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## **Data Report from the Canadian High Seas Salmon Cruise to the Eastern North Pacific, February 27 - March 25, 1992**

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1992

**Canadian Data Report of  
Fisheries and Aquatic Sciences 884**



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DATA REPORT FROM THE CANADIAN HIGH SEAS  
SALMON CRUISE TO THE EASTERN NORTH PACIFIC,  
FEBRUARY 27 - MARCH 25, 1992

by

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Cat. No. Fs 97-13/884E

ISSN 0706-6465

Correct citation for this publication:

Morris, J. F. T. and D. W. Welch. 1992. Data report from the Canadian high seas salmon cruise to the eastern North Pacific, February 27 - March 25, 1992. Can. Data Rep. Fish. Aquat. Sci. 884: 11 p.

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## ABSTRACT

Morris, J. F. T. and D. W. Welch. Data report from the Canadian high seas salmon cruise to the eastern North Pacific, February 27 - March 25, 1992. Can. Data Rep. Fish. Aquat. Sci. 884: 11 p.

Canadian fisheries scientists conducted a survey by rope trawl and surface gillnet in the eastern North Pacific from February 28 to March 25, 1992 to collect more information on the relationship between salmon distributions and physical oceanographic factors. This report presents the catch and biological data that were collected on Pacific salmon and other species, and the sea surface temperatures and salinities that were recorded at each fishing station.

## RÉSUMÉ

Morris, J. F. T. and D. W. Welch. Data report from the Canadian high seas salmon cruise to the eastern North Pacific, February 27 - March 25, 1992. Can. Data Rep. Fish. Aquat. Sci. 884: 11 p.

Les scientifiques des pêches canadiennes ont effectué un relevé au chalut et au filet maillant dans la partie est du Pacifique Nord du 28 février au 25 mars 1992 afin de recueillir des informations sur les rapports entre les distributions de saumons et des facteurs océanographiques physiques. Ce rapport présente les données biologiques et des prises qui ont été recueillies sur le saumon du Pacifique et d'autres espèces, ainsi que les données de température superficielle de la mer et de salinité qui ont été obtenues à chaque station de pêche.

## INTRODUCTION

A rope trawl and surface gillnet survey was conducted from February 27 to March 25, 1992 on the R.V. W.E. Ricker to collect more information on salmon distributions in relation to oceanographic conditions in the eastern North Pacific. Surveys of this type may eventually lead to a better understanding of how physical oceanographic factors define the southern limit of salmon.

This report presents the catch and biological data on Pacific salmon and other species, and the sea surface temperatures and salinities recorded at each fishing station.

Detailed oceanographic data from the cruise included a series of CTD casts to 800 metres and SAIL data which provide a continuous record of sea surface temperatures and salinities. The CTD and SAIL datasets can be accessed by contacting Robin Brown, Supervisor of Oceanographic Data Management at the Institute of Ocean Sciences (IOS) in Sydney, B.C. The CTD dataset is identified by the cruise number "92-03" and the SAIL dataset by the vessel name "W.E. Ricker", year "1992", and start date "Julian day, 58".

### 1. CRUISE TRACK AND FISHING STATIONS

Figure 1 shows the cruise track, CTD stations, and fishing stations completed by the R.V. W.E Ricker. A total of 10 rope trawl tows, 9 gillnet sets, 2 longline sets, 5 bongo tows, and 67 CTD casts were completed. Eight rope trawl tows were conducted along the three tracks en route to station "P", 1 just south of ocean station "P", and 1 along the western edge of LaPerouse Bank. The 9 gillnet sets began at ocean station "P". Six were then made along or close to the 140° W longitude, 1 just off Cobb's Seamount, and 1 approximately 60 km northwest from Cobb's Seamount. The two longline sets were made at 46° 21.3'N and 43° 48.6'N on the 140°W longitude.

### 2. FISHING GEAR AND SAMPLING PROTOCOL

#### 2.1. Rope trawl

We sampled salmon with a Polish type mid-water rope trawl model 368/338 that was rented from Cantrawl Pacific Fishing Services in Richmond, B.C. The rope trawl measured 112 m along the head rope and 103 m along the side rope. The tapered body of the net was made up of the following sections: 375 mm stretched mesh, 4.5 m in length from front to back; 1600 mm stretched mesh, 20.5 m in length; 800 mm stretched mesh, 16

m in length; 400 mm stretched mesh, 10.5 m in length; 200 mm stretched mesh, 28 m in length; and 100 mm stretched mesh, 10.5 m in length. Cantrawl stitched on a 30 m intermediate section constructed from 75 mm stretch mesh polypropylene web and a 25 mm stretched mesh knotted nylon codend. The rope trawl was fitted with a standard Diamond VII rig that included 45 m bridles and 5 m trawl doors.

The mouth opening of the rope trawl when towed at 5 knots was 10 m in height by 40 m in width, as measured by a Simrad model FS3300 echosounder mounted at the centre of the headrope, 9 m ahead of the web.

Normal sampling protocol was to tow the rope trawl at 5 knots for one hour at a depth of 40 m for the first 30 minutes and at 20 m for the second 30 minutes. The tow at station #8, just northeast of ocean station "P" differed from this normal procedure in that we towed for 3 hours, sampling for 20 minutes at 100 m, 90 m, 80 m, 70 m, 60 m, 50 m, 40 m, 30 m, and 20 m.

## 2.2. Gillnet

The surface gillnet was made up of 20 to 26 50 m panels or "tans" of 115 mm stretched mesh monofilament for a total length of 1 to 1.3 km. The complete gillnet assembly also included, at the end that was the first to be set and hauled, a 10 m flagpole flying a fluorescent orange flag and carrying a radar reflector, one large red buoy, a radio beacon transmitting on channel 74, and a strobe light tied to a 80 m 7/8" polyethylene extension; and at the other end, a strobe light, a radio beacon transmitting on channel 72, and one small buoy tied to a 27 m 7/8" polyethylene extension.

We normally set the gillnet between 18:00 and 20:30 hours. The gillnet was soaked all night, and hauled at 8:00 hours the next morning. However, there were two daytime sets of approximately 5 and 6 hours duration at stations #17 and #19, respectively.

## 2.3 Longline

We set the floating longline twice in an effort to capture live salmon and steelhead trout (*Oncorhynchus mykiss*) for an experiment designed to assess their daily ration. The longline was made up of 14 and 20 skates or "hachi" of gear. A hachi consists of 49 hooks on 2 m monofilament leaders tied every 2.8 m along a 138 m floating nylon string. We baited the hooks with salted anchovies. The complete longline assembly also included, on the end that was first to be set and hauled, a 10 m flagpole flying a fluorescent orange flag and carrying a radar reflector, a radio beacon transmitting on channel 74, and a strobe light tied to a 27 m 7/8" polyethylene extension; and on the other end, a strobe light, a radio beacon transmitting on channel 72, and a large buoy tied to a 27 m 7/8" polyethylene extension.



We normally set the longline 30 minutes before sunrise, let it soak for 30 to 40 minutes, and then hauled it aboard. This procedure usually took a total of 3 to 4 hours depending on the catch and weather. The first set at station #12 differed from this normal procedure in that we set the longline during the afternoon and let it soak for about two hours.

### 3. BIOLOGICAL SAMPLING

All salmon caught were measured for fork length, body weight, gonad weight, liver weight, and stomach content weight. Scale samples were collected and the principal diet items were also recorded. Eye, muscle, heart, and liver samples for electrophoretic analysis were collected from each chum salmon (*O. keta*).

The appropriate lengths were measured and the sex was recorded for non-salmonids.

### 4. DATA

Table 1 presents the Pacific salmon catch by rope trawl at each station.

The rope trawl was intended to be our primary sampling gear on the cruise. However, no salmon were caught during the nine one-hour tows along the out-bound leg to station "P", or during the three-hour tow just south of station "P", and so we switched over to surface gillnet.

We strongly suspect that the rope trawl's lack of success in catching salmon was due to its short 10 m vertical opening. The Russians routinely sample salmonids by rope trawl in the North Pacific using a net with a mouth opening of 40 m in height by 60 m in width, making it at least six times larger than ours.

Owing to the failure to catch any salmon while on the high seas, we conducted a limited test of our rope trawl's ability to catch salmon with a one-hour tow on LaPerouse Bank. Here, we caught seven juvenile coho (*O. kisutch*) and one juvenile chinook salmon (*O. tshawytscha*) that were all under 40 cm in fork length. This demonstrated that the rope trawl is at least capable of catching small salmon in coastal waters, although its efficiency is unknown.

Table 2 presents the catches by surface gillnet of salmon, yellowtail (*Seriola* sp.), neon flying squid (*Ommastrephes bartrami*), and other species at each station.

Salmonids were caught by surface gillnet at sea surface temperatures up to 10.47°C; 11 sockeye salmon (O. nerka) at station #9, 31 chum salmon and 2 steelhead trout at station #11, 3 chum salmon at station #13, 1 steelhead trout at station #19, and 22 chum salmon and 4 steelhead trout at station #20.

Yellowtail were caught only at station #14, where the sea surface temperature was 13.54°C.

Neon flying squid were caught in relatively warm waters; 34 at station #14 and 7 at station #16, where the sea surface temperatures were 13.54°C and 11.35°C, respectively.

Table 3 presents the salmonid catches by longline for two stations. Four chum salmon, 1 chinook salmon, and 3 steelhead salmon were caught at station #12, where the sea surface temperature was 8.55°C; and none at station #18, where the sea surface temperature was 10.44°C.

Table 4 presents the salmon biological database. This contains data on fork length, body weight, age, sex, gonad weight, liver weight, stomach content weight, and principal diet items for each salmon that was caught.

Table 5 presents the non-salmonid biological database. This contains data on length and sex for each Japanese yellowtail, rockfish species, shark species, herring (Clupea harengus), and neon flying squid that was caught.

Table 6 presents the numbers of sockeye and chum caught in each sequential tan of gillnet at stations #9, #11, and #20.

Table 7 presents the numbers of neon flying squid and Japanese yellowtail caught in each sequential tan of gillnet at stations #14 and #16.

## ACKNOWLEDGEMENTS

We would like to thank the crew of the R.V. W.E. Ricker for all their help and cooperation on the cruise, Darren Tuele from Ocean Physics at IOS for collecting the oceanographic data, Kent Berger-North from Ocean Physics for writing a program that extracts and processes selected blocks of SAIL data, and Kate Myers from the University of Washington's School of Fisheries for assisting with the biological sampling.

Table 1. Catches by rope trawl on the W.E. Ricker cruise to the eastern North Pacific, February 27-March 25, 1992.

STN#	DATE	START-END TIMES	START LOCATION	COURSE T°	DIST (km)	FISHING DEPTH(m)	SST	SSS	PK	CM	CO	SOK	CN	ST	OTHER SPECIES
1	92/02/29	9:42-10:42	48 26.6N 127 26.0W	267	10.0	20,40	9.16	32.24	0	0	0	0	0	0	
2	92/02/29	14:53-15:53	48 25.6N 128 18.6W	254	10.0	20,40	9.41	32.29	0	0	0	0	0	0	
3	92/03/01	9:20-10:20	48 27.0N 131 29.9W	211	9.4	20,40	9.13	32.31	0	0	0	0	0	0	
4	92/03/01	14:48-15:48	48 37.1N 132 06.3W	210	11.3	20,40	8.97	32.29	0	0	0	0	0	0	
5	92/03/02	8:27- 9:27	49 53.8N 134 52.1W	228	10.2	20,40	7.56	32.36	0	0	0	0	0	0	
6	92/03/02	15:07-16:07	50 17.2N 135 44.8W	261	8.0	20,40	7.61	32.36	0	0	0	0	0	0	
7	92/03/03	8:28- 9:28	51 50.3N 138 31.8W	248	10.0	20,40	6.53	32.40	0	0	0	0	0	0	
8	92/03/04	8:55-11:55	50 30.8N 143 41.5W	242	27.8	20-100	5.71	32.47	0	0	0	0	0	0	
10	92/03/05	13:43-14:43	49 37.2N 145 02.8W	350	10.0	20,40	6.04	32.44	0	0	0	0	0	0	
21	92/03/23	13:12-14:43	48 33.3N 125 05.6W	132	8.7	20,40	9.47	31.71	0	0	8	0	1	0	6 HR

Table 2. Catches by gillnet on the W.E. Ricker cruise to the eastern North Pacific, February 27-March 25, 1992.

STN#	DATE	SET-HAUL TIMES	LOCATION	DIRECTION T°	TANS	SST	SSS	PK	CM	CO	SOK	CN	ST	YT	FSQ	OTHER SPECIES
9	92/03/05	18:00- 9:25	50 00.0N 144 59.9W	63	20	5.98	32.45	0	0	0	11	0	0	0	0	1 BRF
11	92/03/10	18:14- 9:10	45 18.2N 140 55.6W	231	20	9.07	32.12	0	31	0	0	0	2	0	0	1 BRF, 1 SDF
13	92/03/12	17:15-19:40	46 20.7N 140 05.3W	126	20	8.55	32.54	0	3	0	0	0	0	0	0	
14	92/03/14	18:29- 9:38	39 58.3N 139 50.7W	342	26	13.54	33.48	0	0	0	0	0	0	16	34	1 BS
15	92/03/15	19:50- 9:06	41 29.5N 140 00.4W	40	26	11.91	33.05	0	0	0	0	0	0	0	0	
16	92/03/16	20:10- 9:30	43 10.1N 140 00.7W	211	26	11.35	32.95	0	0	0	0	0	0	0	7	
17	92/03/18	5:10-13:00	43 50.0N 140 00.6W	225	24	10.44	32.70	0	0	0	0	0	0	0	0	
19	92/03/21	11:00-15:48	46 45.1N 130 47.8W	300	24	10.05	32.39	0	0	0	0	0	1	0	0	
20	92/03/21	19:15- 9:19	47 04.5N 131 26.3W	174	24	10.47	32.46	0	22	0	0	0	4	0	0	3 SDF, 3 SFS

Table 3. Catches by longline on the W.E. Ricker cruise to the eastern North Pacific, February 27-March 25, 1992.

STN#	DATE	SET-HAUL TIMES	LOCATION	DIRECTION T°	HACHI	SST	SSS	PK	CM	CO	SOK	CN	ST
12	92/03/12	12:56-17:35	46 21.3N 140 05.7W	270	14	8.55	32.54	0	4	0	0	1	3
18	92/03/18	6:30- 9:50	43 48.6N 140 02.9W	352	20	10.44	32.70	0	0	0	0	0	0

Species abbreviations: PK, pink salmon; CM, chum salmon; CO, coho salmon; SOK, sockeye salmon; CN, chinook salmon; ST, steelhead; YT, Yellowtail sp.; FSQ, flying squid; BRF, black rockfish; SDF, spiny dogfish; BS, blue shark; SFS, soupfin shark; HR, herring.

Table 4. Salmon database collected on the W.E Ricker cruise to the eastern North Pacific, February 27-March 25, 1992.

STN#	SP	FL(mm)	FISH WT(g)	AGE	SEX	GONAD WT(g)	LIVER WT(g)	STOMACH WT(g)	PRINCIPAL DIET ITEMS / COMMENTS
9	118	364	504.5	2.1	M	0.0	8.5	5.0	TWO SMALL SQUID
9	118	365	503.8	2.2	F	5.5	6.0	0.0	ONE AMPHIPOD
9	118	375	570.0	2.2	F	6.0	5.5	0.0	/ VISCERAL ADHESION
9	118	375		1.2	M	0.0	11.0	0.0	
9	118	434	874.0	2.2	M	0.0	16.0	0.0	
9	118	488	1437.0	1.3	F	29.5	22.5	0.0	/ VISCERAL ADHESION
9	118	500	1457.0	1.3	F	28.5	22.5	0.0	/ VISCERAL ADHESION
9	118	504	1471.0	1.3	F	26.0	22.5	9.0	TWO SMALL SQUID
9	118	513	1548.0	1.3	M	7.0	24.0	0.0	
9	118	519	1756.0		M	8.0	23.0	0.0	ONE SQUID BEAK
9	118	564	1895.0	2.3	M	7.5	25.5	0.0	
11	112			0.4	M	7.0	26.0	15.0	UN-ID GELATINOUS MATTER / HEAD MANGLED 510mm 1228g
11	112			0.3	M	7.5	34.0	11.0	UN-ID GELATINOUS MATTER / HEAD MANGLED 520mm 1554g
11	112	510	1329.5	0.3	F	24.5	38.5	0.0	
11	112	510	1661.0	0.3	M	7.5	39.0	14.0	UN-ID MATTER
11	112	525	1629.0	0.4	F	39.5	44.0	27.0	UN-ID GELATINOUS MATTER
11	112	530	1569.0	0.4	M	8.0	41.5	17.5	UN-ID GELATINOUS MATTER
11	112	540	1590.0	0.4	M	12.5	41.0	10.0	UN-ID GELATINOUS MATTER
11	112	548	1807.0	0.3	F	63.5	48.5	21.5	UN-ID GELATINOUS MATTER
11	112	550	1693.0	0.3	F	31.5	47.0	10.0	UN-ID GELATINOUS MATTER
11	112	550	1716.0	0.3	M	12.0	42.5	31.0	UN-ID GELATINOUS MATTER
11	112	557	1826.0	0.3	F	24.5	35.5	19.5	UN-ID GELATINOUS MATTER
11	112	560	1976.0	0.3	M	12.0	38.5	11.0	UN-ID GELATINOUS MATTER
11	112	560	1878.0	0.3	M	7.5	42.5	14.5	UN-ID GELATINOUS MATTER
11	112	560	1688.0	0.3	M	10.0	40.0	48.5	UN-ID GELATINOUS MATTER
11	112	565	1878.0	0.4	M	11.0	62.0	40.5	UN-ID GELATINOUS MATTER
11	112	570	1992.0	0.3	M	9.0	49.0	52.5	UN-ID GELATINOUS MATTER
11	112	580	1882.0	0.4	M	17.0	44.5	20.5	UN-ID GELATINOUS MATTER
11	112	580	2165.0	0.3	F	55.0	56.5	57.0	UN-ID GELATINOUS MATTER, POLYCHETES, KRILL REMAINS
11	112	580	2046.0	0.3	M	9.5	47.0	0.0	
11	112	580	1949.0	0.4	M	10.0	50.0	7.0	UN-ID GELATINOUS MATTER
11	112	588		0.4	F	41.5		45.0	UN-ID GELATINOUS MATTER / SEAL BITE 2110g, LIVER 51.5g
11	112	590		0.4	M	12.5	63.0	30.1	UN-ID GELATINOUS MATTER / SEAL BITE 2317g
11	112	595	2415.0	0.4	M	12.5	69.0	11.0	UN-ID GELATINOUS MATTER
11	112	603	2475.0	0.3	M	12.5	56.5	17.5	UN-ID GELATINOUS MATTER
11	112	605	2417.0		M	11.0	48.5	40.0	UN-ID GELATINOUS MATTER
11	112	609	2787.0	0.4	M	16.0	57.0	0.0	
11	112	610	2640.0	0.3	M	10.5	65.5	55.0	UN-ID GELATINOUS MATTER, ONE MYCTOPHID
11	112	615	2928.0	0.3	M	13.5	88.0	54.0	UN-ID GELATINOUS MATTER
11	112	615	2661.0	0.3	M	19.0	67.5	77.5	UN-ID GELATINOUS MATTER, SHRIMP REMAINS, ONE SQUID
11	112	620	2843.0	0.4	M	11.5	73.0	30.0	UN-ID GELATINOUS MATTER
11	112	620	2618.0	0.3	M	13.0	52.5	12.5	UN-ID GELATINOUS MATTER
11	128			1.1	F	2.0	13.5	0.0	SQUID REMAINS / ADIPOSE, HEAD MISSING, 520mm 1090g
11	128			1.2	F	9.5	32.5	11.0	SQUID 5CM / ADIPOSE, NO CWT, HEAD DETACHED, 685mm 2654g

Table 4 (continued).

STN#	SP	FL(mm)	FISH WT(g)	AGE	SEX	GONAD WT(g)	LIVER WT(g)	STOMACH WT(g)	PRINCIPAL DIET ITEMS / COMMENTS
12	112	370	469.0	0.2	M	7.0	13.5	9.0	UN-ID DIGESTED MATTER
12	112	555	1592.0	0.4	F	24.0	25.5	9.5	UN-ID GELATINOUS MATTER
12	112	555	1753.0	0.3	M	9.0	43.5	20.5	SMALL "VELLELA" 2 CM ACROSS
12	112	615	2361.0	0.3	F	29.0	42.0	9.5	UN-ID GELATINOUS MATTER
12	124	563	2200.0	1.2	M	9.0	28.5	10.5	SQUID 3 CM, EUPHAUSIIDS
12	128	425	722.0	1.1	M	7.0	15.5	9.5	SQUID REMAINS / ADIPOSE, NO CWT
12	128	600	2230.0	1.2	F	22.5	26.0	36.5	4 SQUID 5 CM, EU, AMPHI / ADIPOSE, NO CWT, NET MARK
12	128	693	3094.0	1.2	F	23.5	42.5	13.5	ADIPOSE, NO CWT, MYCT 4CM, EU, PTER, AMP
13	112	526	1870.0	0.3	F	36.5	46.0	57.5	SMALL "VELLELA" 2 CM
13	112	565	1867.0	0.4	M	3.0	33.0	2.5	UN-ID GELATINOUS MATTER
13	112	590	2292.0	0.3	F	35.0	37.5	12.5	EUPHAUSIIDS, UN-ID GELATINOUS MATTER
19	128	610	1948.0	1.2	F	13.5	23.5	10.5	SQUID REMAINS, ONE AMPHIPOD / SPAWNED OUT
20	112	500	1341.0	0.2	F	10.0	23.0	0.0	
20	112	500	1791.0	0.3	M	3.0	36.5	0.0	
20	112	509	1994.0	0.3	F	24.0	28.0	0.0	
20	112	510	1467.0	0.3	F	25.5	32.5	2.0	ONE DIGESTED POLYCHETE, UN-ID GELATINOUS MATTER
20	112	510	1319.0	0.3	F	16.5	36.5	0.0	
20	112	520	1433.0	0.3	F	16.5	20.0	0.0	
20	112	530	1408.0	0.3	F	11.0	17.5	0.0	
20	112	540	1533.0	0.3	F	16.0	28.0	0.0	
20	112	540	1537.0	0.3	F	14.0	20.5	2.5	UN-ID GELATINOUS MATTER
20	112	550	1653.0	0.3	M	0.0	30.0	0.0	
20	112	560	1801.0	0.3	F	23.0	50.5	0.0	
20	112	560	1926.0	0.3	F	19.5	48.0	0.0	
20	112	570	1890.0	0.3	F	21.0	23.0	0.0	
20	112	570	2018.0	0.4	F	18.0	33.5	0.0	
20	112	575	1815.0	0.3	M	0.0	37.5	0.0	
20	112	580	1996.0	0.3	M	2.0	32.0	0.0	
20	112	580	2154.0	0.3	F	25.5	41.0	0.0	
20	112	590	1928.0	0.3	F	22.5	39.0	2.0	UN-ID GELATINOUS MATTER
20	112	594	2211.0	0.3	F	31.5	57.5	0.0	
20	112	605	2358.0	0.3	F	25.5	36.0	0.0	
20	112	610	2384.0	0.3	M	0.0	34.5	10.5	UN-ID GELATINOUS MATTER, FOUR VELLELA STRUCTURES 2 CM
20	112	660	3220.0	0.4	M	4.0	39.5	37.0	UN-ID GELATINOUS MATTER
20	128	640	2676.0	1.3	M	63.5	24.5	6.5	12 SHRIMP CARAPACES / MATURE MALE, ADIPOSE, NO CWT
20	128	670	3374.0	1.2	F	440.5	46.5	0.0	/ MATURE
20	128	690	3468.0	2.2	F	337.5	52.5	25.0	SQUID 5 CM, MYCTOPHID 4 CM, 5 HYPERIID AMPHIPODS / MATURE
20	128	730	3238.0	1.3	F	24.5	42.5	9.5	POLYCHETES / SPAWNED OUT, TAIL WORN DOWN
21	115	326	405.0	2.1	F	5.0	9.5	12.0	EUPHAUSIIDS, PTEROPODS
21	115	332	425.5	2.1	M	0.0	0.0	14.0	PTEROPODS, EUPHAUSIIDS
21	115	337	394.0	1.1	M	0.0	8.5	0.0	12-20 PTEROPODS
21	115	341	458.5	1.1	F	4.5	8.5	6.5	DIGESTED EUPHAUSIIDS
21	115	343			M	0.0	5.0	5.5	PTEROPODS
21	115	355	481.5	1.1	F	5.5	6.0	17.5	EUPHAUSIIDS
21	115	355	564.0	1.1	M	0.0	0.0	18.0	PTEROPODS, EUPHAUSIIDS
21	115	360	533.0	2.1	M	0.0	9.0	9.0	EUPHAUSIIDS, SOME PTEROPODS
21	124	275	228.0	0.1	F	5.0	8.0	0.0	/ CWT# 021557, CDF0, SPIUS CK HATCHERY, RELEASED 24/04/91

Table 5. Biological database for non-salmonid species collected on the W.E. Ricker cruise to the eastern North Pacific, February 27-March 25, 1992.

STN#	SPECIES	LENGTH MEASURE	LENGTH (mm)	SEX	LENGTH (mm)	SEX	LENGTH (mm)	SEX	LENGTH (mm)	SEX	LENGTH (mm)	SEX
14	NEON FLYING SQUID	ML	315	M	335	F	340	F	340	F	350	F
			350	F	350	F	350	F	350	F	355	F
			355	F	355	F	360	F	370	F	370	F
			370	F	372	F	376	F	380	F	380	F
			382	F	382	F	385	F	390	F	392	F
			395	F	400	F	400	F	410	F	420	F
			422	F	440	F	470	F	470	F		
17	NEON FLYING SQUID	ML	240	F	302		310	F	345	F	345	F
			354		390	F						
14	YELLOWTAIL sp.	FL	450	F	465	F	470	F	484	F	490	F
			515	F	515	F	515	F	525	F	558	F
			472	M	494	M	508	M	510	M	512	M
			539	M								
9	BLACK ROCKFISH	FL	520	F (spawner, embryos present)								
11	BLACK ROCKFISH	FL	514	F (spawner, embryos present, ripe and running)								
11	SPINY DOGFISH	TL	703	F								
20	SPINY DOGFISH	TL	1070	F	760	M	930	F				
14	BLUE SHARK	TL	782	F								
20	SOUPFIN SHARK	TL	1610	M	1690	M	1760	M				
21	HERRING	FL	172									
			208	200	206	208	210					

Table 6. Numbers of sockeye and chum salmon caught in each sequential tan of gillnet at these stations.

STN#	SPECIES	SET TOTAL	TAN#		TAN#		TAN#		TAN#		TAN#		TAN#		TAN#		TAN#		TAN#		TAN#							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
9	SOCKEYE	11	1	1	1	2	1	1	1	0	1	0	0	1	0	0	0	1	0	0	0							
11	CHUM	31	2	1	0	1	1	1	0	0	1	0	4	1	4	0	0	1	3	8	2	1						
20	CHUM	22	0	2	0	0	1	0	1	0	0	0	0	3	3	2	0	2	0	0	2	3	0	0	3	0		

Table 7. Numbers of neon flying squid and Japanese yellowtail caught in each sequential tan of gillnet at these stations.

STN#	SPECIES	SET TOTAL	TAN#		TAN#		TAN#		TAN#		TAN#		TAN#		TAN#		TAN#		TAN#		TAN#							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
14	FLYING SQUID	34	0	1	1	9	2	0	0	1	3	0	0	0	0	3	11	1	0	2	0	0	0	0	0	0	0	0
16	FLYING SQUID	7	0	0	0	1	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0
14	YELLOWTAIL sp.	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	1	0	0	0	0	0	0	0	0	0	0





