOUND											
PWSAC	Main Bay	157,866					25,627	79,258		262,751	
	Eyak		53				396	283	5,970	6,702	\$371,633
	Eshamy	50,922				42,735				93,657	
	Coghill	5,896				3,577				9,473	
ADFG	Gulkana I and II						17,653			23,091	40,744
PWS TOTALS											
COOK INLET											
CIAA	Eklutna								20	20	
	Trail Lakes-Packers Creek		80,622				3,266	22,972	27,510	134,370	\$121,993
	-Chelatna Lake		42,450		500		1,038		27,265	71,253	
	-Hidden Lake		9,129		500		4,028		2,058	15,715	
	-Bear Lake	987			2,000		1,123	8,051	7,427	19,588	\$27,841
	Crooked Creek		249					166		415	
	-Coal Creek		209					139		348	
	-Tustumena L		21,500				9,370			30,870	
	-Bruin/Ursus L	615								615	
	-Neptune Bay	9,007						539		9,546	
	-Paint River								500	500	
	-Chenik L								800	800	
	-China Poot	26,604						2,486		29,090	\$13,021
	-Kirschner L	14,465						16,787		31,252	\$26,776
COOK INLET TOTALS											
KODIAK											
KRAA	Kitoi	14,234					1,498		998	16,730	
	Pillar Creek	263,750							4,000	267,750	
ADFG	Karluk Fishpass	495,936	513,072		500	102			848,029	1,857,639	
	Frazer Fishpass	238,600	357,900						206,000	802,500	
	Afognak Fishpass	17,362				1,190			80,570	99,122	
	Paul's Fishpass	139			150				20,000	20,289	
	Malina Lake	7,034							9,042	16,076	
KODIAK TOTALS											
STATEWIDE TOTALS											
1,371,572 1,116,008 0 4,750 25,274 46,312 68,387 133,281 1,400,834 4,167,516 \$580,055											

Appendix 10f. 1994 estimated "other" enhanced fish returns to Alaskan hatcheries.

REGION/LOCATION		Species	Commrc'l	Sport Catch	Subsis	Pers Use Other	Brood	SHA Harvest	Other Escapemnt	Total
SOUTHEAST										
ADFG	Klawock	steelhead							250	250
	Crystal Lake	steelhead							10	10
SOUTHEAST TOTALS			0	0	0	0	0	0	260	260
PRINCE WILLIAM SOUND										
	Clear	grayling		1,386						1,386
PWS TOTALS			0	1,386	0	0	0	0	0	1,386
COOK INLET										
	Ft Richardson									
	-Statewide lakes	rainbow		98,816						98,816
	Clear									
	-Cook Inlet lakes	grayling		1,929						1,929
		a char		938						938
COOK INLET TOTALS			0	101,683	0	0	0	0	0	101,683
ARCTIC/YUKON/KUSK										
ADFG	Clear	grayling		2,726						2,726
		a char		3,510						3,510
		l trout		790						790
AYK TOTALS			0	7,026	0	0	0	0	0	7,026
STATEWIDE TOTALS			0	110,095	0	0	0	0	260	110,355

Comments.

1. based on 1993 Sport Fish Statewide Harvest Surveys
2. based on 1993 creel census
3. catches for commercial gear groups not broken apart
4. commercial numbers based on fish ticket returns
5. commercial numbers based on CWT data
6. commercial data based on estimated survivals
7. Brood includes fish harvested for roe
8. 40-45% of Clear Hatchery production went to Chena River Arctic grayling restoration project and were unavailable for harvest

Appendix 11. Summary of Sci/Ed permitted salmon production in Alaska for 1994.

PERMITTEE	PROJECT TYPE	SPECIES	MAX # RELEASED
SOUTHEAST			
Craig Elementary School	Classroom Incubation	coho	300
Hydaburg City School	Classroom Incubation	coho	300
NMFS, Auke Bay Lab	Instream Incubation	pink	1,000,000
Petersburg High School	School Incubation Proj	pink	40,000
Sitka High School	Classroom Incubation	coho	500
Skagway City School	School Incubation Proj	chinook	20,000
USDA/FS/Sitka RD	Bioenhancement	chinook	110,000
USDA/FS/Sitka RD	Bioenhancement	coho	25,000
USDA/FS/Juneau	Bioenhancement	coho	150,000
USDA/FS/Juneau	Bioenhancement	coho	2,000
White Cliff Elementary	Classroom Incubation	coho	250
Wrangell School District	School Incubation Proj	pink	100,000
SOUTHCENTRAL			
Bear Valley Elementary	Classroom Incubation	coho	250
Central Junior High	Classroom Incubation	coho	250
Chester Valley School	Classroom Incubation	coho	250
Chinook School	Classroom incubation	coho	250
Chugach Optional School	Classroom Incubation	coho	250
Chugiak High School	Classroom Incubation	coho	250
Colony Middle School	Classroom Incubation	coho	250
Colony Middle School	Classroom Incubation	coho	250
Denali Elementary	Classroom Incubation	coho	250
Dimond High School	Classroom Incubation	coho	250
Eagle River Elementary	Classroom Incubation	coho	250
East High School	Classroom Incubation	coho	250
Fairview Elementary	Classroom Incubation	coho	250
Goose Bay Elementary	Classroom Incubation	coho	250
Gruening Middle School	Classroom Incubation	coho	250
Gruening Middle School	Classroom Incubation	coho	250
Hanshew Junior High	Classroom Incubation	coho	250
Homer Intermediate School	Classroom incubation	coho	250
Inlet View Elementary	Classroom Incubation	coho	250
Nanwalek Village Council	Research	sockeye	30,000
Northwood Elementary	Classroom Incubation	coho	250
Palmer High School	Classroom Incubation	coho	250
Palmer Jr. Middle School	Classroom Incubation	coho	250
Polar Alternative School	Classroom incubation	coho	250
St. Elizabeth Ann Seton	Classroom incubation	coho	250
Service High School	Classroom Incubation	coho	250
Sherrod Elementary	Classroom Incubation	coho	250
Snowshoe Elementary	Classroom Incubation	coho	250
Steller Alternative School	Classroom Incubation	coho	250
Susitna Elementary School	Classroom Incubation	coho	250
INTERIOR			
Anderson School	Classroom incubation	coho	250
Delta-Greely School District	Classroom Incubation	coho	2,800
North Pole Middle School	Classroom Incubation	Arctic char	5,000
Tri-Valley School	Classroom Incubation	coho	500

Appendix 11. Continued.

PERMITTEE	PROJECT TYPE	SPECIES	MAX # RELEASED
WESTERN			
East Elementary	Classroom Incubation	coho	200
Kodiak High School	Classroom Incubation	coho	250
Kodiak Island Borough SD	School Incubation Proj	coho	30,000
Main Elementary	Classroom incubation	coho	250
Peterson Elementary	Classroom Incubation	coho	200
St. George Aquaculture	Site Feasibility Study	pink	220,000
Arctic Yukon Kuskokwim			
Allakaket School	Classroom Incubation	coho	250
Bethel Regional HS	Classroom incubation	coho	250
Bettles Public School	Classroom Incubation	coho	250
Cruikshank School	Classroom Incubation	coho	250
Andrew K. Kemoski School	Classroom Incubation	coho	250
Galena City School	Classroom Incubation	coho	250
Holy Cross School	Classroom Incubation	coho	250
Hughes School	Classroom Incubation	coho	250
Jimmy Huntington School	Classroom Incubation	coho	250
Kaltag School	Classroom incubation	coho	250
Koyukuk School	Classroom Incubation	coho	250
David Louis Memorial School	Classroom Incubation	coho	250
Marshall School	Classroom Incubation	coho	250
McGrath School	Classroom Incubation	coho	250
Mt. Village High School	Classroom incubation	coho	250
Nome-Beltz High School	School Incubation Proj	coho & chum	14,000 4,400
Tanana City School	Classroom Incubation	coho	250
UAF, CES, Fairbanks	Instream Incubation	chum	20,000
AK PENINSULA			
Akutan School	School Incubation Proj	pink	19,200
Cold Bay School	Classroom Incubation	pink or chum	4,900 6,600
False Pass School	Classroom Incubation	pink or chum	4,800 6,600
King Cove School	Classroom Incubation	pink	4,800
Nelson Lagoon School	Classroom Incubation	pink	4,800
Sand Point School	School Incubation Proj	pink or chum	48,000 56,000
Unalaska City School Dist	School Incubation Proj	pink	24,000

Appendix 12. Updated detailed return information, by species, to 1993 Alaskan enhancement program projects.

Appendix 12a. 1993 total chinook salmon returns to Alaskan hatcheries (including common-property harvests) as reported by operators.

REGION/LOCATION	Common Property Harvest				Pers Use		Brood	Terminal Harvest	Other Escapement	Total	SHA Revenue	
	Seine	Gillnet	Troll	Sport	Subsis	Other						
SOUTHEAST												
SSRAA	Whitman Lake	1	15	68	76		251			411		
	-Carroll inlet	2	54	834	616			1,725		3,231	\$40,211	
COOP	-Earl West Cove	1,146	6,728	864	276					9,014		
	Neets Bay		136	1,473	1,414			8,075		11,098	\$177,507	
	Burnett Inlet		75	228	86				156	545		
NSRAA	Medvejie Creek		59	5,336	1,164		554	10,776	1,308	19,197	\$117,132	
	Hidden Falls	116	75	191	27		654	125	579	1,767	\$2,493	
AKI	Port Armstrong	74	56	482	67			1,253	500	2,432	\$15,402	
DIPAC	Gastineau	50	109		107					785	\$2,462	
	-Sheep Creek							49		49	\$1,188	
SJC	Indian River	31		377	12		495		9	924		
ADFG	Deer Mountain Hatchery		39	160	131	160	565			1,055		
	-Big Salt L		3	5						8		
	-Thorne Bay		22	49	2					73		
	-Bell Island			2						2		
	Crystal Lake Hatchery	22	151	3,508	1,000		1,827			6,508		
	-Ohmer Creek		399	457	19				146	1,021		
	Jerry Myers		5		7		40			52		
	Snettisham Hatchery		1,154	857	168				307	2,486		
	-Indian River				1					1		
	-Juneau/DJ	87	1,311	231	1,190				1,338	4,157		
	-Tahini River		11		5				38	54		
	-Lutak Inlet		118	12	68				66	264		
	-Twin Lakes				5,000					5,000		
SOUTHEAST TOTALS		1,529	10,520	15,134	11,436	160	0	4,905	22,003	4,447	70,134	\$356,395
PRINCE WILLIAM SOUND												
PWSAC	Esther Lake		613		100			926	1,432		3,071	\$26,736
PWS TOTALS		0	613	0	100	0	0	926	1,432	0	3,071	\$26,736

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Appendix 12a. 1993 total chinook salmon returns to Alaskan hatcheries (including common-property harvests) as reported by operators.

REGION/LOCATION	Common Property Harvest			Pers Use		Brood	Terminal Harvest	Other Escapement	Total	SHA Revenue	
	Selne	Gillnet	Troll	Sport	SubsIs						Other
COOK INLET											
CIAA	Crooked Creek						1,319		1,319		
ADFG	Elmendorf								0		
	-Crooked Creek			5,000		481		848	6,329	1	
	- Eagle River			75					75	1	
	710	490		890					2,090	1,4	
	-Homer Spit			1,685					1,685	1	
	500			2,500					3,000	1	
	-Ship Creek			2,200					2,200	1	
	-Resurrection Bay			1,500					1,500	1	
	-Landlocked Lakes			4,036					4,036		
	Ft Richardson								0		
	-Willow Cr			2,590					2,590	2	
	-Ninilchik R			2,289					2,289	2	
	-Statewide lakes			12,900					12,900	1	
COOK INLET TOTALS											
	1,210	490	0	35,665	0	0	481	1,319	848	40,013	\$0
KODIAK											
	Elmendorf										
	-Kodiak Lakes			250	30				10	290	
KODIAK TOTALS											
	0	0	0	250	30	0	0	0	10	290	\$0
STATEWIDE TOTALS											
	2,739	11,623	15,134	47,451	190	0	6,312	24,754	5,305	113,508	\$383,131

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Appendix 12b. 1993 total chum salmon returns to Alaskan hatcheries (including common-property harvests) as reported by operators.

REGION/LOCATION	Common Property Harvest			Pers Use		Brood	Terminal Harvest	Other Escapement	Total	SHA Revenue		
	Seine	Gillnet	Troll	Sport	Subsis						Other	
SOUTHEAST												
SSRAA	Whitman Lake-Nakal/fa	33,445	40,169						73,614			
	-Nakat Inlet-summer	17,831	37,318						55,149			
	-Earl West Cove-summ	2,950	11,059						14,009			
	-Kendrick Bay-summer	22,609	2,348						24,957			
	Neets Bay -summer	153,873	36,083	7,783		71,598	210,603		479,940	\$696,462		
	Neets Bay-Fall	57,812	22,439	6,868		45,264	487,056		619,439	\$833,016		
NSRAA	Medvejie Creek	457,148	373,306	449,660	3,462	16,705	310,843	23,430	1,634,554	\$556,648		
	Hidden Falls	1,437,282				112,153	192,011	49,759	1,791,205	\$1,102,192		
	Haines Projects		2,024			663		3,000	5,687			
AAI	Burnett Inlet	6,161	5,841			10,848	2,133	4,000	28,983	\$13,813		
BCF	Burro Creek					86	69	17	172			
DIPAC	Sheep Creek				1,100	49,280	1,180	11,718	63,278	\$4,094		
	Gastineau		76,378		1,894	16,618			94,890	\$5,681		
	-Limestone Inlet		2,306					120	2,426			
	-Boat Harbor		96,000						96,000			
KNFC	Gunnuk Creek	6,017		4,224	700	20,882	8,892	5,240	45,955	\$12,008		
	- Southeast Cove	4,834		3,394			18,403	1,500	28,131	\$30,326		
SJC	Indian River				11	1,069		390	1,470			
ADFG	Marx Cr Spwn Ch		303					36,303	36,606			
	Snettisham Hatchery	338	1,035	1,413				323	3,109			
	-Limestone Inlet	5,493	26,914					120	32,527			
	-Mist Island		65						65			
SOUTHEAST TOTALS		2,205,793	733,588	473,342	7,167	0	86	345,149	1,231,121	135,920	5,132,166	3,254,240
PRINCE WILLIAM SOUND												
PWSAC	Esther Lake		610,954				110,929	476,666		1,198,549	\$1,573,569	
VFDA	Solomon Gulch				200		9,033	61,964	1,149	72,346	\$22,927	
PWS TOTALS		0	610,954	0	200	0	0	119,962	538,630	1,149	1,270,895	\$1,596,496
COOK INLET												
CIAA	Eklutna		25,832		3,244		807	12,013	157	42,053	\$13,680	
COOK INLET TOTALS		0	25,832	0	3,244	0	0	807	12,013	157	42,053	\$13,680
KODIAK												
KRAA	Kitoi	4,600					9,500			14,100		
ADFG	Russell Creek	29,925							9,500	39,425		
KODIAK TOTALS		34,525	0	0	0	0	0	9,500	0	9,500	53,525	\$0
ARCTIC/YUKON/KUSK												
ADFG	Sikusuilag		5,000		200	5,000	26,800			37,000		
AYK TOTALS		0	5,000	0	200	5,000	0	26,800	0	0	37,000	\$0
STATEWIDE TOTALS		2,240,318	1,375,374	473,342	10,811	5,000	86	502,218	1,781,764	146,726	6,535,639	\$4,864,415

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Appendix 12c. 1993 total coho salmon returns to Alaskan hatcheries (including common-property harvests) as reported by operators.

REGION/LOCATION	Common Property Harvest				Pers Use		Brood	Terminal Harvest	Other Escapement	Total	SHA Revenue	
	Seine	Gillnet	Troll	Sport	Subsids	Other						
SOUTHEAST												
SSRAA	Whitman Lake	565	3,165	7,249	235		3,189			14,403		
	-Earl West Cove	645	11,215	15,348	11					27,219		
	-Nakat Inlet	1,448	2,350	8,973	39					12,810		
	Neets Bay	6,961	62,453	140,045	3,169		2,000	49,100		263,728	\$211,648	
NSRAA	Medvejie Creek	3,196	5,399	11,631	811		101	916		22,054		
	-Deer Lake	10,000	130	45,340	880		1,922	16,900	1,293	76,465	\$76,200	
	Hidden Falls	3,411	256	18,774	337		1,580	8,137	941	33,436	\$40,500	
AAI	Burnett Inlet		30	76						106		
AKI	Port Armstrong	581	11	6,783			327	1,474	2,307	11,483	\$6,293	
BCF	Burro Creek					102	12		40	154		
	Gastineau	569	11,458	40,057	8,929	9,208	3,536	39,138		112,895	\$140,620	
SJC	Indian River			1,380	89		723		59	2,251		
	Klawock Hatchery	6,248	66	33,702	424	1,000	11,909	7,909		61,258	\$34,800	
	-Cable Cr	98		334			210			642		
	-Tunga L	1,500		7,500			3,500		3,500	16,000		
	-Rio Roberts	10	108	332	15					465		
ADFG	Dog Salmon R	330							259	589		
	Old Franks L								308	308		
	Margaret Lake	3							106	109		
	Deer Mountain Hatcher	248	420	122	158	124	3	581		1,656		
	-Bold Island L	218	235	76			2			531		
	-Reflection L	191	222	49	27					489		
	-Ward Cr	392	1,039	352	326		4			1,015		
	Crystal Lake Hatchery	130	2,230	1,090	80		773			4,303		
	-St. John's Creek			46						46		
	Snettisham Hatchery									0		
	-Indian Lake		212	1,018					1,600	2,830		
SOUTHEAST TOTALS		36,744	100,999	340,277	15,530	1,124	9,319	30,363	123,574	10,413	667,245	\$510,061
PRINCE WILLIAM SOUND												
PWSAC	Esther Lake	3,246	32,436		100		4,857	1,532		42,171	\$5,805	
VFDA	Solomon Gulch	33	66		400		1,518	2,343	97	4,457	\$5,908	
	-Boulder Bay			3	100				43	146		
PWS TOTALS		3,279	32,502	3	600	0	0	6,375	3,875	140	46,774	\$11,713

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Appendix 12c. 1993 total coho salmon returns to Alaskan hatcheries (including common-property harvests) as reported by operators.

REGION/LOCATION	Common Property Harvest				Pers Use		Brood	Terminal Harvest	Other Escapement	Total	SHA Revenue	
	Seine	Gillnet	Troll	Sport	Subsis	Other						
COOK INLET												
CIAA	Eklutna	930		124			50	446		1,550		
	Trail Lakes			1,902			678	7,199	794	10,573	\$16,446	
	Crooked Creek	115	5	3,150			185	986	1,250	5,691		
ADFG	Big Lake	1,500							1,500	3,000		
	- Landlocked Lakes			14,934						14,934		
	Elmendorf									0		
	-Homer Spit			1,627	500					2,127	1	
	-Ship Creek	500		1,500			435			2,435	1	
	-Resurrection Bay			7,000						7,000	1	
	-Landlocked lakes			9,302						9,302	1	
	Ft Richardson									0		
	-Bird Cr	3,000		3,000			600			6,600	3, 5	
	-Campbell Cr	3,000		3,000			3,300			9,300	3, 5	
	-Little Susitna R	5,000		2,861			9,189			17,050	3, 5	
COOK INLET TOTALS		0	14,045	5	48,400	500	0	14,437	8,631	3,544	89,562	\$16,446
KODIAK												
KRAA	Kitoi	16,000					800			16,800		
	-Landlocked lakes			2,000	35				72	2,107		
	-Crescent Lake			1,000	1,400					2,400		
ADFG	Afognak Fishpasses			500	50		105,664			106,214		
	Russell Creek	16							4,400	4,416		
KODIAK TOTALS		16,016	0	0	3,500	1,485	0	106,464	0	4,472	131,937	\$0
ARCTIC/YUKON/KUSK												
ADFG	Big Lake- LL lakes			18,072						18,072		
AYK TOTALS		0	0	0	18,072	0	0	0	0	0	18,072	\$0
STATEWIDE TOTALS		56,039	147,546	340,285	86,102	3,109	9,319	157,639	136,080	18,569	953,590	\$538,220

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Appendix 12d. 1993 total pink salmon returns to Alaskan hatcheries (including common-property harvests) as reported by operators.

REGION/LOCATION	Common Property Harvest			Pers Use		Brood	Terminal Harvest	Other Escapement	Total	SHA Revenue		
	Selne	Gillnet	Troll	Sport	Subsis						Other	
SOUTHEAST												
AAI	Burnett Inlet	200,000	20,000			41,743	35,000	39,000	335,743	\$45,250		
AKI	Port Armstrong	119,656				64,645	259,935	34,387	478,623	\$108,254		
BCF	Burro Creek					3			6			
DIPAC	Sheep Creek				100	593	39	737	1,469	\$39		
	Gastineau				817	26,706			27,523	\$8,703		
KNFC	Gunnuk Creek	7,500		500	500	6,028	919	13,368	28,815	\$549		
	-Southeast Cove	6,000					3,953	2,000	11,953	\$2,360		
SJC	Indian River				28	2,552		1,177	3,757			
ADFG	Ketchikan Cr	107,200	40,000	12,800				40,000	200,000			
	Dog Salmon Cr	9,568						2,392	11,960			
	Margaret L	23,520	7,840					7,840	39,200			
	Sunny Cr	107,910						26,977	134,887			
SOUTHEAST TOTALS		581,354	67,840	13,300	1,445	0	3	142,270	299,846	167,878	1,273,936	\$165,155
PRINCE WILLIAM SOUND												
PWSAC	Armin F Koernig	1,073,514	19,681			263,757	357,663		1,714,615	\$175,480		
	Esther Lake	722,243	135,118			381,858	265,363		1,504,582	\$115,138		
	Cannery Creek	400,102	35,114			307,478	92,451		835,145	\$62,556		
VFDA	Solomon Gulch	572			29,000	361,790	1,311,508	29,546	1,732,416	\$1,088,270		
PWS TOTALS		2,196,431	189,913	0	29,000	0	0	1,314,883	2,026,985	29,546	5,786,758	\$1,441,444
COOK INLET												
CIAA	Tutka	121,012	7,150		5,200	102,000	409,431	27,403	672,196	\$126,973		
	-Halibut Cove	99,531	683						100,214			
	-Homer Spit				2,000				2,000			
COOK INLET TOTALS		220,543	7,833	0	7,200	0	0	102,000	409,431	27,403	774,410	\$126,973
KODIAK												
KRAA	Kitoi	12,100,000				255,000		55,000	12,410,000			
ADFG	Afognak Fishpass							4,000	4,000			
	Waterfall Fishpass	137,500						110,000	247,500			
	Russell Creek	202,000						9,500	211,500			
KODIAK TOTALS		12,439,500	0	0	0	0	0	255,000	0	178,500	12,873,000	\$0
STATEWIDE TOTALS		15,437,828	265,586	13,300	37,645	0	3	1,814,153	2,736,262	403,327	20,708,104	\$1,733,572

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Appendix 12e. 1993 total sockeye salmon returns to Alaskan hatcheries (including common-property harvests) as reported by operators.

REGION/LOCATION	Common Property Harvest				Pers Use		Brood	Terminal Harvest	Other Escapement	Total	SHA Revenue	
	Seine	Gillnet	Troll	Sport	Subsis	Other						
SOUTHEAST												
SSRAA	Beaver Falls	1,311	674					2,685	200	4,870	\$5,918	
	-Salmon Bay/Karta	4,500	4,500		500	1,000	837		9,000	20,337		
	-Bakewell R	2,393	2,393						532	5,318		
	-Margaret L	54	124	4			143			325		
	-Hugh Smith L	15,450	16,740				1,460		11,800	45,450		
	-Virginia L	1,500	1,500						2,000	5,000		
	Klawock Hatchery	137				5,763	5,050			10,950		
ADFG	Dog Salmon R	330							259	589		
	McDonald L	226,724	78,861		200	9,809	1,922		83,514	401,030		
	Snettisham-Stikine		700						1,000	1,700		
	Snettisham-Sweetheart		565		530	2,000			20,000	23,095		
SOUTHEAST TOTALS		252,399	106,057	4	1,230	18,572	0	9,412	2,685	128,305	518,664	\$5,918
PRINCE WILLIAM SOUND												
PWSAC	Main Bay	19,344	189,365				8,020	97,594		314,323	\$349,455	
ADFG	Gulkana		117,000				17,600	18,260		152,860		
PWS TOTALS		19,344	306,365	0	0	0	0	25,620	115,854	0	467,183	\$349,455
COOK INLET												
CIAA	Trail Lakes-Kalgin Island		87,010				3,274	17,092	37,644	145,020		
	-Chelatna Lake		33,309		2,204		1,160		19,075	55,748		
	-Hidden Lake		48,200		2,896		1,856		9,996	62,948		
	-Bear Lake						191	1,663	4,852	6,706	\$9,250	
	Crooked Creek							252		252		
	-Tustumena L		12,020				9,098			21,118		
	-Leisure/Hazel L	131,042			4,400			10,808		146,250	\$40,774	
	-Chenik L	19,091			100		4,000	4,579		27,770	\$15,841	
	-Port Dick L	1,010								1,010		
	-Kirschner L	33,094						3,226		36,320	\$11,910	
ADFG	Big Lake		107,050			6,250	27,750			141,050		
COOK INLET TOTALS		184,237	287,589	0	9,600	6,250	0	47,329	37,620	71,567	644,192	77,775
KODIAK												
KRAA	Kitloi	16,000					4,900			20,900		
ADFG	Karluk Fishpass	930,000	900,000		500	408			649,955	2,480,863		
	Frazer Fishpass	273,000	410,000						178,400	861,400		
	Afognak Fishpass	82				179			17,800	18,061		
	Pillar Creek						3,500			3,500		
	Russell Creek	1,042							7,300	8,342		
KODIAK TOTALS		1,220,124	1,310,000	0	500	587	0	8,400	0	853,455	3,393,066	\$0
STATEWIDE TOTALS		1,676,104	2,010,011	0	11,330	25,409	0	90,761	156,159	1,053,327	5,023,105	\$433,147

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Appendix 12f. 1993 total "other" enhanced fish returns to Alaskan hatcheries.

REGION/LOCATION		Species	Commer	Sport	Subsis	Pers Use Other	Brood	Terminal Harvest	Other Escape	Total
SOUTHEAST										
ADFG	Klawock	steelhead							250	250
	Crystal Lake	steelhead							10	10
SOUTHEAST TOTALS			0	0	0	0	0	0	260	260
PRINCE WILLIAM SOUND										
	Clear LL lakes	grayling		283						283 1,6
PWS TOTALS			0	283	0	0	0	0	0	283
COOK INLET										
	Ft Richardson									
	-Statewide lakes	rainbow		98,816						98,816 1,6
	Clear									
	-Cook Inlet lakes	grayling		8,510						8,510 1,6
		a char		1,755						1,755 1,6
COOK INLET TOTALS			0	109,081	0	0	0	0	0	109,081
ARCTIC/YUKON/KUSK										
ADFG	Clear	grayling		1,257						1,257 1,6
		a char		1,809						1,809 1,6
		l trout		388						388 1,6
AYK TOTALS			0	3,454	0	0	0	0	0	3,454
STATEWIDE TOTALS			0	112,818	0	0	0	0	260	113,078

Comments:

1. based on 1993 Sport Fish Harvest Surveys
2. based on 1993 creel census
3. new fisheries estimate
4. commercial numbers based on fish ticket returns
5. commercial numbers based on CWT data
6. 40-45% of Clear Hatchery production went to the Chena River Arctic grayling project and were unavailable for harvest.

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