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**SUMMARY OF U.S.S.R.-U.S. COOPERATIVE HIGH SEAS
SALMONID TAGGING OPERATIONS IN 1990**

by

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ABSTRACT

In 1990 the United States participated with the U.S.S.R. in a cooperative salmonid sampling and tagging program. A purse seine vessel was used for capture of fish for tagging. In the first four legs (of five) of the tagging cruise, 1,247 salmon were tagged (698 sockeye, 489 chum, 54 pink, 4 coho, 2 chinook). Fish were released south of 48°N, between 179°E and 177°W in April; south of 45°N near 180°, north of 48°N between 172°E and 172°W, in the Bering Sea, and south of the Alaska Peninsula in June; and in the Bering Sea and near the Shumagin Islands in early July. Data from the final leg of the tagging cruise (in July) will be provided to the Commission when this information is received from the U.S.S.R.

INTRODUCTION

The United States and the U.S.S.R. cooperated in 1990 in a high seas salmonid sampling and tagging program similar to programs conducted from 1983-86 and 1988 (Harris 1983, 1984, 1985; Kautsky and Harris 1986; Walker et al. 1988, 1989). Since 1987 the program has included a trawl vessel as well as the purse seiner used for tagging. No salmonids are tagged during the trawl cruises, and only the results of the tagging cruise are reported here.

According to official cruise plans for 1990 (U.S.S.R. Ministry of Fisheries 1990), the main aims of the investigation were:

1. investigation of distribution and concentration of salmonids, primarily pink and chum salmon, in wintering areas and on migration routes, through catch and tagging;
2. collection of samples which allow characterization of biological and population structures of aggregations of salmon;
3. collection of data on abiotic and biotic characteristics of salmon habitats.

Soviet scientists are interested in forecasting run sizes as well as understanding the distribution and biology of Asian pink and chum salmon in the North Pacific. The timing and study areas of the cruise reflect these interests

This report summarizes results of the survey through the end of the fourth leg (of five) of the cruise of the tagging vessel; the U.S.S.R. has not yet provided the United States with data from the final leg after the last U.S. port call. These data are expected and, following their receipt, an addendum to this document will be provided to the Commission to complete the report of the entire 1990 survey. Data from the final legs of the 1988 and 1989 cruises and from the 1987 cruise have been received and are reported in a separate document (Walker and Myers 1990). As in previous years, the U.S.S.R.'s Pacific Scientific Research Institute of Fisheries Oceanography (TINRO) has granted the Fisheries Research Institute (FRI) of the University of Washington full co-proprietorship of the detailed data from the survey.

TAGGING VESSEL, GEAR, AND SAMPLING METHODS

The 54.8-m medium freezer trawler (SMRT) R/V Nemirov, used in most previous surveys, served as the purse seine vessel (see Harris 1983 for further details of the vessel). The design of the purse seine was similar to that used since 1985 (970-m length, 127-m depth, 44 mm stretched mesh, 16 mm stretched mesh in bunt; Harris 1985, Kautsky and Harris 1986).

Methods of gear handling and catch processing aboard the Nemirov were also similar to those in previous years. Plastic "cinch-up" fasteners were used exclusively to attach 3/4-in diameter red-and-white disc tags used in previous U.S. tagging experiments. In addition, a Dennison tagging gun was used to attach 1 3/4-in. red anchor (tube-type) tags to smaller fish. During scale collection, U.S. and Soviet scientists attempted to collect all scales from the INPFC-preferred body area A.

RESULTS

The sampling program of the R/V Nemirov is summarized in Table 1; locations of seine sets are shown in Fig. 1. Three sets, south of 45°N between 180° and 177°W, were made during the first cruise. Six sets were made in the second cruise, mostly between 179°E and 177°W south of 48°N. Mr. Haaga participated as U.S. scientist. Poor weather was responsible for the low effort in both cruises. During the third sampling leg the R/V Nemirov made four sets near 45°N, 180°, four sets north of 48°N between 175°W and 172°W, and two sets south of the Alaska Peninsula. During the fourth leg, nine sets were made in the Bering Sea, four sets were made south of the Aleutians between 172°E and 175°E, and four sets were made near the Shumagin Islands. Mr. Leopold was the U.S. participant in both the third and fourth cruises. As mentioned, the United States has not yet received catch and biological data and scale samples from the fifth and final segment.

Table 2 presents basic salmonid catch and tag release data for each seine set made in the first four cruises. These data are preliminary, as some species identifications may be changed following completion of examination of scale samples and coordination of analysis.

The three sets made in the first cruise were between 42° and 45°N and between 180° and 177°W. Chum, sockeye, and pink salmon comprised the catch. Chum were mainly age .1 and .2, while sockeye were primarily age 2.1. Overall salmonid catch per unit effort (CPUE) was 184.0 fish/set.

In the six sets of the second cruise (April 24-May 7), the overall salmonid CPUE was 136.7 fish/set, with two large catches of 593 and 216 fish. The catch was primarily sockeye (72.8%) and chum (26.5%) salmon; a few pink salmon were also caught. In the first set of this cruise 545 sockeye salmon were tagged and released. Chum were mainly age .3 and .4, and sockeye were predominantly ocean age .2 and .3.

The ten sets of the third cruise (June 1-9) were divided between an area near 45°N, 180° and areas south of the Aleutians and the Alaska Peninsula. Overall salmonid CPUE was 24.6 fish/set, with chum and sockeye dominating. Pink, coho, and chinook were also caught. Young (age .1) chum and sockeye predominated in the four earlier, more southerly, sets, while older fish (ocean age .3 and .4 chum and .2 and .3 sockeye) were more common in the later, northerly sets.

Of the seventeen sets made in the fourth cruise, nine were in the Bering Sea and four were south of Adak Island north of 50°N and between 175°E and 172°E. The remaining four sets were made near the Shumagin Islands. Chum, sockeye, and pink salmon were the main components of the catch; three coho were also taken. Overall salmonid CPUE was 15.8 fish/set. Sockeye were

the catch; three coho were also taken. Overall salmonid CPUE was 15.8 fish/set. Sockeye were mostly ocean age .2 in the southern and western Bering Sea, age .1 south of Adak, and age .1 in the later sets in the southeastern Bering Sea and near the Shumagins. Chum were predominantly age .2 and .3.

Most tag releases were southwest of 46°N, 175°W (31%) and north of 46°N between 172°E and 172°W (54%); 8% of the tagged fish were released near the Shumagin Islands and 7% were released in the Bering Sea. A total of 1,247 salmon (698 sockeye, 489 chum, 54 pink, 4 coho and 2 chinook) was tagged and released in 36 sets from mid-April to early July in 1990 (Table 3). In comparison, 403 salmonids were tagged in 36 sets in 1989. Of the fish caught in 1990, 66% were tagged and released.

ACKNOWLEDGMENTS

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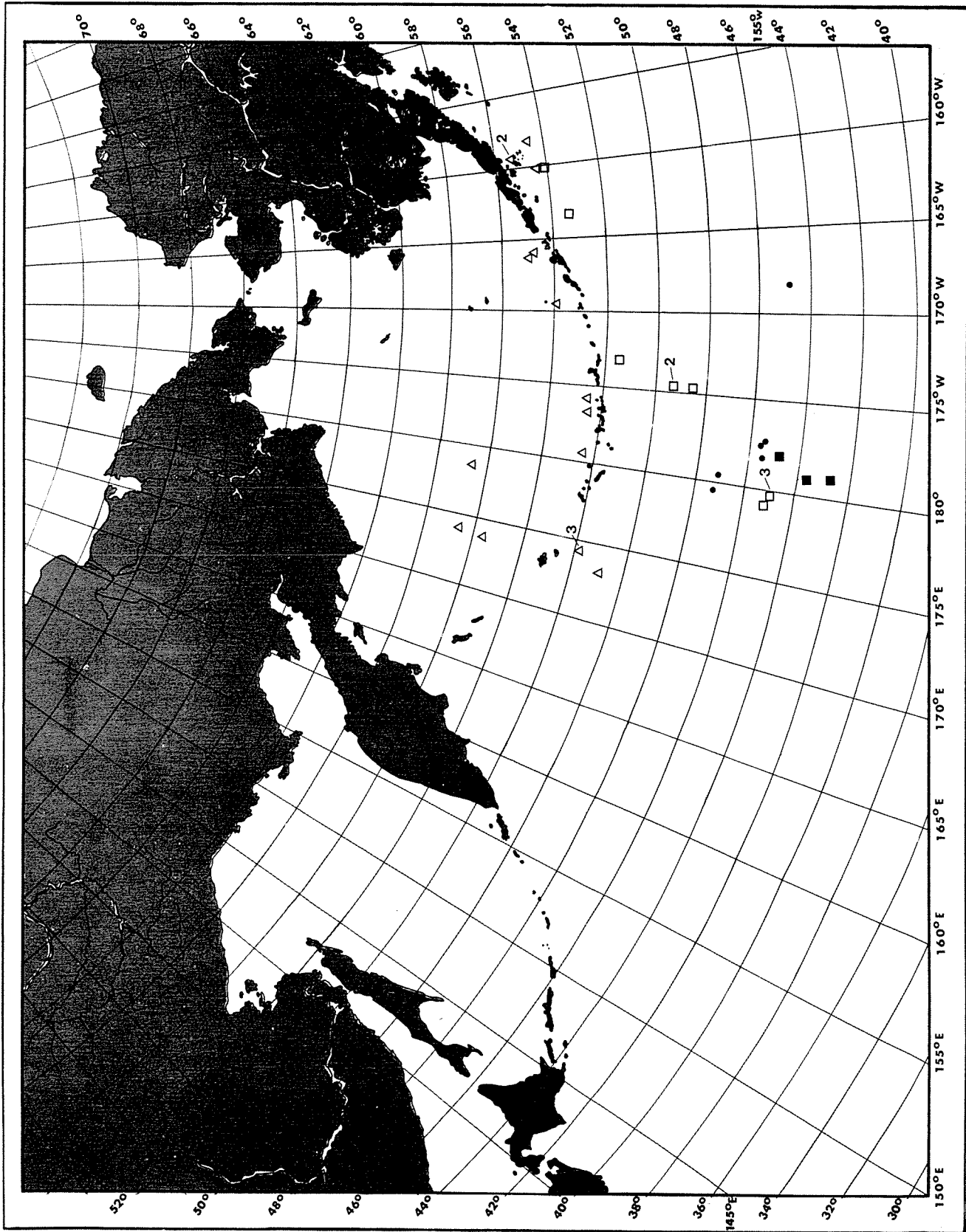


Fig. 1. Seine set locations for U.S.S.R.-U.S. cooperative salmon research in 1990 for the first (■), second (●), third (□), and fourth (△) legs of the tagging cruise (4/12-7/8/90).

Table 1. General cruise schedules of TINRO research vessel R/V Nemirov, 1990.

Dates	Location	Activity	Number of seine sets
R/V <u>Nemirov</u> :			
late March	Leave Vladivostok		
12-13 April	North Pacific Ocean	Sampling	3
18 April	Dutch Harbor, Alaska	U.S. participant L. Haaga embarks	
24 April - 7 May	North Pacific Ocean	Sampling	6
14-16 May	Dutch Harbor, Alaska	L. Haaga disembarks, S. Leopold embarks	
1-7 June	North Pacific Ocean	Sampling	8
8-9 June	S. of Alaska Peninsula	Sampling	2
12-14 June	Kodiak, Alaska		
19-23 June	Bering Sea	Sampling	4
24-26 June	North Pacific Ocean	Sampling	4
28 June - 5 July	Bering Sea	Sampling	5
6-8 July	Shumagin Islands	Sampling	4
9-14 July	Kodiak, Alaska	S. Leopold disembarks; post-cruise conference	
July	North Pacific Ocean	Sampling	?
late July	Return to Vladivostok		

Table 2. - cont'd.

Set No.	Location		Surf. T. (C)	Salmonid catch				Tag releases				Total							
	Date	N.Lat.		Long.	Red	Chum	Pink	Coho	King	Sthd.	Total		Red	Chum	Pink	Coho	King	Sthd.	Total
N20	6/19	54-48	165-39W	5.9	7	17	6	0	0	0	30	5	17	4	0	0	0	26	AA244-AA268,A256
N21	6/22	52-27	176-04W	6.2	6	1	0	0	0	7	5	1	0	0	0	0	6	AA269-AA274	
N22	6/22	52-18	176-52W	6.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	AA275-AA278
N23	6/23	52-17	179-42W	5.8	0	4	0	0	0	4	0	4	0	0	0	0	4	AA279-AA299,A257-A265,	
N24	6/24	51-50	174-28E	7.1	17	16	5	0	0	38	17	16	5	0	0	0	38	A267-A273,A276	
N25	6/25	51-48	174-26E	7.8	0	16	4	0	0	20	0	16	4	0	0	0	20	AA300-AA319	
N26	6/25	51-48	174-29E	7.8	0	0	6	0	0	6	0	0	4	0	0	0	4	AA320-AA323	
N27	6/26	50-58	172-58E	7.4	2	1	0	0	0	3	2	0	0	0	0	0	2	A274-A275	
N28	6/28	55-40	173-46E	6.8	0	0	0	0	0	0	0	0	0	0	0	0	0	AA324-AA331,A277	
N29	6/28	56-34	173-51E	7.3	0	3	6	0	0	9	0	3	6	0	0	0	9	AA332-AA346,A278-A280	
N30	6/30	56-28	178-29E	6.6	0	0	0	0	0	0	0	0	0	0	0	0	0	AA347-AA358,A281-A286,	
N31	7/04	53-59	169-33W	6.5	1	17	0	0	0	18	1	17	0	0	0	0	18	A288	
N32	7/05	54-45	165-43W	6.7	9	8	1	1	0	19	9	8	1	1	0	0	19	AA359-AA389,A101-A103,A287,	
N33	7/06	54-20	160-05W	9.7	15	24	8	0	0	47	13	24	7	0	0	0	44	A289-A293*,A295-A299	
N34	7/07	55-27	158-57W	9.9	0	3	0	0	0	3	0	3	0	0	0	0	3	AA390-AA392	
N35	7/07	55-27	159-01W	10.2	0	14	0	0	0	14	0	11	0	0	0	0	11	AA393-AA403	
N36	7/08	54-38	158-13W	10.0	6	34	8	2	0	50	2	22	6	2	0	0	32	AA404-AA434,A122	
Cruise 4 totals:					63	158	44	3	0	268	54	142	37	3	0	0	236		
Cruise 1-4 totals					761	1,052	67	4	2	1,886	698	489	54	4	2	0	0	1,247	

* 2 anchor tags (A292 and A293) were placed on one sockeye

Table 3. Tag releases in the first four legs of U.S.S.R.-U.S. cooperative high seas salmonid research operations in 1990, by various sections of the North Pacific Ocean.

Region	Month	Species						Total
		Sockeye	Chum	Pink	Coho	Chinook	Steelhead	
North Pacific, S. of 46° W of 175° W	April	27	215	7	0	0	0	249
	May	0	0	0	0	0	0	0
	June	28	104	2	1	2	0	137
	Total	55	319	9	1	2	0	386
North Pacific, N. of 46° W of 172° W	April	545	1	1	0	0	0	547
	June	57	53	20	0	0	0	130
	Total	602	54	21	0	0	0	677
Shumagin Is., and S. of Alaska Peninsula	June	6	6	0	0	0	0	12
	July	15	60	13	2	0	0	90
	Total	21	66	13	2	0	0	102
Bering Sea	June	10	25	10	0	0	0	45
	July	10	25	1	1	0	0	37
	Total	20	50	11	1	0	0	82
All regions	April	572	216	8	0	0	0	796
	May	0	0	0	0	0	0	0
	June	101	188	32	1	2	0	324
	July	25	85	14	3	0	0	127
	Total	698	489	54	4	2	0	1,247