

A Social Snapshot of the Columbia River Gillnet Fishery

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Executive Summary

Over two thirds of the Columbia River gillnetters live in one of four counties: Grays Harbor, Pacific or Wahkiakum County in Washington State, and Clatsop County, Oregon. Their businesses comprise a Columbia River gillnet permit plus a portfolio of licenses from other locales and fisheries, ranging from Alaska to California. These permits help insulate them from fluctuations in salmon incomes from the Columbia River and are part of a rural adaptive strategy common in natural resource based communities. Fishing businesses on the Columbia may utilize a variety of locations for fishing, but the Columbia River gillnet permit anchors the business in this region. Many families trace their history on the river back several generations, and are committed to staying in the fishing industry.

The downturns in fishing seasons and incomes in the decade of the 1990s, coupled with declines in other natural resource based industries, such as timber, had a major effect on community health in the four counties. All social indicators, ranging from alcohol violations and child abuse rates to poverty levels are significantly higher than comparable state rates. The age of mortality of fishermen in Wahkiakum County is ten years lower than the national average for white males. There are higher costs associated with providing social services in these counties, including food banks, health initiatives, and educational support.

Decreased fishing incomes, due to declines in salmon runs, price fluctuations, Endangered Species Act listings and allocations of more fish to the recreational sector have contributed to community health problems, which have increased along with poverty rates. Fishing families who bring in incomes from other fisheries to an impoverished region feel under pressure to justify their emotional and financial commitment to the Columbia River and its environmental health when their incomes from that source are significantly eroded.

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The phrase “There once was a poor fisherman...” begins numerous fairy stories from countries ranging from Korea to Europe, Russia and Arabia. In each case, the fisherman finds something in his net, such as a genie in a bottle, that will bring him wealth. In most cases, he does not stop fishing; the wealth comes in the form of fish. In some cases he loses the wealth by the end of the story. I have not yet found a story that begins “There once was a rich fisherman...,” which leads me to believe that poverty, wealth and fishing communities form a complex relationship recognized the world over.

The social issues of poverty, wealth and fishing communities do not easily lend themselves to study. This problem is a national one, according to Charles Colgan, author of “The Changing Ocean and Coastal Economy of the United States: A Briefing Paper for Governors,” “...there is no nationally consistent measure of employment in the fisheries harvesting industry, and most states, even those where commercial fishing is a major industry, do not regularly count those employed in commercial fishing. All of the changes over the past decade in commercial fishing have taken place without any systematic documentation of the number of people affected.”¹ The lack of reporting of economic and social statistics is further exacerbated by a lack of attention to what kinds of statistics might be meaningful to fishing communities. Many of the social scientists working in the fisheries field have a background in anthropology. Data such as community health statistics are not commonly part of the knowledge base of the discipline of marine anthropology and tend to be overlooked in discussions of fishing communities. This paper is not the place to have a substantive discussion regarding social impact statements or assessments.² Rather, it is an attempt to point out and document some social issues that affected the Columbia River gillnet fishing community in the decade of the 1990s. Please note that the

paper addresses issues primarily related to fishermen; the problems and issues faced by buyers and processors, while deserving of attention, are omitted here.

The Pacific Fisheries Management Council (PFMC) has published a document entitled “Background: Communities,” which discusses the kinds of communities that may be associated with fisheries.

The Magnuson-Stevens Act (MSA) defines a fishing community as: “A community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community.”³

The National Marine Fisheries Service has interpreted this definition to mean that “A fishing community is a social or economic group whose members reside in a specific location,”⁴ generally a city or town. This definition does not fit the Columbia River gillnet community, which resides in small towns, villages and rural areas along the lower hundred miles of the Columbia River, or, in some cases in the Grays Harbor or Willapa Bay area, since fishermen licensed in Washington for the Columbia River are also permitted to fish either Grays Harbor or Willapa Bay. Thus, the Columbia River gillnetters make up what the PFMC calls an “occupational community,” residing in different areas but engaged in similar activities. Gilden and Smith note that of the gillnetters they surveyed in 1996, 60% percent were from families who had been fishing for two or three generations, and 17% had fished for four generations or more.⁵

The PFMC outlines some of the difficulties inherent in collecting social data regarding fishing communities, including lack of funding, the instability and complexity of the fishing industry, the fact that fishing communities may be unincorporated, or may be part of a much larger incorporated area, such as a city like Portland. All of these apply to the Columbia River gillnet

fishery. 6 Yet the gillnet fishermen of the lower Columbia River have a history of over 150 years fishing on the river, with a number of families claiming multiple generations of fishermen in their lineages. Formed in the 19th century by waves of immigration from fishing regions in the eastern U.S., Scandinavia, Finland and Mediterranean countries, they view themselves today as a community. 7 In order to develop a better picture of the social issues that affect them, it was necessary to find a way to identify the community so that relevant statistics could be obtained.

An examination of the lists of Columbia River gillnet license holders in Oregon and Washington revealed that the majority of the gillnetters live in four counties: Clatsop County in Oregon, and Pacific, Grays Harbor and Wahkiakum Counties in Washington. 8

Table 1 County of Residence

County	No. of license holders
Wahkiakum	43
Pacific	83
Grays Harbor	48
Clatsop	193

Other significant populations occur in Cowlitz County, Washington (32), Columbia County, Oregon (39) with smaller numbers occurring in other counties on the Columbia River, such as Clark and Multnomah. Scattered individuals dwell in other counties, predominantly Puget Sound or Oregon coast locales, with 9 individuals in other states, mainly Alaska. Total licenses in the two states number 539, owned almost entirely by white males.

A number of licensees hold other Oregon or Washington fisheries permits, totaling 120. It should be noted that these numbers exclude Washington non-gillnet licenses that may be held by Oregon fishermen, and Oregon non-gillnet licenses that may be held by Washington fishermen.

Table 2 Additional Licenses Held

Troll -- 38

Crab -- 47
Smelt -- 8 (Washington only; Oregon does not require a separate smelt license)
Willapa Razor Clam -- 10 (Washington licensees)
Puget Sound gillnet -- 7 (Washington licensees)
Puget Sound Crab -- 3 (Washington Licensees)
Other -- 7 (Washington licensees)

In addition, forty of the Washington licensees own two or more Washington Columbia River gillnet licenses, generally one Willapa license and one Grays Harbor. Twenty licensees hold Columbia River gillnet licenses in both Oregon and Washington. Table 2 excludes tribal, buyer, processor, bait, limited sales and retail sales licenses that may be held by fishermen, as this information proved too difficult to obtain with sufficient accuracy. The 120 licenses listed above, therefore, should be viewed as a minimum number. The complete figure for numbers of additional Washington and Oregon licenses held by Columbia River gillnetters is undoubtedly higher. The 120 permits do not represent 120 fishermen, as some licensees hold more than one non-Columbia River permit. Due to the large quantity of raw data that would need to be examined, no attempt was made to find how many California licenses are held by Columbia River licensees, although the author is aware of fishermen who own San Francisco Bay herring and/or California troll permits. There are also gillnetters who own halibut and/or black cod (sablefish) IFQs, but no attempt was made to determine this number. It is not possible to trace how many individuals own a Columbia River permit and fish under treaty rights as well, although the author knows of at least three. A final comment: it is rare to find gillnetters who are involved in commercial sport fishing activities, such as charter boating or guiding, and not possible to quantify that number.

Oregon and Washington Columbia River licensees own at least 209 Alaskan fisheries permits. These range from Bristol Bay gillnet to Kodiak seine licenses, summarized in Table 3.

Table 3 **Alaska Licenses owned by Columbia River Gillnet permittees**

Bristol Bay drift gillnet-- 86
Prince William Sound drift gillnet -- 7
Cook Inlet drift gillnet -- 31
Peninsula/Aleutians drift gillnet -- 21
Kodiak seine -- 8
Kodiak, Bristol Bay and Cook Inlet longline -- 12
Other, including crab, herring gillnet, S.E. Gillnet -- 16
Set net -- 20
Tender -- 8

These figures should all be considered as minimum numbers. Among omissions, please note that setnet records only include those with registered vessels; no attempt was made to match other set net owners with Columbia River permit holders, so that this number is a low figure. Some individuals may tender using a company boat; some may setnet under a company license, making them impossible to trace. It is not always possible to track an individual who is also incorporated as a business from one state to another, as names may change. The Alaska records do not yield results for those who own a permit at this time but not a vessel. For example, the author's Southeast Alaska drift gillnet permit does not show up in the record, since the boat was sold three years ago. At least one Columbia River gillnetter buys/processes fish from Alaska under a processor's license. There are undoubtedly others, but no attempt was made to try to trace them, again due to the difficulty in tracking fishermen's and corporate names from state to state. An examination of the Alaska licensees indicates that there are Columbia River gillnet licensees who have family members who hold set net licenses or other licenses in Alaska, based on the author's knowledge of family membership among Columbia River fishing families. These are relationships it is not possible to quantify with any accuracy, and have been omitted.

Because of the diversity of permits and, in some cases, lack of income data, it has not proven possible to gain a complete figure for income that returns to the Columbia River gillnet

permittees from all other fisheries. However, the following table, based on 2003 income figures, indicates that it is substantial. 9

Table 4 Earnings from select Alaska Fisheries by Columbia River licensees, 2003.

	Washington	Oregon
Bristol Bay gillnet	\$1,364,175	\$ 1,156,915
Prince William Sound Gillnet	\$ 167,170	\$ 84,090
Cook Inlet gillnet	\$ 189,475	\$ 258,174
Kodiak Seine	\$ 769,864	n.a.
Total	\$2,490,684	\$1,499,179

Grand Total -- \$3,989,863

Please note that setnet, tender, Southeast drift gillnet, crab, and Peninsula/Aleutian permit incomes are not included, either because they are not available, or because of data confidentiality issues. In addition, prices for Alaska salmon in 2003 were low. The \$3,989,863 represents only one year. No multiplier was assigned to the total indicated. Additionally, this number represents only salmon catches. It does not represent fish caught and/or processed in Alaska by fishermen and shipped to Washington and Oregon for sale, nor any other species such as herring, halibut or black cod that might have been targeted.

Although the statistics developed are conservative, for the reasons just outlined, the figures demonstrate that there are diverse approaches to operating a fishing business in the Columbia River area. The common thread is the possession of a Columbia River gillnet license, accompanied by at least one other license, whether in an adjacent Washington, Oregon or California fishery, or in an Alaska fishery. Diversification into buying/processing/retailing is also an option, particularly since both Oregon and Washington instituted a license to encourage direct

retail sales to the consumer during the 1990s. Value adding to one's catch by various means is also becoming more popular among fishermen.

A fishing business centered on the Columbia River relies on a portfolio of permits, from California to Alaska, that enables fishermen to turn to other arenas when Columbia River seasons are reduced and provides flexibility during periods of scarcity. The situation can be likened to any other industry, in which individual companies diversify in order to remain viable. The important point is that the incomes made in other fisheries return to the Columbia River region because there is a gillnet fishery that the license holders are committed to and because their families reside in the region.

The value of the permit portfolios varies widely, depending on which permits are held. Recent listings indicate values ranging from \$51,000 for a Prince William Sound drift gillnet permit to \$70,000 for a Bristol Bay drift gillnet permit. Halibut IFQs are listed at a high of \$20.00 per pound, dependent upon the area fished. Washington and Oregon coastal crab permits appear in the listings at \$1000 to \$1500 per foot (boat length). A Kodiak salmon seine permit sells currently for \$14,000, while a Prince William Sound salmon seine license is somewhat higher, at \$23,000. Significantly, Columbia River drift gillnet permits do not appear in the advertisements, but sell currently between \$5,000 and \$6,000. ¹⁰ The Columbia River permits anchor the commercial fishing businesses on the river, but their values have plummeted due to declining prices, declining fish runs, curtailed seasons due to salmon listings under the Endangered Species Act, and allocation of a larger share of the salmon resource to the recreational fishery.

The decade of the 1990s saw significant downturns in the amount of fish caught on the Columbia. [See Graph] Prices received for those fish also declined. While economic data exist for this period, little attention has been focussed on the social statistics that indicate what was

going on in the community during this time. This gap in knowledge is a serious one. As acknowledged by Jennifer Langdon-Pollock: “The importance of social analysis lies in the dynamic that social ties ultimately influence and organize economic behavior. It is these behaviors which are ultimately reflected in the results of economic analyses. It is also the case that not all fisheries-relevant behavior at the individual and community levels is economic behavior. Non-economic values, preferences and cultural models can have a significant influence on fishermen’s behavior and fishing communities’ reactions to management actions.”¹¹ In particular, community health statistics indicate that the 1990s downturn had an effect on the community that was not just reflected in lower incomes. While it is difficult to get data that is confined solely to the fleet, data that represent the counties in which most gillnetters live are available, and may be compared to other coastal counties and state rates.

Social determinants of community health may include lack of job opportunities, institutionalized biases, stress, educational background, economic background and opportunity, and environmental risk among other factors.¹² As poverty increases, so do many health conditions leading to death. Examining the statistics of the four main counties where over 66% of the gillnet fleet resides provides some indication of community health, not just of those counties, but of the fishing fleet itself.¹³

Grays Harbor, Pacific, Wahkiakum and Clatsop Counties all rank in the lowest per capita income field of \$14,000-\$19,600, according to the U.S. Census of 2000.¹⁴ The following indicators were chosen as best exemplifying community health: Drug and alcohol abuse rates, adolescent suicide attempt rates, child abuse rates, and mortality rates. Because gillnetters live in four counties in two states, gaining comparable data can be difficult. Data from the year 1999 were examined, as this year is the most recent for which one can obtain comparable data for both

Oregon and Washington in these categories. 1999 also comes at the end of the decade of the 1990s, after a significant period of time of fisheries losses, both in numbers of fish harvested and in prices. All the social statistics indicate significantly higher rates in the four county region in each of the categories than state rates.

Table 5 Community Health Indicators 15

1999	Wahkiakum	Pacific	G.H.	Wa. State	Clatsop County	Ore. State
Adult drunk driving Arrests (per 1000 pop.)	13.08	9.54	9.56	8.09	16.8	9.5
Alcohol violation Arrests (Age 10-17) (per 1000 pop.)	35.16	13.52	27.15	9.40	61.2	16.5
Victims in accepted Child abuse referrals	51.42	68.77	67.83	37.51	27.6	13.5
Adult drug-related Arrests (per 1000 pop.)	2.12	4.52	8.41	5.40	4.8	6.8
Drug law violation Arrests, age 10-17 (per 1000 pop.)	17.58	3.92	6.11	4.76	3.8	5.2
Adolescent Suicide Attempts (5 year rates) of successful suicides)	90.17	35.38	65.73	59.34	12.0 (Oregon - 2 year rate)	4.3

Table 6 Mortality Rates

Mortality Rates -- 1999-2001, per 100,000 population (most recent available)

	Wahkiakum	Pacific	Grays Harbor	Washington State	Clatsop	Oregon
Population	3,800	20,900	67,194	6,098,300	35,630	3,421,399

Mortality rate	911.5	927.5	1,009.0	806.9	1,063.7	889.4
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In all four counties, the mortality rate was considerably higher than the state rate.

On reflecting on the numbers, it appears that the decade of the 1990s affected the young, especially teens, particularly hard. Surprisingly, divorce and domestic violence rates were sometimes slightly lower in some areas during this period, which recorded astonishingly high rates of juvenile suicide attempts and child abuse. Pacific, Grays Harbor and Wahkiakum Counties ranked 4th, 5th, and 14th respectively in Washington in the percentage of the child population referred to Child Protection services, 1998-2002. Clatsop County ranked third in Oregon in 1999. 16

The high mortality rates for the counties may be a result of seniors retiring to the coastal areas. However, an examination of the death certificates of fishermen who died in Wahkiakum County indicates that from 1998 through August of 2005, 14 fishermen died. Their average age was 65, the youngest being 21 and the oldest 91. All were white males. The national life expectancy for white males in the U.S. during this period varied from 74-75 years. 17 While this is a small sample, it should raise concerns about the health of this occupational group. Population health studies at a community level would serve to refine the current available data.

Income figures for the counties may be skewed because in an attempt to shore up the natural resource based economies of these counties, tourism has been actively promoted. However, as pointed out by Colgan, referring to the state of California, “The industries in the ocean economy that have been growing most rapidly are those that pay the lowest average wages...The average wage in 2000 in the tourism and recreation sector was \$16,321...Employment in the tourism and recreation sector is often highly seasonal, which distorts annual average figures to some extent.”

18 Further research on the tourism/recreation sector for the four Columbia River counties would help determine their contribution to community income.

The high poverty rates and social dislocations indicated may also result from downturns in the timber industry, as all four counties rely on timber for part of their economic base. It is not possible to segregate the fishing/forestry numbers, as both are reported together in the U.S. Census and other statistical sources. However, given the social problems indicated, it seems reasonable to assume that communities that hold both fishermen and timber workers were very hard hit during the decade of the 1990s, perhaps harder than if it had been just one occupation affected. Rural occupations are often characterized by fluidity: a fisherman may work in the woods or log some timber on family property if fishing seasons are poor; a logger may own a boat and fishing license to supplement income during slow times in the woods. Hard times in both industries meant that a traditional adaptive strategy for dealing with economic downturns in rural areas was no longer available to either type of worker, or was diminished. It also meant that fishermen had to look further afield for additional sources of income, thus spurring investment in permits from distant water fisheries.

Historically, rural people along the Columbia River insulated themselves from fluctuations in natural resource based industries by shifting from one occupation to another during downturns. A fisherman might do some logging as indicated previously, or own some pasture land and raise beef, or be adept at boat carpentry, or own another small business. A number of gillnetters currently qualify to work on oil spill cleanup; some longshore while others drive truck during off-seasons. This adaptation goes back to the earliest days of the fishery, when immigrant fishermen from Scandinavia, the Mediterranean and other locales arrived on the Columbia to fish, cleared small farms and worked in the logging camps during off-seasons. 19 It is a typical

rural, pluralistic adaptation to compensate for fluctuations in resource availability, prices, and labor scarcity, among other factors. Women in fishing families who seek sought work outside the family business also contribute to family incomes.

Communities, too, have worked to deal with some of the fluctuations they have seen occurring. For example, Clatsop County, Oregon, and Pacific County, Washington, joined in the Lower Columbia Community Health Project in 2002 to address community health issues. The rationale that prompted formation of this initiative appears below:

“The residents of the Lower Columbia-Pacific Region, located on the northwest coast of Oregon and the southwest coast of Washington, have been hit hard by an economic recession that followed on the heels of the region's decade-long transition from economic dependence on the logging and fishing industry to lower paying jobs in the travel and tourism industry. Unemployment and hunger rates here are among the highest in the country. On average, 20 percent of all children here live in poverty.

The mental and emotional stress associated with difficult economic times, coupled with a growing number of un- and underinsured residents and scarce health care services, prompted the formation of the Lower Columbia Community Health Project...The primary goal of the...Project is to provide communities in Clatsop County, Oregon, and Pacific County, Washington, with information and resources to better meet their physical, mental and behavioral health care needs, and to inform policymakers about the lack of access to and delivery of health care services in this region.” 20

In Wahkiakum County, the St. James Family Center, the largest non-governmental social service agency in the county, built a new, larger facility in 1997 to house the burgeoning need for programs to address some of the social problems emerging in the community. As more women entered the work force to shore up declining family incomes, quality child care for families with two parents working became a priority. Programs currently include preschool, infant and toddler care, after-school care, the Charlotte House (a domestic violence shelter), the Youth Adventure Program, and Readiness to Learn, a program operated at the local school. The state funded Early Childhood Education Assistance Program (ECEAP) for low-income (110% of federal poverty

level) children operated by the Center is currently full, with a waiting list. The nonprofit Center's current budget stands at \$905,337, in a county of fewer than 4,000 people. 21

In informal discussions, community members, fishermen, social service workers and clergy identified issues such as reduction in incomes, lack of fishing time, uncertainty over future fishing opportunities and community instability as issues that affect community health and well-being. Other issues raised among people interviewed for this study include the observation that there are now fewer fish for people in the community to eat (subsistence fish). Fish are no longer available to hold community events to raise money for community organizations. The fishing seasons are so curtailed that it is difficult for young people who are starting out to learn the trade. Students who relied on cannery and fish plant employment for summer work to pay for their education have less opportunity, as this source of jobs has eroded. Where fishing is a foundation of the community, its loss means loss of community connectedness and cohesion, diminished access to educational opportunities, and deteriorating community health.

There is also a real sense of a decision to be made, whether to continue both the financial and emotional investment in the Columbia River, or whether to look to better opportunities elsewhere. Fishermen are very conscious of the health of their communities, and the reasons for it, although they tend to think in terms of stories, rather than statistics. The gillnet fishermen form an intensely oral culture, and are well aware of who is in financial trouble, whose children are having problems at school and the relatively young ages at which fishermen are dying. More than one pointed out to me that the costs of the social services needed to deal some of the community health issues were high, as was the cost of keeping people in jail. A clergy person noted the large numbers of food banks in the area as an indicator of concern. As one informant put it, "Unless things change, this will be the last generation of fishermen who make their homes

here.” Several fishermen told the author that if they could not foresee making a reasonable income on the Columbia, they would move, most probably to Alaska. There was considerable comment regarding the lack of understanding of the needs and problems of rural areas by a largely urban-oriented recreational fishing population in the I-5 corridor.

“There once was a poor fisherman...” I have come to realize there is a great deal of wisdom in these childhood tales. As a description of fishermen’s behavior, where wealth is seen in terms of fish, they mirror the experience of the Columbia River gillnetters. When faced with declining returns on the Columbia, fishermen expanded their horizons to include other fisheries, following an adaptive strategy that began when the first dams were built on the Columbia. As salmon runs on the Columbia declined, fishermen used their Columbia River cannery connections to buy into Alaska fisheries, often fishing for the same company they fished for on the river. As runs have continued to decline, they have developed portfolios of permits from a variety of locales and fisheries. They have stayed with their perception that fishing is their occupation and source of income. Some who participated in the buyback offers of the 1990s used the money to invest in other businesses, including other fishing permits. While there are exceptions, the majority of the fleet participates in more than one fishery, frequently in distant waters, and returns home to the Columbia River region with the income generated from this part of their business. Whether they continue to do so will be largely determined by the health of the river’s salmon resource and their access to it. The issues of poverty, wealth, and community health in the lower Columbia region are intimately bound in a complex relationship with the economic well-being of the Columbia River gillnet fishery.

Notes

1. Charles Colgan, *The Changing Ocean and Coastal Economy of the United States: A briefing Paper for Governors* (n.p.: National Ocean Economics Project, Mar. 25, 2004), p. 18.

2. This paper is not a Social Impact Assessment under the guidelines provided in National Marine Fisheries Service publication “Guidance for Social Impact Assessment, and Guidelines and Principles for Social Impact Assessment.”
3. Pacific Fisheries Management Council, “Background: Communities.” Last revised June 22, 2004, p. 1. Website: www.pcouncil.org.
4. Ibid., p. 1
5. Gilden, Jennifer and Courtland Smith. *Survey of Gillnetters in Oregon and Washington: Summary of Results* (Corvallis, Ore.: Oregon State University, 1996). Oregon Sea Grant (ORES-U-T-96-001), p. 4.
6. Pacific Fisheries Management Council, “Background: Communities”, op. cit., pp. 1-2.
7. Irene Martin, *Legacy and Testament, the Story of Columbia River Gillnetters* (Pullman, Wa.: Washington State University Press, 1994), p. 49
8. Raw data sources include Washington Dept. of Fish and Wildlife, Oregon Dept. of Fish and Wildlife, and PACFIN.
9. Information on Washington and Oregon incomes from Alaska fisheries provided by Shannon Davis, The Research Group.
10. Information on permit prices was obtained from advertisements in the Alaska Fisherman’s Journal, vol. 28, no. 10, Oct. 2005, and The Fishermen’s News, Sept. 2005, and oral communication, Jim Wells, President, Salmon For All.
11. Jennifer Langdon-Pollock, *West Coast Marine Fishing Community Descriptions* (Portland, Ore.: Pacific States Marine Fisheries Commission, EFIN, 2004), p. 11.
12. Hays, Maxine. “The Health of Our Communities: Mobilizing to Eliminate Health Disparities.” Presentation to University of Washington School of Nursing. Olympia, Wa., Washington State Dept. Of Health, Ap. 7, 2005, p. 5.
13. While it would be preferable to work on a community by community basis, the lack of available data preclude this method. The smallest unit for which comparable data are available is the county, as noted by others working in this field, such as Jennifer Langdon-Pollock, op. cit., pp. 14, 15. Please note also that the U.S. Census does not separate fishing from forestry and mining in its figures, making it harder to focus on strictly fishing-related issues.
14. Jennifer Langdon-Pollock, op. cit., p. 22.

15. Data taken from County Profiles for Wahkiakum, Pacific, and Grays Harbor counties, and the Clatsop County DataBook.
16. Oregon Dept. of Human Services. *The Status of Children in Oregon's Child Protection System, 1999* (Salem, Ore.: Dept. of Human Services, 2000), p. 10.
17. National Vital Statistics Reports, vol. 53, no. 6, Nov. 10, 2004. U.S. Life Tables, 2002, p. 3.
18. Charles Colgan, op. cit., p. 15.
19. Irene Martin, *Legacy and Testament, the Story of Columbia River Gillnetters*, op. cit., pp. 36-45.
20. Benton Foundation, "Sound Partners for Community Health: Lower Columbia Community Health Project, Astoria, OR 2002." Website: www.soundpartners.org
21. Information provided by St. James Family Center, 1134 Columbia St., Cathlamet, Wa. 98612, Sept. 20, 2005.

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