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ORIGINS OF CHINOOK SALMON IN THE AREA OF THE
JAPANESE MOTHERSHIP SALMON FISHERY

by

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Annual Report for July 1, 1982 to June 30, 1983

INTRODUCTION

The chinook salmon (Oncorhynchus tshawytscha) resource is of great importance to the subsistence and local economies of the people of western Alaska. Over 90% of the total western Alaskan subsistence and commercial harvest of chinook is from the Nushagak, Kuskokwim, and Yukon Rivers (Meacham 1980), and the local economies of these areas in particular rely heavily on the chinook resource. Recent record catches (704,000 fish in 1980) of chinook salmon by the Japanese mothership salmon fishery have sparked new interest in determining the economic impact of this foreign fishery on western Alaska. According to Major (1982), the 1980 Japanese mothership catches represented a potential yield loss to western Alaskan fishermen of 12.4 million pounds. Major's result is based in part on provisional estimates of the proportion of western Alaskan chinook present in the mothership fishery area from studies with scales collected in 1966-72 (Major et al. 1977b). The potential of this enormous loss of catch to Alaskan fishermen gave impetus to fund a three year project to update and refine estimates of the mixing proportions of Asian and North American chinook stocks in the Japanese mothership fishing area by scale pattern recognition techniques. This is a report on the second year of this project. The work is conducted concurrently with a study funded by the North Pacific Fishery Management Council

(NPFMC) to determine stock origins of chinook incidentally caught in the foreign trawl fishery in the Alaskan Fishery Conservation Zone (FCZ), and some of the information submitted to the NPFMC (Myers and Rogers 1982, 1983a, b) will be included in this report.

The objectives of the second year were:

1. Update and refine estimates of stock abundances;
2. Continue procurement and ageing of inshore and Japanese mothership fishery scale samples;
3. Determine where improvements are needed in scale sampling and biological data;
4. Determine standard (training) sample composition;
5. Measure (digitize) scales for standard samples;
6. Select scale characters for stock separation;
7. Conduct a scale pattern analysis of standard samples to determine separability of defined stock categories and classification error rates.

RESULTS

The Japanese mothership salmon fishery began in 1952; however, it was not until 1963 that the fishery began heavy exploitation of chinook salmon in the central Bering Sea (areas 8 and 10, Fig. 1). Prior to 1963, the average annual catch of chinook salmon by the mothership fishery was only 61,000, whereas from 1963 through 1977, the average annual catch was 257,000. Most of the chinook were caught during June 21-July 31 in areas 8 and 10, and relatively few were caught west of 170°E longitude.

With the renegotiation of the INPFC Treaty in 1978, there was a significant change in the areas available to the mothership fishery and a change in fishing effort (Fig. 2). These changes significantly reduced the mothership catches of all species of salmon except chinook. The average annual catch of chinook from 1978 to 1982 was 226,000. After 1978, there was a significant increase in the chinook catches in area 5; however, the abundance (CPUE) of chinook salmon did not change as the CPUE in the Bering Sea was still highest (Fig. 2). The Bering Sea is most likely to contain a predominance of chinook salmon from western Alaska; however, areas south of the Aleutians may not.

Estimates of Stock Abundances

The scales of unknown origin in the mothership fishery samples will be classified using standard samples constructed by weighting component stocks according to best estimates of abundance, either within or between major river systems. The best estimates of abundance (1975-82)

that we have obtained to date for the component stocks to be included in five regional standards (1) Asia, 2) western Alaska, 3) central Alaska, 4) southeast Alaska-British Columbia, and 5) California-Oregon-Washington) are given in Tables 1-5.

The Asian standards will be composed of scales from the Kamchatka and Bolshaya Rivers, the only two Asian stocks for which scale samples are available. Abundance estimates for Asian stocks are limited to commercial catch statistics for East and West Kamchatka. These will be used to weight the proportions of Kamchatka R. (East Kamchatka) and Bolshaya R. (West Kamchatka) scales in the Asian standard. No estimates have been obtained for 1976, 1977, or 1982, and the 1980 and 1981 estimates are unofficial (Table 1).

The western Alaska standards will be composed of six stocks (Yukon, Kuskokwim, Kanektok, Goodnews, Nushagak, and Togiak) for which scale samples are available. The total run size estimates for the Yukon, Kuskokwim, Kanektok, and Goodnews (Table 2) were prepared for us by Ronald I. Regnart, Alaska Department of Fish and Game (ADF&G), and are based on the harvest, an escapement index, and an educated guess as to probable exploitation rate.

The central Alaska standards will be constructed from Cook Inlet and Copper River (Cordova Management Area) chinook scale samples. Reliable estimates of escapement are not available for most central Alaska chinooks stocks. Therefore, proportions of Cook Inlet and Copper River chinook will be weighted by the catch (commercial, subsistence, and sport) estimates given in Table 3).

The southeast Alaska-British Columbia standards will include seven major chinook stocks (Fraser, Skeena, Nass, Bella Coola (Atnarko), Stikine, Taku, and Alsek. The total run size estimates (Table 4) include terminal and in-river commercial, Alaskan subsistence and British Columbian Indian food fish, and sport catches, and escapement estimates. Although these estimates represent the best abundance data available, Canada Fisheries and Oceans biologists caution that these estimates may not be reliable, as survey and estimation techniques vary among stocks and years (P. J. Starr, pers. comm.).

California, Oregon, and Washington chinook will be grouped into six major "stocks": California, Oregon coast, Columbia River spring chinook, Columbia River fall chinook, Washington coast, and Washington inland waters. The run size estimates for these stocks (Table 5) include terminal or in-river commercial, Indian, and sport catches, and escapement estimates.

Inshore Scale Samples

Scale collecting in 1982 was done to obtain samples from the 1982 returns to the rivers or areas for which we have historical samples (1975 to 1981), and to complete the voids in our historical scale sample collection. Key personnel and agencies listed in Table 6 either provided scales or acetate impressions or were instrumental in obtaining samples. Appendix Table 1 contains a listing of all chinook scales in our files at the Fisheries Research Institute (FRI) with the samples presently re-aged and digitized each denoted by asterisks.

All known origin scale samples provided by the different agencies have been or are to be re-aged by FRI scale analysts. We have re-aged these samples to provide information on the number of scales available for our analysis, as well as to provide consistency in age interpretation and age composition data.

We did not age regenerated scales since scales with missing circuli are invalid for use in scale pattern analyses. About 38% of the approximately 56,000 scales re-aged were determined unusable. Myers and Rogers (1983b) compared the FRI age determinations to ADF&G's data for 1979-1982 Nushagak chinook scale samples, and the age compositions were within five percent agreement, although ADF&G aged from 30% to 41% more scales.

Run size data (Tables 1-5) will be weighted by the age compositions of inshore scale samples to determine the number of scales of each age class and stock to be included in the standards. To date, we have determined the age compositions of all 1979-82 scale samples for all stocks to be included in the five regional standards. These age composition data are presented by region and stock in Tables 7-11. Although these estimates are probably adequate for the purposes of our stock separation analyses, we caution that they are based on samples collected by techniques that often vary considerably within and between stocks and years. Predominant age classes in the Asian, western Alaska, and central Alaska samples are ages 1.2, 1.3, and 1.4 (Tables 7-9). In addition to these age classes, southeast Alaska and British Columbia samples often contain large proportions of ages 0.2, 0.3, and 0.4 (Table 10). With the excep-

tion of the Columbia River Spring Chinook samples which are composed primarily of ages 1.2 and 1.3, the California, Oregon, and Washington samples contained mostly ages 0.2, 0.3, and 0.4 (Table 11).

Although we did not include age 0.5 in our tables, this age class occasionally occurred in significant proportions in a few Oregon samples. In addition, .1 ocean chinook of both freshwater age classes were sometimes common in samples collected by beach seine or traps. Scales with two freshwater annuli were relatively uncommon in most samples, although they were seen more often in samples from Asia and western Alaska than in samples from more southern stocks. All of these age classes were included in the category "other" (Tables 7-11). No scales with more than five ocean annuli or two freshwater annuli were seen in any of the 1979-82 scale samples.

Japanese Mothership Scale Samples

Acetate impressions of scales collected from the 1979, 1980, and 1981 mothership fishery were received from the Japanese Fishery Agency (JFA) by FRI in 1982-83. We have not yet received the 1975-78 mothership samples requested from the JFA. The samples from 1980 and 1981 have been re-aged and Tables 12 through 16 provide a summary of the data. In Table 12, the proportions of regenerated (or otherwise unreadable) scales are compared between the two agencies, JFA and FRI. The proportion of regenerated scales was found to be 50% and 47% by FRI, which was higher than the proportion determined by JFA (36% and 39%), for 1980 and 1981, respectively. This shows the somewhat subjective nature of determining scale quality, and is due to the fact that FRI

scale readers are more conservative when ageing slightly regenerated scales or poor scale impressions.

Tables 13 through 16 list the age determinations of each agency by International North Pacific Fishery Commission (INPFC) area and month. The first value is the actual frequency and the number enclosed by parentheses is the proportion at age within the stratum. Mature and immature fish have been combined for each age. The proportions were calculated from only those scales considered readable by the respective agency. The most prevalent age group was 1.2 (87-90% in 1980 and 82-83% in 1981). Age 1.3 was the second most numerous age class (8-9% in 1980 and 14% in 1981). The remaining age classes all combine to form a small proportion of the remaining scales.

We have completed digitizing the 1980 mothership samples. A total of 1,998 scales of 1.2 immatures and 218 scales of 1.3 immatures were measured; and the data are currently undergoing analysis.

Improvements in Scale Sampling and Biological Data

We have identified two major areas for improvement in chinook scale sampling and biological data. The first is a need for improvement in the Asian scale samples, and the second involves the lack of standardization of method.

The major weakness of our inshore scale samples at present is the Asian collection. We resubmitted a request for chinook scales personally to Dr. Victor Tumanov, Director of the Scientific Information Division of TINRO (Pacific Research Division of Fisheries and Oceano-

graphy) on April 6, 1983. Dr. Tumanov could not give a date when the scales would be provided, but he believed the request would be filled. The 1981 chinook scale samples for the Bolshaya and Kamchatka Rivers were provided by the JFA in March 1983. We have not yet received any 1977 or 1982 Asian chinook scale samples.

In addition to obtaining the 1977 and 1982 scales, the Asian samples could be improved by increasing the number of scales sampled for each stock, as well as the number of stocks sampled. The samples provided by the JFA (1975-76, 1978-81) consist of samples from 200 fish or fewer per stock per year, which is usually not enough to provide an adequate sample size for all age classes. Samples have been provided for only two Asian stocks, the Kamchatka and Bolshaya. Although these are reported to be the two major Asian stocks, we have no catch or escapement data to support this claim. Furthermore, we do not know if the scale patterns of these two stocks are representative of all Asian chinook. Because of the small size of the Asian samples, the lack of samples for some years, and the absence of run size data, we may be forced to construct the Asian standards differently than the other regional standards.

The other major problem area that we have identified is the lack of standardization of scale sampling methods, biological data collection, and population estimation techniques both within and between fisheries resource agencies. Because we are dealing primarily with historical samples, we can do little to make improvements in this area for our study. However, we want to encourage the people that have contributed

scale samples, biological data, and population estimates for our analysis to work on improving and standardizing methods both within and between their agencies.

Although not directly related to scale sampling, we have also identified a need for more accurate catch and escapement data for almost every major Asian and North American chinook stock that we examined. In addition, catch and escapement data that are available on Asian and North American chinook stocks have never been summarized in one place, and much of the data has never been published. Most agencies would do well to emulate the recent efforts of McBride and Wilcock (1983), who have summarized Alaska chinook salmon catch, escapement, age, size, and sex composition estimates.

Standard Sample Composition

The majority of chinook salmon caught by the mothership fishery are immature age 1.2 and 1.3. Because the age at maturity is unknown, mothership samples will be classified using inshore scale samples from fish of the same brood year. All possible age classes at return will be included in a brood year standard. Using this technique, a complete scale pattern analysis of immature 1.2s and 1.3s caught from 1975 through 1981 will require 14 different brood year standards (Table 17). At the present time, we plan to construct the brood year standards for five regions (Asia, western Alaska, central Alaska, southeast Alaska-British Columbia, and California-Oregon-Washington). These standards will be used to test the hypothesis that North American chinook caught by the mothership fishery in the Bering Sea are entirely of western

Alaskan and Canadian Yukon origin. If the hypothesis is supported (i.e., near zero or negative estimates are obtained for other categories), the analyses will be repeated using redefined categories to provide more resolution (e.g., Asia, Yukon, Kuskokwim, and Bristol Bay).

During 1982-83, we completed the construction of most of the brood year standards requiring scales from the 1979-82 returns. To construct these standards, the total "run size" (catch and/or escapement) for each stock in each year (Tables 1-5) was weighted by the age composition of the respective inshore scale sample (Tables 7-11) to determine a "total return" for each age class in each year. The total return for each age class and stock to be included in a particular brood year standard was then summed to obtain a total "brood year return." Then, the proportion of the total brood year return represented by each age class and stock was computed. This proportion was multiplied by the total sample size of each brood year standard (200 scales) to determine the number of scales needed for each age class and stock.

Scale Digitizing for Standard Samples

We completed digitizing of most 1979-82 scales required for the brood year standards listed in Table 17. The number of scales measured is presented by region, stock, year, and age class in Tables 18-22. We measured a total of 8,524 scales; 40% of these were from western Alaska to provide individual standards for the Yukon River, Kuskokwim River, and Bristol Bay, as well as composite western Alaska standards. Copies of all the digitized scale measurements were made on floppy disc for ADF&G's Stock Separation Lab and the FRI Archives.

Scale Characters for Stock Separation

The digitized scale data consists of the incremental distance to the outer edge of each circulus measured in each of the three zones (freshwater first-year, freshwater plus growth, and first year marine growth). The measurement data will be reduced to the 24 primary characters presented in Table 23. The primary characters will be combined to create the 60 characters described in Table 24, and these will be examined for separation characteristics in the scale pattern analyses.

Scale Pattern Analysis

Myers and Rogers (1982) demonstrated the feasibility of freshwater-marine scale growth patterns to separate Asian and North American chinook stocks, as well as major western Alaskan or Asian stocks from each other. Overall classification accuracies of 82.2% obtained in a four-region (Asia, western Alaska, British Columbia, and Washington-Oregon) analysis and 70.9% obtained in a four-river (Bolshaya, Kamchatka, Yukon, and Nushagak) analysis were well above the lowest acceptable overall accuracy (62.5%) for a four-way classification. However, the standards were constructed without weighting on the basis of stock abundance, and were pooled over brood years. In addition, the British Columbia and Washington-Oregon standards contained fewer stocks than we plan to use in our analyses, and they did not have enough scale samples to construct a central Alaska standard.

We conducted a preliminary analysis of scales digitized for the brood year 1976A (Table 17) standards to demonstrate the feasibility of the scale pattern analysis techniques we plan to use for our study. The

1976A standard will be used to classify immature age 1.2 chinook caught in the mothership fishery in 1980, and includes the scales of age 1.3 chinook returning in 1981 and age 1.4 chinook returning in 1982. The scales of brood year 1976 age 1.5 chinook are not yet available.

The five regional standards were constructed by techniques described earlier in this report, and final sample sizes are shown by region, stock, return year, and age class in Table 25. The final sample sizes of the Asian, central Alaska, and California-Oregon-Washington standards were less than 200 because enough scales were not available for some age classes and stocks. However, the final sample sizes were adequate for a scale pattern analysis.

A subset of six characters (character numbers 3, 7, 11, 16, 26 and 36 in Table 24) were chosen by the method of Cook and Lord (1978). Briefly, a Kruskal-Wallis H-statistic (Kruskal and Wallis 1952) and the difference between the average sum of the ranks for each pairwise combination were calculated. Characters having the largest H-statistic, the greatest pairwise differences, and the least dependence on each other were chosen.

The standard samples were classified by a direct density, leaving-one-out approach (Cook 1982b) to establish the level of accuracy that would be obtained in classifying chinook in the mothership samples.

The results of classifying the five regional standards are shown in Table 26. The percentages of fish correctly classified as Asia, western Alaska, central Alaska, southeast Alaska-British Columbia, and Califor-

nia-Oregon-Washington were 82.2%, 75.5%, 53.3%, 53.0%, and 82.8%, respectively. Misclassification errors were greatest between adjacent regions, particularly between central Alaska and southeast Alaska-British Columbia. However, the overall accuracy (69.4%) was well above the lowest acceptable overall accuracy (60.0%) for a five-way classification.

SUMMARY

1. Estimates of stock abundances (1975-82) of major Asian and North American chinook salmon stocks were updated and refined (Tables 1-5).
2. Most of the scale samples from 1982 returns of chinook stocks for which we have historical samples (1975-81) were collected, and we continued to complete voids in our historical scale collection.
3. We re-aged approximately 56,000 inshore chinook scale samples, and determined age compositions of the 1979-82 scale samples of all stocks to be included in our scale pattern analysis (Tables 7-11).
4. We received the 1979, 1980, and 1981 mothership fishery samples from the JFA, and re-aged 4,548 scales in the 1980 samples and 2,068 scales in the 1981 sample. Comparisons between FRI and JFA ages showed that FRI readers were more conservative in accepting scales as readable, but total age compositions calculated from FRI and JFA ages were similar (Tables 12-16).

5. We completed digitizing the 1980 mothership samples. A total of 1,998 scales of immature age 1.2 chinook and 218 scales of immature age 1.3 chinook were measured.
6. We identified the need for improvement in Asian chinook scale samples, the lack of standardization of scale sampling methods, biological data collection, and population estimation techniques both within and between fisheries resource agencies. There is need for more accurate catch and escapement data for almost every major Asian and North American chinook stock.
7. The brood year standards required for a complete (1975-81) analysis of immature age 1.2 and 1.3 chinook in the mothership fishery samples were determined (Table 17), and the construction of most of the brood year standards requiring scales from the 1979-82 returns was completed.
8. We completed digitizing most of the 1979-82 scales required for the brood year standards. A total of 8,524 scales from all major Asian and North American chinook stocks were digitized (Tables 18-22).
9. Sixty scale characters to be examined for use in the scale pattern analyses were selected (Table 24).
10. An overall classification accuracy of 69.4% obtained for a five region analysis of brood year 1976 age 1.3 and 1.4 chinook salmon demonstrated the feasibility of the scale pattern analysis techniques we plan to use for this study.

ACKNOWLEDGMENTS

Although too numerous to list individually, we want to acknowledge all of the people and the agencies they represent for their considerable efforts and cooperation in providing us with Asian and North American chinook salmon scale samples, biological data, and population estimates. Mr. Colin K. Harris was instrumental in the preliminary planning of this project, and has provided us with invaluable advice and guidance. Dr. Rodney C. Cook developed the pattern recognition techniques and constructed the FORTRAN programs that we used for our analysis. We also want to thank Mr. Robert V. Walker, especially for his assistance with computer programming, and Mr. Marlin Hornberger and Ms. Brenda Rogers for their help with scale ageing and data compilation. Nancy S. Jackson, Laverna Cobb, and Marcus G. Duke processed the tables and text.

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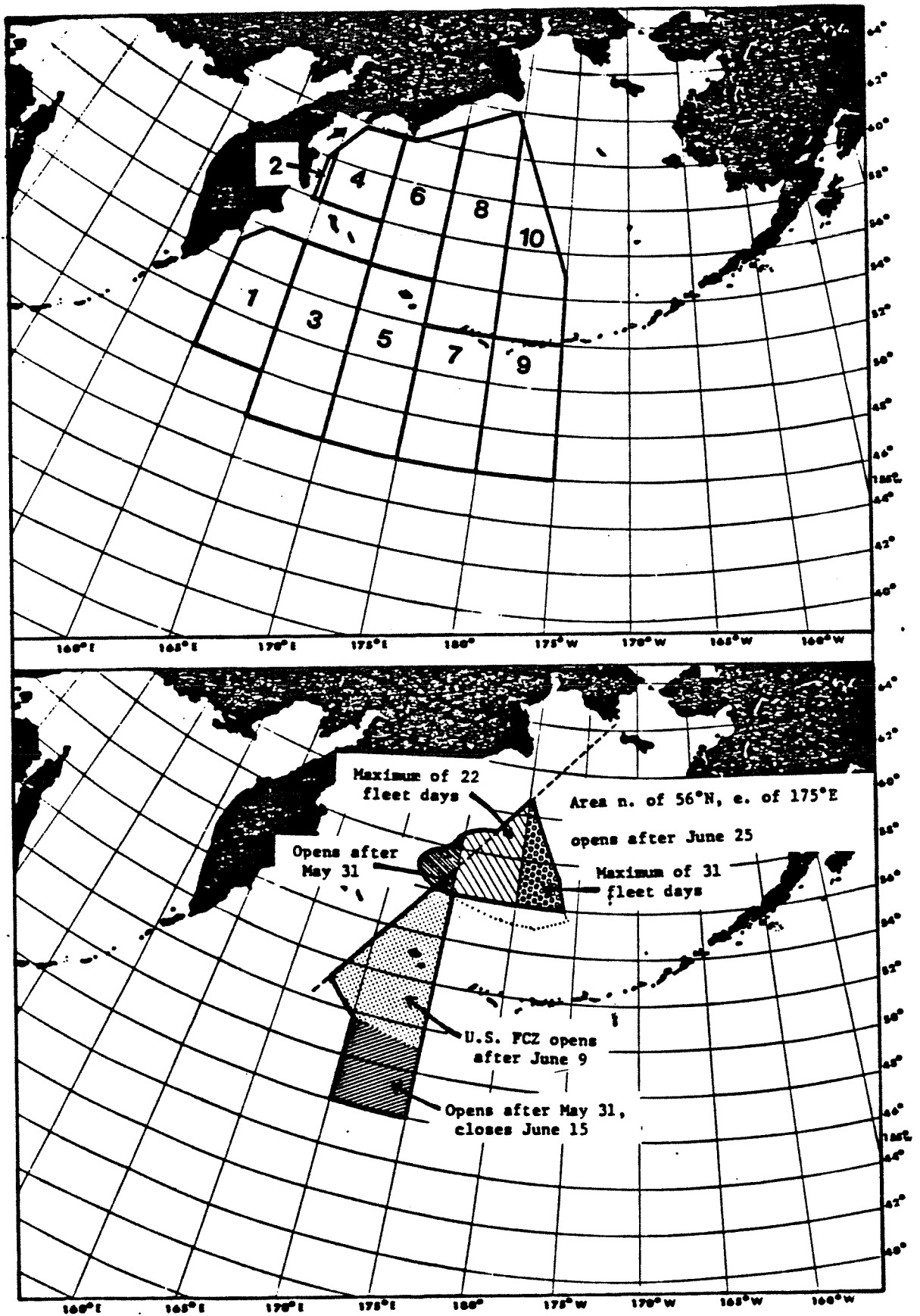


Fig. 1. Areas fished by the Japanese mothership salmon fishery. Upper panel shows fishing area and designation sub-areas as existed in 1959-1976, and lower panel shows overall area and time/area restrictions under the Japan-Soviet Fishery Commission and the International North Pacific Fisheries Commission, 1979-1981.

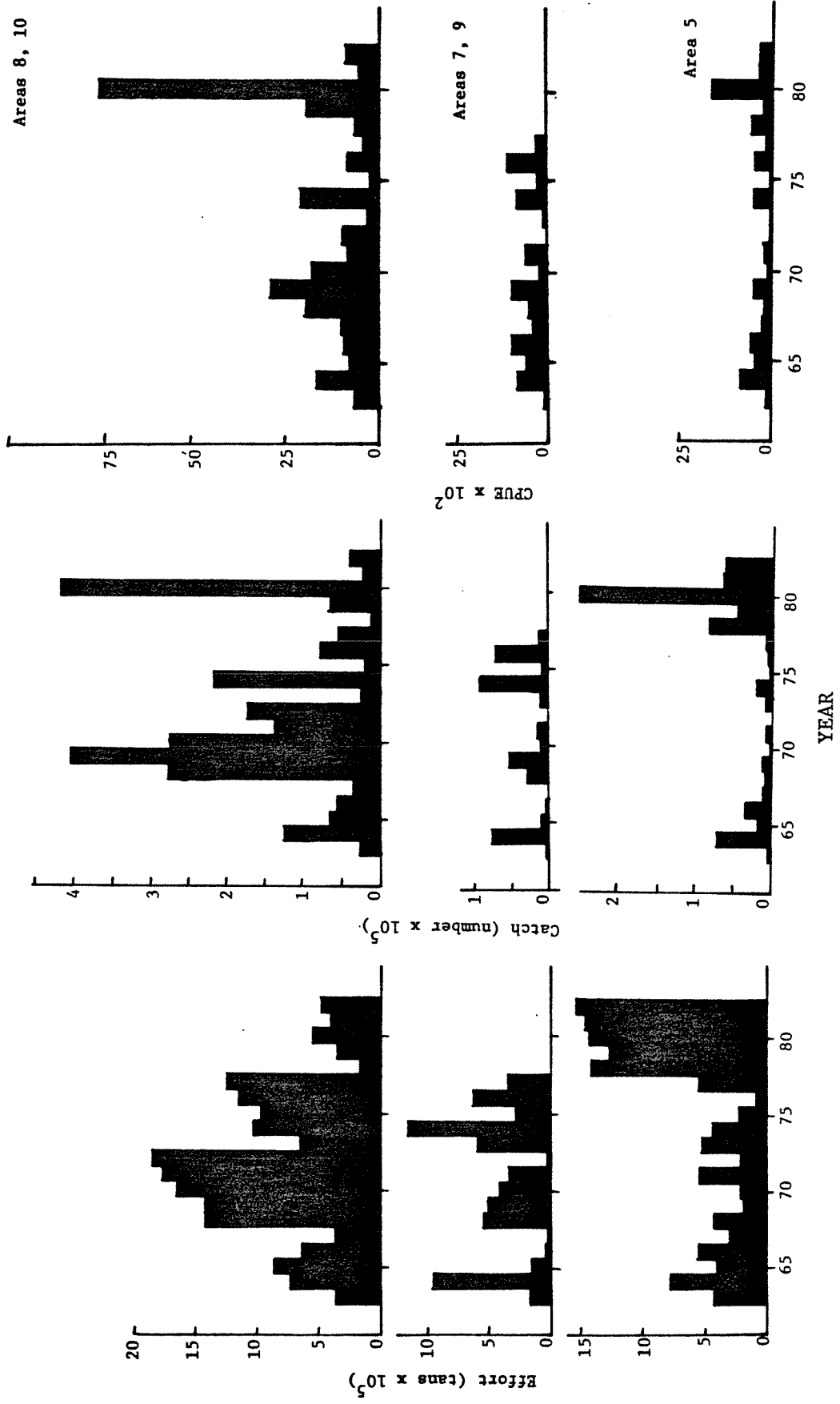


Fig. 2. Fishing effort, catch and CPUE of chinook salmon for the mothership fishery during June 21 - July 31, 1963-82, by sub-areas.

Table 1. Chinook commercial catch data used in the formation of brood year standards for Asia (from Forrester 1981b, 1982; INPFC 1979; Burgner 1982).

Site	1975	1976	1977	1978	1979	1980	1981	1982
Kamchatka	221,000			301,700	246,600	140,300	116,700	
Bolshaya	31,000	.		12,200	21,900	16,500	9,000	

Table 2. Chinook total run size data used in the formation of brood year standards for Western Alaska (from R. Regnart 1982; ADFG 1982b,c; D. McBride and J. Wilcox 1982; S. Behnke 1982; W. Bucher 1982).

Site	1975	1976	1977	1978	1979	1980	1981	1982
Yukon	120,000	146,000	193,000	247,000	294,000	380,000	410,000	223,000
Kuskokwim	87,000	117,000	142,000	157,000	180,000	173,000	215,000	199,000
Kanektok	8,500	19,500	27,000	25,000	19,000	18,500	43,000	32,500
Goodnews	4,500	7,000	7,000	9,200	6,700	4,700	14,300	13,000
Nushagak	98,554	167,584	156,957	225,490	260,027	217,781	356,369	462,000
Togiak	18,669	44,244	55,780	97,719	51,027	25,402	51,748	57,400

Table 3. Chinook catch estimates used in the formation of brood year standards for Central Alaska (from D. McBride and J. Wilcox 1982; ADFG 1981c, 1982c; P. Ruesch 1983; S. Hammarstrom 1983; M. Merritt 1983; W. Potterville and F. Williams 1983).

Site	1975	1976	1977	1978	1979	1980	1981	1982
Cook Inlet	11,064	25,891	36,127	40,459	43,253	32,085	37,412	50,435
Copper River	24,727	35,069	26,005	32,256	25,785	13,413	24,782	54,680

Table 4. Chinook terminal and instream catch and escapement data used in the formation of brood year standards for Southeast Alaska and British Columbia region (from P. Kissner 1982, 1983; D. McBride 1983; R. Cook 1981; D. Reid 1983a, b; Can. Dep. Fish. Oceans 1978, 1979b, 1980b, 1981b; M. Bethers 1983; P. Starr 1983; F. Fraser et al. 1982).

Site	1975	1976	1977	1978	1979	1980	1981	1982
Alsek		2,509	6,314	7,091	9,498	5,559	4,113	4,824
Taku	6,423	10,000	12,833	5,400	7,099	15,172	17,153	8,488
Stikine	7,134	4,301	6,674	5,056	10,103	18,547	27,547	23,675
Nass	23,050	17,005	30,842	43,039	23,718	22,311	20,787	18,878
Skeena	36,335	23,049	51,663	38,154	38,865	41,905	55,048	42,627
Bella Coola	12,965	32,948	36,806	27,754	21,477	12,233	9,087	14,850
Fraser	188,876	154,374	201,872	155,882	136,674	111,070	84,888	124,692

Table 5. Chinook terminal catch and escapement estimates used in the formation of brood year standards for Washington, Oregon, and California (from L. Stern 1983; PPMC 1981; R. Cook 1981; M. Barker 1983; J. Galbreath 1982; M. Solazzi and J. Martin 1982; A. McGie 1983; R. Berry 1983; P. Hubbell 1982; R. Reaves 1981a, b; WDF 1975, 1976, 1977, 1978a, 1979a, 1980).

Site	1975	1976	1977	1978	1979	1980	1981	1982
Inland waters								
Washington	546,897	436,923	390,302	380,023	479,090	501,561	426,900	454,971
Coastal								
Washington	69,680	87,027	110,602	65,539	74,034	86,064	71,170	65,046
Columbia River								
Springs	173,650	142,970	225,500	229,100	99,600	111,350	140,350	136,300
Columbia River								
Falls	445,900	442,100	349,600	321,100	295,800	286,500	241,500	291,600
Coastal Oregon	153,238	115,042	183,355	208,508	208,494	191,026	188,170	184,773
California	356,446	369,346	331,666	316,281	304,799	265,628	411,721	342,961

Table 6. Key personnel providing scales or impressions for the Chinook Separation study.

Name	Region	Agency	City	Phone
D. McBride	Western, Central and Southeast Alaska	ADF&G, Stock Separation	Anchorage, AK	907-267-2382
B. Van Alen				
J. Wilcock				
P. Kissner	Southeast Alaska	ADF&G, Sports Fish	Juneau, AK	907-465-4270
Y. Yole	British Columbia	Dept. Fisheries and Oceans	Vancouver, BC	604-666-1058
J. Sneva	Washington State	Washington State Dept. Fisheries	Olympia, WA	206-753-6615
H. Jensen	Columbia River	Oregon Dept. Fish. and Wildlife	Clackamas, OR	503-657-2031
L. Van Dyke	Oregon State	Oregon Dept. Fish. and Wildlife	Corvallis, OR	503-754-4431
W. Harper	Klamath River	U.S. Fish and Wildlife Fishery Assistance Office	Arcata, CA	707-822-7201
P. Raquel	Sacramento River	California Dept. Fish and Game	Stockton, CA	209-466-4421
Dr. V. Tumanof	Asia	TINRO (Pacific Research Institute of Fisheries and Oceanography)	Vladivostok, USSR	
R. Hayman	Quilleute River	Quilleute Fisheries	LaPush, WA	206-374-6163
C. Coleman				
S. Hammarstrom	Cook Inlet	ADF&G, Sports Fish	Soldotna, AK	907-262-9368
M. Buckman	Rogue River	Oregon Dept. Fish. and Wildlife	Corvallis, OR	503-754-4431
L. Lestelle	Washington Coast	Quinault Indian Nation	Taholah, WA	206-276-8211
C. Holt				
P. Huffman				

Table 7. Age composition of Asian chinook salmon (Oncorhynchus tshawytscha) scale samples, 1978-1981.

Stock: Kamchatka

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1978	.00	.01	.00	.11	.39	.42	.02	.06
1979	.00	.00	.00	.04	.59	.32	.01	.04
1980	.00	.02	.01	.17	.33	.39	.05	.03
1981	.01	.01	.00	.02	.77	.19	.01	.00

Stock: Bolshaya

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1978	.00	.04	.01	.03	.24	.60	.07	.01
1979	.00	.00	.00	.02	.38	.57	.01	.02
1980	.01	.00	.03	.10	.14	.69	.03	.00
1981	.01	.02	.00	.00	.46	.43	.09	.00

Table 8. Age composition of Western Alaska chinook salmon scale samples, 1979-1982.

Stock: Yukon (Emmonak Fishery)								
Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979	.00	.00	.00	.29	.34	.28	.08	.01
1980	.00	.00	.00	.06	.49	.41	.02	.02
1981	.00	.00	.00	.07	.20	.71	.02	.00
1982	.00	.00	.00	.10	.23	.50	.10	.07

Stock: Kuskokwim

Percent composition								
Year	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
	1979 ¹	.00	.00	.00	.60	.17	.16	.06
1980 ¹	.00	.00	.00	.10	.63	.19	.07	.00
1981 ²	.00	.00	.00	.10	.32	.57	.01	.00
1982 ³	.00	.01	.01	.12	.19	.59	.06	.02

¹Kogrulkluk fishery.

²Bethel and Kwegooyuk fisheries.

³Bethel and Kwegooyuk fisheries and Aniak sonar.

Stock: Kanektok (Quinhagak fishery)

Percent composition								
Year	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
	1981	.00	.00	.00	.60	.18	.20	.01
1982	.00	.01	.00	.09	.59	.24	.03	.04

Stock: Goodnews

Percent composition								
Year	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
	1981	.00	.00	.00	.57	.17	.26	.00
1982	.00	.02	.00	.09	.64	.20	.02	.03

Table 8. Age composition of Western Alaska chinook salmon scale samples, 1979-1982 - cont'd.

Stock: Nushagak

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979	.00	.00	.00	.42	.12	.41	.04	.01
1980	.00	.01	.01	.02	.66	.21	.05	.03
1981	.00	.00	.00	.25	.33	.41	.01	.00
1982	.00	.00	.01	.04	.47	.42	.04	.02

Stock: Togiak

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979	.00	.00	.00	.41	.08	.34	.17	.00
1980	.00	.00	.00	.19	.48	.24	.05	.05
1981	.00	.00	.00	.40	.23	.35	.01	.02
1982	.00	.00	.01	.11	.56	.23	.03	.06

Table 9. Age composition of Central Alaska chinook salmon scale samples, 1979-1982.

Stock: Cook Inlet

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979 ¹	.00	.00	.00	.07	.37	.50	.05	.01
1980 ²	.00	.01	.02	.16	.27	.45	.05	.04
1981 ³	.00	.00	.00	.18	.40	.35	.02	.05
1982 ⁴	.00	.00	.00	.29	.37	.31	.01	.02

¹Kenai R., Deep Cr., Anchor R., Ninilchik R.

²Tyonek fishery, Susitna R., Kenai R., Kasilof R., Deep Cr., Anchor R., Ninilchik R.

³Tyonek fishery, Kenai R., Deep Cr., Anchor R., Ninilchik R.

⁴Tyonek fishery.

Stock: Copper River

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979	.00	.00	.00	.00	.46	.53	.01	.00
1980 ¹	-	-	-	-	-	-	-	-
1981	.00	.00	.00	.05	.44	.44	.00	.07
1982	.00	.00	.00	.06	.52	.23	.00	.19

¹No scale samples collected in 1980.

Table 10. Age composition of British Columbia and Southeast Alaska chinook salmon scale samples, 1979-1982.

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979	.02	.19	.04	.11	.58	.05	.00	.01
1980	.07	.21	.09	.10	.47	.03	.00	.02
1981	.14	.35	.04	.16	.29	.03	.00	.00
1982	.15	.34	.01	.17	.27	.02	.00	.02

Stock: Nass

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979	.09	.14	.01	.14	.39	.21	.00	.01
1980	.04	.04	.00	.17	.66	.07	.00	.01
1981	.04	.14	.06	.10	.31	.31	.00	.04
1982	.00	.00	.00	.26	.60	.14	.00	.00

Stock: Skeena

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979	.11	.21	.16	.15	.26	.10	.00	.01
1980	.01	.00	.01	.11	.70	.15	.01	.02
1981	.01	.11	.07	.13	.28	.40	.00	.00
1982	.01	.01	.04	.18	.44	.30	.01	.02

Stock: Bella Coola (Atnarka)

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979	.18	.16	.23	.19	.05	.18	.00	.02
1980	.03	.15	.06	.03	.65	.05	.00	.02
1981	.03	.29	.13	.08	.29	.18	.00	.01
1982	.06	.24	.13	.15	.22	.16	.00	.04

Table 10. Age composition of British Columbia and Southeast Alaska chinook salmon scale samples, 1979-1982 - cont'd.

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979	.00	.06	.02	.02	.50	.38	.00	.02
1980	.00	.00	.02	.08	.30	.60	.00	.00
1981	.00	.00	.03	.14	.41	.37	.00	.05
1982	.01	.00	.02	.14	.43	.40	.00	.00

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979	.00	.00	.00	.47	.20	.05	.00	.28
1980	.00	.00	.00	.25	.29	.25	.00	.21
1981	.00	.00	.00	.23	.30	.36	.00	.11
1982	.00	.00	.00	.02	.16	.81	.01	.00

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979	.06	.08	.02	.26	.49	.09	.00	.00
1980	.00	.02	.01	.19	.38	.34	.01	.05
1981	.00	.03	.02	.04	.29	.58	.01	.03
1982	.00	.00	.00	.05	.15	.76	.02	.02

Table 11. Age composition of California, Oregon and Washington chinook salmon scale samples, 1979-1982.

Stock: California

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979 ¹	.33	.34	.02	.07	.01	.00	.00	.23
1980 ¹	.46	.34	.05	.01	.03	.00	.00	.11
1981 ¹	.42	.20	.02	.02	.05	.00	.00	.29
1982 ²	.31	.43	.01	.03	.00	.00	.00	.22

¹Klamath and Sacramento.

²Klamath.

Stock: Oregon Coast

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979 ¹	.22	.44	.13	.03	.05	.01	.00	.11
1980 ²	.16	.40	.13	.05	.04	.00	.00	.20
1981 ³	.24	.41	.25	.00	.01	.01	.00	.08
1982 ⁴	.12	.35	.30	.02	.01	.05	.00	.14

¹Yaquina, Siletz, Rogue.

²Coos, Yaquina, Umpqua, Rogue.

³Yaquina, Rogue.

⁴Siuslaw, Nestucca, Tillamook, Yaquina, Coos, Coquille.

Stock: Columbia River Springs

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979	.00	.00	.00	.57	.40	.02	.00	.01
1980	.02	.07	.07	.25	.56	.03	.00	.00
1981	.01	.03	.02	.59	.36	.01	.00	.00
1982	.00	.00	.00	.43	.45	.01	.00	.00

Table 11. Age composition of California, Oregon and Washington chinook salmon scale samples, 1979-1982 - cont'd.

Stock: Columbia River Falls

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979	.23	.41	.08	.06	.05	.01	.00	.16
1980	.45	.33	.16	.02	.01	.00	.00	.03
1981	.30	.37	.11	.02	.01	.00	.00	.19
1982	-	-	-	-	-	-	-	-

Stock: Washington Coast

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979 ¹	.16	.39	.38	.01	.01	.01	.00	.04
1980 ²	.20	.37	.36	.01	.01	.00	.00	.04
1981 ¹	.16	.42	.34	.01	.01	.00	.00	.06
1982 ³	.17	.31	.44	.01	.01	.00	.00	.06

¹Quileute, Quinault, Queets, Humptulips, Chehalis, Willapa Bay.

²Quileute, Quinault, Queets Humptulips, Chehalis, Grays Harbor, Willapa Bay.

³Quileute, Quinault, Queets, Humptulips, Chehalis.

Stock: Washington Inland Waters

Year	Percent composition							
	Age							
	0.2	0.3	0.4	1.2	1.3	1.4	1.5	Other
1979 ¹	.38	.44	.09	.04	.03	.00	.00	.02
1980 ²	.28	.53	.06	.08	.02	.00	.00	.03
1981 ²	.14	.70	.05	.07	.03	.00	.00	.01
1982 ³	.30	.42	.09	.12	.06	.00	.00	.02

¹Nooksack/Samish, Stillaguamish/Snohomish, Duwamish, Hood Canal.

²Nooksack/Samish, Skagit, Stillaguamish/Snohomish, Duwamish, Hood Canal.

³Nooksack/Samish, Skagit, Stillaguamish/Snohomish, Duwamish, Hood Canal, Puyallup, Deschutes.

Table 12. Number and percent (%) of regenerated* chinook salmon scales from 1981 and 1982 Japanese Mothership Fishery samples as determined by Japanese Fishery Agency (JFA) and Fisheries Research Institute (FRI) biologists.

Sample Year	Agency	Total number of scales examined	Number of scales aged	Number of scales regenerated
1980	JFA	4548 (1.00)	2903 (.64)	1645 (.36)
	FRI	4548 (1.00)	2261 (.50)	2287 (.50)
1981	JFA	2068 (1.00)	1268 (.61)	800 (.39)
	FRI	2068 (1.00)	1105 (.53)	963 (.47)

*Or otherwise unreadable, i.e., dirty or obscured.

Table 13. Frequency and percent () age composition of chinook salmon sampled from the Japanese Mothership Fishery, 1980: Japanese Fishery Agency age determinations.

INPFC Area	Month	Age Groups											Total Aged			
		0.2	0.3	1.1	2.1	1.2	2.2	1.3	2.3	1.4	2.4	Other				
E6550	June	0	0	0	0	4(.80)	1(.20)	0	0	0	0	0	0	0	0	5(1.00)
E6550	July	0	0	0	0	35(.95)	0	0	0	2(.05)	0	0	0	0	0	37(1.00)
E6552	June	0	0	0	0	5(1.00)	0	0	0	0	0	0	0	0	0	5(1.00)
E7046	June	0	0	1(.01)	0	64(.62)	0	0	0	38(.37)	0	0	0	0	1(.01)	104(1.00)
E7048	July	0	0	0	0	282(.85)	2(.01)	0	0	46(.14)	0	0	0	0	0	330(1.00)
E7050	June	0	0	0	0	477(.98)	2	0	0	8(.02)	0	0	0	0	0	487(1.00)
E7050	July	0	0	1	0	290(.75)	7(.02)	0	0	89(.23)	0	0	0	0	1	388(1.00)
E7052	June	0	0	0	0	626(.98)	1	0	0	14(.02)	0	0	0	0	0	641(1.00)
E7052	July	0	0	0	0	9(.64)	0	0	0	5(.36)	0	0	0	0	0	14(1.00)
E7054	July	0	0	0	0	53(.93)	1(.02)	0	0	3(.05)	0	0	0	0	0	57(1.00)
E7056	July	0	0	1(.01)	0	106(.90)	0	0	0	11(.09)	0	0	0	0	0	118(1.00)
E7550	July	0	0	0	0	10(.83)	1(.08)	0	0	1(.08)	0	0	0	0	0	12(1.00)
E7556	June	0	0	0	0	17(.94)	1(.06)	0	0	0	0	0	0	0	0	18(1.00)
E7556	July	0	0	0	0	16(.80)	0	0	0	4(.20)	0	0	0	0	0	20(1.00)
W8056	July	0	0	1	0	365(.91)	3(.01)	0	0	33(.08)	0	0	0	0	1	403(1.00)
W8058	July	0	0	1	1	231(.94)	1	0	0	12(.05)	0	0	0	0	1	247(1.00)
	July	0	0	0	0	15(.88)	0	0	0	2(.12)	0	0	0	0	0	17(1.00)
Total:		0	0	5	1	2605(.90)	20(.01)	268(.09)	0	0	0	0	0	4	2903(1.00)	

Table 14. Frequency and percent () age composition of chinook salmon sampled from the Japanese Mothership Fishery, 1980: Fisheries Research Institute age determinations.

INPFC Area	Month	Age groups										Total			
		0.2	0.3	1.1	2.1	1.2	2.2	1.3	2.3	1.4	2.4	Other	Aged		
E6550	June	0	0	0	0	2(.67)	1(.33)	0	0	0	0	0	0	0	3(1.00)
E6770	July	0	0	0	0	29(.97)	0	0	0	1(.03)	0	0	0	0	30(1.00)
E6552	June	0	0	0	0	1(.50)	0	0	0	1(.50)	0	0	0	0	2(1.00)
E7046	June	0	1(.01)	0	0	51(.61)	1(.01)	26(.31)	0	31(.13)	0	1(.01)	0	4(.05)	84(1.00)
E7048	June	4(.02)	1	0	0	203(.83)	6(.02)	31(.13)	0	7(.02)	0	0	0	0	245(1.00)
E7048	July	16(.04)	0	0	0	365(.92)	7(.02)	54(.19)	0	12(.02)	0	0	0	1	396(1.00)
E7050	June	7(.02)	4(.02)	2(.01)	1	212(.73)	4(.01)	5(.38)	0	8(.62)	0	0	0	0	290(1.00)
E7050	July	14(.03)	0	0	0	498(.94)	0	3(.06)	0	8(.62)	0	0	0	0	528(1.00)
E7052	June	0	0	0	0	45(.90)	1(.02)	8(.08)	0	1(.01)	0	0	0	0	13(1.00)
E7052	July	1(.02)	0	0	0	85(.87)	1(.01)	1(.10)	0	3(.06)	0	0	0	0	50(1.00)
E7054	July	1(.01)	1(.01)	0	0	8(.80)	1(.10)	0	0	1(.01)	0	0	0	1(.01)	98(1.00)
E7056	July	0	0	0	0	16(.89)	1(.06)	0	0	1(.10)	0	0	0	0	10(1.00)
E7550	July	1(.05)	0	0	0	14(.78)	0	3(.17)	0	0	0	0	0	0	18(1.00)
E7556	June	1(.06)	0	0	0	258(.86)	4(.01)	23(.08)	0	8(.05)	0	0	0	0	18(1.00)
E7556	July	8(.03)	3(.01)	1	0	150(.91)	1(.01)	2(.15)	0	0	0	0	0	2(.01)	299(1.00)
W8056	July	3(.02)	0	0	1	11(.85)	0	0	0	0	0	0	0	1(.01)	164(1.00)
W8058	July	0	0	0	0	1956(.87)	35(.02)	185(.08)	0	0	0	0	0	0	13(1.00)
Total		56(.02)	10	4	2	1956(.87)	35(.02)	185(.08)	0	1	0	0	0	12(.01)	2261(1.00)

Table 15. Frequency and percent () age composition of chinook salmon sampled from the Japanese Mothership Fishery, 1981: Japanese Fishery Agency age determinations.

INPFC Area	Month	Age Groups										Total Aged			
		0.2	0.3	1.1	2.1	1.2	2.2	1.3	2.3	1.4	2.4		Other		
E7046	June	0	0	2(.03)	0	47(.69)	1(.01)	17(.25)	0	0	0	0	0	1(.02)	68(1.00)
E7048	June	0	0	3(.02)	0	89(.66)	3(.02)	37(.27)	1(.01)	0	0	0	0	2(.02)	135(1.00)
E7048	July	0	0	2(.01)	0	214(.94)	7(.03)	4(.02)	0	0	0	0	0	0	227(1.00)
E7050	June	0	0	0	0	84(.74)	2(.02)	26(.23)	0	1(.01)	0	0	0	0	113(1.00)
E7050	July	0	0	2(.01)	1	337(.92)	4(.01)	23(.06)	0	0	0	0	1	0	368(1.00)
E7052	July	0	0	0	0	21(.88)	0	3(.12)	0	0	0	0	0	0	24(1.00)
E7556	July	0	0	0	0	169(.83)	5(.03)	29(.14)	0	0	0	0	0	0	203(1.00)
W8056	July	0	0	0	0	82(.74)	3(.03)	26(.23)	0	0	0	0	0	0	111(1.00)
W8058	July	0	0	0	0	12(.63)	1(.05)	5(.27)	0	1(.05)	0	0	0	0	19(1.00)
Total		0	0	9(.01)	1	1055(.83)	26(.02)	170(.14)	1	2	0	0	4	1268(1.00)	

Table 16. Frequency and percent () age composition of chinook salmon sampled from the Japanese Mothership Fishery, 1981: Fisheries Research Institute age determinations.

INPFC Area	Month	Age Groups										Total Aged			
		0.2	0.3	1.1	2.1	1.2	2.2	1.3	2.3	1.4	2.4		Other		
E7046	June	1(.02)	0	1(.02)	0	29(.65)	1(.02)	11(.25)	0	0	0	0	0	2(.04)	45(1.00)
E7048	June	0	0	3(.02)	0	82(.64)	2(.02)	36(.28)	0	1(.01)	0	0	0	3(.02)	128(1.00)
	July	0	0	2(.01)	0	185(.93)	7(.03)	5(.03)	0	0	0	0	0	1	200(1.00)
E7050	June	0	0	0	1(.01)	70(.72)	2(.02)	23(.24)	0	1(.01)	0	0	0	0	97(1.00)
	July	0	0	1	1	306(.92)	3(.01)	19(.06)	0	0	0	0	0	3(.01)	333(1.00)
E7052	July	0	0	0	0	20(.91)	0	2(.09)	0	0	0	0	0	0	22(1.00)
E7556	July	1(.01)	0	0	0	129(.81)	5(.03)	24(.15)	0	0	0	0	0	0	160(1.00)
W8056	July	0	0	0	0	71(.70)	4(.04)	26(.25)	0	0	0	0	0	1(.01)	102(1.00)
W8058	July	0	0	0	0	12(.67)	1(.06)	4(.22)	0	1(.05)	0	0	0	0	18(1.00)
Total		2	1	7(.01)	2	904(.82)	25(.02)	150(.14)	0	3	1	0	10(.01)	1105(1.00)	

Table 17. Brood year standards needed for scale pattern analysis of 1975-1981 Japanese Mothership Fishery samples of immature age 1.2 and 1.3 chinook salmon.

Brood year standard	Age classes included in brood year standard		Mothership-caught chinook that brood year standard will be used to classify	
	Age class	Return year	Age class	Year of capture
1970	1.4	1976	1.3	1975
	1.5	1977		
1971A	1.3	1976	1.2	1975
	1.4	1977		
	1.5	1978		
1971B	1.4	1977	1.3	1976
	1.5	1978		
1972A	1.3	1977	1.2	1976
	1.4	1978		
	1.5	1979		
1972B	1.4	1978	1.3	1977
	1.5	1979		
1973A	1.3	1978	1.2	1977
	1.4	1979		
	1.5	1980		
1973B	1.4	1979	1.3	1978
	1.5	1980		
1974A	1.3	1979	1.2	1978
	1.4	1980		
	1.5	1981		
1974B	1.4	1980	1.3	1979
	1.5	1981		
1975A	1.3	1980	1.2	1979
	1.4	1981		
	1.5	1982		
1975B	1.4	1981	1.3	1980
	1.5	1982		
1976A	1.3	1981	1.2	1980
	1.4	1982		
	1.5	1983		
1976B	1.4	1982	1.3	1981
	1.5	1983		
1977	1.3	1982	1.2	1981
	1.4	1983		

Table 18. Number of scales measured for Asia standards.

River	Year	Age class	# Scales measured
Kamchatka	1978	1.2	20
		1.3	72
		1.4	78
		1.5	4
	1979	1.2	5
		1.3	80
		1.4	41
		1.5	1
	1980	1.2	30
		1.3	59
		1.4	69
		1.5	8
	1981	1.2	2
		1.3	127
		1.4	33
		1.5	1
Bolshaya	1978	1.2	4
		1.3	35
		1.4	88
		1.5	10
	1979	1.2	4
		1.3	69
		1.4	104
		1.5	2
	1980	1.2	17
		1.3	22
		1.4	100
		1.5	5
	1981	1.2	1
		1.3	78
		1.4	72
		1.5	14
Total			1,255

Table 19. Number of scales measured for Western Alaska standards.

River	Year	Age class	# Scales measured
Kuskokwim	1979	1.2	60
		1.3	34
		1.4	30
	1980	1.2	8
		1.3	38
		1.4	13
	1981	1.5	4
		1.2	36
		1.3	68
	1982	1.4	166
		1.5	5
		1.2	44
1.3		71	
Kanektok	1981	1.4	112
		1.5	16
		1.2	42
	1982	1.3	8
		1.4	12
		1.2	9
1.3		60	
Goodnews	1981	1.4	8
		1.5	2
		1.2	14
	1982	1.3	2
		1.4	4
		1.2	6
Yukon	1979	1.3	24
		1.4	2
		1.2	14
	1980	1.2	6
		1.3	24
		1.4	2
	1981	1.2	2
		1.3	2
		1.4	2
	1982	1.2	2
		1.3	2
		1.4	2
1.5		2	
1.2		2	

Table 19. Continued.

River	Year	Age class	# Scales measured
Nushagak	1979	1.2	46
		1.3	48
		1.4	156
	1980	1.2	6
		1.3	100
		1.4	66
	1981	1.5	14
		1.2	51
		1.3	73
		1.4	158
	1982	1.5	6
		1.2	17
		1.3	174
		1.4	116
		1.5	20
Togiak	1979	1.2	8
		1.3	8
		1.4	28
	1980	1.2	4
		1.3	10
		1.4	4
		1.5	1
	1981	1.2	12
		1.3	6
		1.4	20
	1982	1.2	20
		1.3	26
		1.4	8
		1.5	2
	Total		

Table 20. Number of scales measured for Central Alaska standards.

River	Year	Age class	# Scales measured
Cook Inlet	1979	1.2	15
		1.3	74
		1.4	113
	1980	1.2	18
		1.3	52
		1.4	66
		1.5	8
	1981	1.2	24
		1.3	56
		1.4	105
		1.5	4
	1982	1.2	162
1.3		80	
1.4		58	
1.5		4	
Copper River	1979	1.3	24
		1.4	26
	1981	1.2	3
		1.3	36
		1.4	29
	1982	1.2	37
		1.3	120
		1.4	45
	Total		

Table 21. Number of scales measured for Southeast Alaska and British Columbia standards.

River	Year	Age class	# Scales measured
Alsek	1979	1.3	9
		1.4	26
	1980	1.2	3
		1.3	11
	1981	1.4	28
		1.2	1
		1.3	4
		1.4	8
	1982	1.2	5
		1.3	6
		1.4	8
Taku	1979	1.2	3
		1.3	2
		1.4	3
	1980	1.2	10
		1.3	13
		1.4	6
	1981	1.2	6
		1.3	8
		1.4	29
	1982	1.2	1
		1.3	3
		1.4	11
Little Port Walter and Sashin Creek	1981	1.3	1
	1982	1.2	2
		1.3	1
		1.4	1
Stikine	1979	1.2	2
		1.3	5
		1.4	3
	1980	1.2	25
		1.3	53
		1.4	44
	1981	1.2	1
		1.3	5
		1.4	26
	1982	1.2	1
		1.3	6
		1.4	20
1.5		1	

Table 21. Continued.

River	Year	Age class	# Scales measured
Cripple Creek	1981	1.3	3
		1.4	3
	1982	1.2	2
		1.3	4
Keta	1982	1.3	1
Nass	1979	1.2	2
		1.3	9
		1.4	13
	1980	1.2	4
		1.3	14
		1.4	2
	1981	1.2	3
		1.3	9
		1.4	28
	1982	1.2	17
		1.3	21
		1.4	3
Skeena	1979	1.2	6
		1.3	15
		1.4	13
	1980	1.2	9
		1.3	45
		1.4	12
	1981	1.5	1
		1.2	15
		1.3	29
	1982	1.4	49
		1.2	23
		1.3	47
		1.4	22
		1.5	2
Bella Coola	1979	1.2	5
		1.3	2
		1.4	11
	1980	1.2	1
		1.3	10
		1.4	1
	1981	1.2	1
		1.3	4
		1.4	7
	1982	1.2	12
1.3		9	
1.4		6	

Table 21. Continued.

River	Year	Age class	# Scales measured
Robertson Creek	1981	1.2	1
Fraser	1979	1.2	15
		1.3	122
		1.4	14
	1980	1.2	31
		1.3	100
		1.4	9
	1981	1.2	38
		1.3	62
		1.4	5
	1982	1.2	121
		1.3	102
		1.4	5
Total			1,521

Table 22. Number of scales measured for Washington, Oregon, and California standards.

River	Year	Age class	# Scales measured	
Washington coastal	1979	1.2	2	
		1.3	2	
		1.4	1	
	1980	1.2	2	
		1.3	2	
	1981	1.2	1	
	1982	1.4	1	
		1.2	2	
		1.3	2	
	Puget Sound	1979	1.2	16
1.3			15	
1.4			7	
1980		1.2	42	
		1.3	7	
1981		1.2	30	
		1.3	11	
1982		1.2	78	
		1.3	36	
		1.4	7	
Columbia River	Spring chinook 1979	1.2	52	
		1.3	79	
		1.4	3	
	Fall chinook	1.2	7	
		1.3	7	
	Spring chinook 1980	1.2	55	
		1.3	127	
		1.4	6	
	Fall chinook	1.2	3	
		1.3	1	
	Spring chinook 1981	1.2	74	
		1.3	82	
	Fall chinook	1.2	3	
		1.3	2	
		1.4	2	
	Spring chinook 1982	1.2	99	
		1.3	134	
		1.4	7	
	Oregon coastal	1979	1.2	7
			1.3	17
1.4			1	
1980		1.2	10	
		1.3	20	
		1.4	1	

Table 22. Continued.

River	Year	Age class	# Scales measured
Oregon coastal cont'd	1981	1.2	1
		1.3	7
		1.4	1
	1982	1.2	4
		1.3	3
		1.4	15
California	1979	1.2	18
		1.3	3
	1980	1.2	2
		1.3	8
	1981	1.2	8
		1.3	21
	1982	1.2	16
	Total		

Table 23. The twenty-four primary scale characters calculated from raw scale data collected for freshwater age 1. chinook salmon.

No.	Description	Description
1	Radius of nucleus	Distance from center of focus to outer edge of 1st circulus
2	No. circuli in Zone 1	Number of circuli in the first (freshwater) year of growth
3	Size of Zone 1	Distance from center of focus to outer edge of last circulus in the freshwater annulus
4	Distance C ₂ to C ₄ in Zone 1	Distance from the outer edge of the first circulus to the outer edge of every third circulus in the 1st (freshwater) year of growth for up to 5 triplets
5	Distance C ₅ to C ₇ in Zone 1	
6	Distance C ₈ to C ₁₀ in Zone 1	
7	Distance C ₁₁ to C ₁₃ in Zone 1	
8	Distance C ₁₄ to C ₁₆ in Zone 1	
9	No. circuli in Zone 2	Number of freshwater circuli in the second year of growth
10	Size of Zone 2	Distance from the outer edge of the last circulus in the freshwater annulus to the outer edge of the last freshwater circulus
11	No. circuli in Zone 3	Number of ocean circuli in the second year of growth
12	Size of Zone 3	Distance from the outer edge of the last freshwater circulus to the outer edge of the last circulus in the 1st ocean annulus
13	Distance C ₁ to C ₃ in Zones 2+3	Distance from the outer edge of the last circulus in the freshwater annulus to the outer edge of every third circulus in the 2nd year of the growth for up to 12 triplets
14	Distance C ₄ to C ₆ in Zones 2+3	
15	Distance C ₇ to C ₉ in Zones 2+3	
16	Distance C ₁₀ to C ₁₂ in Zones 2+3	
17	Distance C ₁₃ to C ₁₅ in Zones 2+3	
18	Distance C ₁₆ to C ₁₈ in Zones 2+3	
19	Distance C ₁₉ to C ₂₁ in Zones 2+3	
20	Distance C ₂₂ to C ₂₄ in Zones 2+3	
21	Distance C ₂₅ to C ₂₇ in Zones 2+3	
22	Distance C ₂₈ to C ₃₀ in Zones 2+3	
23	Distance C ₃₁ to C ₃₃ in Zones 2+3	
24	Distance C ₃₄ to C ₃₆ in Zones 2+3	

Table 24. Sixty combinations of 24 primary scale characters to be examined for scale pattern analyses.

Character No.	Description ^a
1	Size Zone 1
2	Size Zone 2
3	Size Zone 3
4	Size Zone 1 + size Zone 2
5	Size Zone 2 + size Zone 3
6	Size Zone 1 + size Zone 2 + size Zone 3
7	No. circuli Zone 1 + no. circuli Zone 2 + no. circuli Zone 3
8	Size Zone 2/(size Zone 1 + size Zone 2 + size Zone 3)
9	(Size Zone 1 + size Zone 2 + size Zone 3)/(no. circuli Zone 1 + no. circuli Zone 2 + no. Zone 3)
10	(Size Zone 1 + size Zone 2)/(size Zone 1 + size Zone 2 + size Zone 3)
11	(Size Zone 2 + size Zone 3)/(size Zone 1 + size Zone 2 + size Zone 3)
12	No. circuli Zone 1
13	No. circuli Zone 2
14	No. circuli Zone 3
15	No. circuli Zone 1 + no. circuli Zone 2
16	No. circuli Zone 2 + no. circuli Zone 3
17	Size Zone 1/no. circuli Zone 1
18	Size Zone 2/no. circuli Zone 2
19	Size Zone 3/no. circuli Zone 3
20	(Size Zone 1 + size Zone 2)/(no. circuli Zone 1 + no. circuli Zone 2)
21	(Size Zone 2 + size Zone 3)/(no. circuli Zone 2 + no. circuli Zone 3)
22	Distance C1 to C3 in Zones 2+3/(size Zone 1 + size Zone 2 + size Zone 3)
23	Distance C4 to C6 in Zones 2+3/(size Zone 1 + size Zone 2 + size Zone 3)
24	Distance C7 to C9 in Zones 2+3/(size Zone 1 + size Zone 2 + size Zone 3)
25	Distance C10 to C12 in Zones 2+3/(size Zone 1 + size Zone 2 + size Zone 3)
26	Distance C13 to C15 in Zones 2+3/(size Zone 1 + size Zone 2 + size Zone 3)
27	Distance C16 to C18 in Zones 2+3/(size Zone 1 + size Zone 2 + size Zone 3)
28	Distance C19 to C21 in Zones 2+3/(size Zone 1 + size Zone 2 + size Zone 3)
29	Distance C22 to C24 in Zones 2+3/(size Zone 1 + size Zone 2 + size Zone 3)
30	Distance C25 to C27 in Zones 2+3/(size Zone 1 + size Zone 2 + size Zone 3)
31	Distance C28 to C30 in Zones 2+3/(size Zone 1 + size Zone 2 + size Zone 3)
32	Distance C31 to C33 in Zones 2+3/(size Zone 1 + size Zone 2 + size Zone 3)
33	Distance C34 to C36 in Zones 2+3/(size Zone 1 + size Zone 2 + size Zone 3)
34	Distance C1 to C9 in Zones 2+3
35	Distance C10 to C18 in Zones 2+3
36	Distance C19 to C27 in Zones 2+3
37	Distance C28 to C36 in Zones 2+3
38	Radius of nucleus
39	Distance C2-C4 in Zone 1
40	Distance C5-C7 in Zone 1
41	Distance C8-C10 in Zone 1
42	Distance C11-C13 in Zone 1

Table 24. Continued.

Character No.	Description ^a
43	Distance C14-C16 in Zone 1
44	Distance C2-C4 in Zone 1/(size Zone 1 + size Zone 2 + size Zone 3)
45	Distance C5-C7 in Zone 1/(size Zone 1 + size Zone 2 + size Zone 3)
46	Distance C8-C10 in Zone 1/(size Zone 1 + size Zone 2 + size Zone 3)
47	Distance C11-C13 in Zone 1/(size Zone 1 + size Zone 2 + size Zone 3)
48	Distance C14-C16 in Zone 1/(size Zone 1 + size Zone 2 + size Zone 3)
49	Distance C1 to C3 in Zones 2+3
50	Distance C4 to C6 in Zones 2+3
51	Distance C7 to C9 in Zones 2+3
52	Distance C10 to C12 in Zones 2+3
53	Distance C13 to C15 in Zones 2+3
54	Distance C16 to C18 in Zones 2+3
55	Distance C19 to C21 in Zones 2+3
56	Distance C22 to C24 in Zones 2+3
57	Distance C25 to C27 in Zones 2+3
58	Distance C28 to C30 in Zones 2+3
59	Distance C31 to C33 in Zones 2+3
60	Distance C34 to C36 in Zones 2+3

- ^aZone 1: The area of the scale from the center of the focus to the outer edge of the last circulus in the freshwater annulus.
- Zone 2: The area of the scale from the outer edge of the last circulus in the freshwater annulus to the outer edge of the last freshwater circulus.
- Zone 3: The area of the scale from the outer edge of the last freshwater circulus to the outer edge of the last circulus in the first ocean annulus.
- C_n: The incremental distance from the outer edge of the previous circulus (C_{n-1}) to the outer edge of circulus n.

Table 25. Composition of brood year 1976A standards.

Region	Stock	Return year	Age class	Sample size needed	Final sample size
Asia	Kamchatka	1981	1.3	192	127
	Bolshaya	1981	1.3	8	8
Asia Total				200	135
Western Alaska	Nushagak	1981	1.3	32	32
		1982	1.4	54	54
	Togiak	1981	1.3	4	4
		1982	1.4	4	4
	Kuskokwim	1981	1.3	18	18
		1982	1.4	32	32
	Kanektok	1981	1.3	2	2
		1982	1.4	2	2
	Yukon	1981	1.3	22	22
		1982	1.4	30	30
Western Alaska Total				200	200
Central Alaska	Cook Inlet	1981	1.3	56	56
		1982	1.4	58	58
	Copper River	1981	1.3	40	36
		1982	1.4	46	45
Central Alaska Total				200	195
British Columbia/ Southeast Alaska	Fraser	1981	1.3	44	44
		1982	1.4	4	4
	Nass	1981	1.3	12	12
		1982	1.4	4	4
	Skeena	1981	1.3	28	28
		1982	1.4	24	24
	Bella Coola	1981	1.3	4	4
		1982	1.4	4	4
	Alsek	1981	1.3	4	4
		1982	1.4	4	4
	Taku	1981	1.3	10	10
		1982	1.4	12	12
	Stikine	1981	1.3	14	14
		1982	1.4	32	32
British Columbia/Southeast Alaska Total				200	200

Table 25. Composition of brood year 1976A standards - cont'd.

Region	Stock	Return year	Age class	Sample size needed	Final sample size
California/Oregon/ Washington	California	1981	1.3	42	21
	Oregon Coast	1981	1.3	4	4
		1982	1.4	18	15
	Columbia R. Springs	1981	1.3	100	94
		1982	1.4	2	2
	Columbia R. Falls	1981	1.3	4	2
	Washington Coast	1981	1.3	2	2
		1982	1.4	2	0
	Washington Inland Waters	1981	1.3	26	11
	California/Oregon/Washington Total				200

Table 26. Decision array for a five-way regional classification of mature brood year 1976 age 1.3 and 1.4 chinook salmon of Asia vs. Western Alaska vs. Central Alaska vs. Southeast Alaska and British Columbia (S.E./B.C.) vs. California, Oregon, and Washington (Cal/Or/Wa) origin. The overall classification accuracy was calculated as the unweighted mean of the accuracies on the diagonal of the classification array.

Calculated decision	Correct decision (%)				
	Asia	Western Alaska	Central Alaska	S.E./B.C.	Cal/Or/Wa
Asia	111(.822)	5(.025)	19(.097)	11(.055)	0(0)
Western Alaska	8(.059)	151(.755)	27(.138)	7(.035)	1(.001)
Central Alaska	11(.081)	35(.175)	104(.533)	42(.210)	1(.001)
S.E./B.C.	5(.037)	9(.045)	45(.231)	106(.530)	24(.159)
Cal/Or/Wa	0(0)	0(0)	0(0)	34(.170)	125(.828)
Total	135	200	195	200	151

Overall accuracy 69.4%.



APPENDIX



Appendix Table 1. Log of chinook salmon scales
at the Fishery Research Institute,
University of Washington

ASIA

<u>Sample Site</u>	<u>Card No.</u>	<u>Date</u>
*Kamchatka R.	1	June 5, 1975
"	2	" "
"	3	June 15, "
"	4	" "
"	5	June 30, "
"	6	" "
"	7	July 15, "
"	8	" "
*Kamchatka R.	1	June 10, 1976
"	2	" "
"	3	June 19, "
"	4	" "
"	5	June 23, "
"	6	" "
"	7	July 1, "
"	8	" "
**Kamchatka R.	1	June 1, 1978
"	2	" "
"	3	June 3, "
"	4	" "
"	5	June 16, "
"	6	" "
"	7	July 11, "
"	8	" "
**Kamchatka R.	1	June 29, 1979
"	2	" "
"	3	July 5, "
"	4	" "
"	5	July 16, "
"	6	" "
**Kamchatka R.	1	June 16, 1980
"	2	" "
"	3	June 18, "
"	4	" "
"	5	July 7, "
"	6	" "
"	7	July 12, "
"	8	" "
*Bol'shaya R.	9	June 10, 1975
"	10	" "
"	11	June 20, "
"	12	" "
"	13	June 25, "
"	14	" "
"	15	June 29, "
"	16	" "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
*Bol'shaya R.	9	June 15, 1976
"	10	" "
"	11	June 16, "
"	12	" "
"	13	June 25, "
"	14	" "
"	15	" "
"	16	June 28, "
"	17	" "
**Bol'shaya R.	9	May 31-June 2, 1978
"	10	" "
"	11	June 22, "
"	12	" "
"	13	June 26-29, "
"	14	" "
**Bol'shaya R.	7	May 30, 1979
"	8	" "
"	9	June 11, "
"	10	" "
"	11	June 21, "
"	12	" "
"	13	July 1, "
"	14	" "
**Bol'shaya R.	1	June 11, 1980
"	2	" "
"	3	June 17, "
"	4	" "
"	5	June 21, "
"	6	" "
"	7	June 25, "
"	8	" "

WESTERN ALASKA

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Yukon River		
Lower Yukon R.		
Emmonak	1-4	1975
"	6-7	"
"	9-15	"
"	17-18	"
"	23-29	"
"	34-39	"
"	40	"
"	45-51	"
Emmonak	1	1976
"	3-8	"
"	11-17	"
"	22-28	"
"	34-39	"
"	44-50	"
Flat Island Test Fishing	11	"
"	14	"
"	16	"
"	18	"
"	22	"
"	28-29	"
"	33	"
"	36	"
"	42-43	"
"	46	"
"	1	"
"	4	"
"	8	"
"	12-13	"
"	20	"
"	24	"
"	26	"
"	30	"
"	41	"
Emmonak Commercial	34-35	"
"	45	"
"	50	"
Emmonak	1-12	1977
"	17-23	"
"	28-34	"
"	54	"
"	58	"
"	40-41	"
"	54-55	"
"	60	"
"	65	"

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Yukon River (Lower) - Cont'd.		
Flat Island Test Fishing	1	"
"	6-8	"
"	12	"
"	16	"
"	21	"
"	25	"
"	29	"
"	32	"
"	36	"
"	39	"
"	43	"
"	47	"
"	51	"
"	55	"
"	59	"
"	63	"
"	67	"
"	69	"
"	73	"
"	75	"
"	78	"
"	80	"
"	83	"
"	10	"
"	15	"
"	23	"
"	27	"
"	32	"
"	37	"
"	41	"
"	45	"
"	49	"
"	53	"
"	62	"
"	2 unrdbl #'s	"
Flat Island Commercial	71	"
"	77	"
"	1 unrdbl #	"
*Emmonak Pre-season	1	1978
"	3	"
"	7	"
"	10	"
*Emmonak Commercial	17-20	"
"	25-29	"
"	34-40	"
"	45-46	"
"	51-57	"
"	62-63	"
"	62	"
"	68	"
"	78-79	"
"	85	"
"	90-91	"

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
*Yukon River (Lower) - cont'd.		
*Emmonak Commercial		1978
cont'd.	96	"
"	101	"
"	106	"
"	111	"
"	114	"
*Flat Island Test Fishing	2	"
"	4	"
"	6	"
"	8-9	"
"	12-13	"
"	17	"
"	20	1978
"	23	"
"	26	"
"	28	"
"	31	"
"	36	"
"	38	"
"	41	"
"	44	"
"	45	"
"	48	"
"	52	"
"	55	"
"	58	"
"	60	"
"	62	"
"	66	"
"	68	"
"	1 unrdbl #	"
"	35	"
"	65	"
**Emmonak Commercial	1A	1979
"	1-7	"
"	9-15	"
"	17-23	"
"	28-34	"
"	39-45	"
"	50-55	"
"	64	"
"	65-70	"
"	75-77	"
"	82-86	"
"	91-93	"
**Emmonak	1-7	1980
"	13-26	"
"	31-44	"
"	53-54	"
"	59-65	"
"	70-76	"
"	81-83	"
"	88	"
"	96	"
"	105	"

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Yukon River - cont'd.		
**Emmonak Commercial	1-51	1981
**East Fork Andreafsky R.	1-5	"
"	10	"
"	13-17	"
"	19-20	"
"	26-36	"
West Fork Andreafsky R.	1-2	"
**Anvik R.	1-30	"
"	1 unrdbl #	"
**Emmonak	1-89	1982
St. Mary's	1-37	"
"	48-72	"
Middle Yukon River		
Chena R. Escap.	1-14	1981
**Salcha R. Escap.	Odd #'s from	"
	1-63	
**Big Eddy Cr.	1-19	"
Big Eddy Cr.	1-48	1982
Upper Yukon River (Canada)		
Yukon (Dawson)	1-20	July-Aug 1975
"	2 (GN)	July "
"	4 (Wheel)	" "
"	5 GN	" "
"	6 GN	" "
"	8 GN	July 31-Aug 6 "
"	10 GN	Aug 7 "
Dawson Studies	1-14	Aug 2-9 1976
Yukon R. (Dead Recov.)	1	Sep 9 "
"	2	Sep 13 "
Fresno Cr.	6	Aug 1 "
"	8	Aug 2 "
"	11	(fish #95-105)
Yukon R. Mainstem	1	Aug 4 1977
Whitehorse fishway	1	Aug 1 "
"	2	Aug "
"	3	Aug "
10-14 mi downstream Yukon, Dawson	2	July 29 1977
28 mi downstream Yukon, Dawson	3	July 30 "
Yukon-Dawson	4	Aug 5 "
28-35 mi downstream Yukon, Dawson	5	Aug 5 "
10 mi downstream Yukon, Dawson	6	Aug 5 "
10 mi downstream Yukon, Dawson	7	Aug 6 "
10 mi downstream Yukon, Dawson	8	Aug 6 "
3.5 mi downstream Yukon, Dawson	9	Aug 6 "
35 mi downstream Yukon, Dawson	10	Aug 6 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Yukon River (Upper Canada) - cont'd.		
10 mi downstream Yukon, Dawson	11	Aug 6 "
12-15 mi downstream Yukon, Dawson	12	Aug 13 "
Chanidu Cr.	2	July 29 1978
"	3	July 30 "
"	4	July 30 "
"	8	July 30 "
"	9	July 31 "
Woodchopper Cr.	W-1	Aug 8 "
"	W-2	" "
"	W-3	Aug 5 "
"	5	July 30 "
"	6	July 30 "
"	7-1	July 28 "
"	7-2	July 30 "
"	10	July 31 "
"	13	Aug 4 "
"	14	Aug 4 "
Whitehorse fishway	1-7	Aug-Sept "
Dawson	11	Aug 2-3 "
"	12	Aug 4 "
"	15	Aug 4 "
"	16	Aug 4 "
Yukon	A-E	" "
Yukon	1	July 9 1980
"	2	July 10 "
"	5	July 19 "
"	6	July 21 "
Yukon	7	July 21 "
Cassiar Cr.	9	July 28 "
Yukon	10	July 28 "
"	12	July 30 "
"	13	July 30 "
Woodchopper Cr.	1	July 31 "
"	2	July 31 "
"	1	Aug 1 "
Cassiar Cr.	III	July 31 "
Cliff Cr.	4	Aug 1 "
"	5	Aug 1 "
Yukon (Cliff?)	6	Aug 1 "
Christian Camp	1	Aug 2 "
Peterson's, Yukon	2	Aug 4 "
"	4	Aug 1 "
Fresno Cr.	1	Aug 25 "
Cassiar Cr.	2	Aug 7 "
"	3	Aug 8 "
Yukon	1	July 3 1981
"	2	July 3 "
"	4	July 4 "
"	6	July 4-5 "
"	10	July 8 "
"	13	July 9-11 "
"	14	July 11 "
"	15	July 11 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Yukon River (Upper Canada) - cont'd.		
Yukon (Cont.)	16	July 13 1981
"	18	July 13 "
"	19	July 13 "
"	22	July 14 "
"	23	July 15 "
"	27	July 16 "
"	42	July 25 "
"	43	July 27 "
"	45	July 28 "
"	58	Aug 10 "
"	59	Aug 12 "
"	60	Aug 14 "
Dawson Comm.	1-8	"
"	2 #9's	"
"	10-30	"
"	42-43	"
Whitehorse fishway	1-34	1981
Kuskokwim River		
Bethel Comm.	4-7	1975
"	10-16	"
Kweegooyuk Test	13-	"
"	2 #4's	"
"	5-34	"
"	36-42	"
"	2 #43's	"
"	44-46	"
"	48	"
"	50	"
Bethel Comm.	1	1976
"	3-10	"
"	1 unrdbl #	"
Kweegooyuk Test ¹	1-5	"
"	7-85	"
Bethel Comm.	1-13	1977
** "	1-12	1978
*Kweegooyuk Test ¹	1-30	"
"	32-80	"
**Kogruluk ¹	1	1979
"	3	"
"	5-6	"
"	8-9	"
"	11-12	"
"	14-16	"
"	20-21	"
"	23-24	"
"	3-4	"
"	7	"
"	7A	"
"	10	"
"	10A	"
"	13	"
"	13A	"

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Kuskokwim River - cont'd.		
**Kogruluk ¹	16	1979
"	16A	"
"	17A	"
"	18	"
"	20	"
"	21	"
"	23	"
"	23B	"
**Kogruluk ¹	2 #1's	1980
"	2	"
"	2 #3's	"
"	4	"
"	2 #5's	"
"	6-7	"
**Bethel	1-5	1981
"	6a	"
"	6b	"
"	7-10	"
"	11a	"
"	11b	"
"	12a	"
"	12b	"
"	13a	"
"	13b	"
"	14a	"
"	14b	"
"	15a	"
"	15b	"
"	16a	"
"	16b	"
"	17a	"
"	17b	"
"	18a	"
"	18b	"
"	19a	"
"	19b	"
"	20a	"
"	20b	"
"	21-22	"
**Bethel Comm.	101-122	"
**Kweegooyuk	1-41	"
**Bethel Comm.	1-33	1982
**Kweegooyuk	1-26	"
**Aniak R.	1-31	"
"	33	"
"	35	"
"	37	"

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Kanektok River		
Quinhagak Comm.	1A	1975
"	1-9	"
Quinhagak Comm.	1-2	1976
"	5-6	"
"	9-10	"
"	13-14	"
"	19-20	"
"	25-26	"
"	28	"
"	31	"
Quinhagak Comm.	1-21	1977
*Quinhagak Comm.	A	1978
"	1-4	"
"	2 #6's	"
"	2 #7's	"
"	8	"
"	10-15	"
**Quinhagak Comm.	1-24	1981
**Quinhagak Comm.	1-22	1982
Goodnews Bay		
Goodnews Bay Comm.	1-2	1977
*Goodnews Bay Comm.	1	1978
"	4	"
**Goodnews Bay Comm.	1-10	1981
**Goodnews Bay Comm.	1-7	1982
Bristol Bay		
Nushagak R.	1	1975
"	2 #2-8's	"
"	9	"
"	2 #10-12's	"
"	13-15	"
Nushagak R.	1-34	1976
Nushagak R.	1-32	1977
*Nushagak R.	1-6	1978
"	8-25	"
**Nushagak R.	1-29	1979
**Nushagak R.	1-21	1980
**Nushagak R.	1-27	1981
"	31-48	"
**Nushagak R.	1-42	1982
Togiak R.	1-3	1975
Togiak R.	1-20	1976
Togiak R.	1	1977
"	3-18	"
*Togiak R.	1-19	1978
**Togiak R.	1-15	1979
**Togiak R.	1-2	1980
**Togiak R.	1-9	1981
**Togiak R.	1-22	1982

CENTRAL ALASKA

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Cook Inlet		
Cook Inlet Sport ¹		
Deep Cr.	1-3	1975
Anchor R.	1-2	"
Ninilchik R.	1-3	"
Kenai R.	1-10	"
Cook Inlet Escap.		
Devil Canyon	1-2	"
Crescent (Grecian) R.	1	"
Talachulitna R. ¹	1-6	"
Yentna R. ¹	1-2	"
Cook Inlet Sport ¹		
Deep Cr.	1-9	1976
Deep Cr. R.	1	"
Anchor R.	1-3	"
Ninilchik R.	1-5	"
Kenai R. (Up)	1-3	"
Kenai R. (Dn)	1-12	"
Cook Inlet Escap.		
Susitna R. ¹	1-13	"
Cook Inlet Sport ¹		
Deep Cr. Mar.	1-7	1977
Deep Cr.	1-2	"
Anchor R.	1-5	"
Ninilchik R.	1-5	"
Kenai R. (Up)	1-2	"
Kenai R. (Dn)	1-9	"
Cook Inlet Escap.		
Susitna R.	1-6	"
Susitna Station Recov.	101-113	"
Cook Inlet Sport ¹		
*Deep Cr. Mar.	1-6	1978
*Deep Cr.	1-3	"
*Anchor R.	1-8	"
*Ninilchik R.	1-7	"
*Kenai R. (Up)	1	"
*Kenai R. (Dn)	1-7	"
*Kasilof R.	1	"
Cook Inlet Escap.		
Kenai R.	1-2	"
*Susitna	1-59	"
*Cook Inlet Sport ¹		
Deep Cr. Mar.	1-4	1979
Deep Cr.	1-2	"
Anchor R.	1-4	"
Ninilchik R.	1-4	"
Kenai R. (Up)	1	"
Kenai R. (Dn)	1-4	"

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Cook Inlet - cont'd.		
**Cook Inlet Sport		
Deep Mar.	1-2	1980
Deep Cr.	1	"
Anchor R.	1-3	"
Ninilchik R.	1-4	"
Kenai R. (Up)	1-5	"
Kenai R. (Dn)	1-9	"
Cook Inlet Escap.		
**Susitna R.	1-13	1980
**Kasilof R.	1-3	"
**Tyonek Subsist. ¹	1-17	"
*Cook Inlet Sport ¹		
Deep Cr. Mar.	1-4	1981
Deep Cr.	1-2	"
Anchor R.	1-4	"
Ninilchik R.	1-4	"
Kenai R. (Up)	1-3	"
Kenai R. (Dn)	1-7	"
Cook Inlet Escap.		
Kenai R.	1	"
**Tyonek Subsist. ¹	1-100	"
**Tyonek Subsist.	1-151	1982
Aleutian Islands		
Chignik R.	2-3	1981
Chignik R.		
Sport	1-5	1982
Brood Stock	1	"
Prince William Sound		
Copper R.	1-10	1976
Copper R.	1-13	1977
Copper R.	1-9	1978
*Copper R.	1-4	1979
**Copper R.	1-5	1981
**Copper R. Subsist.	1	1982
**Copper R. Comm. (Softuk)	1-3	"
**Copper R. Comm. Cannery	1-82	"
**Copper R. Comm. Cannery	85-216	"

SOUTHEAST ALASKA-BRITISH COLUMBIA RIVERS

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Yakutat Bay Area		
Situk River Catch	1-7	1982
Situk River Creel Census	1-15	"
Akwe River Catch	1-7	"
Alsek River		
Alsek River Gillnet		
Fishery ¹	1-4	1975
"	1-2	1976
"	4-5	1977
"	1	1978
*"	1	1979
**"	1-12	1982
*East River Catch-Dry Bay	1-5	1982
Klukshu River	C1	July-Aug 1976
"	F1-F8	July 29-Sept 30 "
Tatshenshini	G1	July 18-Aug 4 "
"	3	July "
Klukshu Village	3	July 13 1977
Klukshu River (Motherall)	6	July 18 "
Klukshu Village (Motherall)	7	" " "
Klukshu Village	8	July 21-22 "
"	10	July 22 "
Klukshu Mouth	2	July 9 "
Klukshu	4	July "
Klukshu Mouth	5	" "
"	6	" "
"	7	July 23-26 "
"	8	July 26 "
"	10	July 29 "
"	11	July 30 "
"	12	Fall "
"	14	Fall? "
"	15	Fall? "
Klukshu River		
Sport	1-2	June 28-July 14 1978
Carcass	1-2	Aug 1-2 "
Village	1-5	July 25-Aug 2 "
Fence	1-9	July 6-Aug 25 "
**Klukshu River		
Sport	1-4	June 30-July 29 1979
Carcass	1-10	Aug "
Indian	1	Aug-Sept "
*Klukshu River (Tatshenshini)		
	1	June 20 1980

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
*Klukshu River	2	July 12 "
"	3	July "
"	4	July 8 "
"	5	July 13 "
"	6C	Aug 4 "
"	7C	Aug 6 "
"	8C	Aug 7 "
"	9C	Aug 13 "
"	10C	Aug 15 1980
"	11(11C)	Aug 21 "
*Weir Carcass (Klukshu?)	1	July 29-Aug 1 1981
*Weir (Klukshu)	2	Aug 1-6 "
"	3	Aug 6 "
*Klukshu Mouth	6	July 1-4 "
"	8	July 5-11 "
"	9	July 11 "
"	10	July 13 "
"	11	July 19-26 "
"	12	July 26-28 "
**Klukshu (A)	1	July 3 1982
*Dalton Post (B)	1	July 10 "
*Dalton Post	2	July 12 "
"	3	July 13 "
*Klukshu (A)	2	July 17 "
*Klukshu (B)	4	July 17-18 "
*Dalton Post	5	July 18 "
"	6	July 17-20 "
*Klukshu (A)	4	July 24-Aug 21 "
*Klukshu (A)	5	July 27 "
*Klukshu (B)	7	July 24 "
*Klukshu (C)	1	July 24 "
*Klukshu (G)	1	July 27-Aug 30 "
*Klukshu (H)	2	July 28 "
*Klukshu (J)	1-7	July 15-Aug 28 "
*Klukshu II	1	July 27-Aug 24 "
Chilkat Inlet		
Haines Salmon Derby	001-026	1982
Juneau Area		
Taku River-Nakina River		
Escapement ¹	1-5	1975
"	1A2	"
"	2A2	"
"	777	"
"	PDK	"
"	1-4	1976
"	7-37	1977
*"	1-47	1978
**"	101-117	1979
*"	119-127	"
*"	4-50	1980
*"	1-71	1981

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Juneau Area (Cont.)		
*Taku River Pier	1	June 25 1980
*Taku River Barge	2	" "
*Taku River Barge	3	June 25 1980
"	4	June 29 "
*Taku River Canyon	1	July 12 1981
*Taku River Barge	1-5	June-Aug "
*Steep Creek	1-2	Aug 10 "
*Nahlin River	1-12	Aug 3 "
** "	1-22	" 1982
Baranof Island		
*Sashin Creek-Little Port Walter Hatchery	1-44	Aug 6-Sept 5 1981
* "	1-30	" 1982
Stikine River		
Stikine River Gillnet Fishery ¹	34	May 6-25 1975
"	1	" "
"	1	" "
"	2	" "
"	1	" "
"	2	" "
Stikine River	1-A	June-July "
"	1-4	" "
Stikine River Gillnet Fishery ¹	1-9	1976
Little Tahltan Escapement ¹	1-5	"
Andrew Creek Escapement ¹	1	"
Blanchard River	A-1	July-Aug "
Bucks Bar	5R-2	July "
Stikine River Gillnet Fishery ¹	1-3	1977
Little Tahltan Escapement ¹	1	"
Andrew Creek Escapement ¹	1	"
*Stikine River	1	May 27 "
"	19	June 30 "
"	25	July 4 "
"	100	July 11-21 "
"	101	July 21 "
**Stikine River	1	July 9 1979
"	2	"
"	1	July 23 "
"	1	July 30 "
Little Tahltan Escapement ¹	1	" "
**Stikine River-Lower	1	June 23 1980
"	4-6	June 24 "
**Stikine River-Lower	11-13	June 30 1980
"	16-20	July 2-9 "
"	22-24	July 15-16 "
"	26-27	Aug 12-Sep 2 "
**Stikine River-Upper	2-3	July 2-3 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>	
**Stikine River-Lower	1-4	July 1-21	1981
"	5A & 5B	July 22-Aug 17	"
**Stikine River-Upper	1-3	June 25-July 2	"
*Little Tahltan Escapement	1-35	Aug 4-11	"
"	37-90	Aug 11-12	"
**Andrew Creek Escapement	1F-6F	July 16-Aug 21	"
"	1M-5M	Aug 11-12	"
"	1-12	Aug 6-20	"
*Stikine River-Lower	1-4		1982
"	1	June 15	"
"	3	June 26	"
"	21	June 29	"
"	29	July 5	"
"	40	July 6	"
North Arm Creek Escapement	1-3	June 15	"
*Andrew Escapement	1-49	"	"
Tahltan Escapement	1-22	"	"
**Little Tahltan Escapement	1-45	"	"
Mitkof Island			
*Crystal Lake Lake Hatchery	1-27	July 27-Aug 18	1981
Behm Canal			
**Cripple Creek (Unuk River)	1-13	Aug 7-15	1981
** "	1-5		1982
Revillagigedo Island			
*Carroll River	1	July 21-Aug 8	1981
* "	1-9		1982
Ketchikan Creek (Deer Mt. Hatchery return)	1-39		1982
Boca de Quadra			
**Keta River	1-5		1982

¹Impressions on loan from Mr. Paul Kissner, ADF&G, and not part of FRI's permanent collection.

BRITISH COLUMBIA

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Queen Charlotte Islands		
Yakoun R.	1	Oct 5 1978
"	4-8	Oct "
Yakoun R. (Branch 47)	two	Sept 24 1979
" "	three	Sept 25 "
" (Holding pen)	four	Sept 29 "
"	5	Oct 4 "
"	six	Oct 5 "
" (Holding pen)	seven	Oct 7 "
" (Mile 22 bridge)	eight	Oct 9 "
"	nine	Oct 5 "
*Yakoun R. (Beach seine)	1-2	Aug 19 1980
"	1-13	Sept 18-Oct 13 "
Statistical Catch Area 3		
3 Z-Nass	1-5	July 1-14 1977
3 Z-Nass	1A	June 19 1978
"	3	June 28 "
3 Z - Comm.	13	July 12 "
3 Y	4	July 3 "
Meziadin R.	1-4	Sept 23 "
*Meziadin R.	1-2	Sum/Fall 1979
"	3	Aug 20 "
*Cranberry R.	1	Fall "
*Txeax R.	1-6	Fall "
**Cranberry R.	02	July 11,12 1980
"	11	July 21 "
"	18	July 25 "
"	23	July 27,28 "
"	28	July 29,30 "
**Greenville R.	2-10	July 19 "
**Meziadin R.	1-2	July 2-24 "
**Tseax R.	1	July 25 "
"	3-4	Aug 16-17 "
"	6	Aug 30 "
**Greenville R.	1-3	June 19 1981
**Nass R. @ Greenville	4-8	June 20-27 "
**Greenville	9-13	July 1-4 "
*Greenville & Sandy Rivers	14-27	June 2-July 4 1982
Statistical Catch Area 4		
Tyee-Skeena	3 C-2	June 19 1975
"	3 C-9 - 19	July 7-29 "
Skeena Test	1-19	June 16-Aug 4 1976
Tyee (Skeena)	Chin 1-7	June 15-29 1977
"	8-22	June 29-July 21 "
Skeena-Tyee	1-15	June 14-Aug 1 1978
" (Jack)	1	July 4-21 "
*Skeena Test	2-11	June 14-July 1 1979
"	13	July 2-3 "
"	15-17	July 6-7 "
"	20-22	July 9-13 "
"	24-25	July 15-18 "
"	27	July 19-21 "
"	29-30	July 23-Aug 3 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Statistical Catch Area 4 - cont'd.		
*Skeena Test	1-18	June 12-Aug 8 1980
*Skeena Test	4-23	June 21-Aug 15 1981
**Skeena Test	1-6	June 11-27 1982
"	8	June 30-July 1 "
"	9	June 28-29 "
"	9A	July 2-4 "
"	10-19	July 5-Aug 7 "
"	20A	Aug 13 "
"	20B	July 25 "
**Copper (Zymoetz) R.	1-4	Aug "
**Cedar R. & Clear Cr.	1-5	July 20-Aug 6 "
**Kalum System-Mud Lake	1	May 18 "
*Area 4	1-2	July 6 "
**Kitwancool R.	1	Aug 28 "
Statistical Catch Area 6		
*Kitimat	II-V	Aug 1982
"	VIII-IX	Aug "
Statistical Catch Area 8		
Bella Coola	1	Dec 1976, Jan & Feb 1977
"	1-3	July 19 1976
"	1	May 23 1977
"	3-5	May 24 "
"	1	June 14 "
"	4	June 27 "
"	6-7	June 19-21 "
"	1-4	July 3-6 "
"	A	June 25 "
"	1	July 7 "
"	1	Jun "
"	2	July 3 "
Bella Coola	1-3	June 5-6 1978
"	1-A	June 4-5 "
"	2-16	June 3-Aug 10 "
"	1	June 25 "
*Bella Coola	2	May 6 1979
"	12	May 20,27 "
"	16	May 30 "
"	18-21	June 4-6 "
"	46-47	June 9-13 "
"	56	June 22-28 "
"	103	June 19 "
"	122	July 10 "
**Bella Coola	1	May 7 1980
"	2	May 14 "
"	1	May 20 "
*Bella Coola-Atnarko	2	May 24 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Statistical Catch Area 8 - cont'd.		
*Bella Coola	3-4	May 28 1980
"	1-S	June 3-24 "
"	1-4	May 18-June 11 "
"	2	June 29-July 11 "
"	1	June 26-July 16 "
"	1-3	July 1 "
"	9	May 12-20 "
*Bella Coola	2	May 18 1981
"	4	May 18 "
"	1-3	May 25 "
"	1-4	June 1 "
"	4-7	June 8 "
"	1-2	June 15 "
"	1-3	June 25-29 "
"	1	July 7 "
"	1	July 13 "
**Bella Coola	1-7	May 24 1982
**Bella Coola (IFF)	1	June 24 "
"	1	June 28 "
"	1	June 30 "
"	4	July 12 "
**Fisher Channel	1-2	June 28 "
**Dean R.	1-16	June 12-July 22 "
**Dean Channel	1-2	June 14 "
**Atnarko Esc.	1-3	June 4-26 "
**Upper Atnarko	1-3	July 1-3 "
**Area 8 Esc.	1-2	June 12-14 "
Statistical Catch Area 23		
Robertson Cr.		
Brailer (Jacks)	1A	Aug 6-Oct 17 1975
Robertson Cr. Hatchery	01B-06B	Oct 15-Nov 21 "
Robertson Cr. (MKD)	01B-08B	Aug 27-Nov 3 1976
Robertson Cr. (marked Jacks)	01A	Aug 27-Oct 13 1977
Robertson Cr.	02B-03B	Nov 15-16 "
"	05B	Oct 17-18 "
Robertson Cr. (marked)	15B	
"	17B	Nov 4-5 "
"	20B	Nov 14-Dec 14 "
Chin. Test Fishery	1-5	Aug 15-16 1978
"	1-2	Sept 20 "
"	1-3	Oct 16-24 "
*Alberni Canal	III	Aug 14 1979
"	8	Aug 16 "
"	20	Aug 21 "
"	44	Aug 24 "
"	53	Aug 24 "
*Alberni Inlet	604	Sept 7 "
"	608-609	Sept 9 "
*Alberni Inlet	6-7	Aug 20 1980
"	41-42	Aug 24 "
"	47-48	Sept "
"	65-66	Sept "
"	88-90	Sept 10 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Statistical Catch Area 23 - cont'd.		
*Alberni Inlet	2-3	Aug 11 1981
"	6-7	Aug 14 "
" (Rocking Pt.)	14-15	Aug 21 "
" (Polly Pt.)	17	Aug 21 "
" (Stamp Narrows)	43	Aug 28-29 "
" (Hocking Pt.)	45	Aug 30 "
" (Hocking Pt.)	61	Sept 28 "
*Alberni Canal	1-6	Aug 13-15 1982
*Alberni Inlet	1	Aug 16 1982
*Alberni Inlet	7-11	Aug 18-22 "
"	13-35	Aug 25-29 "
"	42-75	Sept 1-12 "
*Port Alberni	001-002	Aug 2-12 "
"	44-45	Aug 13 "
Statistical Catch Area 29		
Fraser R.	1-4	Apr 15 1975
"	6	Apr 15 "
"	6-2	Apr 15 "
"	7-10	Apr 15 "
Glenrose	1-7	May 6 "
"	1-7	May 27 "
"	1-7	June 10 "
"	1-5	July 23 "
"	1-5	Aug 26 "
"	1-5	Sept 3 "
Glenrose	1-5	May 4 1976
"	1-5	May 11 "
"	1-5	May 25 "
"	1-5	June 1 "
"	1-5	June 8 "
"	1-5	June 15 "
"	1-5	June 29 "
"	1-6	July 6 "
"	1-5	July 21 "
"	1-5	July 28 "
Glenrose	1-6	May 31 1977
"	6	May 31 "
"	1-5	June 14 "
Steveston	1-5	July 5 "
Fraser R. (Steveston)	1-5	July 26 "
Fraser R.	1-5	Aug 16 "
"	1-5	Aug 23 "
"	1-2	Sept 20 "
(Steveston)	3	Sept 20 "
Fraser R.	4-5	Sept 20 "
" (Bio)	1-4	Oct 5 "
Cottonwood Test	1-4	Oct 6 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Statistical Catch Area 29 - cont'd.		
*Glenrose	1-5	April 25 1978
"	25-28	May 2 "
"	44-48	May 9-16 "
"	50-51	May 16 "
"	65-68	May 24 "
"	82-85	May 30 "
"	102-105	June 6 "
"	119-122	June 13 "
"	143-146	June 20 "
"	159-162	Aug 22 "
"	166-170	Aug 29 "
"	182-185	Sept 6 "
"	212-215	Sept 11 "
"	216-219	Sept 11 "
*Albion	1-2	Oct 7 "
*Whonnock	4-9	Oct 4-17 "
*Whonnock	5	Oct 13,14 1978
"	6	Oct 14 "
"	7	Oct 14,15 "
"	8	Oct 15,16 "
"	9	Oct 17 "
*Albion	10-15	Oct 18-Dec 16 "
*Glenrose	1	Apr 24 1979
"	4	Apr 24 "
"	7	Apr 24 "
"	10	Apr 24 "
"	13	Apr 24 "
"	16	May 8 "
"	19	May 8 "
"	22	May 8 "
"	25	May 8 "
"	28	May 8 "
"	31	May 8 "
"	34	May 8 "
"	37	May 9 "
"	40	May 14 "
"	43	May 14 "
"	46	May 14 "
"	49	May 14 "
"	58	May 24 "
"	61	May 24 "
"	64	May 24 "
"	67	May 24 "
"	70	May 24 "
"	73	May 24 "
"	78	May 28 "
"	81	May 28 "
"	84	May 28 "
"	87	May 28 "
"	90	May 28 "
"	93	May 28 "
"	96	May 28 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>	
Statistical Catch Area 29 - cont'd.			
*Glenrose	99	June 5	1979
"	103	June 5	"
"	106	June 5	"
"	109	June 5	"
"	112	June 5	"
"	115	June 5	"
"	118	June 12	"
"	121	June 12	"
"	124	June 12	"
"	127	June 12	"
"	130	June 12	"
"	133	June 12	"
"	136	June 12	"
"	139	June 19	"
"	142	June 19	"
"	145	June 19	"
"	148	June 19	"
"	176	July 10	"
"	179	July 17	"
"	182	July 17	"
"	185	July 17	"
"	188	July 17	"
"	191	July 17	"
"	194	July 17	"
"	1 (197)	July 24	"
"	4 (200)	July 24	"
29D	228	July 31	"
"	231	July 31	"
"	234	July 31	"
*Fraser R.	237	Aug 8	"
"	240	Aug 8	"
"	243	Aug 8	"
"	246	Aug 8	"
"	249	Aug 8	"
"	253	Aug 8	"
"	256	Aug 8	"
"	259	Aug 22	"
"	262	Aug 22	"
"	265	Aug 22	"
"	268	Aug 22	"
"	271	Aug 22	"
"	274	Aug 22	"
*Albion	10-11	Oct 9	"
"	13-24	Oct 10-Nov 11	"
"	24	Nov 11	"

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Statistical Catch Area 29 - cont'd.		
**F.R.T.F. Albion	1-4	June 3-7 1980
"	7-8	June 10-12 "
"	8	June 12 "
"	11-13	June 14-19 "
"	16-17	June 21-24 "
"	19	June 26 "
"	21-22	June 28-July 1 "
"	24	July 3 "
"	26-27	July 5-8 "
"	29	July 10 "
"	32-34	July 12-15 "
**F.R.T.F. Albion	37	July 19 1980
"	39	July 24 "
"	43-48	July 26-Aug 8 "
"	1	Aug 4 "
"	49-51	Aug 12-15 "
"	53-55	Aug 18-28 "
"	57-59	Aug 30-Sept 6 "
"	63	Sept 13 "
"	66	Sept 20 "
"	68	Sept 23 "
**F.R. Albion	72	Sept 25 "
*10	04	Oct 8,9 "
*10	06	Oct 17,23 "
**Albion	Even #'s 2-88	Apr 11-
"		Sept 29 1981
"	1	Sept 30 "
"	3	Oct 2 "
"	05	Oct "
"	07	Oct 7,8 "
"	09	Oct 14 "
**Albion	1-105	April 2-Oct 3 1982

WASHINGTON

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Coastal Stocks		
*Quileute River	(2000-2009) ²	1977
"	(2010-2019)	"
"	(2030-2039)	"
"	(2040-2049)	"
"	(2100-2109)	"
"	(2110-2119)	"
"	(2140-2149)	"
"	(2200-2209)	"
"	(2210-2219)	"
"	(2240-2249)	"
"	(2270-2249)	"
"	(2300-2309)	"
"	(2310-2319)	"
"	(2380-2389)	"
"	(2400-2409)	"
"	(2410-2419)	"
"	(2490-2499)	"
"	(2480-2489)	"
"	(2500-2509)	"
"	(2510-2519)	"
Quileute	(3000-3009)	1978
"	(3010-3019)	"
"	(3020-3029)	"
"	(3030-3039)	"
"	(3040-3049)	"
"	(3050-3059)	"
"	(3060-3069)	"
"	(3070-3079)	"
"	(3080-3089)	"
"	(3090-3099)	"
"	(3100-3109)	"
"	(3110-3119)	"
"	(3120-3129)	"
"	(3130-3139)	"
"	(3140-3149)	"
"	(3150-3159)	"
"	(3160-3169)	"
"	(3170-3179)	"
"	(3180-3189)	"
"	(3190-3199)	"
"	(3200-3209)	"
"	(3210-3219)	"
**Quileute	1-43	1979
**Quileute	1-21	1980
**Quileute	(4570-4579)	1981
"	(4600-4609)	"
"	(4750-4756)	"
"	(4770-4779)	"
"	(4800-4809)	"
"	(4820-4839)	"

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Coastal Stocks - cont'd.		
**Quileute	(4880-4889)	1981
"	(4910-4929)	"
"	(4940-4949)	"
"	(4960-4979)	"
"	(4990-4999)	"
"	(5020-5049)	"
"	(5080-5109)	"
*Quileute R.	1-31	1982
Queets R.	1/2	1975
"	2/2	"
"	1/1	Oct 10 "
"	1/2	Oct 20 "
"	2/2	Oct 20 "
"		Oct 29 "
Queets R.	1/6	1976
"	2/6	"
"	3/6	"
"	4/6	"
"	5/6	"
"	6/6	"
Queets R.	1/2	June 1977
"	2/2	June "
"	1	June 23 "
"	1/2	July "
"	2/2	July "
"	1/2	July 12 "
"	2/2	July "
"	1/2	Aug 1 "
Queets R.	2/2	Aug 1 "
"	1/1	Aug 26 "
"	2	undated (Aug 29?) "
"	1	Sept 14 "
"	1/2	Sept 21 "
"	2/2	Sept 21 "
"	1	Sept 23 "
"	1	Oct 5 "
"	1	Oct 7 "
"	1	Oct 14 "
"	1/2	Oct 18 "
"	2/2	Oct 18 "
"	1	Oct 26 "
"	2	Oct 26 "
"	1	Nov 9-17 "
"	2	Nov 9-17 "
Queets R.	1/1	June 7 1978
"	1/1	July 24 "
"	1/1	Aug 2 "
"	1/1	Aug 15 "
"	1/2	Aug 16 "
"	2/2	Aug 16 "
"	1/1	Aug 29 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Coastal Stocks - cont'd.		
Queets R.	1/1	Sept 5 1978
"	1/1	Sept 6 "
"	1/2	Sept 8 "
"	1/2	Sept 8 "
"	1/1	Sept 12 "
"	1/1	Sept 13 "
"	1/1	Sept 14 "
"	1/1	Sept 15 "
"	1/1	Sept 18 "
"	1/1	Sept 22 1978
"	2/2	Oct 4 "
**Queets R.	1/1	Mar 29 1979
"	1/2	April 24 "
"	1/1	May 10 "
"	1/1	June 6 "
"	1/2	June 21 "
"	1/2	June 28 "
"	1/2	July 31 "
"	1/1	Aug 15 "
"	1/2	Sept 21 "
"	1/1	Oct 4 "
"	1/1	Oct 11 "
"	1/1	Oct 24 "
"	1/1	Nov 1 "
"	1/1	Nov 7 "
**Queets R.	1/1	June 8 1980
"	1/1	June 24 "
"	1/1	July 15 "
"	1/2	Aug 8 "
"	1/1	Sept 12 "
"	1/1	Sept 30 "
"	1/	Oct "
"	1/2	Oct 27 "
"	1/3	Nov 3 "
"	2/8	Nov 3 "
"	1/2	Nov 6 "
**Queets R.	1/1	June 3 1981
"	1/1	June 22 "
"	1/1	July 8 "
"	1/2	Sept 3 "
"	2/3	Sept 4 "
"	1/2	Sept 15 "
"	1/2	Sept 23 "
"	1/1	Oct 1 "
"	2/4	Oct 7 "
"	1/3	Oct 22 "
"	1/8	Oct 29 "
"	2/8	Oct 29 "
"	3/8	Oct 29 "
"	6/8	Oct 29 "
"	1/1	Nov 18 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Coastal Stocks - cont'd.		
**Queets R.	1	Mar 16 1982
"	1	April 25 "
"	1	April 28 "
"	1	April 29 "
"	1	May 5 "
"	1	May 20 "
"	1	May 24 "
"	1-2	June 3 "
"	1-2	June 8 "
"	1	June 9 "
"	1	June 14 "
"	1	June 15 "
"	1	June 16 "
"	1	June 21 "
"	1-2	June 22 "
"	1	June 24 "
"	1	Aug 18 "
"	1-4	Aug 19 "
"	1	Aug 20 "
"	1-2	Aug 24 "
"	1-3	Aug 25 "
"	1	Aug 31 "
"	1	Sept 1 "
"	1	Sept 2 "
"	1-2	Sept 8 "
"	1	Sept 9 "
"	1	Sept 13 "
"	1-4	Sept 20 "
"	1	Sept 23 "
"	1-2	Sept 28 "
"	1	Sept 30 "
"	1-4	Oct 23 "
"	6-14	Oct 23 "
"	1	Oct 25 "
"	1	Nov 19 "
Quinault R.	1	Oct 9 1975
"	3	Oct 30 "
"	"	Nov 14 "
"	"	Nov 17 "
Quinault R.	"	May 1 1976
"	1/1	May 24 "
"	"	May 26 "
"	"	June 2 "
"	1/2	Sept 3 "
"	2/2	Sept 3 "
"	1/1	Nov 2 "
Quinault R.	1	June 6 1977
"	1	June 17 "
"	1	June 23 "
"	1/3	June 29 "
"	1/1	Sept 14 "
"	1/2	Sept 20 "
"	2/2	Sept 20 "
"	1	Sept 27 "
"	1	Sept 30 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Coastal Stock - cont'd.		
Quinault R.	1/1	Oct 6 1977
"	1/1	Oct 11 "
"	1/1	Oct 12 "
"	1/1	Oct 27 "
"	1/1	Nov 4 "
"	1/1	Nov 4 "
"	1/1	Nov 16 "
Quinault R.	1/1	Sept 19 1978
"	1/2	Sept 20 "
"	2/2	Sept 20 "
"	1/2	Sept 29 "
"	2/2	Sept 29 "
"	1/2	Oct 16 "
"	1/1	Oct 24 "
"	1/1	Oct 25 "
"	1/1	Oct 26 "
"	1/2	Oct 30 "
"	2/2	Oct 30 "
"	1/1	Oct 31 "
"	1/1	Nov 1 "
"	1/1	Nov 3 "
"	1/1	Nov 7 "
*Quinault R.	1/1	April 20 1979
"	1/1	May 21 "
"	1/1	June 5 "
"	1/1	June 21 "
"	1/1	July 9 "
"	1/1	July 18 "
"	1/1	July 31 "
"	1/1	Aug 20 "
"	1/2	Aug 27 "
"	1/2	Sept 1 "
"	1/2	Oct 8 "
"	1/2	Oct 15 "
"	1/1	Oct 19 "
"	1/1	Oct 24 "
"	1/1	Nov 6 "
"	1/2	Dec 6 "
*Quinault R.	1/1	April 15 1980
"	1/1	June 17 "
"	1/1	July 9 "
"	1/1	July 11 "
"	1/1	Aug 11 "
"	1/1	Aug 25 "
"	1/1	Sept 2 "
"	1/1	Sept 15 "
"	1/1	Sept 24 "
"	1/2	Sept 30 "
"	1/1	Oct 10 "
"	1/1	Oct 15 "
"	1/1	Oct 23 "
"	1/1	Oct 28 "
"	1/1	Nov 4 "
"	1/1	Nov 12 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Coastal Stocks - cont'd.		
**Quinault R.	1/1	May 4 1981
"	2/2	June 3 "
"	1/1	June 18 "
"	1/1	July 8 "
"	1/1	July 24 "
"	1/1	Aug 11 "
"	1/2	Aug 17 "
"	1/2	Sept 1 "
"	1/4	Sept 8 "
"	2/4	Sept 15 "
"	1/2	Sept 25 "
"	1/3	Oct 2 "
"	1/2	Oct 8 "
"	1/2	Oct 20 "
"	1	Oct 23 "
"	1/3	Oct 28 "
"	1/1	Nov 19 "
Quinault Nat. Fish. Hatchy.		Oct 6 "
"		Oct 6 "
"		Oct 8 "
"		Oct 13 "
"		Oct 13 "
"		Oct 19 "
"		Oct 20 "
"		Oct 23 "
"		Oct 26 "
"	1ptA	Oct 28 "
"	1ptB	Oct 28 "
"	2ptA	Oct 28 "
"	2ptB	Oct 28 "
"	3ptA	Oct 28 "
"	3ptB	Oct 28 "
"	4ptA	Oct 28 "
"	4ptB	Oct 28 "
"	1ptA	Oct 29 "
"	1ptB	Oct 29 "
"		Oct 30 "
"	1ptA	Nov 2 "
"	1ptB	Nov 2 "
"		Nov 4 "
(Cook Creek)	1ptA	Nov 5 "
(Cook Creek)	1ptB	Nov 5 "
"		Nov 5 "
"		Nov 9 "
"		Nov 10 "
"	1ptA	Nov 12 "
"	1ptB	Nov 12 "
"	2	Nov 12 "
"		Nov 13 "
"		Nov 24 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Coastal Stocks - cont'd.		
**Quinault R.	1	May 14 1982
"	1	May 21 "
"	1	May 28 "
"	1	June 1 "
"	1	June 9 "
"	1	June 14 "
"	1	June 16 "
"	1	June 29 "
"	1	July 1 "
"	1	July 8 "
"	1	July 14 "
"	1	July 21 "
"	1	July 29 "
"	1	Aug 2 "
"	1	Aug 5 "
"	1	Aug 11 "
"	1	Aug 17 "
"	1	Aug 18 "
"	1-2	Aug 19 "
"	1-4	Aug 25 "
"	1-4	Aug 30 "
"	1-3	Sept 8 "
"	1	Sept 9 "
"	1-2	Sept 13 "
"	1-4	Sept 20 "
"	1-5	Sept 29 "
"	1-3	Oct 6 "
"	1	Oct 7 "
"	1-2	Oct 13 "
"	1-4	Oct 18 "
"	1-4	Oct 25 "
"	1	Nov 1 "
"	1-2	Nov 5 "
"	1	Nov 10 "
"	1	Nov 30 "
Humptulips R.		Oct 29 1975
"		Nov 7 "
Humptulips R.	1	Oct 5 1976
"	1	Oct 18 "
Humptulips R.	1	Sept 27 1977
"	1	Sept 29 "
"	1	Sept 30 "
"	1	Oct 18 "
Humptulips R.	1	Oct 11 1978
"	1/2	Oct 16 "
"	2/2	Oct 16 "
"	1/1	Nov 2 "
"	1/2	Nov 8 "
"	2/2	Nov 8 "
"	1	Nov 15 "
*Humptulips R.	1/1	Nov 16 1979
"		Nov 21 "
"	1/1	Nov 29 "
"	1/1	Dec 5 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Coastal Stocks - cont'd.		
*Humptulips R.	1/1	Sept 22 1980
"	1/1	Oct 14 "
"	1/1	Oct 21 "
"	1/1	Oct 23 "
"	1/1	Nov 10 "
"	1/1	Nov 12 "
"	1/1	Nov 21 "
*Humptulips R.	1/1	Sept 21 1981
"	1/1	Sept 22 "
"	1/1	Oct 6 "
"	1/2	Oct 8 "
"	2/2	Oct 8 "
"	1/2	Oct 9 "
"	2/2	Oct 9 "
"	1/2	Oct 14 "
"	2/2	Oct 14 "
"	1/2	Oct 26 "
"	2/2	Oct 26 "
*Humptulips R.	1-4	Oct 6 1982
"	1-2	Oct 13 "
"	1	Oct 18 "
"	1-3	Oct 20 "
"	1	Oct 26 "
"	1-2	Nov 2 "
Chehalis R.		Oct 18 1976
"	1/1	Sept 30 1977
"	1/1	Oct 5 "
"	1/1	Oct 18 "
Chehalis R.	1/2	Oct 3 1978
"	2/2	Oct 3 "
"	1/1	Oct 5 "
"	1/1	Oct 11 "
"	1	Oct 12 "
"	1/1	Oct 15 "
"	1/1	Oct 16 "
"	1/1	Oct 17 "
*Chehalis R.	1/1	Dec 6 1979
*Chehalis R.	1/2	Sept 22 1980
"	1/1	Sept 24 "
"	1/1	Sept 29 "
"	1/1	Oct 7 "
"	1/1	Oct 10 "
"	1/1	Oct 15 "
"	1/1	Oct 21 "
*Chehalis R.	1/2	Sept 22 1981
"	1/2	Oct 6 "
"	1/2	Oct 9 "
"	1/2	Oct 13 "
"	2/2	Oct 13 "
"	1	Oct 26 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Coastal Stocks - cont'd.		
*Chehalis R.	1-2	Oct 4 1982
"	1-2	Oct 5 "
"	1	Oct 14 "
"	1	Oct 15 "
"	1-2	Oct 19 "
"	1	Oct 26 "
"	1-2	Nov 2 "
Grays Harbor	1	(week 39) 1975
"	2	(week 39) "
"	1	Sept 29 "
"	2	Oct 2 "
"	3	Oct 3 "
"	4	(Wk 40) "
"	7	(Wk 40) "
"	1	(Wk 41) "
"	3	(Wk 41) "
"	4	(Wk 41) "
"	5	Oct 6 "
"	6	Oct 8 "
"	8	(Wk 42) "
"	1	(Wk 45) "
West Port (Grays Harbor)	1	Oct 27 1976
2 B & C	1	Oct 18 "
2 C	1	Oct 25 "
"	2	Oct 25 "
"	1	Nov 1 "
2 D	1	Sept 16 "
"	1	Sept 20 "
"	1	Sept 23 "
"	1	Sept 23 "
"	1	Sept 27 "
"	1	Oct 4 "
"	1	Oct 7 "
"	1	Oct 11 "
"	1	Oct 12 "
"	2	Oct 12 "
"	1	Oct 14 "
"	1	Oct 14 "
"	1	Oct 14 "
"	1	Oct 25 "
"	1	Oct 27 "
"	2	Oct 27 "
"		Oct 28 "
"	II	Nov 1 "
"	39	Dec 12 "
Grays Harbor 2 G	3	Sept 6 1979
"	1	Sept 10 "
"	1-2	Sept 17 "
"	3	Sept 20 "
"	1	Sept 24 "
"	2	Sept 25 "
"	2	Sept 27 "
"	1	Oct 11 "
"	1	Oct 15 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Coastal Stocks - cont'd.		
Grays Harbor 2 B	3	Sept 25 1980
"	1	Oct 3 "
" 2 D	1	Sept 25 "
"	2	Sept 25 "
"	1	Sept 26 "
"	1	Oct 1 "
"	1	Oct 2 "
"	1	Oct 3 "
"	2	Oct 3 "
*Grays Harbor, 2B	1	Oct 4 1982
" 2 C	1	Oct 4 "
" 2 D	1-3	Oct 4 "
" 2 C	1	Oct 5 "
" 2 D	1-2	Oct 5 "
" 2 D	1-3	Oct 6 "
" 2 B & 2 D	1	Oct 7 "
" 2 D	1-3	Oct 7 "
" 2 B	1	Oct 8 "
" 2 C	1	Oct 8 "
" 2 D	1-4	Oct 8 "
" 2 D	1	Oct 13 "
Willapa Bay	1	(Wk 36) 1975
"	2	(Wk 36) "
"	3	(Wk 36) "
"	1	(Wk 37) "
"	2	(Wk 37) "
"	3	(Wk 37) "
"	1	(Wk 38) "
"	2	(Wk 38) "
"	1	(Wk 39) "
"	2	(Wk 39) "
"	1	(Wk 40) "
"	1	(Wk 41) "
"	2	(Wk 41) "
"	3	(Wk 41) "
" 2	29	Oct 6,7 1976
" 2 G	1	Sept 2 "
" 2 G	1	Sept 2 "
" 2 G	2	Sept 2 "
" 2 G	2	Sept 2 "
" 2 G	1	Sept 6 "
" 2 G	1	Sept 6 "
" 2 G	2	Sept 6 "
" 2 G & 2 J	1	Sept 9 "
" 2 G	1	Sept 13 "
" 2 G	1	Oct 18 "
" G	1	Oct 20 "
" H	30	Oct 7 "
" J	3	Sept 2 "
"	2	Sept 6 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Coastal Stocks - cont'd.		
*Willapa Bay, 2 G	3	Sept 6 1979
"	1	Sept 10 "
"	1	Sept 17 "
"	2	Sept 17 "
" 2 G	3	Sept 20 "
"	1	Sept 24 "
"	2	Sept 25 "
"	2	Sept 27 "
"	1	Oct 11 "
"	1	Oct 15 "
*Willapa Bay, 2 G	1	Sept 1 1980
"	5	Sept 1 "
"	1	Sept 15 "
"	2	Sept 15 "
"	1	Sept 29 "
"	1	Oct 6 "
"	1	Oct 7 "
"	1	Oct 9 "
"	2	Oct 9 "
"	1	Oct 10 "
**Willapa Bay, 2 G	1	Sept 1 1981
"	4	Sept 1 "
"	1	Sept 14 "
"	1	Sept 15 "
"	1	Sept 18 "
"	1	Sept 24 "
"	2	Sept 25 "
"	1	Sept 28 "
"	1	Oct 2 "
"	1	Oct 12 "
*Willapa Bay, 2 G & H	1	Sept 13 1982
" 2 H	1	Sept 13 "
" 2 G	1	Sept 14 "
" 2 H	1	Sept 14 "
" 2 G	1	Sept 15 "
" 2 G	1	Sept 16 "
" 2 G (2 H)	1	Sept 16 "
" 2 J (2 G)	1	Sept 16 "
" 2 G	1	Sept 17 "
" 2 G	1	Sept 28 "
" 2 J	1	Sept 28 "
" 2 G	1-2	Sept 29 "
" 2 H	1	Sept 29 "
" 2 G	1-2	Sept 30 "
" 2 J	1	Sept 30 "
" 2 G	1-2	Oct 1 "
" 2 J	1	Oct 1 "
" 2 G	1	Oct 2 "
" 2 J	1	Oct 4 "
" 2 G	1-3	Sept 13 "
" 2 J	1	Sept 13 "
" 2 G	1-2	Sept 17 "
" 2 H	1	Sept 17 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Willapa Bay, 2 G	1	Sept 18 1982
" 2 H	1	Sept 20 "
" 2 J	1	Sept 20 "
" 2 G	1-2	Sept 21 "
" 2 H	1	Sept 21 "
" 2 G	1	Sept 22 "
" 2 G	1-2	Sept 24 "
" 2 G	1	Sept 25 "
" 2 G	1	Oct 5 "
" 2 G	1	Oct 6 "
" 2 G	1	Oct 7 "
" 2 G	1	Oct 8 "
" 2 G	1	Oct 9 "
" 2 G (2 K)	1	Oct 14 "
Hood Canal Stocks		
Hood Canal	1	Aug 6 1975
"	8	Aug 12 "
"	3	Aug 13 "
"	4	Aug 13 "
"	6	Aug 15 "
"	1	Aug 16 "
" (12 D)	1	Aug 20 "
"	4	Aug 21 "
"	1	Aug 27 "
" (12 D)	1	Sept 3 "
"	3	Sept 4 "
"	3	Sept 8 "
Hood Canal (12 D)	7	July 30 1976
"	1	Aug 2 "
"	8	Aug 5 "
"	5	Aug 6 "
"	9	Aug 12 "
"	5	Aug 18 "
"	7	Aug 20 "
"	2	Aug 23 "
"	2	Sept 7 "
"	4	Sept 9 "
"	1	Sept 27 "
"	2	Sept 28 "
Hood Canal, 12 D	1	July 25 1977
"	1	July 26 "
"	1	Aug 2 "
"	1	Aug 3 "
"	1	Aug 4 "
"	1	Aug 8 "
"	1	Aug 9 "
"	1	Aug 10 "
"	1	Aug 16 "
"	1	Aug 17 "
"	1-4	Aug 24 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Hood Canal Stocks - cont'd.		
Hood Canal, 12 DD	168	July 19 1978
"	256	Aug 2 "
"	1 (254)	Aug 8 "
"	43	Aug 15 "
"	58	Aug 18 "
"	1 (76)	Aug 22 "
" (12 D)	1 (39)	Aug 23 "
"	1 (164)	Aug 23 "
Hood Canal, 12 D	2 (165)	Aug 23 1978
"	1 (38)	Aug 24 "
"	1 (186)	Aug 27 "
*Hood Canal, 12 C	2	July 30 1979
"	1	July 31 "
"	1-3	Aug 7-10 "
"	2	Aug 13 "
"	2-3	Aug 17 "
"	1	Aug 22 "
"	2	Aug 22 "
**Hood Canal, 12 C	5	Aug 13 1980
"	1-2	Aug 18 "
"	1	Aug 19 "
"	3	Aug 20 "
"	1	Aug 27 "
"	1-2	Sept 2 "
"	1-2	Sept 16 "
**Hood Canal, 12 B & C	1-5	Aug 17 1981
" 12, 12 B & C	1	Aug 24 "
"	4	Aug 24 "
"	6	Aug 24 "
Mix: 12 C	1-2	Aug 25 "
**Skokomish R.	1	Aug 24 1982
"	1	Aug 25 "
"	1	Aug 26 "
"	1-2	Aug 30 "
"	1-5	Sept 13 "
Puget Sound Stocks		
Nooksack R. & Samish R. Stocks		
7 B	2	July 23 1975
"	1	Aug 7 "
"	1	Aug 11 "
"	1	Aug 13 "
"	4	Aug 27 "
7 C	1 (7C-52)	Aug 8 "
"	1 (7C-53)	Aug 8 "
"	1	Aug 14 "
"	2	Aug 20 "
Bellingham	3	Sept 8 "
7 B	4	July 22 1976
"	1	July 26 "
"	18	Aug 17 "
"	3	Aug 24 "
"	11	Sept 16 "

<u>Sample Sites</u>	<u>Card #</u>	<u>Date</u>
Puget Sound Stocks - cont'd.		
Bellingham		
7 C	2	Aug 2 1976
"	4	Aug 11 "
"	1	Aug 16 "
"	4	Aug 23 "
"	1	Sept 7 "
7 B	2	July 28 1977
"	3	July 28 "
"	1	Aug 2 "
"	1-2	Aug 12 "
"	2	Aug 15 "
"	1-2	Sept 1 "
" 7 B & C	1	Aug 22 "
7 C	1	Aug 2 "
7 B	1	Aug 7 1978
"	1 (102)	Aug 8 "
"	1 (96)	Aug 13 "
"	118	Aug 21 "
"	112	Aug 24 "
"	I 95	Aug 31 "
"	2 (155)	Sept 6 "
"	3 (154)	Sept 6 "
"	1 (153)	Sept 7 "
"	2 (152)	Sept 7 "
*7 B	1-3	Aug 2 1979
"	1	Aug 8 "
"	1	Aug 9 "
"	1-3	Aug 10 "
"	1	Aug 16 "
"	1	Aug 17 "
"	1-2	Sept 17 "
**7 B	2	July 15 1980
"	2	July 31 "
"	3	Aug 7 "
"	2	Aug 18 "
"	3	Aug 26 "
"	5	Aug 26 "
"	6	Aug 26 "
"	3	Aug 27 "
"	1	Sept 1 "
"	3	Sept 3 "
**7 B	2-3	Aug 12 1981
"	3	Aug 12 "
"	2	Aug 13 "
"	1	Aug 14 "
"	1	Aug 17 "
"	4	Aug 18 "
"	2	Aug 19 "
"	4	Aug 26 "
"	1	Sept 2 "
*7 B	3	Sept 9 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Puget Sound Stocks - cont'd.		
Bellingham, 7 B	1	July 28 1982
"	1	Aug 4 "
*7	1-2	Aug 4 "
"	4	Aug 5 "
*7 B	1-2	Aug 17 "
"	7	Aug 19 "
"	5	Sept 1 "
"	1	Sept 7 "
Skagit R. Stocks		
8	16	July 21 1975
"	14	July 28 "
"	2	July 31 "
"	1	Aug 8 "
"	2	Aug 9 "
"	1	Aug 13 "
"	1	Aug 25 "
"	1	Aug 28 "
"	1	Sept 2 "
8	2	Sept 10 1975
8	6	June 18 1976
"	1	June 21 "
"	2	June 28 "
"	8-9	July 16 "
"	2	July 19 "
"	5	July 22 "
"	7	July 22 "
"	2	Aug 16 "
"	2	Aug 26 "
8	1	June 17 1977
"	1	June 24 "
"	1	June 30 "
"	1 A	June 30 "
"	1	July 14 "
"	1	July 18 "
"	2	July 18 "
"	1-2	Aug 8 "
**8	3	June 25 1980
"	1	June 30 "
"	3	July 3 "
"	3	July 8 "
"	1	July 17 "
"	2	July 18 "
"	3	July 24 "
"	3	Sept 16 "
"	2	Sept 24 "
**8	1	July 14 1981
"	13	July 16 "
"	3	July 22 "
"	1 of 3	July 22 "
"	7	July 23 "
"	1	July 28 "
"	1-3	Aug 18 1981
"	1	Aug 24 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Puget Sound Stocks - cont'd.		
Skagit R. Stocks		
**8	1	July 6 1982
"	6	July 6 "
"	2	July 13 "
"	2	July 28 "
"	4	July 28 "
"	2	Aug 12 "
"	4	Aug 19 "
"	6-7	Aug 19 "
"	1	Sept 9 "
"	1-2	Sept 10 "
Stillaguamish R. & Snohomish R. Stock		
8 C	10	Aug 11 1975
"	11	Aug 11 "
"	1	Aug 14-15 "
"	2	Aug 21 "
"	1	Aug 25 "
"	1	Aug 26 "
"	1	Aug 28 "
"	2	Sept 10 "
8 B	1	July 19 1976
"	1	July 26 "
"	I	Aug 31 "
"	II	Sept 3 "
8 C	2-5	July 21-23 "
"	1-4	Aug 17-20 "
"	1-2	Aug 30-31 "
8 C-1	1	Sept 20 "
8 C	1	Aug 12 1977
"	1	Aug 18 "
"	1-2	Aug 31 "
"	1	Sept 5 "
"	1	Sept 7 "
"	1	Sept 12 "
8 C	1 (284)	July 20 1978
"	264	Aug 2 "
"	262	Aug 7 "
"	229	Aug 14 "
"	205	Aug 22 "
"	1 (104)	Aug 23 "
"	1 (201)	Aug 24 "
"	200	Aug 25 "
8 C	1 (82)	Aug 8 "
"	1 (80)	Aug 29 "
**8 A	1	Aug 2 1979
"	1	Aug 9 "
"	1	Aug 10 "
"	1	Aug 14 "
"	1	Aug 16 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Puget Sound Stocks - cont'd.		
Stillaguamish R. & Snohomish R. Stock		
**8 A	1	Aug 17 1979
"	1-2	Aug 23 "
"	1	Aug 28 "
"	1	Aug 31 "
**8 A	1	July 15 1980
"	1	July 23 "
"	3	Aug 11 "
"	1	Aug 12 "
"	1	Aug 15 "
"	1	Aug 18 "
"	1-2	Aug 25 "
"	1	Sept 4 "
"	1	Sept 9 "
**8 A	1	July 13 1981
"	1	July 23 "
"	1	July 28 "
"	2	Aug 6 "
"	1	Aug 17 "
"	1	Aug 18 "
"	2/4	Aug 18 "
"	3/4	Aug 24 "
"	1/2	Aug 25 "
"	1/2	Sept 1 "
8 A	1	July 7 1982
"	2	July 13 "
"	3	July 20 "
"	1	July 22 "
**8 A	1	Aug 13 "
"	1-2	Aug 18 "
"	2	Aug 24 "
"	1	Aug 26 "
"	2	Sept 1 "
Duwamish R.	2-3	Aug 1 1975
"	7	Aug 4 "
"	6	Aug 6 "
"	4	Aug 8 "
"	1-2	Aug 11 "
"	8	Aug 14 "
"	3-4	Aug 18 "
10 A	4	July 21 1976
"	1	July 26 "
"	5-6	July 27-28 "
"	8-10	July 28 "
10 A	1-2	Aug 9 1976
"	6	Aug 9 "
10 A	2-3	Aug 1-3 1977
"	1 A	Aug 3 "
"	1-2	Aug 8 "
"	1-2	Aug 9 "
"	1-2	Sept 1 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Puget Sound Stocks - cont'd.		
Duwamish R.		
10 A	1 (277)	July 17 1978
"	1 (278)	July 17 "
"	1 (279)	July 18 "
"	1 (283)	July 19 "
"	1 (291)	July 25 "
"	1 (289)	July 26 "
"	1 (266)	July 31 "
"	2 (267)	July 31 "
"	3 (268)	July 31 "
"	4 (269)	July 31 "
"	1 (270)	Aug 1 "
*10 A & Duwamish	1-3	July 18 1979
*10 A	1-2	Sept 1-2 "
"	1	Sept 13 "
"	1	Oct 10 "
**10 A	1	July 15 1980
"	1 A (1 of 2)	July 30 "
" (Duwamish)	1-2	July 30 "
" (Duwamish)	1	Aug 5 "
*10A	1-3	Aug 6 "
"	1	Aug 12 "
" (Duwamish)	1-3	Aug 12 "
**10A	3	July 28 1981
**Stillaguamish R. & Snohomish R. Stock		
"	1	Aug 4 1981
"	1	Aug 5 "
"	3-4	Aug 5 "
"	1/4	Aug 12 "
"	3/4	Aug 12 "
"	2/2	Aug 12 "
"	2/5	Aug 12 "
"	3/5	Aug 12 "
**Green R. (Duw)	1	July 26 1982
**Green R.	1	July 27 1982
"	2	Aug 3 "
"	1	Aug 4 "
" (10 A)	2	Aug 4 "
"	1	Aug 10 "
" (Duw)	1-2	Aug 10 "
"	1	Aug 13 "
" (10 A)	2	Aug 13 "
Lake Washington Stocks		
Shilshole 10 B	1	July 29 1975
"	3	July 29 "
"	6	July 30 "
"	2	July 31 "
"	4-5	July 31 "
"	3	Aug 7 "
"	5-6	Aug 7 "
"	9	Aug 11 "
"	6	Aug 12 "
"	5	Aug 13 "

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
Puget Sound Stocks - cont'd.		
Lake Washington Stocks		
Shilshole		
10 B	1	Aug 3 1976
"	4	Aug "
10 B-C	2-3	Aug 5 "
10 B	1-4	Aug 16 1977
"	1-2	Aug 19 "
"	4	Aug 19 "
"	2-3	Aug 23 "
"	5	Aug 23 "
*Puyallup R. Stock		
11 A	1-5	Sept 4 1981
"	1-3	Sept 15 "
**11 A	1	Sept 13 1982
"	1-2	Sept 14 "
*Puyallup R.	1	Sept 14 "
Minter Cr.-Deschutes R.		
Stocks		
**13 B	1	Aug 4 1982
"	1-2	Aug 10 "
"	2	Aug 11 "
"	1	Aug 12 "
**13 A	1	Aug 13 "
"	1-2	Aug 23 "
"	1	Aug 24 "
"	1	Sept 20 "

COLUMBIA RIVER

1975
Commercial Fishery

<u>Site # & Date</u>	<u>Card #</u>
1-75-10-1	001-1
1-75-10-1	007-1
1-75-10-2	052-1
1-75-33-1	102-1
1-75-33-1	030-1
1-75-33-1	021-1
1-75-33-1	014-1
1-75-33-1	021-1
1-75-33-1	100-1
1-75-33-1	102-2
1-75-33-1	105-1
1-75-33-1	115-1
1-73-43-2	181-1
1-75-44-3,4	182-1

Woody Island Test Fishery

<u>Date</u>	<u>Card #</u>
4-2	1-3
4-4	1-2
4-6	1
4-8	1
4-10	1-2
4-12	1-2
4-14	1-3
4-16	1-3
4-18	1-3
4-20	1
4-23	1-3
4-25	1-2

1975
Corbett Test Fishery

<u>Date</u>	<u>Card #</u>
1975	A-V

1976
Commercial Fishery

<u>Site # & Date</u>	<u>Card #</u>
1-76-10-1	001-1
1-76-10-2	003-1
1-76-10-1	006-1
1-76-10-2	012-1
1-76-10-2	050-1
1-76-10-2	051-1
1-76-33-1	017-1
1-76-33-1	018-1

1976
Commercial Fishery - cont.'d

<u>Site # & Date</u>	<u>Card #</u>
1-76-33-1	023-1
1-76-33-1	073-1
1-76-33-1	079-1
1-76-33-2	080-1
1-76-42-2	228-1
1-76-43-2	188-1
1-76-44-2,3,4	208-1
1-76-46-2,3	130-1

Woody Island Test Fishery

<u>Date</u>	<u>Card #</u>
4-2	1-3
4-4	1-2
4-6	1-2
4-8	1
4-10	1
4-12	1-2
4-14	1-3
4-16	1-3
4-17	1-2
4-19	1-2
4-21	1-2
4-23	1-2

Corbett Test Fishery

<u>Date</u>	<u>Card #</u>
4-2	A-D
4-6	F-G
4-6	H-7
4-7-26	I-Z
4-28-30	AA-AB

1977
Commercial Fishery

<u>Site # & Date</u>	<u>Card #</u>
1-77-10-1	006-1
1-77-10-1	006-2
1-77-10-1	054-1
1-77-10-2	051-1
1-77-10-2	002-1
1-77-10-3	053-1
1-77-10-3,4	004-1
1-77-34-1	014-1
1-77-34-1	014-2
1-77-34-1	014-3

1977

Commercial Fishery - cont'd.

<u>Site # & Date</u>	<u>Card #</u>
1-77-34-1	014-4
1-77-34-1	014-5
1-77-39-3	095-1
1-77-39-2	099-1
1-77-39-1	100-1
1-77-41-1	128-1
1-77-42-2	040-1
1-77-43-2	137-1

Woody Island Test Fishery

<u>Date</u>	<u>Card #</u>
4-2	1-3
4-4	1-2
4-6	1-3
4-8	1-2
4-10	1-2
4-12	1-2
4-14	1-2
4-16	1
4-18	1
4-20	1
4-22	1-2
4-24	1

Corbett Test Fishery

<u>Date</u>	<u>Card #</u>
4-2-16	A-Z
4-16-28	AA-AO

1978

Commercial Fishery

<u>Site and Date</u>	<u>Card #</u>
1-78-10-1	102-1
1-78-11-1	107-1
1-10-78-2	106-1
1-78-10-3,4	105-2
1-78-11-1	288-1
1-78-11-1	289-1
1-78-35-1	210-3
1-78-34-1	250-3
1-78-34-1	250-4
1-78-34-2	253-1
1-78-34-1	450-1
1-78-34-1	451-1
1-78-44-3,4	277-1
1-78-45-3,4	285-1
1-78-41-3,4	536-1
1-78-41-2	534-1

1978

Commercial Fishery - cont'd.

<u>Site # & Date</u>	<u>Card #</u>
1-78-45-1,2	281-1
1-78-46-1	578-1

Woody Island Test Fishery

<u>Date</u>	<u>Card #</u>
4-2	1
4-4	1-2
4-6	1-3
4-8	1-3
4-10	1-4
4-12	1-3
4-14	1-3
4-16	1-3
4-18	1-2
4-20	1-2
4-22	1-2
4-24	1

Corbett Test Fishery

<u>Date</u>	<u>Card #</u>
4-2-20	A-Z
4-20-30	AA-AM

1979

** Commercial Fishery

<u>Site # & Date</u>	<u>Card #</u>
1-79-33-1	071-2
1-79-33-1	076-1
1-79-33-1	161-1
1-79-33-1	159-1
1-79-33-1	162-1
1-79-33-1	166-1
1-79-33-1	378-1
1-79-33-1	378-2
1-79-37-1	195-1
1-79-37-1	277-1
1-79-37-1	482-1
1-79-37-2	482-2
1-79-37-3	484-1
1-79-43-1	723-1
1-79-43-1	748-2
1-79-43-1	774-1
1-79-43-1	780-1
1-79-43-2	347-1
1-79-43-2	750-1
1-79-43-2,3	725-1

1981
 **Woody Island Test Fishery

<u>Site # & Date</u>	<u>Card #</u>
4-14	1-3
4-16	1-2
4-18	1-2
4-20	1-2

1981
 ** Corbett Test Fishery

<u>Date</u>	<u>Card #</u>
4-2-24	A-Z
4-26-28	AA-AC

1982
 ** Commercial Fishery

<u>Site # & Date</u>	<u>Card #</u>
1-82-9-3	147-2
1-82-9-1	166-2
1-82-9-1	303-1
1-82-9-1	304-1
1-82-9-1	304-2
1-82-9-1	309-1

**Woody Island Test Fishery

<u>Date</u>	<u>Card #</u>
4-2	
4-4	
4-6	
4-8	
4-10	
4-12	
4-14	
4-16	1-2
4-18	1-2
4-20	
4-22	
4-24	1-2

** Corbett Test Fishery
 (Coyote Drift)

<u>Date</u>	<u>Card #</u>
4-2	AA
4-4	
4-6	
4-8	AE-AF
4-10	1-3
4-12	AG-AH
4-14	
4-15	TN

1982
 ** Corbett Test Fishery
 (Coyote Drift)

<u>Date</u>	<u>Card #</u>
4-15	UN
4-16	RN
4-17	SN
4-17	WN
4-18	
4-19	XN
4-19	YN
4-20	ZN
4-22	1-2
4-24	1-2
4-26	1-2
4-28	1-2
4-30	1-2

OREGON

<u>Site</u>	<u>Date</u>	<u>Card #</u>	<u>Ref #</u>
Tillamook Bay	9-78	5	7840081-100
	"	6	7840101-120
	10-78	7	7840121-140
	"	8	7840141-160
**Tillamook	1982		
Trask R. Htchy.	1977	60	7710221-240
	"	61	7710241-260
	"	64	7710301-320
	"	65	7710321-340
	"	67	7710361-380
	"	68	7710381-400
	"	69	7710401-420
	"	70	7710421-440
	"	71	7710441-461
	"	73	7710481-500
	"	74	7710501-520
Trask R.	10-78	13	7840241-260
	"	14	7840261-280
	11-78	15	7840281-300
	"	16	7840301-320
Trask R. Htchy.	11-78	17	7840321-340
	"	18	7840341-360
	"	19	7840361-380
	"	20	7840381-400
Siletz R.	1977		77341-360
Siletz R.	1978		83721-729
**Siletz R.	1979		7920161-180
	"		7920181-182
**Yaquina R.	1979		7920001-020
	"		7920021-040
	79-80		7920201-220
	12-79		7920221-232
**Yaquina R.	11-13-80	1	
	11-20-80	125	
	11-24-80	021	
	11-26-80	041	
	12-10-80	141	
	"	061	
	12-11-80	081	
	12-12-80	101	
	12-15-80	161	
	12-23-80	121	
	1-7-81	181	
	"	201	

<u>Site</u>	<u>Date</u>	<u>Card #</u>	<u>Ref #</u>
**Yaquina R.	1981	1-20 ²	
	"	21-40	
	"	41-60	
	"	61-80	
	"	81-100	
	"	101-120	
	"	121-140	
	"	141-160	
	"	161-180	
	1981	181-200 ²	
	"	201-220	
	"	221-240	
	"	241-260	
	"	261-280	
	"	281-300	
	"	301-320	
*Yaquina	1982		
Alsea R.	1977-78	001-020 ²	
	"	021-040	
	"	041-060	
	"	061-080	
	"	081-100	
	"		77321-340
	"		89221-240
	"		89241-260
	"		89261-280
	"		89281-300
	"		89301-320
	"		89321-340
	"		89341-360
	"		89361-380
	"		89381-400
*Alsea R.	1978-79		89001-020
	"		89021-040
	"		89041-060
	"		89061-080
	"		89081-100
	"		89101-120
	"		89121-140
	"		89141-160
	"		89161-180
	"		89181-200
	"		89201-220
**Umpqua R.	11-4-80	001	
	"	021	
Coos R.	1978-79		87201-220
	"		87501-520
	"		87521-540
	"		87541-560

<u>Site</u>	<u>Date</u>	<u>Card #</u>	<u>Ref. #</u>
**Coos R.	1980	1-20 ²	
	"	21-40	
	"	41-60	
	"	61-80	
Coquille R.	1977-78		77121-140
	"		77141-160
	"		77161-180
	"		77181-200
*Coquille R.	1978-79		87001-020
	"		87021-040
	"		87041-060
	"		87061-080
	"		87081-100
	"		87101-120
	"		87221-240
	"		87241-260
Coquille R.	"		87261-280
	"		87281-300
*S.F. Coquille R.	11-21-80	001	
	"	021	
	"	041	
	"	061	
	"	081	
	1980	101-120 ²	
	"	121-140	
	"	141-160	
	"	161-180	
	"	181-200	
	"	201-220	
	"	220	
	"	231	
**Coquille	1982		
Rogue R.	1976	1-22	
	"	X	
Rogue R.	1977	1-32	
Rogue R.	1978	13-37	
**Rogue R.	1979	8-15	
"	"	21-40	
**Rogue R.	1980	1-29	
**Rogue R.	1981	1-30	
*Rogue R.	1982	1-22	
"	"	1A-22A	
**Siuslaw	1982		
**Nestucca	1982		

CALIFORNIA

<u>Sample Site</u>	<u>Card #</u>	<u>Date</u>
**Klamath R.	3	Aug 9-10 1979
"	4	Aug 10 "
"	11	Aug 15 "
"	18	Aug 16 "
"	24	Sept 6,13 "
"	25	Sept 13 "
"	26	Sept 13 "
"	27	Sept 11 "
"	30	(Sept 14?) "
"	34	Sept 12 "
**Klamath R.	3-8	May-Sept 10 1980
"	1	Aug 18-Sept 19 "
**Klamath R.	13	July 9-10 1981
"	11	Aug "
"	17-18	Aug 24-25 "
"	22	Aug 27-28 "
"	25	Aug 31-Sept 1 "
"	28	Sept 8 "
"	30	Sept 9 "
"	32	Sept 10 "
"	35	Sept 14-15 "
"	37	Sept 15-16 "
**Klamath R.		
Spring Chinook Net Harvest	1-21	1982
Fall Chinook	1-56	"
Sacramento R.	12	Dec 30 1975
"	3	Dec 30-31 "
"	3	Jan 5-6 1976
"	1-2	Jan 5-6 "
"	4	Jan 6-7 "
Sacramento R.	5-11	April 6-29 1977
Sacramento R.	1-3	1978
"	2-5	Oct 20-Dec 1 "
**Sacramento R.	1-5	Nov. 21-Dec 20 1979
"	1-6	Oct-Dec "
* Sacramento R.	1-3	Jan-Feb 1980
"	1-2	Aug 19-Oct 16 "
"	1-9	Oct 10 "
"	1-8	Dec-Jan 80-81
**Sacramento R.		Oct 8 1981
"		Oct 9 "
"		Oct 13 "
"		Oct 14 "
"	1-3	Oct 22-28 "
"	1-2	Nov 3-20 "
"	1-3	Oct 19 "
"	1-2	Oct 22 "
"	1-2	Oct 26 "
"	1-2	Oct 29 "
"		Nov 2 "
"	1-2	Nov 5 "
"		Nov 9 "
"	1	Nov 12 "
"		Nov 19 "

*Scales have been re-aged.

**Scales have been re-aged and subsamples have been digitized for standards.

1. These impressions are not part of the permanent collection at FRI.
2. (2000-2009) - Quileute and 1-20, 21-40, etc. - Oregon denote one card.