UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
AT SEATTLE

WILD FISH CONSERVANCY, Plaintiff, v. BARRY THOM, in his official capacity as Regional Administrator for the National Marine Fisheries Service, *et al.*, Defendants, and ALASKA TROLLERS ASSOCIATION, and STATE OF ALASKA Defendant-Intervenors.	Case No. 2:20-cv-00417-RAJ-MLP FIRST DECLARATION OF HANS RADTKE, Ph.D.

I, Hans Radtke, declare the following to which I am competent to testify under penalty of perjury of the laws of the United States:

1. I have been retained by plaintiff Wild Fish Conservancy (WFC), by and through counsel, to provide expert testimony addressing economics issues involving the Southeast Alaska (SEAK) commercial salmon fishery. Specifically, WFC requested that I provide opinions on the economic importance of the SEAK troll salmon fishery (all species) winter and summer seasons.

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The WFC also requested itemization of that fishery's Chinook salmon component's importance. The requested fishery to be analyzed is commercial. Estimating the economic importance of sport and subsistence fisheries was not included in the request. This declaration provides the requested descriptions based on my economic analysis investigations.[1]

PROFESSIONAL QUALIFICATIONS

2. I am a consulting economist specializing in natural resource economics, especially fisheries economics. Along with James E. Wilen, a professor of Agriculture and Resource Economics at the University of California, Davis, I was one of the several fisheries economists engaged on behalf of plaintiffs in *Whaley, et al. v. Pacific Seafood Group, et al.*, D. Or. Case No. 1:10-cv-3057-PA.

3. I received my B.S. in economics from Portland State University in 1964, my M.S. in resource economics from Montana State University in 1968, and my Ph.D. in resource economics from Oregon State University in 1972. I have served as an assistant and associate professor of resource economics at the University of Nevada and as an associate professor of resource economics at Washington State University (as part of a consortium with Oregon State University, University of Washington, Washington State University and University of Idaho). Since 1980, I have been an independent economist working on natural resource issues for industry, NGO's and state and federal agencies. I have also served on advisory boards and policy generating councils and commissions.

4. My economic consulting career has focused mostly on the field of fisheries economics, primarily West Coast and Alaskan fisheries. I gained considerable insight into West Coast fisheries during my service as one of the State of Oregon's representatives to the Pacific Fishery Management Council from 1997 to 2003, serving as chairman in 2002. I have also

[1] The secondary information was garnered from ADFG (August 2021), ADFG (September 2021), NMFS (April 2019), CFEC (December 2021), CFEC (February 2022), and PSC (June 2021) unless otherwise cited. At the time of this declaration, detailed salmon fishery information is available for 2020 from ADFG and PSC season ending reports. Only preliminary information is available from ADFG for 2021.

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served in Oregon as a member of the Governor's Council of Economic Advisors since 1993 to the present.

5. Attached hereto as Appendix A is my curriculum vitae, which includes a list of all publications I have authored during the last ten years.

6. I have not testified as an expert at trial or in deposition during the last four years.

7. I am being compensated for my work on this matter. In connection with this expert witness engagement, I am charging $150 per hour for work not involving testimony. My charge for time in deposition or at trial is $250 per hour.

8. In addition to drawing upon my knowledge and experience, I have consulted with Shannon Davis from The Research Group, Corvallis, Oregon and reviewed and considered the documents listed in the bibliography attached hereto as Appendix B in developing my opinions expressed herein.

SUMMARY OF OPINIONS

9. In summary, my economic analysis found that the SEAK commercial troll salmon fishery (all species) generated annual income of about $28.8 million (2021 dollars) for the 2017-2019 averaging period, which represents about 537 equivalent jobs. The fishery is about 7.0 percent of the SEAK commercial seafood industry's economic contributions ($28.8 million divided by $411 million). The fishery represents about 1.3 percent of SEAK total labor earnings in 2020 ($28.8 million divided by $2.2 billion). My economic analysis for the SEAK commercial troll Chinook salmon fishery (Chinook component) shows the generated annual income was about $10.6 million for the 2017-2019 averaging period. This represents 198 equivalent jobs. The component is about 2.6 percent of the SEAK seafood industry and 0.5 percent of SEAK total labor earnings in 2020.

10. Table 1 shows total and fisheries itemized household income for the area. The sources of information for Table 1 are explained in table's footnotes. The total economy in this area in 2020 had labor earnings of $2.155 billion with an average annual earnings per job of

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$53,635. The SEAK commercial seafood industry's 2017-2018 average annual generated labor earnings (includes multiplier effect) was $411 million.

Table 1
SEAK Fisheries Average Annual, Seasonal, and Comparative Economic Contributions

SEAK Economy[1]	Income	Jobs	Earnings per Job
Total SEAK Economy[2,3]	3,592	X	X
SEAK Labor earnings	2,155	40,187	53,635
SEAK Non-labor	1,437	X	X

SEAK Fisheries[4]			Share of Economic Contributions to Total SEAK Fisheries and and to Total SEAK Labor Earnings		Income (in millions) and Associated Share of Total Troll Fisheries Income[8]			
All fisheries[5]	411	8,000	Economic Contribution to Total SEAK Fisheries Economy	Economic Contribution to Total SEAK Labor Earnings	Winter	Spring	Summer	Check-sum
Troll (all species)[6]	28.8	537	7.0%	1.3%	2.3	1.2	25.3	28.8
Seasonal share	X	X	X	X	8%	4%	88%	100%
Troll Chinook component[7]	10.6	198	2.6%	0.5%	2.1	1.1	7.4	10.6
Seasonal share	X	X	X	X	20%	10%	70%	100%

Notes: 1. Income and labor earnings are expressed as millions of dollars.
2. Income includes labor earnings, transfer payments, and investment returns. The latter two sources are termed non-labor income.
Labor earnings includes wage/salary and proprietorship income.
Jobs are "equivalent jobs" and include full and part-time workers. The calculation is based on SEAK average annual labor earnings per job in 2020 (nominal dollars) from Southeast Conference (2022).
3. SEAK total income in Year 2020 is calculated using labor earnings ratio for SEAK boroughs and census districts downloaded in February 2022 from Headwater Economics Economic Profile System.
4. SEAK fisheries income includes the "multiplier effect."
5. SEAK fisheries total is average annual 2017-2018 income (nominal dollars) and jobs from McDowell Group (January 2020). The Alaska Seafood Marketing Institute sponsored an update to the McDowell Group (January 2020) report. The McKinley Research (January 2022) report describes Year 2020 seafood industry economic impacts. The former report was chosen for comparison because the analysis period (2017-2018 average) is more closely aligned with the modeled analysis period 2017-2019 average.
6. SEAK troll (all species) is average annual 2017-2019 income (2021 dollars) from economic analysis for HDR declaration.
7. SEAK troll Chinook is average annual 2017-2019 income from economic analysis for HDR declaration.
8. Seasonal share is proportion of average annual 2017-2019 income (nominal dollars) based on monthly harvest value (not including hatchery terminal fisheries).

INVESITIGATION PREMISES

11. This declaration is based on the following premises:

a. The requested economic analysis investigation was for the commercial salmon fishery. Salmon resources are also caught in sport and subsistence fisheries. SEAK sport

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fisheries by Alaska residents and visitors have high economic value (TCW Economics 2010). Further, many Alaskans depend heavily on subsistence-caught salmon for food and cultural purposes.

b. Secondary information is available to describe the SEAK troll salmon fishery (all species) characteristics including gears used, catch/harvest value distributions, permit utilizations, and owner residency.[2] The secondary information allows the fleet to be distinguished from the overall (including net gear) salmon fishery fleet. Processor businesses manufactured salmon product type, net weight, and ex-wholesale value data is also available.

c. Primary information such as fish ticket records and a participant choice survey data were not available. This precluded model development for participant behavior response and resulting economy adjustments from fishery management change. This study's descriptive economic analysis results are the estimated current portion of the general economy generated by the SEAK troll salmon fishery (all species). There would be long-term adjustments within the economy if the fishery economic contributions are modified.

d. The economic analysis was hampered by there not being a maintained salmon fishery economic impact model that could be drawn upon (Waters and Seung 2010 and personal communication with Waters February 2022). To provide the relevant basic economic information, a proxy model was utilized to show the fishery's economic importance. The model results were weighed against other past study results for the fishery to show consistency and pertinence.

e. The SEAK troll salmon fishery (all species) is a part of the large SEAK commercial seafood industry. The fishery's importance can be compared and contrasted to the SEAK commercial seafood industry and SEAK general economy as a whole to depict relative significance.

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[2] The secondary information was garnered from ADFG (August 2021), ADFG (September 2021), NMFS (April 2019), CFEC (December 2021), CFEC (February 2022), and PSC (June 2021) unless otherwise cited.

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f. The SEAK salmon fishery is distinctly managed for sector allocations and Chinook harvest limits by the Alaska Board of Fisheries in accordance with harvest sharing provisions of the Pacific Salmon Treaty (PST) between the U.S. and Canada (Nichols April 2021).

g. If there are restrictions on the SEAK troll salmon fishery (all species), the conserved fish will be left in the ecosystem and become available to other uses, including other fisheries. A tradeoff economic analysis for showing opportunity costs and gains was not requested by WFC.

h. Economic activity can be described using different measurement units, such as fish resource value added, taxes generated, industry output, labor earnings accruing to households, numbers of jobs, and other measures. Each has its meaning for explaining an industry's contributions to an economy. Two standard measures, labor earnings and equivalent jobs were chosen for this study. In this context, labor earnings are the summation of payments to labor (wages and salaries and proprietorship income) and includes the multiplier effect. The term generated income and generated labor earnings are synonymous in this declaration. Regional average annual earnings per full and part-time job across all industries in 2020 are used to translate the generated income into an annual equivalent job measure. Decision makers can relate these two standard measures to personal situations, they are widely adopted by agencies for serial data collection programs, and they are used by other researchers when assessing different industries.

i. The years selected to show the SEAK troll salmon fishery (all species) economic importance was an averaging period 2017-2019. More recent fishery data exists, however response to the COVID-19 pandemic controls in 2020 and 2021 made them unusual in supply and market conditions. Results are expressed as point estimates when they could have just as well been ranges reflecting the variability of harvests. A fleet behavior model coupled with fish resource conditions, management specification, and market forces would have been an

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improved approach.

j. There will be some dollar year discrepancies when stating fishery characteristics and stating economic importance. In some descriptions, nominal values are used. In others, dollar values have been adjusted for inflation. When dollars have been adjusted for inflation, the adjustment calculation used the U.S. Bureau of Economic Analysis Gross Domestic Product Implicit Price Deflator (GDPIPD).

SOUTHEAST ALASKA SEAFOOD INDUSTRY DESCRIPTION

12. The SEAK geographic boundaries encompass an area from north of Yakutat (Cape Suckling) to south of Ketchikan (Dixon Entrance) often referred to as the Alaska panhandle (Figure 1). The 2020 population is 72,286 (Southeast Conference 2022). The area relies heavily on government wages and non-labor income (retirement income, State Permanent Fund distribution, social support payments, dividends/interest/rents, etc.). The SEAK non-labor income was about 40 percent of total household income in 2020 (Headwaters Economics February 2020). The labor earnings in 2020 were $2.155 billion (Southeast Conference 2022). Using the non-labor ratio, then the SEAK total personal income was $3.592 billion in 2020. The average annual earnings per job in 2020 were $53,635.

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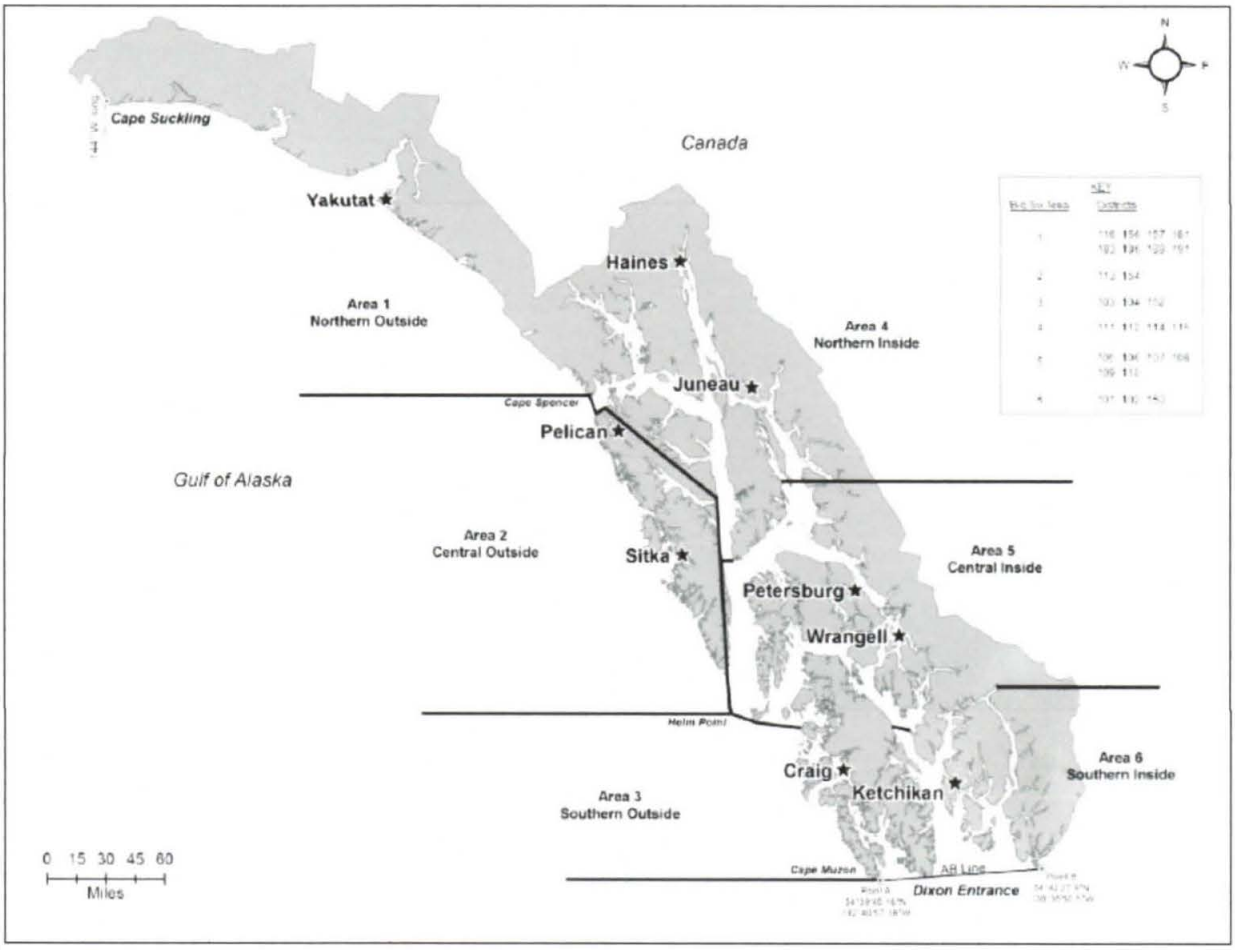
Figure 1
Map of Southeast Alaska Commercial Troll Fishery and Big Six Management Areas, Cape Suckling to Dixon Entrance



Source: Hagerman et al. (2021).

13. The economy's larger industry segments expressed as direct earnings (not including multiplier effect) in 2020 are government (37 percent), timber/mining (6 percent), health care (9 percent), seafood industry (8 percent), and visitor industry (7 percent) (Southeast Conference 2022). The seafood and visitor industry shares in 2020 were drastically affected by COVID-19 pandemic controls. The visitor industry share in 2019 was 12 percent. The seafood industry share in 2019 was 10 percent. Total labor earnings were down 8 percent in 2020 as compared to 2019.

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14. The SEAK commercial seafood industry's 2017-2018 annual average generated income (nominal dollars) was $411 million, including multiplier effect (McDowell Group January 2020).[3] The SEAK region's total harvest average value was $251 million and the processor wholesale average value was $462 million. The halibut/sablefish fishery had the largest harvest value at 33 percent. Chum salmon had the next highest harvest value at 30 percent. Pink and other salmon species followed at 28 percent. All other species including invertebrates were 9 percent. The SEAK region's harvest value was 13 percent of Alaska's total harvest value.

SOUTHEAST ALASKA TROLL SALMON FISHERY DESCRIPTION

15. The SEAK salmon fishery (all gear, all species) harvest in 2020 was 14.6 million fish and 76 million landed pounds (Table 2).[4] The overall harvest value in 2020 was $55.2 million (Table 3).[5] The processor value in 2020 was $182.9 million (Figure 2 and Table 4)[6]. In 2020, pink salmon was 55 percent of catch in fish and 12 percent in harvest value followed by chum 32 percent catch and 36 percent value. Next in order for 2020 are coho (8 percent catch and 23 percent value), sockeye (3 percent catch and 5 percent value), and chinook (2 percent catch and 24 percent value).

16. The year-to-year overall landings and harvest value totals are highly variable (Figure 3 through Figure 6). For example, the commercial salmon fishery Chinook catch (all gears) ranged 110 percent from the 1990 to 2021 average of 288 thousand fish (a high of 483 thousand in 2004 to a low 165 thousand fish in 2018). There was a downturn of 56 percent fewer

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[3] The Alaska Seafood Marketing Institute sponsored an update to the McDowell Group (January 2020) report. The McKinley Research (January 2022) report describes Year 2020 seafood industry economic impacts. The former report was chosen for comparison because the analysis period (2017-2018 average) is more closely aligned with the modeled analysis period 2017-2019 average.

[4] At the time of this declaration, detailed salmon fishery information is available for 2020 from ADFG and PSC season ending reports. Only preliminary information is available from ADFG for 2021.

[5] Harvest value is the amount paid to fishers which is sometimes called ex-vessel value.

[6] Processor value is the amount sold into distribution chains which is sometimes called ex-wholesale value.

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fish caught in all salmon harvests in 2020 compared to 2019. Harvested fish was 297 percent greater in 2021 compared to 2020. The downturn in harvest value between 2019 and 2020 was minus 48 percent and the increase in harvest value between 2020 and 2021 was 143 percent. The Chinook salmon harvest in 2020 was historically low and ranks second lowest in SEAK based on inflation adjusted harvest value in last 15 years. Prices from 2020 fish ticket data were down from 2019 for all species except chum held steady. The preliminary information about SEAK prices in 2021 show some recovery: Chinook $6.17 per pound, sockeye $1.80 per pound, pink $0.36 per pound, chum $0.84 per pound, and coho $2.11 per pound.

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Table 2
Southeast Alaska Salmon Fishery Permits Used and Catch by Sectors in 2020

Sectors	Permits Issued	Permits Used	Salmon Harvested (fish) Chinook	Sockeye	Coho	Pink	Chum	Other	Total	Sector Share
Purse seine	279	201	17	237	77	5,958	2,015		8,304	53.0%
Drift gillnet	474	368	19	102	125	501	1,062		1,810	11.6%
Set gillnet	167	91	0	26	82	15	0		123	0.8%
Troll	1,870	832	170	2	751	43	79		1,045	6.7%
Power	960	627	165	2	728	41	79		1,015	6.5%
Hand	910	205	5	0	23	2	0		30	0.2%
Annette Is. Reserve			1	15	8	529	76		628	4.0%
Hatchery cost recovery			6	74	119	996	1,458		2,653	16.9%
Misc.			0	2	1	40	7		50	0.3%
Commercial harvest	2,790	1,492	213	458	1,163	8,083	4,696	-	14,613	100.0%
Species share			1.5%	3.1%	8.0%	55.3%	32.1%	0.0%	100.0%	
Subsistence	3,567	821	0	14	2	2	0		18	

Notes: 1. Fish in thousands.
Source: ADFG (August 2021).

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Table 3
Southeast Alaska Salmon Fishery Harvest Value, Weight, and Price by Sectors in 2020

	Harvest Value, Weight, and Price 2020																
	Chinook			Sockeye			Coho			Pink			Chum			Total	Sector
Sectors	Value	avg lb	Price	Value	avg lb	Price	Value	avg lb	Price	Value	avg lb	Price	Value	avg lb	Price	Value	Share
Purse seine	$ 717	13.9	$3.10	$1,566	5.5	$1.20	$ 279	5.5	$0.66	$4,588	3.5	$0.22	$ 6,709	7.4	$0.45	$13,859	25.1%
Drift gillnet	$ 947	11.6	$4.19	$ 756	5.2	$1.42	$ 1,183	7.9	$1.20	$ 389	3.7	$0.21	$ 3,664	7.5	$0.46	$ 6,939	12.6%
Set gillnet	$ 11	10.6	$2.67	$ 202	4.5	$1.70	$ 830	8.4	$1.21	$ 14	3.9	$0.25	$ 0	8.0	$0.25	$ 1,058	1.9%
Troll	$11,498	11.4	$5.94	$ 9	3.8	$1.40	$ 9,348	5.9	$2.11	$ 51	3.7	$0.32	$ 308	7.9	$0.49	$21,214	38.4%
Annette Is. Reserve	$ 45	12.1	$4.10	$ 87	5.1	$1.17	$ 55	7.2	$1.01	$ 334	3.5	$0.18	$ 259	7.6	$0.45	$ 780	1.4%
Hatchery cost recovery	$ 89	12.1	$1.30	$ 362	4.0	$1.22	$ 955	6.9	$1.16	$ 968	3.6	$0.27	$ 8,939	7.3	$0.84	$11,313	20.5%
Misc.	$ 12	13.4	$4.05	$ 11	5.5	$1.25	$ 12	8.3	$1.03	$ 22	3.5	$0.16	$ 22	7.3	$0.45	$ 79	0.1%
Commercial harvest	$13,320			$2,992			$12,663			$6,367			$19,901			$55,242	100.0%
Species share	24.1%			5.4%			22.9%			11.5%			36.0%			100.0%	

Notes: 1. Harvest value in thousands nominal dollars.
Source: ADFG (August 2021).

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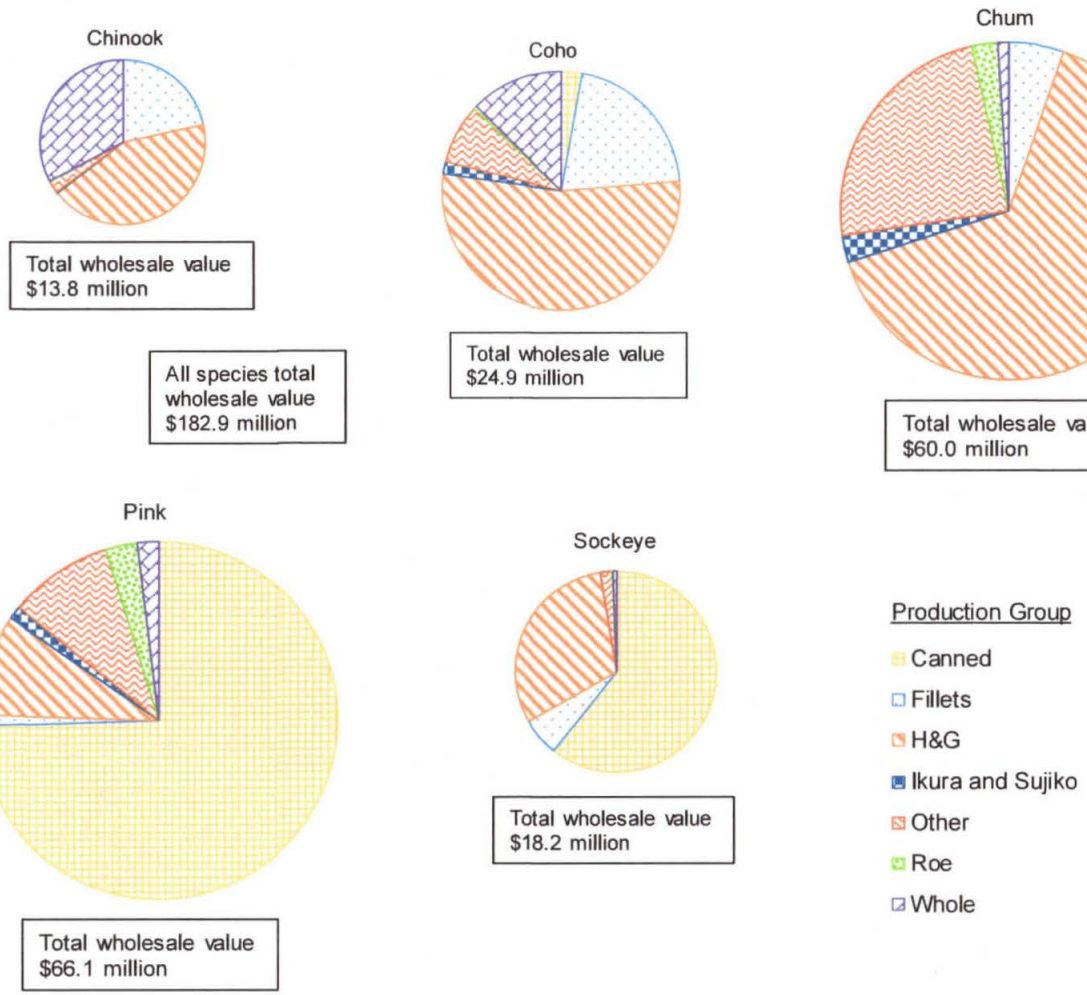
Figure 2
Southeast Alaska Salmon Fishery Processed Production Group Net Weight Shares and Wholesale Value by Species in 2020



Notes: 1. Wholesale value is nominal in millions.
2. Production group shares based on net weight. Pie size graphically depicts relative magnitude of wholesale value.

Source: ADFG COAR data extracted March 8, 2022.

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Table 4
Southeast Alaska Salmon Fishery Wholesale Value, Net Weight, and Price by Production Group in 2020

	Chinook				Coho				Chum			
	Wholesale	Net Weight			Wholesale	Net Weight			Wholesale	Net Weight		
Production Group	Value	Amount	Share	Price	Value	Amount	Share	Price	Value	Amount	Share	Price
Canned	$ 34	0.9	0%	$40.18	$ 715	144.1	3%	$ 4.96	$ 87	17.3	0%	$5.06
Fillets	$ 4,602	336.3	21%	$13.68	$ 9,281	1,079.9	21%	$ 8.59	$ 6,072	1,545.9	5%	$3.93
H&G	$ 4,528	671.0	43%	$ 6.75	$ 11,195	2,758.7	54%	$ 4.06	$ 22,390	19,299.9	65%	$1.16
Ikura and Sujiko	$ 32	3.2	0%	$ 9.87	$ 911	86.2	2%	$10.57	$ 18,627	763.5	3%	$24.40
Other	$ 451	38.6	2%	$11.69	$ 577	416.3	8%	$ 1.39	$ 2,460	7,073.4	24%	$0.35
Roe	$ 7	1.8	0%	$ 3.73	$ 129	23.9	0%	$ 5.41	$ 10,154	744.6	3%	$13.64
Whole	$ 4,133	512.7	33%	$ 8.06	$ 2,042	647.0	13%	$ 3.16	$ 213	304.2	1%	$0.70
Total	$ 13,786	1,564.4	100%	$ 8.81	$ 24,850	5,156.2	100%	$ 4.82	$ 60,003	29,748.7	100%	$2.02

	Pink				Sockeye				Total			
	Wholesale	Net Weight			Wholesale	Net Weight			Wholesale	Net Weight		
Production Group	Value	Amount	Share	Price	Value	Amount	Share	Price	Value	Amount	Share	Price
Canned	$ 57,572	17,075.1	75%	$ 3.37	$ 12,198	1,970.2	61%	$ 6.19	$ 70,606	19,207.5	31%	$ 3.68
Fillets	$ 834	220.3	1%	$ 3.78	$ 1,603	198.2	6%	$ 8.09	$ 22,391	3,380.6	5%	$ 6.62
H&G	$ 2,303	2,100.9	9%	$ 1.10	$ 4,130	995.2	31%	$ 4.15	$ 44,547	25,825.8	41%	$ 1.72
Ikura and Sujiko	$ 2,656	272.8	1%	$ 9.74	$ -	-	0%		$ 22,226	1,125.7	2%	$19.74
Other	$ 467	2,148.3	9%	$ 0.22	$ 130	62.7	2%	$ 2.07	$ 4,085	9,739.3	16%	$ 0.42
Roe	$ 1,930	650.1	3%	$ 2.97	$ 16	5.0	0%	$ 3.22	$ 12,236	1,425.4	2%	$ 8.58
Whole	$ 291	445.1	2%	$ 0.65	$ 107	18.4	1%	$ 5.78	$ 6,786	1,927.4	3%	$ 3.52
Total	$ 66,053	22,912.6	100%	$ 2.88	$ 18,184	3,249.8	100%	$ 5.60	$182,877	62,631.7	100%	$ 2.92

Notes: 1. Wholesale value and net weight are in thousands.
Source: ADFG COAR data extracted March 8, 2022

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Figure 3
Southeast Alaska Salmon Ex-Vessel Values in 1990 to 2021

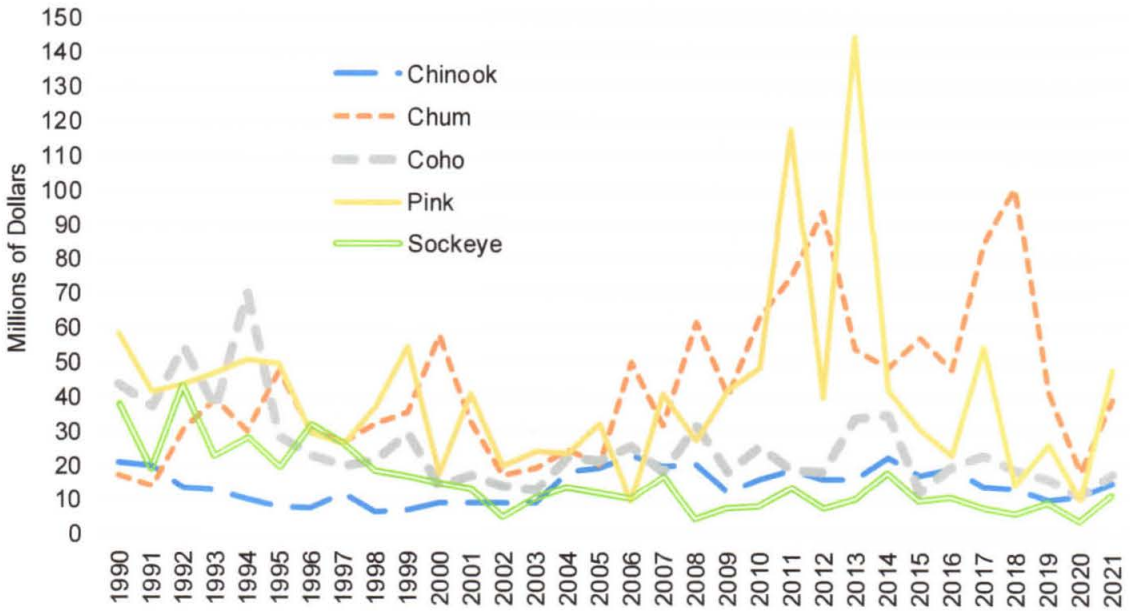
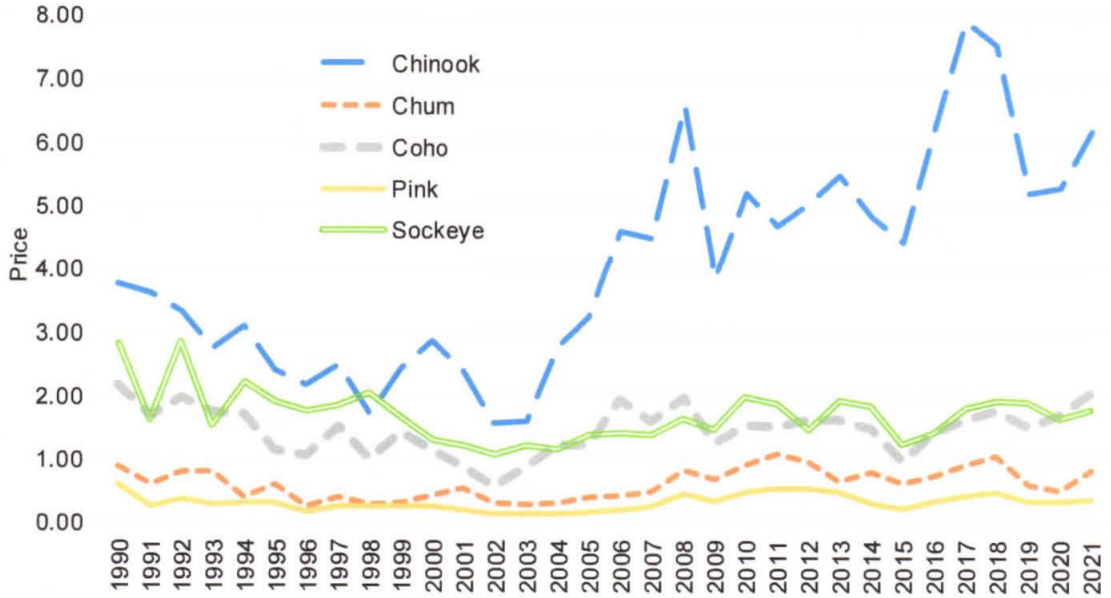


Figure 4
Southeast Alaska Salmon Ex-Vessel Prices in 1990 to 2021



Notes: 1. Ex-vessel revenues and prices are adjusted to 2020 dollars using the GDP implicit price deflator developed by the U.S. Bureau of Economic Analysis, except 2021 is nominal.

Source: Years prior to 2021 are from ADFG COAR data extracted February 11, 2022, and 2021 is from ADFG preliminary data through October 15, 2021, downloaded February 15, 2022, and includes some discards.

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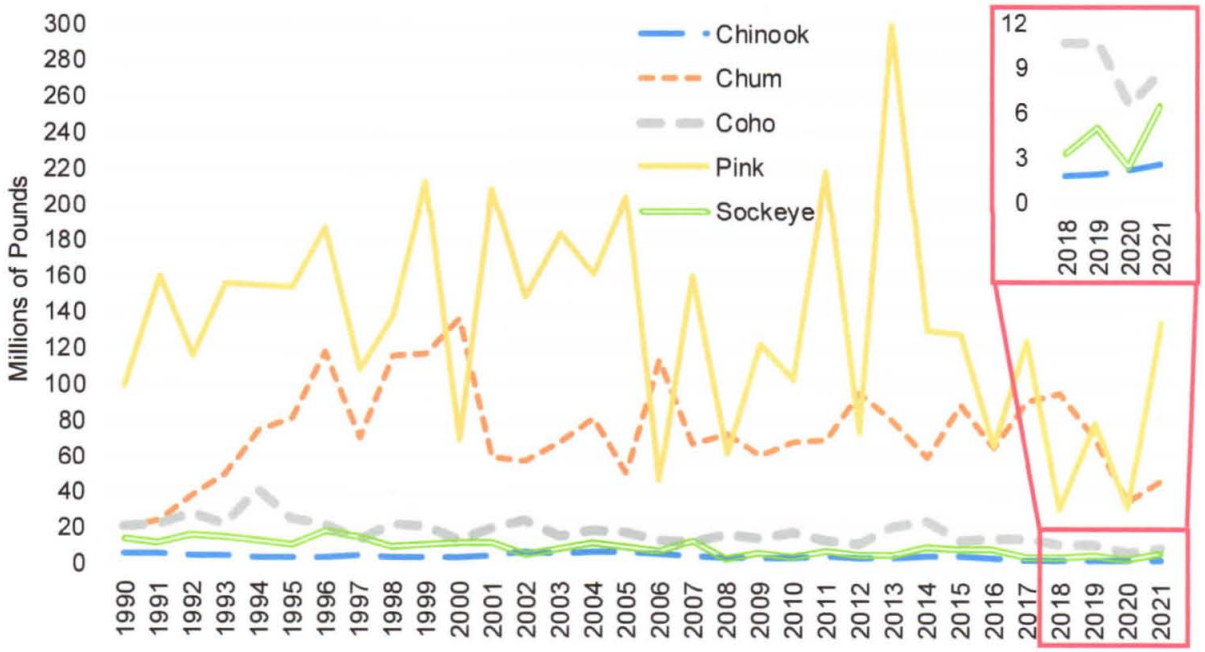
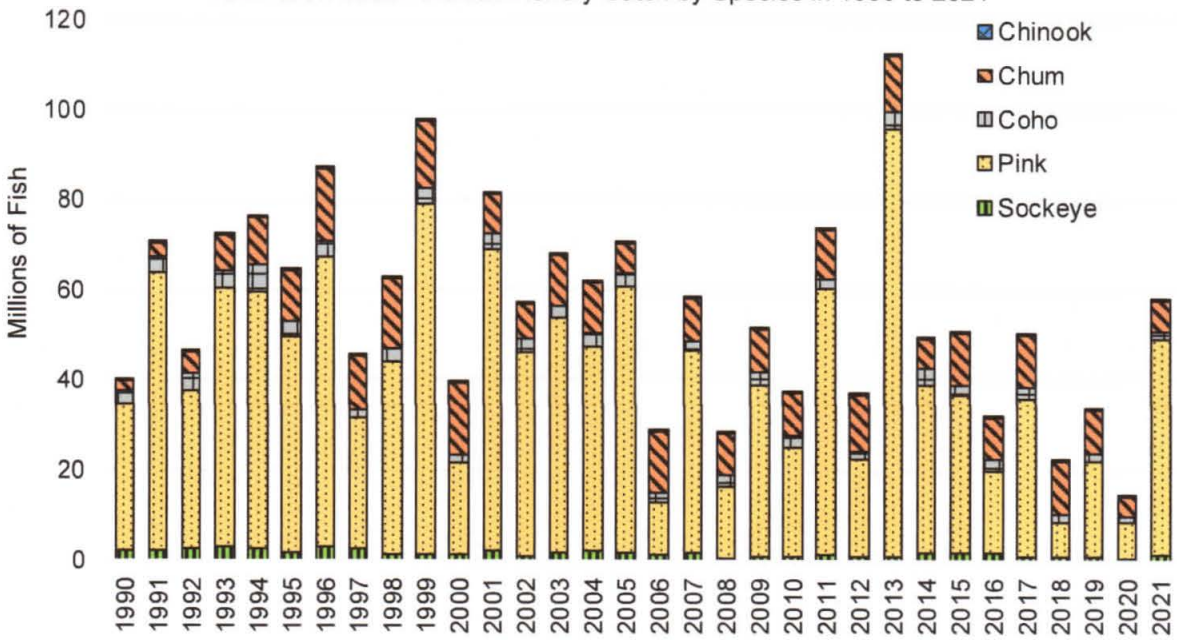
Figure 5
Southeast Alaska Salmon Volume in 1990 to 2021



Notes: 1. Salmon volume shown is weight at time of landing and is not adjusted to be round weight.
Source: Years prior to 2021 are from ADFG COAR data. Year 2021 is from ADFG website.

Figure 6
Southeast Alaska Salmon Fishery Catch by Species in 1990 to 2021



Source: Years prior to 2021 are from ADFG (August 2021), and 2021 is from ADFG preliminary data through October 15, 2021, downloaded March 21, 2022, and includes some discards.

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17. SEAK salmon (all species) in 2020 were commercially harvested using purse seines (57 percent), drift nets (12 percent), hand and power troll gear (7 percent); and set gillnets (1 percent). Set gillnets are used instead of purse seines and drift gillnets in SEAK Yakutat region. There are also harvests from cost recovery hatchery fisheries in 2020 (18 percent of fish) and the Annette Island Reserve fishery (4 percent). Nets are confined to state waters (generally within 3 miles of shoreline), whereas troll fisheries operate in both state waters and federal waters of the Exclusive Economic Zone. Because of the mixed stock and mixed species nature of salmon returns, and because different gear groups often harvest the same stocks of fish, the accounting and management of commercial salmon fisheries in SEAK is complex.

18. Tenders are used in common property and cost recovery hatchery fisheries to save time and fuel in the harvest operations. The tender boat buys the fish from the harvester, loads the fish onto the boat, and transports the fish to the nearest fish processing plant. Tenders will also bring ice, fuel and other provisions to the harvesters. The tenders will provide services to more than one boat before passing the fish to processors. The net fishery typically relies on tenders as an intermediary for processor deliveries. Tenders are also used in the troll fishery where harvest grounds are long distances from processors.

19. The SEAK salmon fishery (all gears) had 2,790 total limited entry permits active (issued or eligible to be renewed) in 2020. Active permits included 279 purse seine, 474 drift gillnet, 167 set gillnet, 910 hand troll, and 960 power troll permits (Table 2). A total of 1,492 permit holders reported salmon landings in 2020, including 201 purse seine, 368 drift gillnet, 91 set gillnet, 205 hand troll, and 627 power troll permit holders.

20. The SEAK salmon fishery vessels (all gears, all species) are highly specialized (TRG November 2009). Net fishery vessels non-salmon revenue was 19.2 percent. The troll salmon fishery vessels non-salmon revenue was 9.7 percent in 2008. There are very few crossover vessels fishing both net and troll salmon fisheries. Of the participants in either fishery in 2008, only 32 fished with both gear types.

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21. Regarding the SEAK troll salmon fishery (all species):

a. The troll fishery accounted for 38 percent of all SEAK salmon (all species) harvest value in 2020 at $21.2 million. The power troll fishery caught 7.9 million pounds of salmon (all species) with a harvest value of $20.5 million. There were 628 power troll permits fished representing 65 percent of all power troll permits issued. The hand troll fishery harvested 224 thousand pounds of salmon (all species) with a harvest value of $757 thousand. There were 205 hand troll permits fished representing 23 percent of all hand troll permits issued.

b. The fishery in 2020 species harvest value: Chinook $11.5 million (54 percent), coho $9.3 million (44 percent), and sockeye/pink/chum $0.4 million (2 percent).

c. Just under 10 percent of power troll permit users (53 permits) generated 25 percent of salmon gross earnings (all species) averaging $96,373 in 2020, compared to the fleet average of $32,768. More than half of power troll permit users (383) were in the bottom quartile averaging $13,475 in salmon gross earnings (all species).

d. The top 5 percent of hand troll permit users (9 permits) caught 25 percent salmon gross earnings (all species) averaging $21,765 in 2020. The average hand troll permit users salmon gross earnings was $3,473. The bottom 25 percent of salmon gross earnings represented about 75 percent of permits used (162 permits) and averaged $1,175 salmon gross earnings.

e. The fishery in 2020 harvested 7,640 Alaska hatchery Chinook fish (4 percent of Chinook catch), 205,366 Alaska hatchery coho fish (28 percent of total catch), and has a directed fishery targeting chum harvest of 72,598 fish (7 percent of total catch). There were minor numbers of hatchery origin pink and sockeye harvests by troll gear in 2020.

f. The Chinook salmon fishery (power and hand troll permits) in 2020 included 310 permits fished catching 15,810 fish in the winter season; 327 permits and 13,167 fish in the spring season; and 603 permits during the first summer season and 571 permits in the second season catching total 140,387 fish in the first and second summer seasons.

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g. The fishery's seasonal harvest value proportions (not including hatchery terminal fisheries) for all species based on 2017-2019 annual average are: winter season 8 percent, spring season 4 percent, and summer season 88 percent. The Chinook salmon fishery component harvest value seasonal proportions are: winter season 20 percent, spring season 10 percent, and summer season 70 percent.

h. Alaska resident power troll permit users accounted for 86 percent of this gear type's salmon (all species) harvest value in 2020. Residents of Washington State accounted for 7 percent of the 2020 harvest value. Residents of Oregon accounted for 2 percent of the 2020 harvest value.

i. Vessels that were issued power troll permits in 2020 had (median) length 39 ft., 13 net tons, 165 horsepower (85 percent diesel), and wood construction (44 percent). The average price per transferred power troll permit was $25,400 in 2020. The average price per transferred hand troll permit was $8,300 in 2020. In 2020, the average age of a troll permit holder is 60.8 and the median age in Alaska is 35.7.

22. The SEAK troll salmon fishery (all species) intercepts salmon whose origins are non-Alaska (Figure 7). The mean stock contributions of Chinook salmon catch in the fishery on an annual basis (Figure 8) have trended to be over 85 percent non-Alaska origin over the period 2009-2017 (Shedd et al. January 2021).

SOUTHEAST ALASKA TROLL SALMON FISHERY ECONOMIC IMPACTS

23. Because a current and maintained economic impact model for the SEAK troll salmon fishery is not available, it was necessary to rely on a proxy model to show the fishery's economic importance. The proxy model was from the Pacific Northwest region where National Marine Fisheries Service maintains a model to assist in assessment of fishery management policies. The model is termed IO-PAC (Leonard and Watson 2011). It has been developed, kept current, and made available for other agency and public use by the Northwest Fisheries Science Center (NWFSC). The proxy model procedures are to use economy response coefficients in the

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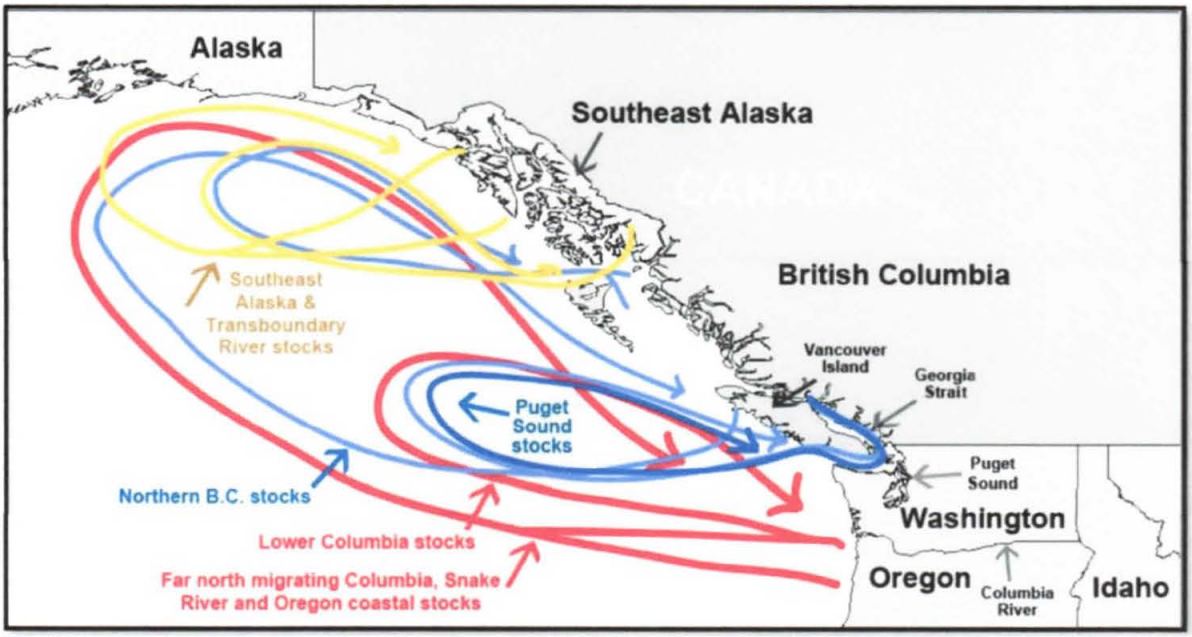
NWFSC IO-PAC model for the region encompassing Clallam County, Washington State. The region has similar population size as SEAK and the economy is resource based with large leakage to outside economies for supplies and services. The Washington Coast and Strait of Juan de Fuca salmon fisheries that have landings in Clallam County (principally Neah Bay, La Push, Sekiu and Port Angeles) include tribal and non-Indian commercial and subsistence harvests. The tribal harvests in the area will typically enter the same markets as non-Indian harvests and therefore have the same economic impact factors. Processing is mostly done at businesses in Port Angeles. There are also intense recreational salmon fisheries in this area.

Figure 7
West Coast Chinook Salmon Stocks Migration Routes



Source: NOAA Fisheries.

24. Using the proxy model, the results show the SEAK troll salmon fishery (all species) generated an annual income of about $28.8 million (2021 dollars) for the 2017-2019 averaging period. These economic contributions represent about 537 equivalent jobs. The SEAK troll salmon fishery is about 7.0 percent of the SEAK commercial seafood industry's economic contributions ($28.8 million divided by $411 million). The fishery represents about 1.3 percent of SEAK total labor earnings in 2020 ($28.8 million divided by $2.155 billion).

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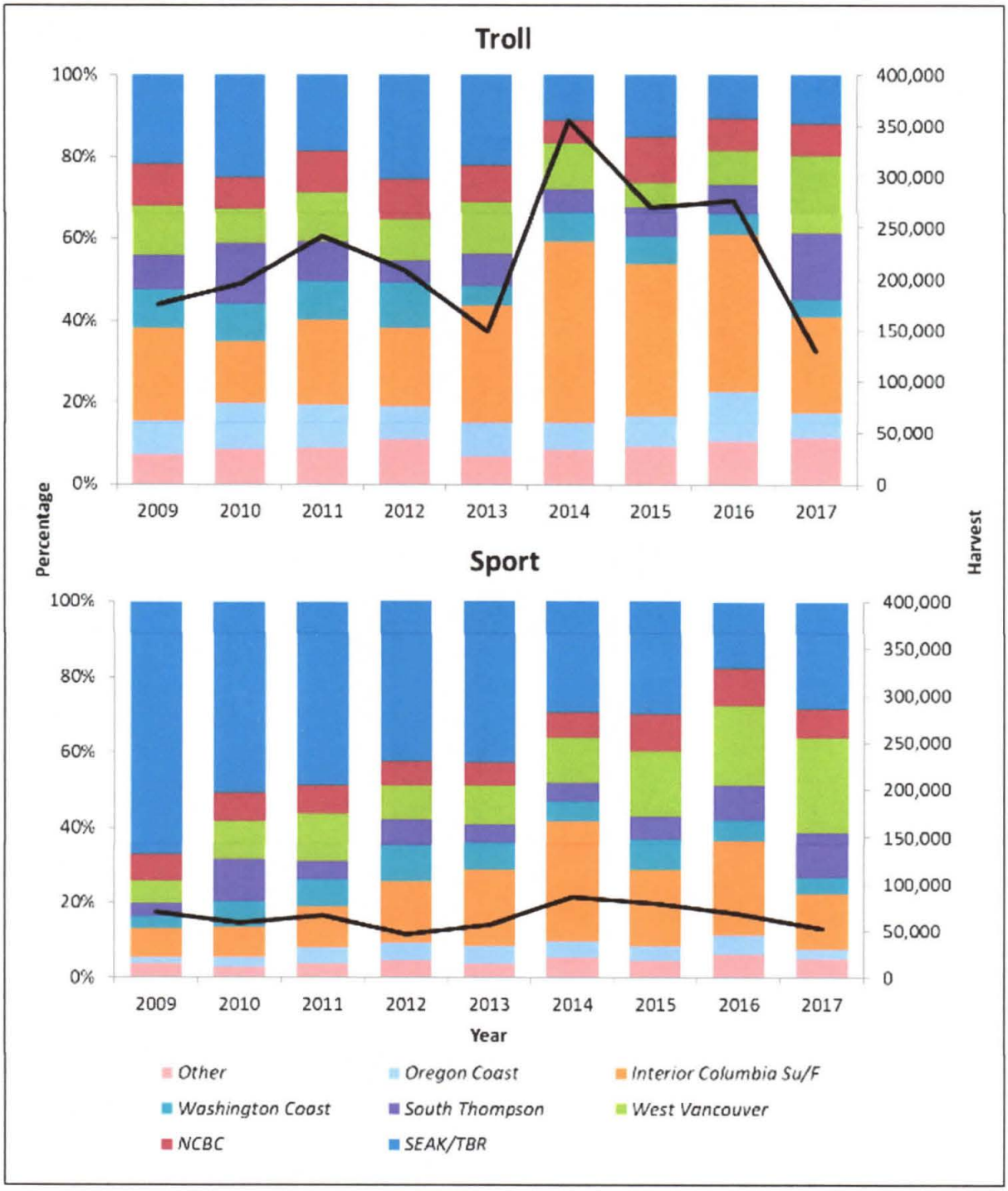
Figure 8
SEAK Troll Fishery Stock Composition and Annual Harvest in 2009-2017



Notes: 1. The mean contributions are stacked bars with scale on the left. The annual harvest is the line with scale on the right. The driver stock reporting groups are Chinook salmon to the annual regionwide troll (upper) and sport (lower) fishery harvest.

Source: Shedd et al. (January 2021).

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25. The economic analysis for the SEAK troll Chinook salmon fishery component shows the generated annual income was about $10.6 million for the 2017-2019 averaging period. This represents 198 equivalent jobs. The component is about 2.6 percent of the SEAK seafood industry and 0.5 percent of SEAK total labor earnings in 2020.

26. Breaking down the annual estimates for seasonal fisheries[7] based on the 2017-2019 average seasonal harvest value ratios (not including hatchery terminal fisheries), the SEAK troll salmon fishery (all species) $28.8 million generated annual income is: winter (October through March) $2.3 million, spring (April and May) $1.2 million, and summer (June and July) $25.3 million. The spring fishery has area management designed to target Alaska hatchery Chinook. If only the winter and summer seasons were closed to conserve non-Alaska origin migrating Chinook, the potential economic impact (all species) would be about $27.6 million income. Again using harvest values to itemize, the troll Chinook salmon fishery component $10.6 million generated annual income is: winter $2.1 million, spring $1.1 million, and summer $7.4 million. The potential economic impact from closing the Chinook salmon component winter and summer seasons would be about $9.5 million income.

27. Using ratios from TRG (June 2021), the SEAK troll Chinook salmon fishery generated income is about 74 percent related to harvesting economic activity and 26 percent is related to processing economic activity.[8] The direct payments to fisheries related labor are about 70 percent of these amounts (McDowell Group December 2019).

28. The proxy model economic contribution estimate can be compared to other researchers' estimates. The McDowell Group (December 2019) study report's Table 16 shows the total economic impact of the power troll fleet is $29 million income (average period 2014-

[7] The seasons are: early winter - October of previous year to December current year, late winter - January to March, spring - April to June, summer - July to September.

[8] The IO-PAC can be used to show the economic contribution share from processing salmon. The TRG (2021) study shows the share to be 26 percent for similar salmon product forms manufactured in Oregon in 2019 as being manufactured in SEAK in 2019 based on COAR data.

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2018 in 2018 dollars).[9] An interpretative statement in that study uses the average period's ratio of Chinook harvest value to total troll harvest value to find the Chinook fishery portion. The 44 percent ratio was applied to the output metric, but just as well could be applied to the income metric which calculates to be $13 million income (0.44 times $29 million). This declaration's proxy model includes processing, but the McDowell Group (December 2019) model does not. Not considering any other exogenous factors, the proxy model results would be judged a conservative estimate compared to the McDowell Group (December 2019) model results.

29. If any element of the SEAK commercial troll fishery (all species) were to be constrained or eliminated, it would not mean an equal amount of economic loss to eastern Pacific Ocean economies. For example, while there will be some natural mortality within the ecosystem, Chinook salmon can be harvested in other migration route geographic areas (Figure 7). There would need to be management changes applied within the other areas to account for abundance increases due to the SEAK catch decreases.

CONCLUSIONS

30. My economic analysis of the SEAK commercial troll salmon fishery (all species) generated annual income of about $28.8 million (2021 dollars) for the 2017-2019 averaging period represents about 537 equivalent jobs. The fishery is about 7.0 percent of the SEAK commercial seafood industry's economic contributions ($28.8 million divided by $411 million). The fishery represents about 1.3 percent of SEAK total labor earnings in 2020 ($28.8 million divided by $2.155 billion). If only the winter and summer seasons were closed to conserve non-Alaska origin migrating Chinook, the potential economic impact (all species) would be about $27.6 million income (the SEAK spring fishery (all species) generated annual income is $1.2 million).

31. My economic analysis for the SEAK commercial troll Chinook salmon fishery (Chinook component) shows the generated annual income was about $10.6 million for the 2017-

[9] The hand troll fishery was not included in the McDowell (2019) study's economic impact estimates.

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2019 averaging period. This represents 198 equivalent jobs. The component is about 2.6 percent of the SEAK seafood industry and 0.5 percent of SEAK total labor earnings in 2020. The potential economic impact from closing the Chinook salmon component winter and summer seasons would be about $9.5 million income (the SEAK Chinook spring fishery generated annual income is $1.1 million).

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

DATED this 7th day of June 2022.

Hans Radtke, Ph.D.

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Appendix A
Curriculum Vitae

Hans Radtke, PhD

Natural Resource Economist
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Education

Portland State University: 1960-1964, B.S. Economics
Montana State University: 1967-1969, M.S. Agricultural Economics
Oregon State University: 1969-1972, Ph.D. Agricultural Economics

Relevant Professional Experience:

Dr. Radtke is a professional economist who has worked many years in natural resource management. He is currently an adjunct professor at OSU. As a freelance economist, he has worked on a variety of projects for Oregon Department of Fish and Wildlife, Pacific Fishery Management Council, Bureau of Land Management, Oregon Coastal Zone Management Association, Commonwealth of the Northern Mariana Islands, Corps of Engineers, and NOAA Fisheries. He specializes in the relationships of resource-based industries and regional, state, and national economies. He has completed many economic impact, feasibility, and policy analyses and developed computer models for the economic assessment of fisheries management alternatives. He was a volunteer advisor in Russia for the transition to privatization of agriculture (1994), and has done work for the World Wildlife Fund in Mexico (1997). In 1997, he was appointed to the Pacific Fishery Management Council (PFMC), of which he was Vice-Chairman in 2000 and Chairman in 2002-2003. He has been on the Technical Dispute Settlement Board, as established by the Pacific Salmon Commission for the Pacific Salmon Treaty since 2004. He was a member of the Independent Economic Analysis Board (IEAB), an advisory board to the Pacific Northwest Power Planning Council for two four year terms beginning in October 2001. He served on the Oregon Wolf Conservation and Management Plan Development

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Committee from 2003 to 2004. He was a 4 year term member of the Marine Protected Area Federal Advisory Committee appointment starting July 2009. He is currently serving as member emeritus of the Oregon Governor's Council of Economic Advisors.

Selected Projects:

- Established the Columbia Marine Advisory Program for Washington State University, University of Idaho, University of Washington, and Oregon State University to work on research and extension programs on problems of the Columbia River. 1979
- Preliminary Assessment of Environmental Problems in Ecuador. With Chemonics Consulting Division, for U.S. Agency for International Development, Quito, Ecuador. October/November 1979.
- The Employment Impact of Utilizing Logging Residues from BLM Administered Lands in the Coos Bay Area, 1980-81, Bureau of Land Management, Portland, Oregon
- Received a grant from the U.S. Department of Energy for an Alternative Energy Demonstration Project: a Small Domestic Hydro-system on the Oregon Coast. This off-grid system (my home residence) was completed in 1982 and has been functioning continuously since then.
- Fisheries Economic Assessment Model (with William Jensen). Originally funded by the Small Business Administration, Washington, D.C. and the Pacific Fisheries Management Council in 1985. Since then, this work has been expanded to include Alaska. (Contract with Alaska Sea Grant Program and the National Marine Fisheries Service.) We are now using the same concept to develop assessment models for tourist expenditures (Oregon Department of Fish and Wildlife) and agricultural processing (Oregon State University).
- Project Leader, Economic Development Potential of the Pacific Whiting Resource Project for the Oregon Coastal Zone Management Association. Various funding agencies. 1990.
- Feasibility of Irrigated Agriculture in Tarrafal Cape Verde Islands, West Africa. Contract with Utah State University - Agency for International Development. October - November 1982.
- "Oregon Angler Survey and Economic Study." Prepared for Oregon Department of Fish and Wildlife. Prepared by The Research Group, Corvallis, Oregon. 1992.
- "Economic Description of Coastal Fisheries in the Pacific Northwest" and "Economic Description of Coastal Tourism in the Pacific Northwest." Background papers for inclusion in the "Forest Ecosystem Management: an Ecological, Economic and Social Assessment." (Popularly known as President Clinton's Forest Summit), Portland, Oregon. 1993.
- Technical advisor to the Pacific Salmon Commission on the Salmon Treaty Negotiations between the U.S. and Canada, 1991-94.
- Raab, Jonathan D., and Hans D. Radtke, "New Perspectives on Energy and Economic Development: The Effect of Eugene Water and Electric Board's Weatherization Program

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(1982-1986) on the Economies of Lane County and the State of Oregon." Bureau of Governmental Research and Service. University of Oregon, 1988.

- Analysis of Saipan's Seafood Markets for the Commonwealth of Northern Mariana Islands. Department of Fish and Wildlife, 1994-95.
- "Initiative for Appropriate Economic Development in a Threatened World Heritage Site." Project for World Wildlife Fund, Mexico, 1997.
- Economic Evaluation of Potential Economic Impacts of Lower Snake and John Day Dam Removal. Prepared for US Army Corps of Engineers. 1998-2000.
- Tribal Salmon Fisheries Marketing Opportunities. Prepared for Northwest Indian Fisheries Commission. 2003.
- Select Area Fishery Evaluation Project , Economic Analysis Study. Prepared for Bonneville Power Administration, Washington Department of Fish and Wildlife, and Oregon Department of Fish and Wildlife. October 2006.
- Advisor on the Columbia River Avian Anadromous Fish Predation Probability Economic Impact Modeling Project. Corps of Engineers. 2014.

Expert Witness Experience:

1. Harder Land Co. et al. v. Big Bend Electrical Cooperative, Inc. Evaluated damage claims of lost grazing. 1985.
2. Kaspar Jr. Case. Prepared deposition for Daniel Dziuba of Pozzi Wilson Atchison, LLP, Portland, Oregon. Estimated the present value of future earnings loss in injury of crab fisherman. 1997.
3. World Wildlife Fund petitioning Mexico federal government. "Initiative for Appropriate Economic Development in a Threatened World Heritage Site." Project for World Wildlife Fund, Mexico. 1997.
4. Taylor v. Port of Brookings. Estimated the value of lost revenues for a crab boast that was destroyed by fire in port. 1998.
5. Charter Boat/Trawler collision. Prepared deposition for Daniel Dziuba of Pozzi Wilson Atchison, LLP, Portland, Oregon. Estimated the present value of future earnings lost for charter boat revenue. 1999.
6. Tienson/Fick case. Prepared deposition for Thane Tienson, attorney, Portland, Oregon. Estimated the present value of earnings potentially lost as a result of not being able to manage a processing plant in Alaska due to a car injury. 1999.
7. Essex Insurance Company v. New West Fisheries Inc. Bristol Bay salmon run estimated lost revenues and profits due to lower than forecast salmon runs. 1999.
8. Oregon Natural Desert Association, Committee for Idaho's High Desert, Oregon Wildlife Federation, Oregon Natural Resources Council, and Idaho Watersheds Project v. BLM. Cattle grazing near Owyhee River. 1999.
9. Trustees for Alaska. Prepared information for Jack Stern, attorney, Anchorage, Alaska. Economic impacts from excluding groundfish trawling in designated Steller sea lion critical habitat areas. 2000.
10. Center for Marine Conservation (CMC) et al. v. NMFS. Estimated the economic impact on the longline fishery and dependent communities of changes in pelagic fisheries management. 2001.

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11. City of Everett Tulalip Claim. Prepared background information for Galen Schuler, attorney for Perkins Coie, Seattle, Washington. Economic value of the Tulalip Tribe's claimed loss of fishing opportunities based on the use and enjoyment of natural resources in the Sultan River Basin and related portions of the Skykomish and Snohomish River Basins. 2003.
12. State of Oregon and Clatsop County vs Pacific Surimi, LLC and Dulcich, Inc. Prepared economic analysis for grand jury convened to review the merits of a complaint that defendants were withholding payments to harvesters through disguise of weighbacks. A $800,000 settlement and felony conviction was reached in a no contest plea. 2002
13. Oregon State Public Interest Research Group vs Pacific Seafood Group. Prepared financial damage assessment report for illegal seafood plant discharges into the Skipanon River. A $400,000 plus legal costs settlement was reached. 2006.
14. Lloyd and Todd Whaley of Brookings vs Pacific Seafood Group. Served as an expert in class-action suit concerning price suppression allegations. The suit was settled before trial. The defendant agreed to a number of steps fishermen believe will increase competition for seafood. 2012.

Publications:

A. Journal Articles

1. Johnson, Rebecca L., Fred Obermiller and Hans Radtke. "The Economic Impacts of Tourism Sales" Journal of Leisure Research. 1989, Vol. 21, Number 2. pp 140-164.
2. Martin, Mike B., Hans Radtke, Bart Eleveld and S. Diane Nofziger "The Impact of the Conservation Reserve Program on Rural Communities: The Case of Three Oregon Counties." Western Journal of Agricultural Economics. December. 1988.
3. Meyer, Frederick A., Ronald L. Shane, and Hans D. Radtke, "A Systematic Approach for Identifying Planning Zones and Service Centers: A Nevada State Health Example." Journal of the Community Development Society, Vol. 17, No. 1. 1986.
4. Radtke, Hans D., Stan Detering and Ray Brokken. "A Comparison of IMPLAN (USFS I-O Model) with Several Primary Date I-O Models in the West." USDA/ERS, Oregon State University, 1984. Western Journal of Agricultural Economics. December 1985.
5. Radtke, Hans D., "Benefits and Costs of a Physician to a Community," American Journal of Agricultural Economics. August 1974.

B. Other Selected Publications

1. Radtke, Hans D., Christopher M. DeWees and Frederick J. Smith, "The Fishing Industry and Pacific Coastal Communities: Understanding the Assessment of Economic Impacts," Pacific Sea Grant College Program. PSGCP-15. January, 1985.
2. Radtke, Hans D. and Shannon W. Davis. "The Economic Landscape of the Oregon Coast," Oregon Coastal Zone Management Association, Inc. 1987, 1989, and 1991.
3. "Contribution of the Oregon Wheat Industry to Oregon's Economy." Agricultural Experiment Station Bulletin 668, Oregon State University, Corvallis, 1986.

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4. "The Hutterites in Montana: An Economic Description" published as an Agricultural Experiment Station Bulletin, No. 641, Montana State University, Bozeman, Montana. August 1971.
5. Radtke, Hans D. and William S. Jensen, "An Economic Description of the Oregon Commercial Troll Salmon Fishery." Sea Grant College Program, NA89AA-D (SG 108). Lewis and Clark College, Portland, Oregon. 1990.
6. Coombs, Eric M., Hans Radtke, Dennis Isaacson and Stanley Snyder, "Economic and Regional Benefits from the Biological Control of Tansy Ragwort in Oregon, USA." Proceedings of the IX International Symposium on the Biological Control of Weeds. January 1996, Rondebusch, South Africa.
7. Radtke, Hans D. et al. "Elliot State Forest Plan Alternatives: An Economic Overview." Oregon Department of Forestry. November 1993.
8. "Pacific Whiting Resource Availability, Market Use and Economic Development Potential." Compiled by Hans Radtke for the Oregon Coastal Zone Management Association. 1991.
9. "Oregon's Commercial Fishing Industry: It's Importance to Oregon's Economy." Prepared for the West Coast Fisheries Development Foundation. 1988.
10. Radtke, Hans D., Shannon W. Davis, Rebecca L Johnson, and Kreg Lindberg. "Economic and Demographic Transition on the Oregon Coast." In: Schoonmaker, Peter K., Bettina von Hagen, and Edward C. Wolf, Eds. "The Rain Forests of Home: Profile of a North American Bioregion." Ecotrust/Interrain Pacific. Island Press. 1997.
11. Radtke, Hans D. and Shannon W Davis. "Economic Feasibility of Salmon Enhancement Propagation Programs." In: E. Eric Knudsen, Cleveland R. Steward, Donald D. MacDonald, Jack E. Williams, and Dudley W. Reiser. "Sustainable Fisheries Management, Pacific Salmon." Lewis Publishers. 1999.
12. Schoonmaker, Peter K., Ted Gresh, Jim Lichatowich, and Hans D. Radtke. "Past and Present Pacific Salmon Abundance: Bioregional Estimates for Key Life History Stages." In: Stockner, John G., ed. Nutrients in Salmonid Ecosystems: Sustaining Production and Biodiversity. American Fisheries Society Symposium 34:33-40. 2003.
13. Radtke, Hans with assistance from Oleg Zaporozhets (Kamchatka Research Institute of Fisheries and Oceanography), Valeriy Yefanov (Institute of Natural Science, Sakhalin State University) and Chris Carter (retired economist Oregon Department of Fish and Wildlife). Notes on Economic Relationships For Artificial Salmon Propagation Programs In The North Pacific Draft Version 2. Prepared for the World Wildlife Fund. 2009.
14. Carter, Christopher N. and Hans D. Radtke. Economic Analysis of Columbia River Fish Hatchery Program. Presentation at the Ecological Interactions between Wild and Hatchery Salmon Conference. May 2010.
15. Radtke, Hans. Sandy River Hatchery Economic Effects Version 1.4. Prepared for the Oregon Native Fish Society. October 2011.

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Appendix B
Bibliography

ADFG. Overview of the 2020 Southeast Alaska and Yakutat Commercial, Personal Use, and Subsistence Salmon Fisheries. Prepared by Sara Conrad and Troy Thynes, Fishery Management Report No. 21-12. August 2021.

ADFG. Annual Management Report for the 2020 Southeast Alaska/Yakutat Salmon Troll Fisheries. Prepared by Grant Hagerman, Michael Vaughn, and Justin Priest. Fishery Management Report No. 21-17. September 2021.

CFEC. Permit Holdings and Estimates of Gross Earnings in the Yakutat and Southeast Alaska Commercial Salmon Fisheries, 1975-2020. CFEC Report Number 21-4N. December 2021 (Revised January 2022).

CFEC. Downloaded public permit and vessel databases. https://www.cfec.state.ak.us/ Accessed February 2022.

Congressional Research Service (CRS). Fishery Disaster Assistance. Updated April 2020.

Hagerman, G., R. Ehresmann, and L. Shaul. Annual Management Report for the 2018 Southeast Alaska/Yakutat Salmon Troll Fisheries. Alaska Department of Fish and Game, Fishery Management Report No. 19-09, Anchorage. 2019.

Headwaters Economics. Socioeconomic Trends and Measures for Southeast Alaska. 2008.

Leonard, J., and P. Watson. Description of the input-output model for Pacific Coast fisheries. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-111, 64 p. 2011.

McDowell Group. Economic Impact of the Pacific Salmon Treaty on the Alaska Troll Fleet. Prepared for the Northern Southeast Regional Aquaculture Association. December 2019.

McDowell Group. The Economic Value of Alaska's Seafood Industry, 2017-2018 Annual Average. Prepared for the Alaska Seafood Marketing Institute. January 2020.

McKinley Research. The Economic Value of Alaska's Seafood Industry, 2020. Prepared for the Alaska Seafood Marketing Institute. January 2022

National Center for Ecological Analysis and Synthesis (NCEAS). State of Alaska's Salmon and People. 2019.

National Marine Fishery Service (NMFS). Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response; Consultation on the Delegation of Management Authority for Specified Salmon Fisheries to the State of Alaska. NMFS Consultation Number: WCR-2018-10660. April 2019.

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Nichols, Carina. A Policy Evaluation considering the Pacific Salmon Treaty's Impacts on the Southeast Alaska Chinook Salmon Commercial Troll Fishery. Nicholas School of the Environment, Duke University. April 2021.

Pacific Salmon Commission (PSC). Annual Report of Catch and Escapement for 2020. Report TCCHINOOK (21)-03. June 2021.

Shedd, Kyle, Danielle Evenson, and Jeff Nichols. Mixed Stock Analysis of Chinook Salmon Harvested in Southeast Alaska Commercial Troll and Sport Fisheries, 2017. January 2021.

The Research Group, LLC (TRG). Estimating Economic Impacts of Alaska Fisheries Using a Computable General Equilibrium Model, Data Acquisition and Reduction Task Documentation. Draft. Prepared for National Marine Fisheries Service and Alaska Fisheries Science Center. November 2009.

TCW Economics. Economic Contributions and Impacts of Salmonid Resources in Southeast Alaska. Prepared for Trout Unlimited, Alaska Program. July 2010.

TRG. Oregon Commercial and Recreational Fishing Industry Economic Activity Coastwide and in Proximity to Marine Reserve Sites for Years 2018 and 2019, Technical Report. Prepared for Oregon Department of Fish and Wildlife, Marine Reserve Program and Marine Resource Program. June 2021.

Waters, E.C. and C.K. Seung. "Impacts of Recent Shocks to Alaska Fisheries: A Computable General Equilibrium (CGE) Model Analysis." Marine Resource Economics. 25:155-183. 2010.

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