

***Economic Impacts of the  
Prince William Sound Aquaculture  
Corporation:  
2002 Update***

***PREPARED FOR:  
PRINCE WILLIAM SOUND AQUACULTURE CORPORATION.  
P.O. Box 1110  
CORDOVA, ALASKA 99574***

**JANUARY 2003**

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In 2002, the McDowell Group, Inc., conducted the study *The Economic Impacts of the Prince William Sound Aquaculture Corporation* (PWSAC). The study analyzed data through the year 2001. This update examines additional information through 2002, including commercial, sport, personal use, and subsistence harvests, as well as the current salmon market conditions for key species produced by PWSAC. Key findings are reported below.

### Summary of Economic Impacts

§ In 2002, processors, commercial fishermen, and sport fishing service businesses earned an estimated \$60 million from PWSAC salmon. The estimated economic impacts from these earnings were \$77 million in total economic output<sup>1</sup>, including \$24 million in labor income and more than 900 jobs. Impacts for each sector (commercial fishing, seafood processing, sport, personal use and subsistence harvests, and PWSAC operations) are summarized below.

### Commercial Harvest

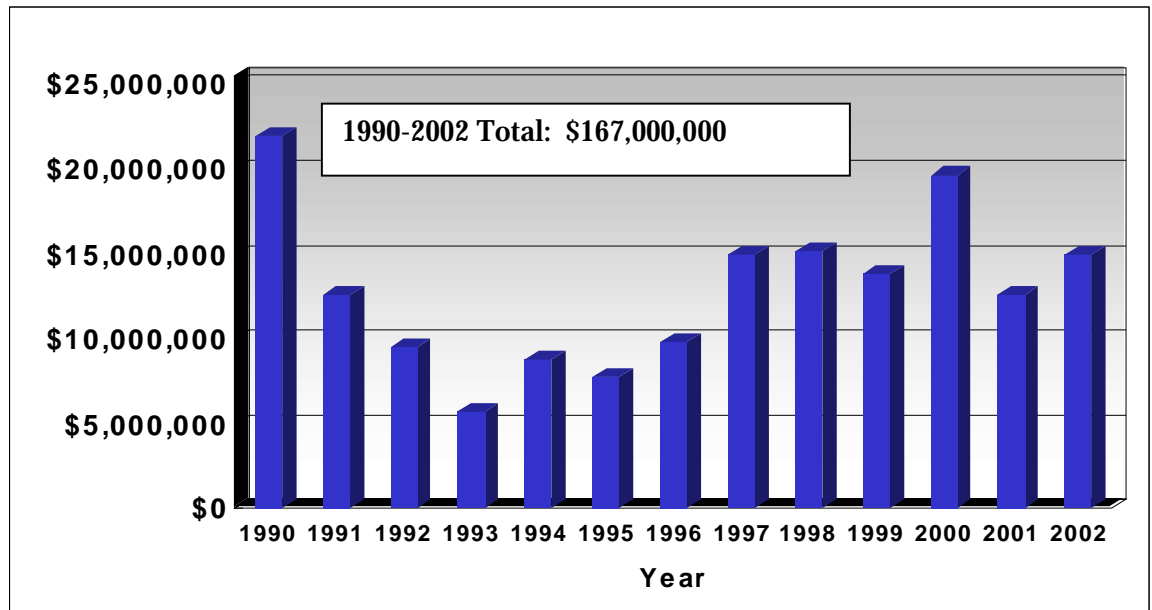
- § Between 1990 and 2002, commercial fishermen harvested more than 600 million pounds of PWSAC salmon with a total ex-vessel value<sup>2</sup> of \$167 million.
- § From 1990 to 2002, commercial fishermen contributed \$9 million in enhancement taxes in support of PWSAC. The \$167 million ex-vessel value of PWSAC salmon harvested during the same time period returned fishermen \$18 for every \$1 of tax paid.
- § From 1990 to 2002, PWSAC salmon accounted for an average 36 percent of ex-vessel value and 51 percent of volume of the Prince William Sound commercial fishery.
- § PWSAC salmon comprised 63 percent of value and 85 percent of volume in the 2002 Prince William Sound commercial fishery.
- § The nearly \$15 million earned by commercial fishermen in 2002 marked the sixth consecutive year of annual earnings in excess of \$12 million.

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<sup>1</sup> Total output refers to all spending activity generated throughout the regional economy. An economic model, IMPLAN, was used to estimate total output. One dollar of input often results in more than one dollar of output because the dollar may circulate through many sectors in the economy.

<sup>2</sup> Ex-vessel value is the gross value paid to commercial fishermen for their salmon harvest.

## Ex-Vessel Value of Common Property Commercial Harvest of PWSAC Salmon, 1990-2002



Source: ADFG and McDowell Group estimates.

- § Economic impacts from \$14.9 million in ex-vessel earnings from PWSAC salmon harvested in 2002 resulted in an estimated \$19.6 million in total output, including \$6.6 million in labor income and 270 jobs.
- § Alaska resident permit holders see most of the economic benefits of PWSAC production. In 2002, Alaska resident permit holders harvested an estimated 72 percent or \$10.7 million of the PWSAC ex-vessel value, with 28 percent or \$4.2 million harvested by non-residents.
- § From 1990 to 2002, Valdez and Cordova resident permit holders earned a total of \$78 million from PWSAC fish, followed by Kenai Peninsula residents (\$25 million), Anchorage residents (\$11 million), and Matanuska-Susitna Valley residents (\$6 million).

### Ex-Vessel Value of PWSAC Commercial Harvest by Permit Holders' Area of Residence

Community	2000	2001	2002
Cordova	\$8,118,000	\$5,179,000	\$6,063,000
Homer	1,996,000	1,322,000	1,548,000
Anchorage	846,000	582,000	681,000
Wasilla	556,000	340,000	398,000
Valdez	797,000	251,000	294,000
Seward	392,000	216,000	253,000
Palmer	197,000	138,000	162,000
Eagle River Area	115,000	131,000	153,000
Soldotna	200,000	124,000	145,000
Girdwood Area	209,000	119,000	139,000

Source: CFEC and McDowell Group estimates.

§ Regional economic impacts include an estimated 80 jobs and \$2.4 million in payroll in the Valdez-Cordova area, 40 jobs and \$900,000 in payroll in the Kenai Peninsula area, and 50 jobs and \$700,000 in payroll in the Anchorage area.

### Estimated Economic Output from Commercial Ex-Vessel Value of PWSAC Salmon, 2002

Census Area	2002 Ex-Vessel Income	Economic Output	Jobs	Payroll
Valdez-Cordova	\$6,400,000	\$7,600,000	80	\$2,400,000
Kenai Peninsula	2,400,000	3,000,000	40	900,000
Anchorage	1,000,000	1,400,000	50	700,000
Matanuska-Susitna	600,000	775,000	10	230,000
Remainder of Alaska	250,000	288,000	5	100,000
Total (rounded):	\$10,700,000	\$13,100,000	185	\$4,300,000

Source: CFEC and McDowell Group estimates.

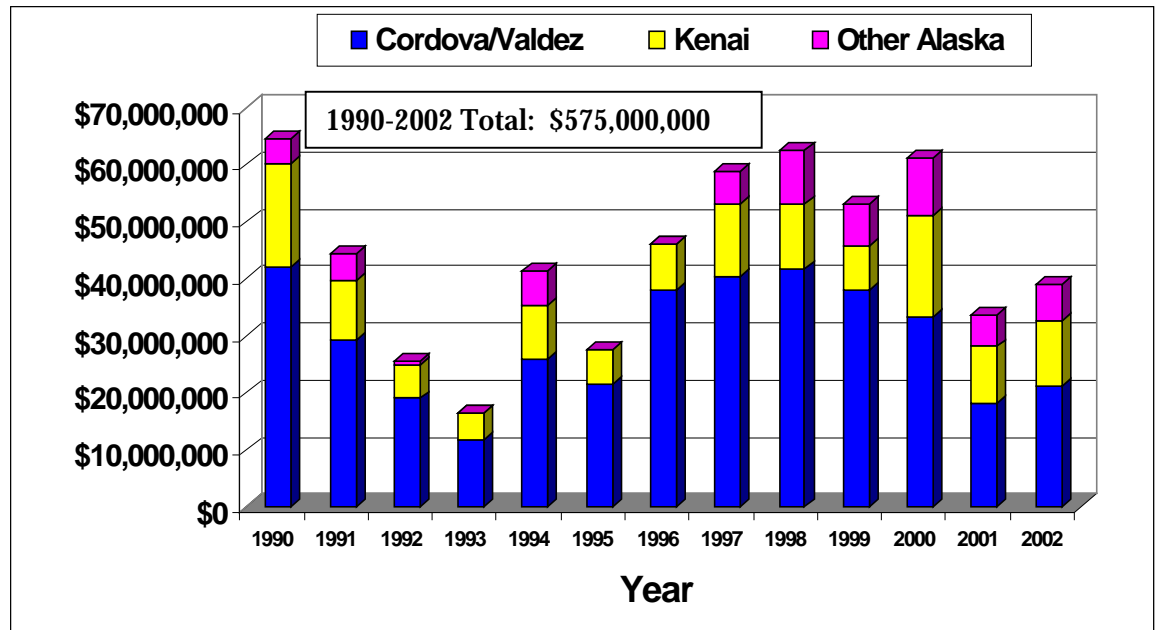
- Pink salmon accounted for 43 percent of the ex-vessel value of PWSAC salmon harvested from 1990 to 2002, followed by sockeye (34 percent), chum (20 percent), coho (2 percent), and chinook (less than 1 percent).

## Seafood Processing

- § Between 1990 and 2002, the total first wholesale value<sup>3</sup> of commercial and cost recovery harvest of PWSAC salmon was more than half a billion dollars, with an annual average value of more than \$45 million.
- § PWSAC salmon are distributed among at least 20 different Alaska processors. In terms of wholesale value, most PWSAC salmon are processed in the Cordova/Valdez area and the Kenai Peninsula.
- § From 1990 to 2002, first wholesale value for Cordova/Valdez area processors was about \$380 million, followed by \$133 million to Kenai Peninsula processors, and \$60 million to processors elsewhere in the state.
- § Processing of PWSAC fish generated an estimated \$45 million in total output in 2002, including \$12 million in payroll and 445 jobs.

<sup>3</sup> First wholesale value is the first sale of fish from a processor to a buyer outside of the processor's affiliate network.

## First Wholesale Value of PWSAC Salmon and Roe by Processor Region, 1990-2002



Source: ADFG and McDowell Group estimates. 2002 data is preliminary.

- § Pink salmon accounted for the largest share of PWSAC salmon wholesale value from 1990 to 2002 (69 percent), followed by sockeye (17 percent), chum (13 percent), coho (1 percent) and chinook (less than 1 percent).

## Sport Harvest

- § PWSAC helps support sport fisheries over a wide area, including both the Copper River Basin and Prince William Sound.
- § From 1991 to 2002, sport fishermen in the Prince William Sound area harvested 193,000 PWSAC salmon.
- § From 1997 to 2001, PWSAC salmon accounted for about 86 percent of the chum, 66 percent of the chinook, 55 percent of the sockeye, 16 percent of the coho and 8 percent of the pink sport harvest in the Prince William Sound area. 2002 data is not available.
- § Economic impacts from the 2002 harvest were an estimated \$1.4 million in total output, including \$590,000 in payroll and 40 jobs.
- § The record harvest of PWSAC fish occurred in 2000, when anglers harvested 46,000 fish. The 2002 harvest was second at 35,000 fish.

### Sport Harvest of PWSAC Salmon, 1998-2002

Year	Chinook	Sockeye	Coho	Pink	Chum	Total (rounded)
1998	1,550	6,740	4,950	3,060	1,770	18,000
1999	1,380	11,510	4,100	2,440	1,160	21,000
2000	1,730	4,870	34,070	2,750	2,510	46,000
2001	860	5,990	6,800	2,720	1,790	18,000
2002	80	7,760	22,700	2,800	1,820	35,000

Source: ADFG, PWSAC and McDowell Group estimates.

## Personal Use and Subsistence Fisheries

- § Between 1995 and 2001, Alaskans from 140 towns across the state have harvested 170,000 PWSAC sockeye during the Copper River personal use and subsistence fisheries.
- § The largest harvests of PWSAC sockeye production are by residents of Anchorage, Fairbanks, Wasilla, North Pole, Copper Center, Glennallen, Palmer, Eagle River, Gakona, Delta, Valdez and Tok.

### Copper River Personal Use and Subsistence Fishery PWSAC Sockeye Harvest, 1995-2001 Total by Place of Residence

City	Sockeye Harvested
Anchorage	38,000
Fairbanks	32,000
Wasilla	13,000
North Pole	10,000
Copper Center	9,900
Glennallen	9,400
Palmer	8,800
Eagle River	8,300
Gakona	5,400
Delta	5,600
Valdez	5,300
Tok	3,500

Source: ADFG and McDowell Group estimates.

## PWSAC Organization

- § The PWSAC organization creates an annual average of 67 jobs in the regional economy, generating annual payroll and expenditures of \$4.8 million.
- § Economic impacts of PWSAC operations were an estimated \$11.5 million in total output, including 168 jobs and \$5.2 million in payroll.

## Summary of PWSAC Economic Impacts, 2002

<b>Harvest of PWSAC Salmon</b>	
Commercial Harvest (pounds)	62,000,000
2001 Personal Use/ Subsistence Fishery PWSAC Salmon Harvest (number of sockeye)	22,000
Sport Harvest of PWSAC Salmon (number of fish)	35,000
<b>Value of PWSAC Harvest</b>	
Ex-vessel Value to Commercial Fishermen	\$14,900,000
PWSAC Value as a Percent of Total Prince William Sound Ex-vessel Value	63%
Wholesale Value of PWSAC Salmon	\$39,000,000
<b>Economic Impacts</b>	
Total Annual Average Jobs Created by PWSAC salmon	930
Total Payroll	\$24,000,000
Total Economic Output	\$77,000,000
<b>Impacts of PWSAC Salmon Outside Prince William Sound</b>	
Copper River Dipnet Harvest of PWSAC salmon by Anchorage and Fairbanks Area Residents (number of fish)	12,000
First Wholesale Value of PWSAC Salmon to Kenai Peninsula Processors	\$11,000,000
<b>Return to Commercial Fishermen for Enhancement Taxes Paid</b>	
Ex-vessel Income from PWSAC salmon per Salmon Enhancement Tax dollar paid	\$18

## Purpose and Scope

The purpose of this study is to provide an estimate of the economic impacts of PWSAC's hatcheries in southcentral Alaska. Analyses include:

- § Commercial Harvest of PWSAC Salmon. In this section, the overall and regional economic benefits of PWSAC salmon are estimated based on ex-vessel income to permit holders in the Prince William Sound commercial fishery. In addition, regional economic effects from PWSAC salmon harvest are also reported.
- § Economic Impacts of the Seafood Processing Industry. This section addresses the overall and regional economic impacts of processing PWSAC salmon based on first wholesale value and indirect economic impacts on the regional economy.
- § Sport Harvest of PWSAC Salmon. The sport harvest of PWSAC salmon is addressed, including economic impacts from angler spending.
- § Personal Use and Subsistence Harvest of PWSAC Salmon. The Copper River dipnet and fishwheel personal use and subsistence PWSAC harvests are described, including estimated number of fish harvested by fishermen's town of residence and economic impacts of participant spending.
- § Tax Payments from PWSAC Harvest. The fisheries business and enhancement tax revenue paid from the harvest of PWSAC fish are presented, including the ratio of income earned to enhancement tax paid by commercial fishermen.

## Methodology

The data used in this report comes from a variety of sources, including PWSAC, Alaska Commercial Fisheries Entry Commission, Alaska Department of Labor and Workforce Development, Alaska Department of Revenue, Alaska Department of Fish and Game (ADFG), and Alaska Department of Administration. The study utilizes recent McDowell Group research on the South Central Alaska economy and PWSAC economic impacts in the region. However, it should be noted that available data on the economics of the region's seafood industry, sport, personal use and subsistence fisheries are limited, and in some cases non-existent. This is particularly true in areas related to personal income of commercial fishermen and the value of sport fishing activity.

Some preliminary commercial and sport harvest data was available through 2002. Some wholesale value data was unavailable from the State of Alaska due to confidentiality regulations, and therefore, wholesale values should be considered minimum estimates. Ex-vessel income for some communities was restricted due to

state confidentiality laws. For these communities, the fishery average income per permit by gear type was used as a proxy.

Processor wholesale data and commercial harvest data by community of residence were available through 2001 from ADFG and CFEC. For 2002, processor wholesale data was estimated by multiplying the ratio of ex-vessel to wholesale value in 2001 by the ex-vessel value in 2002. The study team also assumed that the wholesale value of PWSAC salmon in 2002 was apportioned by area the same as it was in 2001. Ex-vessel value by community for 2002 was assumed to be in the same proportion as for 2001. The 2002 estimates will be updated with actual ADFG data in future reports.

The wholesale value contribution of PWSAC salmon roe to the regional total was assumed to be in the same proportion as the contribution of PWSAC salmon to the regional total, by species.

Sport fishery harvest figures for PWSAC chinook, coho and sockeye are based on PWSAC hatchery manager estimates reported in annual reports. PWSAC pink salmon and chum are not reported in PWSAC reports, but are undoubtedly harvested in substantial numbers by Prince William Sound anglers. For chum salmon, the percentage of PWSAC chum in the sport fishery is assumed to be the same as the PWSAC contribution to the commercial fishery. For pink salmon, the sport harvest in the Valdez area is assumed to be entirely from the Valdez Fishery Development Association (VFDA), and not from PWSAC. Therefore, the PWSAC contribution to the pink salmon sport fishery was assumed to be the same proportion as the PWSAC contribution to the commercial fishery in the Prince William Sound area, excluding the Valdez area.

The Copper River dipnet and fishwheel fisheries are important to thousands of Alaskans. The remoteness of the fishing area means that many users travel hundreds of miles to participate. These fishers buy fuel, ice, fishing equipment and clothing to harvest their catch. Estimating where these dollars are spent would require extensive research beyond the scope of this study. Furthermore, people would travel to the fishery to dipnet salmon even in the absence of PWSAC fish. As a first order estimate of direct economic impacts of the fishery, we estimated that each dipnetter spent about \$80 per trip for food and transportation, based on average trip length of 760 miles (Henderson, et al., 2000<sup>4</sup>), average of 2 permit holders per vehicle, average gasoline price of \$1.50/gallon, average of \$21 per permit holder per day spent on food (based on half of the State of Alaska per diem rate of \$42), and an average trip length of 2 days. The price per trip was multiplied by the number of trips reported from ADFG. The percentage of PWSAC fish harvested in the catch was then multiplied by the total expenditure estimate as a proxy for PWSAC's economic contribution to the fishery.

For the recreational fishery, economic impacts to the Prince William Sound region include spending for such expenses as fuel, fishing gear, repair services, bait, food, lodging, transportation, and charter fees. From interviews with charter operators in the region, salmon charters are about \$80 per person per day. This cost was used as a baseline cost per angler per day for both guided and unguided anglers. Using

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<sup>4</sup> Henderson, M., K. Criddle and S. Lee. 2000. The Economic Value of Alaska's Copper River Personal Use and Subsistence Fisheries. Alaska Fishery Research Bulletin 6(2): 63-69.

ADFG estimates of Prince William Sound angler days and this expenditure amount, the McDowell Group made a first order estimate of the economic impacts of the sport harvest of PWSAC salmon to the regional economy, similar to the methodology used to estimate impacts from the Copper River personal use and subsistence fishery.

## **Economic Modeling**

The McDowell Group used the Impact Analysis for Planning Model (IMPLAN) to estimate the distribution of economic impacts of PWSAC salmon harvest and production throughout the economy. The IMPLAN model estimates total economic output, which reflects the entire supply chain of transactions resulting from harvest or processing of fish. For example, harvesting of fish will require purchase of a vessel, fuel, food, gear, and many other goods. This spending cycles through the regional economy. The IMPLAN model estimates the total set of such transactions. As a result, one dollar of input often results in more than one dollar of output because the dollar may circulate through several in the economy. The model also estimates employment and labor income, including total wage and salary employment as well as self employed jobs in a region. It includes both full-time and part-time workers and is measured in annual average jobs. The IMPLAN model estimates economic impacts by census area or region. Data was grouped accordingly when assessing impacts with the IMPLAN model.

Economic impacts of PWSAC salmon to processors, sport, personal use and subsistence fisheries are all based on an Alaska IMPLAN module. For commercial fishing impacts, an Alaska IMPLAN module is used to analyze Alaska resident income, and a U.S. module for non-resident income. For PWSAC operations, instate salary and expenditures used the Alaska module, and out of state spending (primarily for fish food) used the U.S. module. McDowell Group assumed 100 percent of all non-Alaskan income and business revenue was spent outside Alaska. McDowell Group recognizes this is not always true, but to determine an accurate estimate of expenditures in Alaska would require research beyond the scope of this study.

## **Introduction**

The Prince William Sound Aquaculture Corporation (PWSAC) is a non-profit organization formed in 1974 by a local area fishermen's group to ethically and professionally optimize salmon production in Prince William Sound for the long term well being of all user groups. PWSAC headquarters are located in Cordova.

The organization operates four remote hatcheries in Prince William Sound and one inland on the Gulkana River. Four species of salmon are currently produced, including pink, chum, coho and sockeye. Approximately 600 million salmon fry and smolts are produced for release into Pacific waters. The returning salmon benefit the commercial, sport, personal use and subsistence fishers in the Prince William Sound area and throughout the state.

PWSAC is a private non-profit corporation. It relies on cost recovery revenues and a 2 percent tax on the regional commercial salmon harvest to fund its salmon enhancement activities.

## **Facilities and Operations**

### **Armin F. Koernig Hatchery (AFK)**

The Armin F. Koernig Hatchery is located about 60 air miles west of Cordova in Sawmill Bay, Evans Island, Prince William Sound. The site was originally a salmon cannery, but was converted to become the first PWSAC hatchery in 1975. The facility was built with monies borrowed from the State of Alaska's Fisheries Enhancement Revolving Loan Fund. Six on-site year-round staff and fourteen seasonal staff operate the facility.

AFK was the only hatchery directly affected by the Exxon Valdez Oil Spill in 1989. Although oil booms to protect the out migrating fry surrounded their operation, the effects of the spill to AFK and the Sound are still being investigated.

In 2002, AFK saw returns of 7.8 million pink salmon and 55,000 chum salmon. This compares to 4.8 million pink salmon and 220,000 chum salmon in 2001.

### **Wally Noerenberg Hatchery (WNH)**

The Wally Noerenberg Hatchery was built in 1985 with monies borrowed from the State of Alaska's Fisheries Enhancement Revolving Loan Fund. It is located approximately 20 miles east of Whittier, in Lake Bay on the southern tip of Ester

Island, in the South Ester Island State Marine Park. WNH is the largest pink salmon production facility in North America. Eight on-site year-round staff and twenty seasonal staff operate the facility.

WNH returns included 5.6 million pink and 6.3 million chum salmon in 2002. This compares to returns of 7.2 million pink and 2.4 million chum salmon in 2001. WNH coho salmon returns, including releases from sites near Cordova, Whittier, and Chenega, totaled 28,000 fish in 2002.

### **Cannery Creek Hatchery (CCH)**

The Cannery Creek Hatchery was built in 1978 by the Alaska Department of Fish and Game (ADF&G) Fisheries Rehabilitation, Enhancement and Development (FRED) division. PWSAC took over operational control of the hatchery on July 1, 1988. The site is located on Forest Service land approximately 40 miles east of Whittier on the eastern shore of Unakwik Inlet in the northern area of Prince William Sound. PWSAC funds and operates the pink salmon facility under a twenty-year contract with the ADF&G. Six on-site year-round staff and fourteen seasonal staff operate the facility.

CCH pink returns totaled 1.6 million fish in 2002, down from 2.2 million fish in 2001.

### **Main Bay Hatchery (MBH)**

Main Bay Hatchery is owned by the State of Alaska and situated on Forest Service land in Main Bay on the western shore of the sound, approximately 40 miles southwest of Whittier. Main Bay was built in 1981 by the ADF&G FRED Division as a chum salmon hatchery, but switched to a sockeye enhancement program in 1986, becoming the first sockeye smolt-producing hatchery in the world. PWSAC took over operation and management on July 1, 1991. Six on-site year-round staff and twelve seasonal staff operate the facility.

At one time, up to six different sockeye salmon stocks were incubated and reared at the facility. In 1998, PWSAC decided to concentrate on just one run to improve fish culture, decrease the risk of disease, and possibly improve marine survival. MBH sockeye returns totaled about 955,000 fish in 2002, up from 794,000 fish in 2001.

### **Gulkana Hatchery (GH)**

The Gulkana Hatchery is located on the Gulkana River near Paxon, 250 miles northeast of Anchorage and 177 miles south of Fairbanks on the Richardson Highway. PWSAC operates the facility under a contract, which began in 1993 and runs through 2013. The facility is owned by ADFG and located on Bureau of Land Management land. Six on-site year-round staff and up to sixteen seasonal staff operate the facility.

In 1973, the first streamside incubator box was placed in an attempt to enhance Copper River sockeye salmon. With a survival rate of 79 percent the first year, significant enhancement opportunities were recognized along with the possibility of future expansion.

By 1984, Gulkana became the largest sockeye fry production facility worldwide, with egg takes of 26 million. Since 1988, GH has taken 36 million eggs in all years but one. GH sockeye returns totaled about 375,000 fish in 2002, up from 250,000 fish in 2001.

### **Cordova and Anchorage**

PWSAC administration offices are located in Cordova. PWSAC leases a warehouse in Anchorage to consolidate and expedite supplies to and from the remote hatchery sites via Whittier.

## Market Discussion

This section is intended as a broad overview of salmon market conditions relative to the species mix of PWSAC-origin salmon. Because of data release timing, assessment of 2002 market performance is based on partial-year data: January – August 2002 wholesale data published by Alaska Department of Revenue in the Alaska Salmon Price Report (ASPR). As of this writing, release of the remaining four months' data for 2002 is several weeks out.

PWSAC primarily produces pink and chum salmon, which are the primary focus of this discussion. In 2002, chum comprised 48 percent of harvest volume and pink salmon accounted for 45 percent. Sockeye made up the 7 percent of PWSAC-origin harvest in 2002. Coho and chinook salmon made up less than 1 percent of the PWSAC harvest.

**Table 1**  
**Harvest Composition of PWSAC Salmon, 2001 and 2002**

Species	2001		2002	
	Volume (Million Lbs.)	Percent	Volume (Million Lbs.)	Percent
Pink	35	58%	48	45%
Chum	19	32	51	48
Sockeye	6	10	7	7

Source: ADFG. 2002 data is preliminary.

## Pink and Chum Market Background

Annual first wholesale data from the Commercial Operators Annual Report (COAR) is available through 2001 as of this writing. Statewide COAR data enables comparison with past years to establish product-form and wholesale value trends.

Product-form data from the COAR is not yet available for 2002, but early indicators suggest little change in the product-form mix of Alaska pink and chum salmon. In recent years, 77 percent of Alaska pink salmon production has been in canned form and 79 percent of chum salmon in frozen form.

Despite significant declines in unit value (price per pound) of frozen chum and canned pink between 1997 and 2001, the overall value of Alaska pink and chum salmon grew substantially, due mostly to growth in volume and value of roe. Between 1997 and 2001, production of pink and chum salmon flesh products increased by 67 million pounds, but wholesale value grew by only \$8 million, translating to a 20 percent loss in unit value. During the same period, pink and chum

roe production grew by six million pounds (70 percent) and wholesale value tripled, from \$31 million to \$93 million. Unit value of roe products increased 77 percent.

The net result from 1997 to 2001 is no change in the aggregate ex-vessel price of pink and chum, despite a 20 percent loss in unit value of flesh products. Through 2001, growth in roe value subsidized the loss of flesh value.

## **Salmon Markets: 2002**

In 2002, unit value of the primary pink and chum flesh products continued to decline and value of roe products also declined. Although statewide harvests of pink and chum salmon were consistent with pre-season projections, harvest of both species was about 20 percent below their respective five-year averages. The combined effect of poor market conditions and reduced harvest is a dramatic drop in combined ex-vessel value of pink and chum salmon for 2002 – the first such drop in several years.

### **Chum**

Market conditions for chum salmon were difficult in 2002. The harvest season began with a substantial surplus of frozen chum in U.S. cold storage. Frozen chum holdings in June 2002 were over 13 million pounds, triple the ten-year average June holdings of four million pounds. The excess inventory contributed to low wholesale prices. Through December, FOB Seattle prices for frozen chum remain at very low levels, ranging from 25 to 60 cents per pound depending on grade.

Roe has provided half of chum salmon wholesale value during recent years, buoyed by peak prices in 2000 (\$11.00/pound) and fairly strong prices in 2001 (\$8.85/pound). The market appears to have cooled. The May-August 2002 ASPR reports wholesale chum roe prices at an average \$7.24 per pound, consistent with wholesale prices of 1999. Sales volume figures from the May-August ASPR indicate two-thirds of the likely production volume of chum roe was sold at that price level.

The outlook for chum markets is fair. While whole farmed salmon is not a direct competitor with frozen chum, farmed salmon pricing functions as a ceiling for frozen chum prices. Absent a large, sustained reduction in supply of whole farmed salmon (which is unlikely) significant improvement in frozen chum prices is not anticipated.

The roe market for Alaska chum depends on performance of the fall chum fishery in Japan, by far the largest in the world. That fishery concludes in November. Alaska chum roe prices fell in 2002 when Japan's 2001 fall fishery exceeded projection by over 10 million fish. Japan's 2002 fall chum harvest appears to be slightly under projection, probably a contributing factor to a recent minor increase in Alaska chum roe prices. The harvest projection for the 2003 fall chum fishery in Japan is not yet known.

## **Pink**

Pink salmon markets were depressed in 2002. The average 48-tall wholesale case price was in the \$37-\$39 range from January through August 2002, the lowest point in recent memory. Canned pink sales volume is strong, likely stimulated by bargain wholesale prices. The market remains depressed as a result of cumulative surplus inventory. September 2002 carryover inventory is estimated at approximately 1.3 million 48-tall case equivalent. While this is not substantially higher than the 1.1 million-case carryovers of the previous two years, it represents a persistent carryover situation that continues to erode wholesale values.

Pink salmon roe accounts for approximately 20 percent of species wholesale value in recent years. The wholesale price per pound for pink roe dropped from \$5 per pound in 2001 to approximately \$3.80 per pound during May-August 2002. Sales volume figures from that period indicate only about half the anticipated 2002 production was sold at that price. With a significant volume unsold, there is potential for the overall 2002 pink roe price to rebound if the balance of inventory is sold at improved prices.

The outlook for pink salmon markets is uncertain. Japan market analysts cite growth in the restaurant categories that create demand for pink salmon roe, so pink roe prices may rebound. However, the majority of pink salmon wholesale value is from sales of canned salmon. Without a reduction of carryover inventory, the surplus situation and depressed market conditions will most likely persist. Consumption of canned pink remains strong, so a large-scale surplus reduction purchase by USDA or a substantially reduced pack in 2003 would restore market balance and improve case prices for canned pinks.

## **Sockeye**

The season-average ex-vessel price for Prince William Sound sockeye remained well above the statewide average in 2002, and for the third consecutive year was the only regional sockeye fishery to exceed \$1 per pound. Average price in Prince William Sound was \$1.01 per pound, 84 percent higher than the statewide average of \$.55 per pound.

The market outlook for sockeye is generally positive. The statewide 2002 harvest of 22 million sockeye was the smallest since 1978. This resulted in a major decline of surplus canned sockeye inventory and a rapid conclusion to sales of frozen sockeye.

Canned sockeye case prices are rising in response to the reduced supply. As of September 2002 inventory of canned sockeye was 772,000 48-tall case equivalent, the lowest in five years. September inventory had not fallen below 1.2 million cases in the previous three years. There is a corresponding case price increase in the May-August 2002 ASPR, up by more than \$5 per 48-can case from January –April 2002.

The commodity value of frozen red-fleshed salmon in Japan has increased substantially, indicated by a 45 percent increase in the Tsukiji market price for Chilean coho during second half of 2002. However, frozen sockeye prices in Japan

have increased only slightly in recent months. This is likely a function of little “uncommitted” sockeye being available in that market. Most sockeye exports and sales were concluded by August of 2002, so there was little, if any, frozen sockeye available when the price of Chilean coho began to rise in late August.

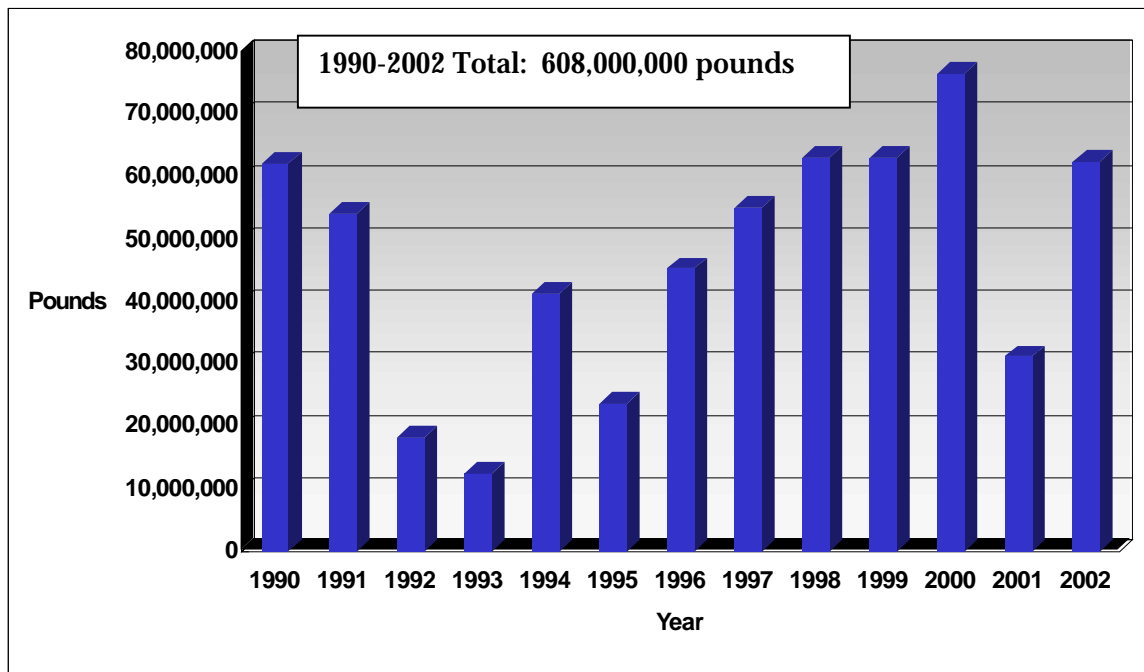
The May-August 2002 ASPR reports sales volume of frozen sockeye at 18,200 metric tons (mt), compared to 19,300 mt of U.S. frozen sockeye exports during the same period. Since the ASPR tallies volume only when sales are made outside processors’ affiliate network, this means 94 percent of frozen sockeye exports that left the country during the prime export period had already been sold by the end of August. Only about 1,000 additional mt of frozen sockeye was exported during September - October 2002.

# COMMERCIAL HARVEST OF PWSAC SALMON

## Commercial Harvest and Ex-Vessel Value

From 1990 to 2002, commercial fishermen harvested more than half a billion pounds of PWSAC salmon in common property fisheries, an average of 47 million pounds annually (Figure 1). The 2002 harvest of more than 60 million pounds was double the 2001 harvest.

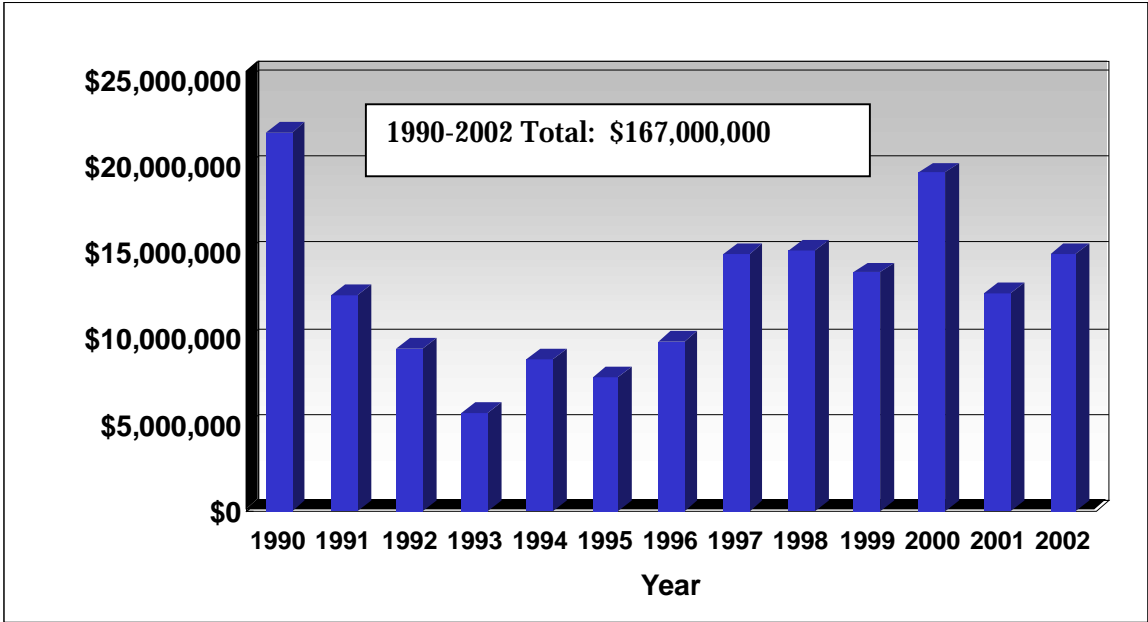
**Figure 1**  
**Total Pounds of PWSAC Salmon Harvested in**  
**Common Property Commercial Fisheries, 1990-2002**



Source: ADFG and McDowell Group estimates. 2002 data is preliminary.

Commercial fishermen earned an estimated \$167 million in ex-vessel value from PWSAC salmon in common property fisheries from 1990-2002, an average of \$13 million annually. The nearly \$15 million earned in 2002 marked the sixth consecutive year of earnings exceeding \$12 million (Figure 2).

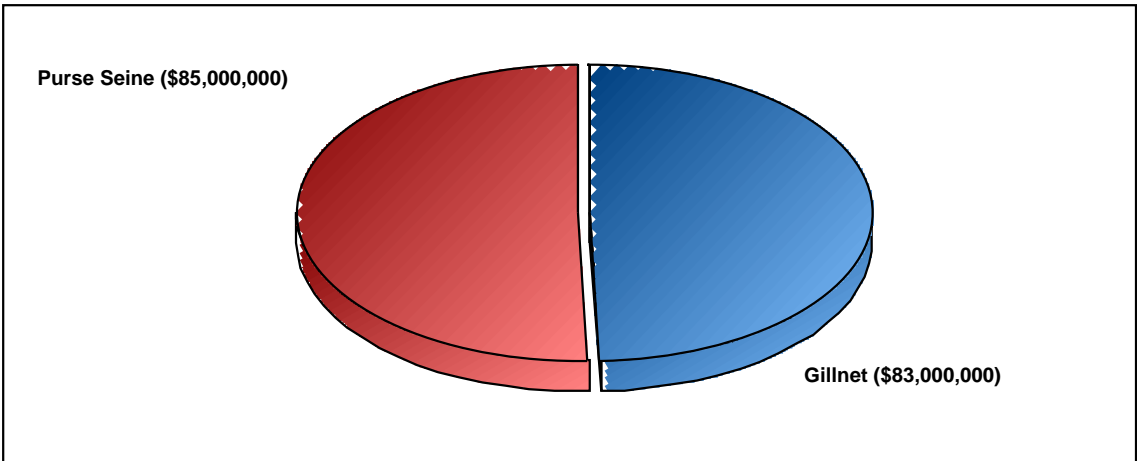
**Figure 2**  
**Ex-Vessel Value of Common Property Commercial Harvest of PWSAC Salmon, 1990-2002**



Source: ADFG and McDowell Group estimates. 2002 data is preliminary.

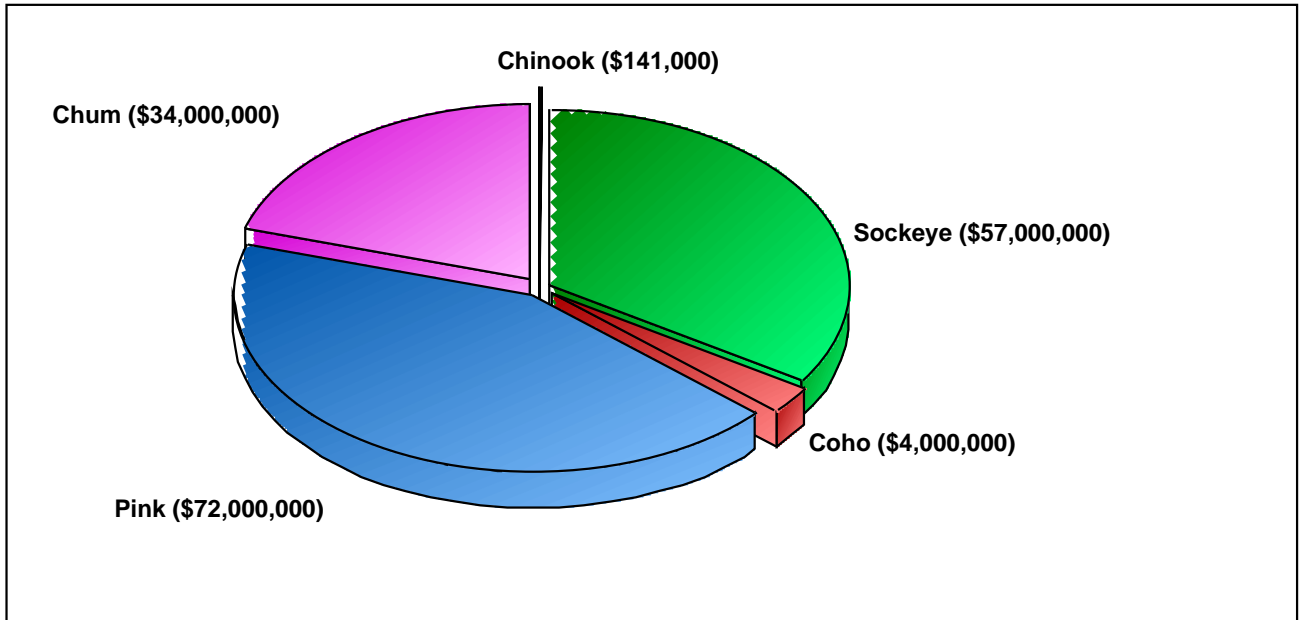
PWSAC salmon ex-vessel value totaled \$85 million to the purse seine fleet and \$83 million to the gillnet fleet between 1990-2002 (Figure 3). Pink salmon accounted for most of the ex-vessel value (\$72 million), followed by sockeye (\$57 million), chum (\$34 million), coho (\$4 million) and chinook (\$141,000, Figure 4).

**Figure 3**  
**Ex-Vessel Value of PWSAC Salmon by Gear, 1990-2002 Total**



Source: ADFG and McDowell Group estimates.

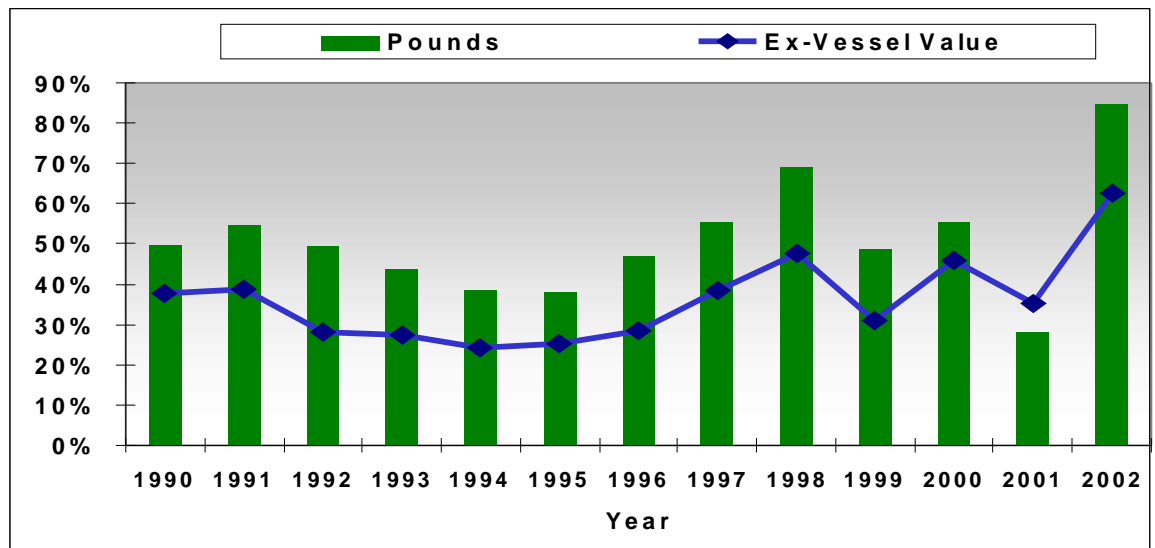
**Figure 4**  
**Ex-Vessel Value of PWSAC Salmon**  
**by Species, 1990-2002 Total**



Source: ADFG and McDowell Group estimates.

PWSAC salmon production is of major importance to Prince William Sound fisheries. Since 1990, PWSAC salmon have accounted for an average of 36 percent of ex-vessel value and 51 percent of volume (Figure 5). PWSAC salmon accounted for a record 85 percent of volume and 63 percent of harvest value in Prince William Sound in 2002.

**Figure 5**  
**Ex-Vessel Value and Harvest of PWSAC Salmon as a Percent of**  
**the Prince William Sound Commercial Salmon Harvest, 1990-2002**



Source: ADFG and McDowell Group estimates.

## Geographic Distribution of PWSAC Commercial Harvest Value

Alaska residents harvested about 72 percent of the ex-vessel value of PWSAC salmon in 2002, with non-Alaska residents harvesting the remainder. The Alaska resident harvest is widely distributed. Residents from about 30 towns harvested an estimated \$10.8 million in ex-vessel value from PWSAC fish in 2002. Cordova residents accounted for an estimated 56 percent of the PWSAC harvest by Alaska residents (\$6 million), followed by residents of Homer (14 percent, \$1.5 million), Anchorage (9 percent, \$681,000), Wasilla (4 percent, \$398,000) and Valdez (3 percent, \$294,000, Table 2).

**Table 2**  
**Geographic Distribution of Ex-vessel Earnings by Fishermen's Place of Residence, PWSAC Commercial Harvest, 2000-2002**

Community	2000	2001	2002
Cordova	\$8,118,000	\$5,179,000	\$6,063,000
Homer	1,996,000	1,322,000	1,548,000
Anchorage	846,000	582,000	681,000
Wasilla	556,000	340,000	398,000
Valdez	797,000	251,000	294,000
Seward	392,000	216,000	253,000
Palmer	197,000	138,000	162,000
Eagle River Area	115,000	131,000	153,000
Soldotna	200,000	124,000	145,000
Girdwood Area	209,000	119,000	139,000
Kasilof	211,000	119,000	139,000
Anchor Point		114,000	133,000
Kodiak Island	46,000	72,000	84,000
Juneau	48,000	49,000	57,000
Kenai	17,000	40,000	47,000
Ninilchik	50,000	37,000	43,000
Chitina	33,000	33,000	39,000
Copper Center	33,000	33,000	39,000
Fairbanks	32,000	33,000	39,000
Nikiski	33,000	33,000	39,000
Nikolaevsk	33,000		
Tatitlek	50,000	33,000	39,000
Whittier	17,000	33,000	39,000
Chenega, Chenga Bay and Icy Bay	34,000	16,000	19,000
Circle City	17,000	16,000	19,000
Delta Junction		16,000	19,000
Dutch Harbor	17,000	16,000	19,000
Fritz Creek	17,000	16,000	19,000
Glennallen	15,000	16,000	19,000
Sitka		16,000	19,000
Sand Point	17,000	16,000	19,000
Talkeetna	17,000		
Willow		16,000	19,000
Grand Total	\$15,000,00	\$9,200,000	\$10,700,000

Source: CFEC and McDowell Group estimates based on fishery averages.

The estimated economic impacts from Alaska resident PWSAC-related ex-vessel income of \$10.7 million were \$12.9 million in total output, including \$4.3 million in labor income and 185 jobs. The economic impacts of non-Alaskan PWSAC-related commercial fishing ex-vessel income of \$4.2 million were an estimated \$6.7 million in total output, including \$2.3 million in labor income and 85 jobs. All combined, ex-vessel earnings of \$14.9 million resulted in \$19.6 million in total output, including \$6.6 million in labor income and 270 jobs (Table 3).

**Table 3**  
**Economic Output, Jobs and Payroll from**  
**the Commercial Harvest of PWSAC salmon, 2002**

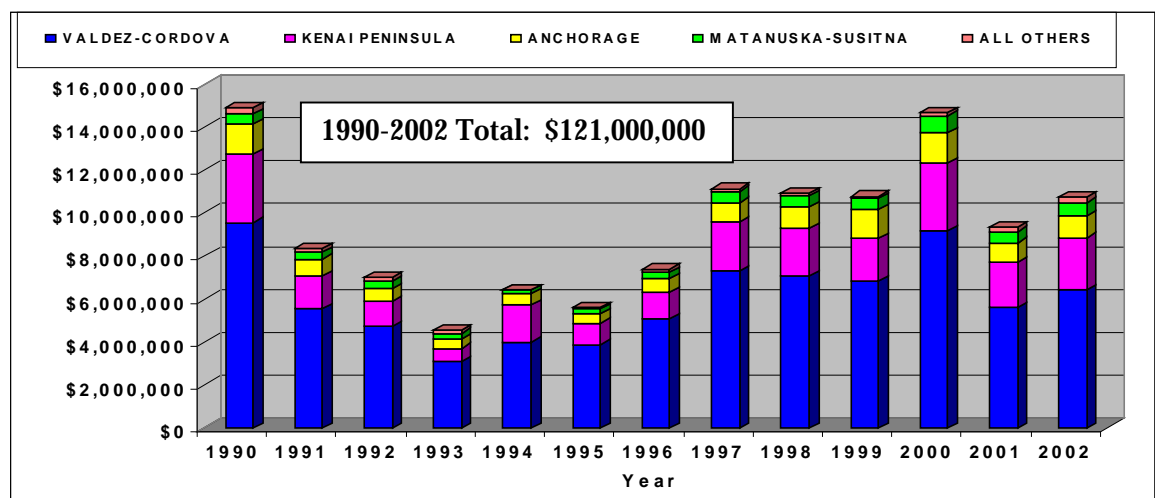
Sector	Ex-Vessel Income	Economic Output	Jobs	Payroll
Alaska Resident	\$10,700,000	\$12,900,000	185	\$4,300,000
Non-Alaska Resident	4,200,000	6,700,000	85	2,260,000
Total	\$14,900,000	\$19,600,000	270	\$6,560,000

Source: CFEC and McDowell Group estimates.

### Regional Economic Impacts of PWSAC Commercial Salmon Harvest, 1990-2002 Total

- § Fishermen from the Valdez-Cordova area harvested a total of \$78 million worth of PWSAC salmon from 1990-2002, for an average of \$6 million per year.
- § Kenai Peninsula fishermen earned a total of \$25 million, for an annual average of \$2 million.
- § Anchorage fishermen earned a total of \$11 million, for an annual average of \$880,000.
- § Matanuska-Susitna fishermen earned a total of \$6 million for an annual average of nearly \$430,000 (Figure 6).

**Figure 6. Ex-vessel Income from PWSAC Salmon by Alaska-Resident Permit Holder, 1990 – 2002**



Source: CFEC and McDowell Group estimates.

- § PWSAC salmon contributed \$6.4 million to Valdez-Cordova commercial permit holder ex-vessel income in 2002, resulting in an estimated economic output of \$7.6 million, including 80 jobs and \$2.4 million in payroll.
- § Kenai Peninsula permit holders earned \$2.4 million in ex-vessel value from PWSAC salmon in 2002, resulting in \$3.0 million in economic output, including 40 jobs and \$900,000 in payroll.
- § Anchorage permit holders earned \$1 million in ex-vessel value from PWSAC salmon in 2002, resulting in \$1.4 million in economic output, including 50 jobs and \$700,000 in payroll.
- § Matanuska-Susitna permit holders earned \$600,000 in ex-vessel value from PWSAC salmon in 2002, resulting in \$775,000 in economic output, including 10 jobs and \$230,000 in payroll.
- § Permit holders from the remainder of the state grossed \$250,000 from PWSAC salmon in 2002, resulting in \$288,000 in economic output, including 5 jobs and \$100,000 in payroll (Table 4).

**Table 4**  
**Economic Output, Including Jobs and Payroll, from**  
**Commercial Ex-Vessel Value of PWSAC Salmon, 2002**

Census Area	2002 Ex-Vessel Income	Economic Output	Jobs	Payroll
Valdez-Cordova	\$6,400,000	\$7,600,000	80	\$2,400,000
Kenai Peninsula	2,400,000	3,000,000	40	900,000
Anchorage	1,000,000	1,400,000	50	700,000
Matanuska-Susitna	600,000	775,000	10	230,000
Remainder of Alaska	250,000	288,000	5	100,000
Total (rounded):	\$10,700,000	\$13,100,000	185	\$4,300,000

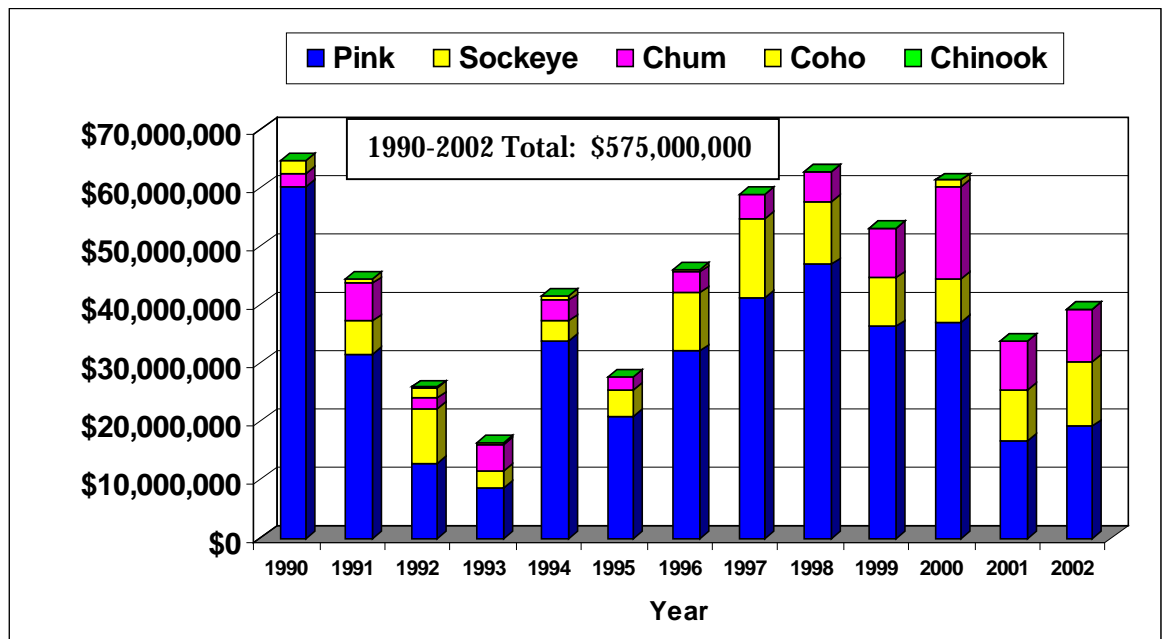
Source: CFEC and McDowell Group estimates.

# ECONOMIC IMPACTS OF SEAFOOD PROCESSORS

The commercial harvest of PWSAC salmon generates significant benefits for Southcentral Alaska's seafood processors, as indicated by the first wholesale value (i.e., the first income a processor receives for selling its product). From 1990 to 2002, the total first wholesale value of PWSAC salmon and roe harvested in commercial and cost-recovery fisheries was over half a billion dollars, with an annual average value of about \$45 million. By species (including roe), pink salmon earned the largest share of wholesale value (69 percent), followed by sockeye (17 percent), chum (13 percent), coho (1 percent), and chinook (less than 1 percent).

From 1997 to 2000, total first wholesale value of PWSAC salmon exceeded \$50 million annually, but fell below \$40 million in 2001 and 2002 due to lower pink salmon returns (Figure 7). The 2002 preliminary wholesale value for PWSAC salmon of \$39 million generated an estimated \$45 million in total output, including \$12 million in payroll and 445 jobs.

**Figure 7**  
**First Wholesale Value of PWSAC Salmon, Including Roe,**  
**by Species, 1990-2002**

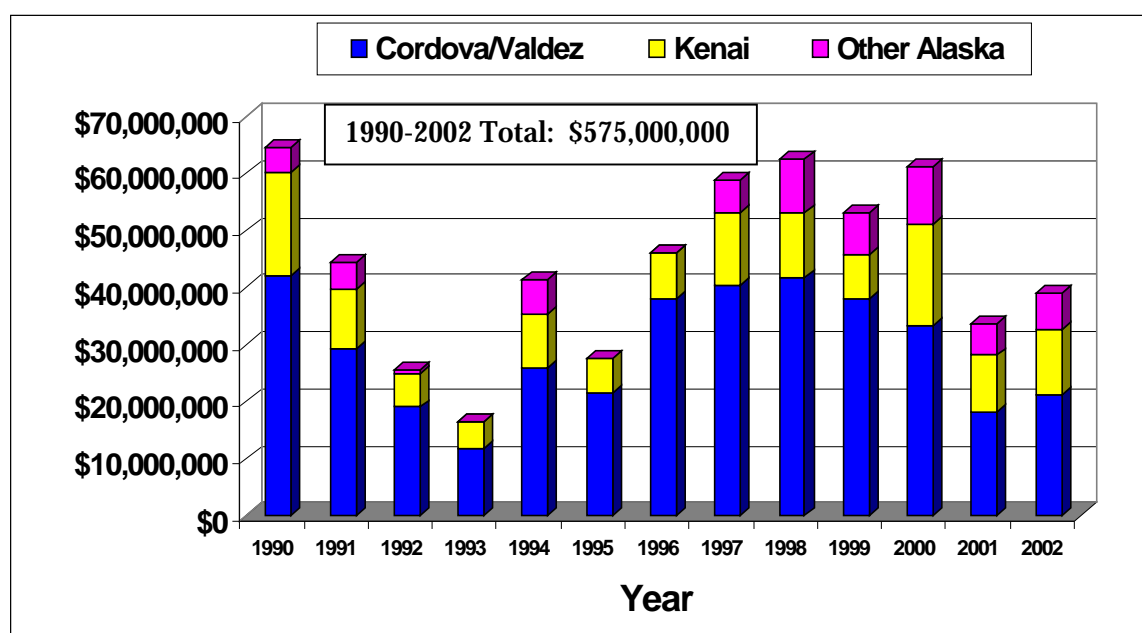


Source: ADFG and McDowell Group estimates.

## Regional Impacts of PWSAC Salmon Seafood Processing

PWSAC salmon are distributed among at least 20 different Alaska processors. Processors were grouped by geographic area to estimate regional impacts. Most PWSAC wholesale value is realized in the Cordova/Valdez area, followed by the Kenai Peninsula, and other areas of Alaska. From 1990 to 2002, first wholesale value for Cordova/Valdez area processors was about \$380 million, followed by \$130 million to Kenai processors, and \$60 million to processors elsewhere in the state (Figure 8).

**Figure 8**  
**First Wholesale Value of PWSAC Salmon and Roe by Processor Region, 1990-2002**



Source: ADFG and McDowell Group estimates.

In 2002, total first wholesale value of PWSAC salmon to Alaska processors was an estimated \$39 million, including \$21 million to Cordova/Valdez processors, \$11 million to Kenai processors, and \$6 million to processors elsewhere in the state. Processing of PWSAC fish generated an estimated 225 jobs in Cordova/Valdez, 145 jobs on the Kenai Peninsula, and 75 jobs elsewhere in the state (Table 5).

**Table 5**  
**Economic Output, Including Jobs and Payroll, from Processing of the Commercial Harvest of PWSAC salmon, 2002**

Region	First Wholesale Value	Economic Output	Jobs	Payroll
Cordova/Valdez	\$21,300,000	\$24,500,000	225	\$6,800,000
Kenai Peninsula	11,500,000	12,800,000	145	3,200,000
Other Alaska Towns	6,400,000	7,700,000	75	2,200,000
Total (rounded)	\$39,000,000	\$45,000,000	445	\$12,000,000

Source: ADFG and McDowell Group estimates.

## **PERSONAL USE AND SUBSISTENCE FISHERIES**

PWSAC salmon play an important role for Alaskans who travel from across the state to participate in the Copper River dipnet and fishwheel personal use and subsistence fisheries. Alaskans from about 140 towns harvested 171,000 PWSAC sockeye from 1995 to 2001. 2002 is not yet available. Ranked by harvest, the top communities are Anchorage, Fairbanks, Wasilla, North Pole, Copper Center, Glennallen, Palmer, Eagle River, Gakona, and Valdez (Table 6).

Dipnetters traveling to Chitina have an important economic impact on businesses all along travel routes. In 2001, estimated travel expenditures (food and fuel) by dipnetters associated with the harvest of PWSAC fish created an estimated \$128,000 in total economic output, including \$53,000 in payroll and 4 jobs.

**Table 6**  
**PWSAC Sockeye Harvest by Fishermen's Place of Residence,**  
**Copper River Personal Use and Subsistence Fishery, 1995-2001**

City	Year							Grand Total
	1995	1996	1997	1998	1999	2000 <sup>1</sup>	2001	
Adak				5				5
Anaktuvuk Pass		6	3					9
Anchor Point	1	4	1	17	7	7	9	46
Anchorage	1,212	4,750	5,506	7,609	9,388	4,896	5,071	38,432
Anderson	6	28	11	85	19	72	35	254
Annette		3						3
Atkasuk			2		4			5
Auke Bay		2	12				2	16
Barrow	6	30	43	51	76	25	35	264
Bethel			5	3			2	10
Bettles					6			6
Bettles Field		2						2
Big Lake	31	72	92	199	219	84	133	831
Birch Creek		1						1
Bird Creek			1	2	9	2		15
Buckland						1		1
Cantwell	1	15	32		46	19	25	137
Central	1	8	8	24	9	30	6	85
Chevak				5	2			7
Chickaloon	0	8	14	44	171	38	37	314
Chicken				6			6	12
Chistochina			21		5			26
Chitina	97	244	289	291	340	179	188	1,628
Chugiak	116	495	445	509	681	406	392	3,043
Circle		2	5					7
Clear	12	62	43	18	28	13	27	202
College	7	24	11	14	26	1	3	86
Cooper Landing	1	5	3	8	25	28	18	89
Copper Center	496	1,509	1,287	1,862	2,209	1,253	1,255	9,872
Copperville					64			64
Cordova	2	4			3	9	49	67
Dead Horse		1				2		3
Delta	251	860	739	1,038	1,288	762	674	5,612
Denali	3	16	37	33	27	18	14	149
Dillingham		2						2
Dot Lake		7	5	16	10	8	12	59
Douglas		1	3	5				9
Dutch Harbor				3	3			6

**Table 6, continued**  
**PWSAC Sockeye Harvest by Place of Residence,**  
**Copper River Personal Use and Subsistence Fishery, 1995-2001**

City	Year							Grand Total
	1995	1996	1997	1998	1999	2000	2001	
Eagle		4		3	5			13
Eagle River	218	841	1,174	1,706	2,352	868	1,149	8,309
Eielson	159	571	540	531	606	402	264	3,073
Eklutna		2						2
Elmendorf AFB	33	95	80	166	103	70	73	620
Ester	27	102	94	120	176	92	104	715
Fairbanks	1,068	4,648	4,266	6,082	7,333	4,614	3,829	31,840
Fort Richardson	10	31	81	107	72	50	53	404
Fort Yukon		2					3	5
Fox		1			33			35
Fritz Creek		2						2
Ft Greely	2	2	5	11	2	6		28
Ft Wainwright	49	261	237	357	390	190	151	1,634
Gakona	254	806	835	1,023	834	888	768	5,408
Gambell				1				1
Girdwood	7	28	37	52	101	54	44	323
Glennallen	425	1,572	1,378	1,715	2,254	1,100	944	9,390
Grayling						3		3
Gulkana		4			2			6
Haines		3						3
Healy	21	89	98	123	117	75	90	614
Holy Cross			1	5			3	9
Homer	5	14	55	77	69	32	22	273
Hooper Bay	1							1
Hope	1	5	2		12	2	2	24
Houston	5	29	17	38	43	19	36	189
Hughes			2		1			4
Indian		0	3	7	5	10	11	36
Juneau	5	11	9	22	45	11	17	120
Kaktovik			1			1		2
Kasilof	5	35	9	6	3	2		60
Kenai	2	9	7	30	30	21	7	106
Kenny Lake		16		27				42
Ketchikan		1	2	3	3			9
Kodiak	0		2	2	6	10	15	35
Kotzebue	5	4	23	5	4		1	43
Lake Minchumina				8			2	10
Manley Hot Springs	1	5		4	5	5		20
Mccarthy	1	21	6	19	38	1	1	88
McKinley Park			2		3			5
Mentasta Lake			46	101				147
Mentasta Village					11			11
Minto	1						4	5
Moose Creek	1					4		5
Moose Pass	2	26	13	4	8		3	56
Nabesna			3			3		6
Naknek	1							1
Nenana	10	54	51	47	66	25	64	316
New Stuyahok					5			5
Nikiski	1		5	5				12
Nikolaevsk						3	2	5
Ninilchik	1		15	2	17	19	15	70
Nome	1		3	18	10	7	7	44
Noorvik			3					3
North Pole	365	1,565	1,456	1,930	2,312	1,287	1,243	10,157
Northway	28	36	42	15	150	40	29	340
Palmer	220	987	1,128	1,778	2,221	1,209	1,211	8,754
Paxson	3	39	23	19	14	7	7	111
Peters Creek		4			4	4		12
Petersburg			3					3

**Table 6, continued**  
**PWSAC Sockeye Harvest by Place of Residence,**  
**Copper River Personal Use and Subsistence Fishery, 1995-2001**

City	Year							Grand Total
	1995	1996	1997	1998	1999	2000	2001	
Pilot Station	1		1					2
Point Lay							3	3
Point Hope	1		3			5		10
Port Graham		1						1
Salcha	29	123	137	193	223	101	89	895
Sand Point				2				2
Scammon Bay	1							1
Selawik					9	2		11
Seldovia				5				5
Seward	9	24	26	21	35	17	12	143
Shishmaref							2	2
Sitka	1	5	1	11	12			29
Skagway			23	5		4		31
Slana	78	234	161	175	190	107	138	1,082
Soldotna	4	26	24	30	53	30	33	200
St Paul				2	14			16
Sterling		19	11	17	6	5		58
Sutton	11	27	104	136	163	49	50	539
Talkeetna	2	21	30	55	83	42	66	299
Tanacross			7		1	2	6	15
Tanana					5	4		9
Tatitlek				2		1		4
Tazlina						11	6	17
Tok	108	484	652	702	736	448	367	3,498
Trapper Creek	3	4	8	12	30		2	59
Two Rivers	11	31	25	61	61	32	55	275
Unalakleet	1							1
Valdez	211	604	632	1,146	1,182	769	744	5,288
Wainwright			2	5			3	10
Ward Cove				5	5		1	11
Wasilla	328	1,303	1,718	2,435	3,246	2,045	1,853	12,928
Whittier	1			3				4
Willow	14	59	96	125	164	121	75	654
Wrangell	3	2				4		9
Grand Total (Rounded)	6,000	23,000	24,000	33,000	40,000	23,000	22,000	171,000

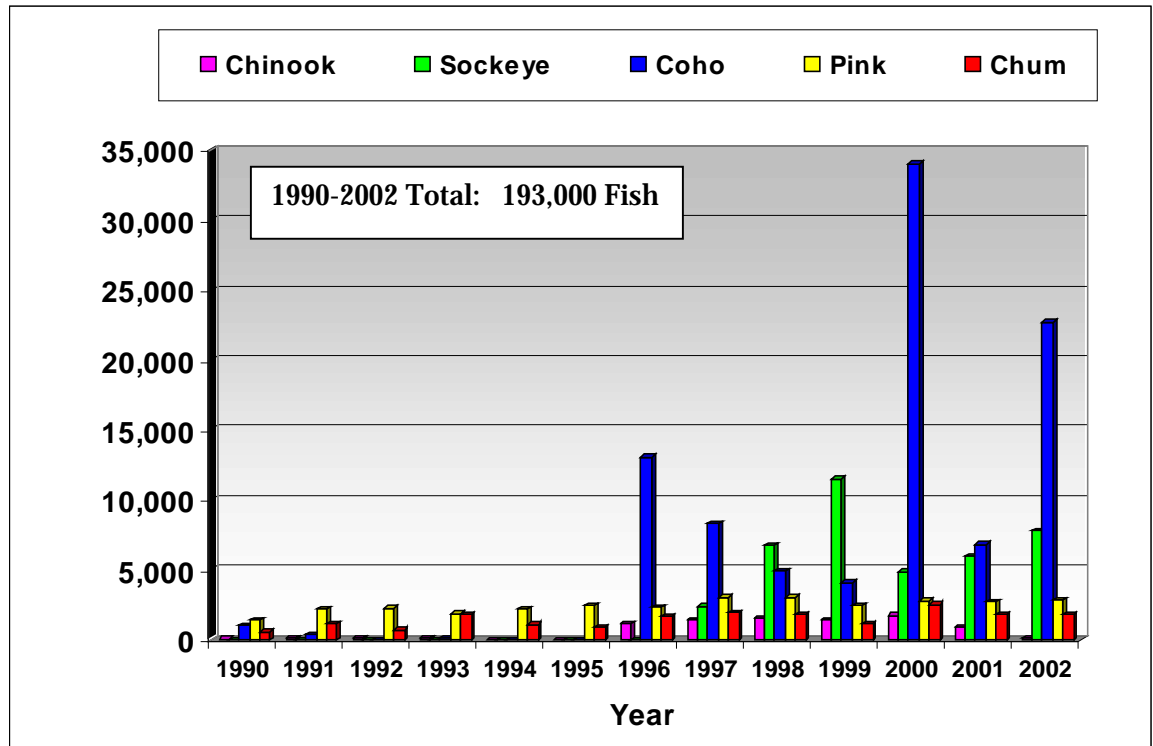
Source: ADFG.

1. Reporting requirements were changed in 2000. Prior to 2000, a punch card to record each salmon harvested was required to be turned into ADFG following each trip. In 2000, harvesters recorded the date and number of fish on a form, and did not have to submit the form until the end of the season.

## Recreational Harvest of PWSAC Salmon

PWSAC salmon play an important role in the Prince William Sound sport fisheries, contributing 193,000 fish to the sport fishery from 1991-2002 (Figure 9). Coho salmon comprised 49 percent of the PWSAC salmon harvest by number, followed by sockeye (20 percent), pink salmon (16 percent), chum salmon (10 percent) and chinook (4 percent). The 2002 all-species harvest of 35,000 fish generated estimated economic impacts of \$470,000 in total economic output, including \$190,000 in payroll and 13 jobs.

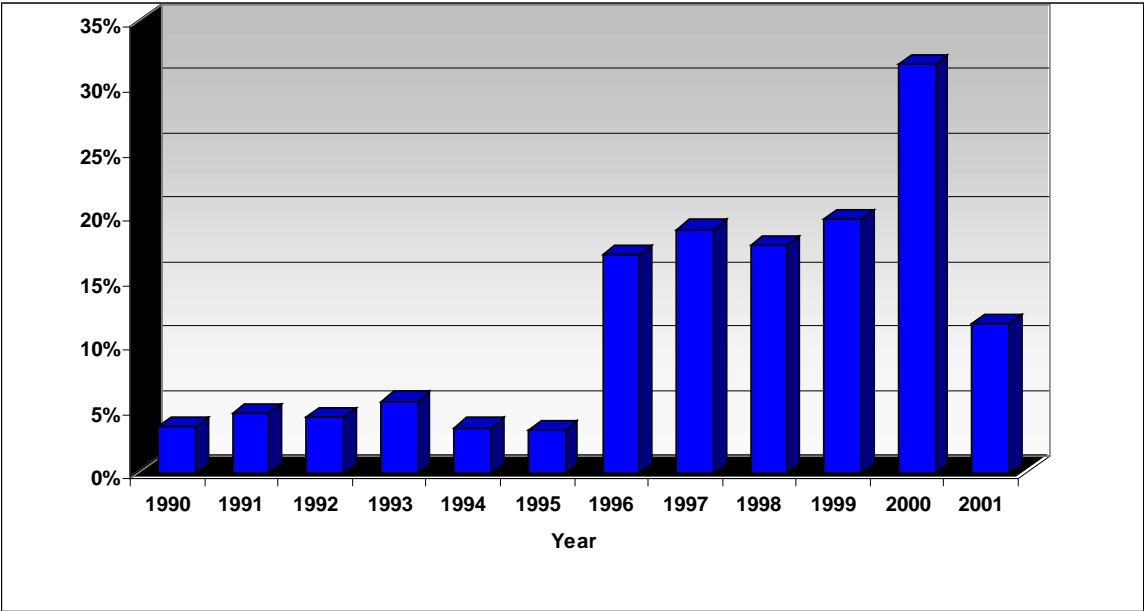
**Figure 9**  
**Recreational Harvest of PWSAC Salmon, 1990-2002**



Source: ADFG and McDowell Group estimates.

The PWSAC salmon sport harvest is spread over a wide area, including the entire Prince William Sound area and the Gulkana River of the Copper River drainage. PWSAC contributions to the sport fishery in the region increased in importance from 4 percent of the total harvest in 1990 to 32 percent in 2000 (Figure 10). From 1997 to 2001, PSWAC fish accounted for an average of about 86 percent of the chum harvest, 66 percent of the chinook harvest, 55 percent of the sockeye harvest, 16 percent of the coho harvest, and 8 percent of the pink salmon harvest in the region.

**Figure 10**  
**PWSAC Contribution to the Prince William Sound and Gulkana River Sport Salmon Fishery, 1990-2001**



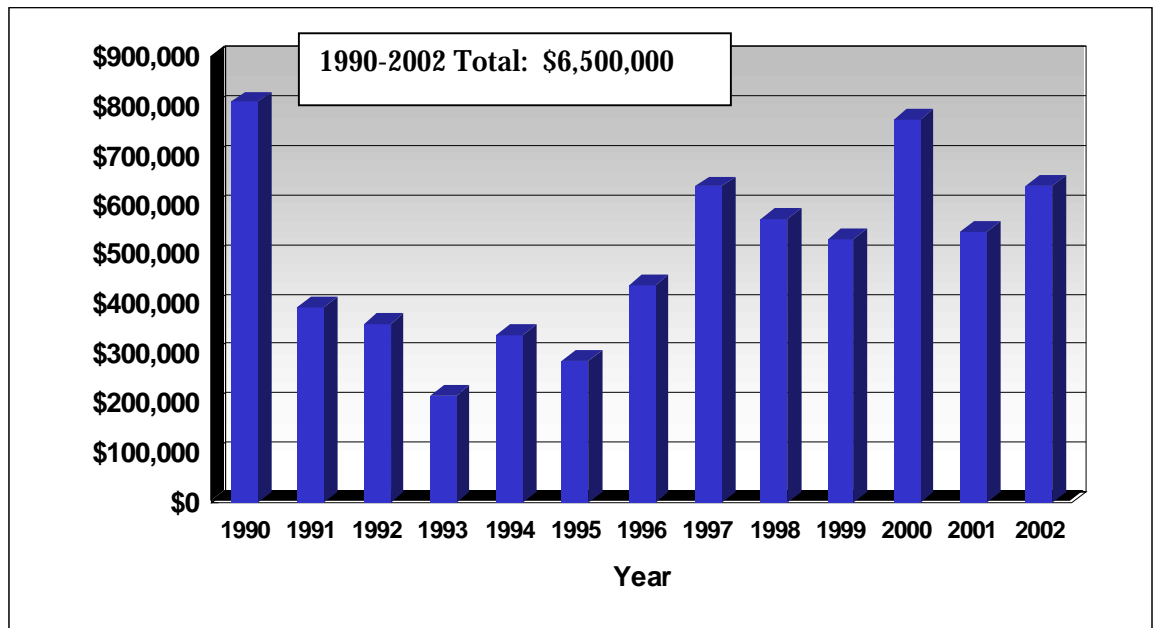
Source: ADFG and McDowell Group estimates.

# SALMON ENHANCEMENT AND FISHERIES BUSINESS TAX

As with all salmon commercially harvested and processed in Prince William Sound, PWSAC salmon are subject to a three percent State of Alaska Fisheries Business Tax, which is deposited into the state's General Fund.

From 1990-2002, Prince William Sound commercial salmon fishermen paid an estimated \$21 million in total fisheries business tax. The tax on PWSAC salmon accounted for about \$6.5 million of this total value, including fisheries business taxes paid on PWSAC cost recovery fish (Figure 11).

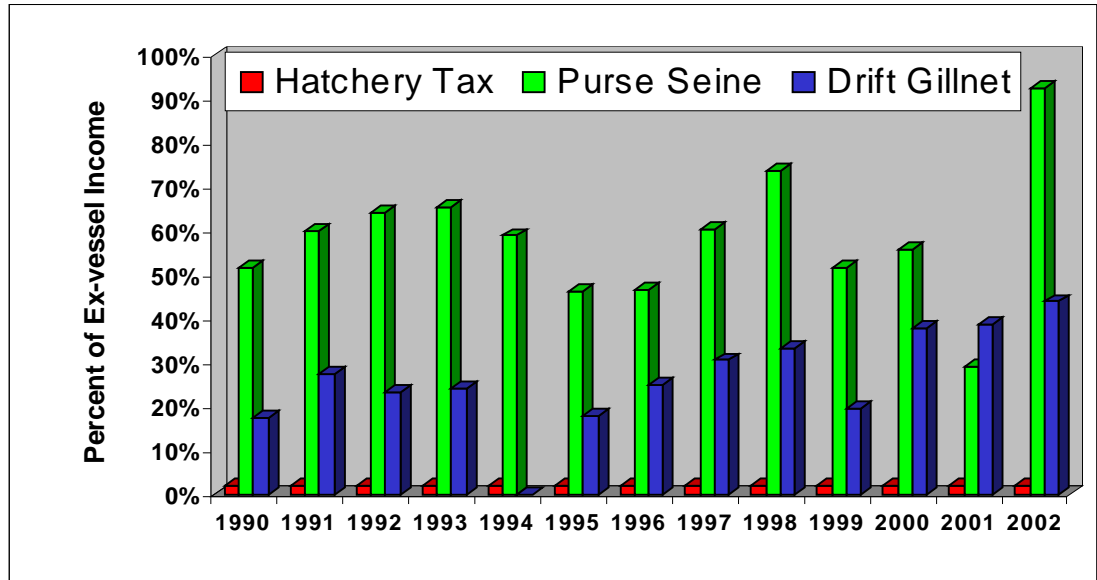
**Figure 11**  
**State Fisheries Business Taxes Paid on PWSAC Fish, 1990-2002**



Source: ADFG and McDowell Group estimates.

Commercial fishermen fishing in Prince William Sound also pay a two percent Salmon Enhancement Tax to fund PWSAC operations. The return on this investment is substantial. In 2002, purse seiners derived more than 90 percent and gill netters nearly half of their incomes from PWSAC fish (Figure 12).

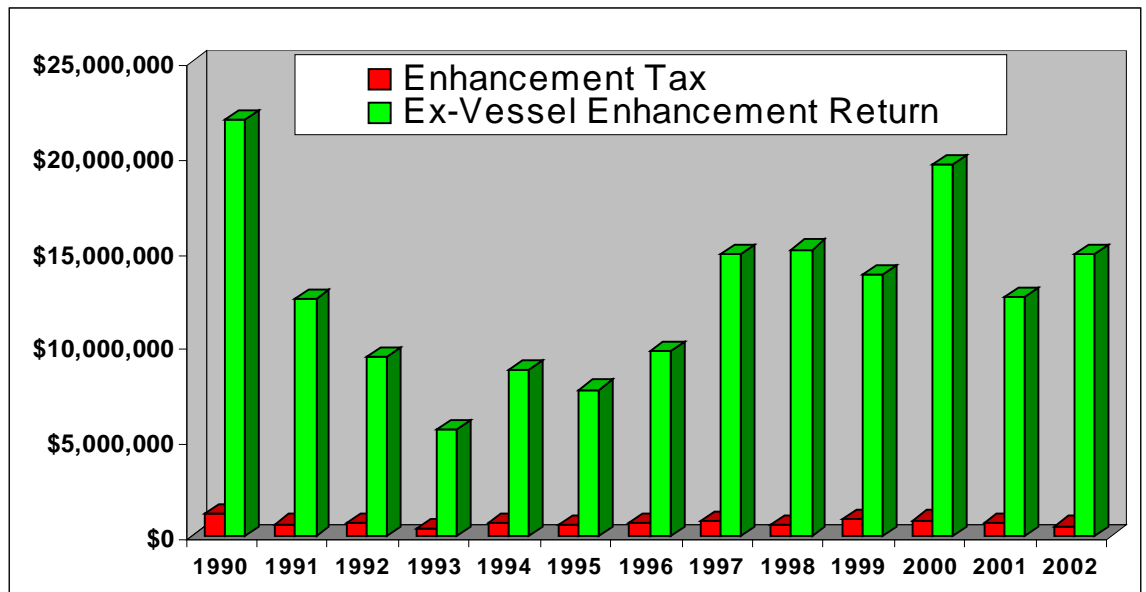
**Figure 12**  
**Percent of Ex-vessel Value Paid by Commercial Fishermen for PWSAC Salmon Enhancement, and Percent of Ex-vessel Value from PWSAC Fish, 1990-2002**



Source: ADFG and McDowell Group estimates.

From 1990 to 2002, commercial fishermen contributed \$9 million in enhancement taxes in support of PWSAC. Over the same period, PWSAC fish contributed \$167 million in ex-vessel value to the commercial fishery, a return to fishermen of \$18 for every \$1 of tax paid (Figure 13).

**Figure 13**  
**Salmon Enhancement and Business Taxes Paid on PWSAC Fish, 1990-2002**



Source: ADFG and McDowell Group estimates.

## **IMPACTS OF PWSAC BUSINESS EXPENSES**

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The PWSAC organization has substantial impacts on the regional economy. PWSAC directly creates 67 full-time equivalent jobs. Payroll and regional operating expenses totaled nearly \$4.8 million in fiscal year 2001, with out-of-state spending for fish feed, employee health insurance and miscellaneous equipment of about \$1.3 million.

In calendar year 2001, PWSAC spending was spread out among seventeen Alaska communities, with purchasing the highest in Anchorage, Girdwood, Fairbanks, Cordova, and Whittier (Table 7).

**Table 7**  
**PWSAC Spending by Community, 2001**

City	Purchases and Vessel Charter Cost Recovery
Anchorage	\$1,100,000
Girdwood	585,000
Fairbanks	294,000
Cordova	222,000
Whittier	136,000
Juneau	74,000
Glennallen	39,000
Eagle River	22,000
Seward	22,000
Kenai	4,000
Sterling	1,300
Palmer	1,200
Bird Creek	900
Delta Junction	900
Nikiski	600
Kasilof	400
Homer	400
Total	\$2,760,000

Source: PWSAC and McDowell Group estimates.

Out of state economic impacts from PWSAC expenses generated a total output of \$3.4 million, including 38 jobs and annual payroll of \$928,000 in fiscal year 2001. Economic impacts to Alaska from PWSAC employment and expenses generated a total output of \$8 million, including 130 jobs and annual payroll of \$4.3 million. Economic impacts of PWSAC operations totaled an estimated \$11.5 million in total output, including 168 jobs and \$5.2 million in payroll.