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1988年におけるさけ・ます標識放流の記録
及び1988年8月までに得られた再捕の記録

Release Data for Japanese Salmon Tagging Experiments
in 1988 and Recovery Data up to August, 1988

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1988年におけるさけ・ます標識放流の記録 及び1988年8月までに得られた再捕の記録

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1. ま え が き

この報告は1988年6月4日から7月18日までの間に、日本が7隻(1987年6隻、以下かつて内は1987年の数字)の調査船によって北太平洋およびベーリング海で行ったさけ・ますの標識放流と1988年及びそれ以前に行った標識放流から1988年8月までに得られた再捕結果を記述したものである。

本年も、北太平洋漁業国際条約第3条1-(d)および科学調査に関する了解覚書(1986年4月9日付)に規定された46°N以南の水域に回遊するさけ・ますの大陸起源を解明するため、5隻の調査船が同水域での標識放流調査活動にあたった。

標識放流のためのはえなわ操業は朝方投縄のほか夕方投縄を実施し、標識はディスク型標識と一部スパゲティー型標識を用いた。また、前記了解覚書に基づき、第3歓喜丸にはカナダ人科学者が乗船し、新リアス丸には米国人科学者が乗船した。

なお、この調査を通して得られた資料は現在分析中であり、本報告には暫定的数値が含まれている。

2. 標識魚の放流

1988年6月4日から7月18日まで、7隻の調査船によって実施されたはえなわ操業点を図1に示し、表1に調査船別の漁獲尾数と放流尾数を、表2に海域別の放流尾数を示した。1988年は合計256回(240回)のはえなわ操業を実施し、漁獲した21,201尾(23,391尾)のうち7,708尾(7,624尾)のさけ・ます及びスチールヘッドを標識放流した。

海域別に標識放流尾数をみると、太平洋側において7,098尾、92%(7,321尾、96%)、ベーリング海において610尾、8%(303尾、4%)であった。太平洋側のうち、46°N以北で248尾(1,878尾)、46°N以南で6,850尾(5,443尾)が放流された。46°N以南海域の中では、175°W以東で208尾(668尾)、調査に関する了解覚書で規定された160°E~175°W間では6,642尾(4,775尾)が放流された。

3. 標識魚の再捕

3-1 1988年再捕

現在まで報告のあったものは、ベニザケ4尾、シロザケ3尾、カラフトマス1尾、ギンザケ1尾、

マスノスケ1尾，スチールヘッド1尾の合計11尾であり（表3-1），洋上再捕で再捕位置が不明なシロザケ2尾を除き図2に示した。

3-1-1 ベニザケ

ベーリング海において成熟魚として放流されたもの1尾と，放流時未成熟魚で太平洋側で放流された3尾がアラスカで再捕された。

3-1-2 シロザケ

3尾全てが太平洋側で放流され洋上で再捕されたものであった。そのうち1尾は放流時未成熟魚であった。

3-1-3 カラフトマス

太平洋の西経域で放流されたものがKuskokwim湾で再捕された。

3-1-4 ギンザケ

報告のあった1尾は洋上再捕であり，北東に移動して再捕された。

3-1-5 マスノスケ

1985年にベーリング海で放流されたものがユーコン川で再捕された。

3-1-6 スチールヘッド

1987年に太平洋の，45-19 N，176-69 Wで放流されたものがワシントン州のNisqually川で再捕された。

3-2 1987年再捕に関する追加情報

1987年再捕に関する追加情報としてベニザケ1尾，シロザケ14尾，カラフトマス10尾，ギンザケ7尾の合計32尾が報告された（表3-2及び図3，4，5）。

3-2-1 ベニザケ

報告のあった1尾はベーリング海で成熟魚として放流されアラスカ半島の北側で再捕されたものであった。

3-2-2 シロザケ

再捕された14尾のうち10尾は日本沿岸の定置網で漁獲された。このうち3尾はベーリング海で放流されたものであり，内1尾は放流時未成熟魚であった。残りの7尾はいずれも太平洋側で成熟魚として放流されたものである。残りの4尾のうち1尾は，ベーリング海で成熟魚として放流され北海道沖ではえなわによって漁獲された。ソ連の南東及び南西サハリンで再捕された各1尾は成熟魚として放流されたものであった。また，太平洋の46-30 N，173-30 Eで放流された1尾の標識札（Z-1101）は，ソ連のUda川で“Sea Trout”の胃から発見された。

3-2-3 カラフトマス

再捕された10尾のうち日本の北海道の河川で再捕された1尾を除き，全てソ連からの報告であった。

3-2-4 ギンザケ

太平洋の東経域で放流された7尾についてソ連から再捕報告があった。

3-3 再捕年不明及び1986年以前再捕に関する追加情報

オホーツク沿岸からシロザケ2尾及びギンザケ1尾、ユーコン川でシロザケ1尾、プリストル湾でベニザケ1尾の追加情報が得られた(表3-3, 図6)。

4. 標識魚から得られた新知見

これまで得られた再捕報告から沖合分布に関する新知見を要約すると以下のとおりである。

1) アラスカ半島南起源ベニザケ未成熟魚AA 3386 (表3-1 (No.1), 図2)

放流位置45-34 N, 173-18 Wは、既往の知見48-15 N, 144-22 W及び50-57 N, 176-25 Wを南へ拡大した。

2) A-Y-K (Arctic-Yukon-Kuskokwim) 地方起源ベニザケ未成熟魚AA 3743 (表3-1 (No.2), 図2)

アリューシャン列島の南46-31 N, 176-29 Wの放流位置は、既往の南限50-58 N, 175-54 Eを南へ拡大した。

3) オホーツク沿岸起源シロザケ未成熟魚S-6958 (表3-3, 図6)

ベーリング海57-56 N, 180-00での放流は、既往の北限59-18 N, 171-40 E及び東限53-12 N, 166-49 Wを拡大するものではないが、ベーリング海の中央部から放流された初めての記録である。

4) 北東カムチャッカ起源カラフトマスZ-0744 (表3-2 (No.41), 図3)

放流位置42-30 N, 173-30 Eは、既往の南限43-30 N, 178-30 Wを1度南へ拡大した。

5) A-Y-K地方起源カラフトマスP-2408 (表3-1 (No.7), 図2)

放流位置43-30 N, 173-30 Wは、既往の知見47-00 N, 136-50 W及び55-07 N, 175-40 Wを南へ拡大した。

6) 千島列島起源カラフトマスZ-4620 (表3-2 (No.44), 図3)

放流位置47-30 N, 161-30 Eは、既往の北限47-10 N, 162-05 Eを僅か20分北へ拡大した。

7) アジア系ギンザケAA 2700 (表3-2 (No.50), 図5)

アジア系と考えられるParamushir島沖で再捕されたギンザケの放流位置41-32 N, 178-32 Eは、これまでの南限42-30 N, 177-30 Wを1度南へ拡大した。

Table 1. Catch and release data by research vessels in Japanese salmon tagging in 1988

Research vessel (code No.)	Area and Period	Number of operations	Fishing effort (hachi)	Number of fish caught							Number of fish released						
				Steal							Steal						
				Sock	Chum	Pink	Coho	Chin	Head	Total	Sock	Chum	Pink	Coho	Chin	Head	Total
Oshoro maru (R-05)	N. Pacific 6.14~6.18	3	60	0	3	0	2	0	0	5	0	2	0	2	0	0	4
Hokko maru (R-08)	N. Pacific 7.04~7.12	4	120	111	276	105	0	0	0	492	70	129	49	0	0	0	248
Hokuhou maru (R-23)	N. Pacific 6.13~7.07	45	1350	20	1824	229	496	12	81	2662	4	808	108	234	3	47	1204
Wakatake maru (R-32)	Bering Sea 6.15~7.18	16	510	112	1934	61	0	76	0	2183	27	549	16	0	18	0	610
Shin-Riasu maru (R-34)	N. Pacific 6.04~7.17	74	2920	156	3703	1893	817	33	62	6664	50	1145	511	243	9	13	1971
Etsuzan maru (R-36)	N. Pacific 6.10~7.16	67	2210	59	2616	206	764	43	134	3822	18	857	53	345	25	32	1330
Kanki maru No.3 (R-37)	N. Pacific 6.08~7.02	47	1420	187	3429	1414	316	7	20	5373	105	1440	593	196	0	7	2341
Total		256	8590	645	13785	3908	2395	171	297	21201	274	4930	1330	1020	55	99	7708

Table 2. Release data by area in Japanese salmon tagging in 1988
 Figures in parentheses indicate 1987's data

Area	Number of Operations	Fishing effort	Number of fish released						
			Sockeye	Chum	Pink	Coho	Chinook	Stealhead	Total
Total	256(240)	8590(7868)	274(210)	4930(3146)	1330(3276)	1020(879)	55(50)	99(63)	7708(7624)
Bering sea	16(19)	510(540)	27(21)	549(351)	16(106)	0(1)	18(12)	0(0)	610(303)
North Pacific	240(221)	8080(7328)	247(156)	4381(3016)	1314(3170)	1020(878)	37(38)	99(63)	7098(7321)
North of 46N	4(32)	120(1120)	70(74)	129(694)	49(1015)	0(82)	0(6)	0(7)	248(1878)
South of 46N	236(189)	7960(6208)	177(82)	4252(2322)	1265(2155)	1020(796)	37(32)	99(56)	6850(5443)
West of 160E	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
East of 175W	6(8)	180(320)	1(43)	160(417)	21(138)	11(63)	1(4)	14(3)	208(668)
160E-175W	230(181)	7780(5888)	176(39)	4092(1905)	1244(2017)	1009(733)	36(28)	85(53)	6642(4775)

Table 3. Recoveries of salmonids released by Japan

Table 3-1. Recoveries in 1988

No.	Tag No.	Species	Sex	Date		Position		Gear		F.L.		B.W. G.W.		Age		Remarks & Area of Recovery
				Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	
1	AA3386	Sockeye	-	87.06.15	88.06.15	45-34N,173-18W	54-40N,163-04W	L.L.	Driftnet	432	-	-	-	1.2	-	Cape pankof, SE coast of Unimac I.
2	AA3743	Sockeye	-	87.06.18	88.07.14	46-31N,176-29W	59-45N,161-54W	L.L.	-	428	-	-	-	1.2	-	Kanektok R., Kuskokwim Bay
3	Y-4450	Sockeye	M	88.07.04	88.07.28	57-30N,175-30W	58-14N,157-29W	L.L.	-	668	711	3398	-	2.3	2.3	Bishop Creek, Egegic Bay, Alaska
4	Y-2020	Chum	-	86.06.18	88.--.--	42-30N,176-30E	-----N,-----	L.L.	Gillnet	420	560	-	-	0.2	-	High sea, unknown
5	Y-6171	Chum	F	87.06.06	88.06.08	42-35N,166-46E	43-22N,162-56E	L.L.	Gillnet	508	570	-	-	0.3	-	High sea
6	BB7278	Chum	-	88.06.24	88.--.--	44-28N,167-32E	-----N,-----E	L.L.	Gillnet	520	-	-	-	0.2	-	High sea, unknown
7	P-2408	Pink	-	88.06.21	88.08.01	43-30N,173-30W	60-47N,161-45W	L.L.	Gillnet	453	-	-	-	0.1	0.1	Kuskokwim, Bethel commercial fishery
8	Y-2531	Coho	F	88.06.12	88.06.23	41-48N,169-38E	42-50N,171-12E	L.L.	Gillnet	570	598	2450	-	X.1	2.1	High sea
9	Y-0103	Chinook	F	85.07.02	88.07.24	55-28N,179-28W	65-37N,150-08W	L.L.	Gillnet (Set)	415	-	11325	-	1.1	-	Yukon R. near Rampart, Alaska
10	AA3928	Stealhead	M	87.06.19	88.04.16	45-19N,176-36W	47-00N,122-38W	L.L.	Hook & line	740	826	6342	-	X.3	-	Nisqually River, Washington
11	AA3767	Sockeye	F	87.06.18	88.07.14	46-31N,176-29W	57-30N,157-23W	L.L.	-	466	-	-	-	2.2	-	Ugashik District, Bristol Bay

Table 3-2. Additional tag recoveries in 1987*

No.	Tag No.	Species	Sex	Date		Position		Gear		F.L.		B.W. G.W.		Age		Remarks & Area of Recovery
				Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	
24	Z-6547	Sockeye	F	87.06.28	87.07.22	55-27N,177-37W	56-40N,159-28W	L.L.	-	592	508	2379	-	1.3	1.3	N. side of Alaska Peninsula
25	Z-1101	Chum	-	87.06.17	87.--.--	46-30N,173-30E	54-40N,135-15E	L.L.	-	471	-	-	-	0.2	-	Uda R. USSR, (from "sea trout" stomach)
26	Z-1388	Chum	-	87.06.19	87.08.21	47-30N,171-30E	-----N,-----	L.L.	-	448	-	-	-	0.2	-	Ochepukha R., SE Sakhalin
27	AA4405	Chum	F	87.07.09	87.09.11	43-29N,176-30E	42-56N,144-48E	L.L.	Trapnet	500	-	2000	-	0.3	-	Konbumori, Hokkaido, Pacific coast
28	Y-6845	Chum	-	87.06.16	87.09.22	44-49N,168-10E	42-14N,143-19E	L.L.	Trapnet	496	-	-	-	0.2	-	Hiroo, Hokkaido, Pacific coast
29	Z-1187	Chum	F	87.06.18	87.09.22	46-30N,173-30E	-----N,-----	L.L.	Weir	528	585	2070	340	0.3	0.3	Zyryanka R., SW Sakhalin
30	Z-6786	Chum	-	87.07.14	87.09.24	58-30N,177-37W	42-38N,144-05E	L.L.	Longline	614	628	2640	270	0.3	0.3	Off the Pacific coast of Hokkaido
31	AA3847	Chum	-	87.06.18	87.09.30	46-31N,176-29W	42-31N,143-29E	L.L.	Trapnet	494	-	-	-	0.3	-	Taiki, Hokkaido, Pacific coast
32	AA3610	Chum	-	87.06.17	87.10.03	46-29N,173-28W	42-11N,143-21E	L.L.	Trapnet	467	-	-	-	0.2	-	Hiroo, Hokkaido, Pacific coast
33	Z-1546	Chum	M	86.07.03	87.11.08	57-30N,177-39W	42-34N,141-19E	L.L.	Trapnet	602	800	6200	-	0.4	-	Shiraoi, Hokkaido, Pacific coast
34	AA3654	Chum	M	87.06.17	87.11.25	46-29N,173-28W	39-17N,141-56E	L.L.	Trapnet	511	570	1600	-	0.2	-	Kamaishi, Honshu, Pacific coast
35	Z-6817	Chum	-	87.07.15	87.12.02	57-31N,179-38W	39-07N,141-54E	L.L.	Trapnet	594	-	-	-	0.3	-	Iwate pref., Honshu, Pacific coast
36	Z-6659	Chum	-	87.07.04	87.12.04	56-28N,177-35W	39-07N,141-55E	L.L.	Trapnet	657	-	-	-	0.3	-	Iwate Pref., Honshu, Pacific coast
37	AA3358	Chum	-	87.06.15	87.12.05	45-34N,173-19W	39-01N,141-49E	L.L.	Trapnet	578	-	-	-	0.4	-	Iwate Pref., Honshu, Pacific coast
38	AA3331	Chum	-	87.06.15	88.01.13	44-36N,173-28W	39-59N,139-52E	L.L.	Trapnet	497	570	1300	-	0.X	-	Oga, Honshu, Japan sea coast
39	Z-4167	Pink	-	87.07.17	87.--.--	46-30N,163-30E	-----N,-----	L.L.	-	492	-	-	-	0.1	-	USSR unknown
40	Y-6627	Pink	M	87.06.13	87.--.--	44-50N,174-14E	56-10N,162-30E	L.L.	-	465	525	1050	-	0.1	-	Kamchatka R., SE Kamchatka
41	Z-0744	Pink	-	87.06.14	87.07.26	42-30N,173-30E	60-00N,163-56E	L.L.	-	427	-	-	-	0.1	-	Anapka R., Karaginskii District
42	Y-6690	Pink	-	87.06.14	87.07.29	44-50N,172-10E	53-40N,159-55E	L.L.	-	480	510	1300	-	0.1	-	Zjupanova R., SE Kamchatka
43	Z-3611	Pink	M	87.07.06	87.08.08	47-30N,166-30E	51-55N,143-10E	L.L.	-	482	520	1540	-	0.1	0.1	Nyyskiy Bay, Sakhalin I.
44	Z-4620	Pink	-	87.07.20	87.08.13	47-30N,161-30E	45-19N,148-14E	L.L.	-	478	-	-	-	0.1	-	Prostol Bay, Iturup I.

Table 3-2. Continued

No.	Tag No.	Species	Sex	Date		Position		Gear		F.L.		B.W. G.W.		Age		Remarks & Area of Recovery
				Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	
45	Z-4662	Pink	-	87.07.20	87.08.18	47-30N,161-30E	-----N,-----	L.L.	-	455	455	1200	-	0.1	-	Ochepukha R. SE Sakhalin
46	Z-4388	Pink	-	87.07.19	87.08.21	47-30N,163-30E	-----N,-----	L.L.	-	463	-	-	-	0.1	-	Ochepukha R. SE Sakhalin
47	Z-4148	Pink	-	87.07.17	87.08.21	46-30N,163-30E	45-19N,148-14E	L.L.	-	465	-	-	-	0.1	-	Prostor Bay, Iturup I.
48	Z-4129	Pink	F	87.07.17	87.09.20	46-30N,163-30E	42-16N,143-20E	L.L.	Weir	443	-	-	-	0.1	-	Hiroo R., Hokkaido, Pacific coast
49	Z-4474	Coho	F	87.07.19	87.08~9	47-30N,163-30E	53-07N,158-33E	L.L.	-	483	490	1700	-	X.1	-	Avacha R., SE Kamchatka
50	AA2700	Coho	-	87.06.10	87.08.18	41-32N,178-32E	50-03N,155-39E	L.L.	-	564	-	-	-	X.1	-	Off the Pacific coast of Paramushir I.
51	Z-4000	Coho	M	87.07.16	87.09.05	45-30N,163-31E	59-45N,149-14E	L.L.	-	624	640	3000	-	2.1	-	Yana R., Tauskyaya B., Okhotsk sea coast
52	Z-4244	Coho	F	87.07.18	87.09.08	46-30N,163-30E	-----N,-----	L.L.	-	606	660	-	-	2.1	-	Tupaka R.
53	Z-4272	Coho	M	87.07.18	87.09.09	46-30N,163-30E	52-36N,156-16E	L.L.	-	605	-	2700	-	X.1	-	Bolsjaya R., SW Kamchatka
54	AA4380	Coho	F	87.07.08	87.10.07	43-29N,176-30E	52-48N,156-11E	L.L.	-	486	535	1800	-	X.1	-	Plotnikova R., SW Kamchatka
55	Z-3392	Coho	-	87.06.24	87.10.12	43-30N,171-30E	53-07N,158-33E	L.L.	-	550	-	-	-	X.1	-	Avacha R., SE Kamchatka

* Include recovery in January, 1988

Table 3-3. Additional tag recoveries in 1984, 1985, 1986 and year unknown

No.	Tag No.	Species	Sex	Date		Position		Gear		F.L.		B.W. G.W.		Age		Remarks & Area of Recovery
				Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	Rel.	Rec.	
	S-3276	Sockeye	-	83.05.06	8-.-.-	47-29N,178-34W	58-49N,158-33W	L.L.	-	533	-	-	-	2.3	-	Ekuk, Bristol Bay
	S-6958	Chum	M	82.07.18	84.09.06	57-56N,180-00	59-22N,143-14E	L.L.	-	470	-	-	-	0.2	-	Kukhutuy R., Okhotsk sea coast
	Y-8521	Coho	F	85.07.22	85.09.09	49-32N,169-27E	59-03N,152-22E	L.L.	-	522	580	2900	-	2.1	-	Sivutch R., Okhotsk sea coast
	Z-1504	Chum	-	86.06.28	86.08.--	56-32N,178-26E	62-05N,163-43W	L.L.	-	574	-	-	-	0.X	-	Yukon R., near Mt. Village
	Y-8088	Chum	M	85.07.13	86.08.17	46-32N,175-32E	59-10N,142-30E	L.L.	-	461	680	3900	-	0.2	-	Okhota R., Khabarovsk Region, Okhotsk sea coast

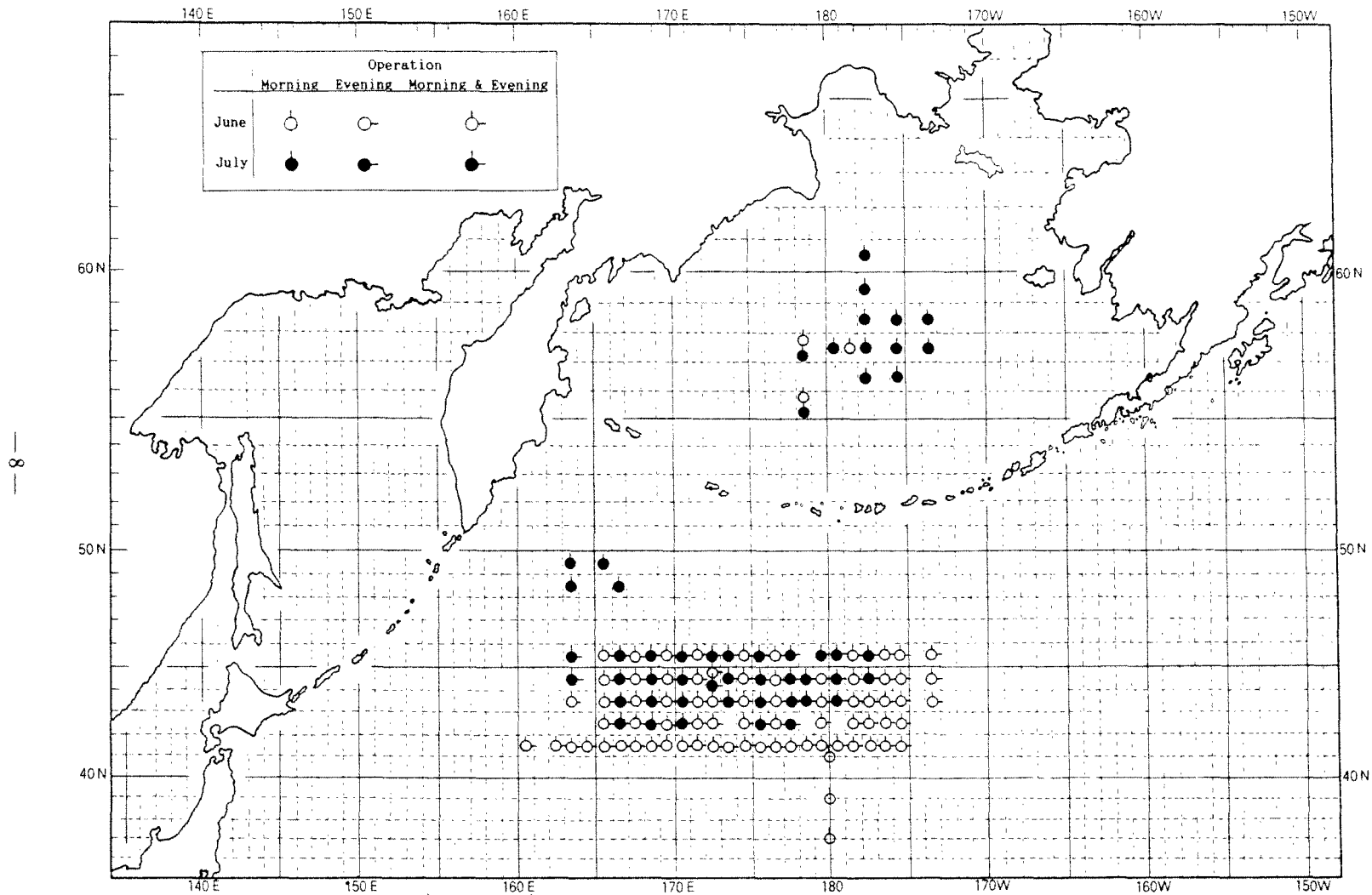


Figure 1. Longline locations of Japanese salmon research vessels from June to July, 1988

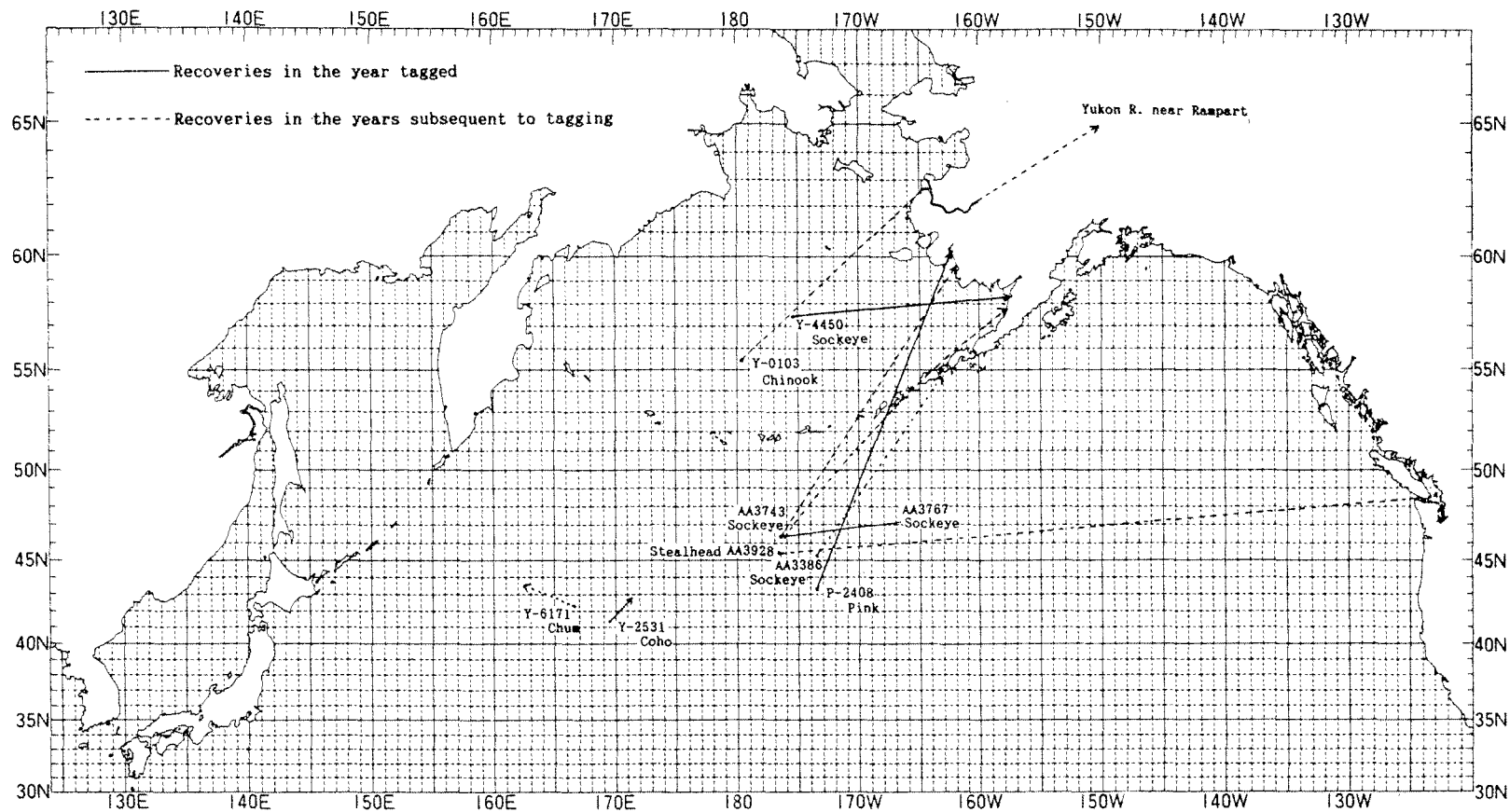


Fig 2. 1988 tag recoveries of 4 sockeye, 1 chum, 1 pink, 1 coho, 1 chinook salmon and 1 stealhead released in 1985, 1987 and 1988

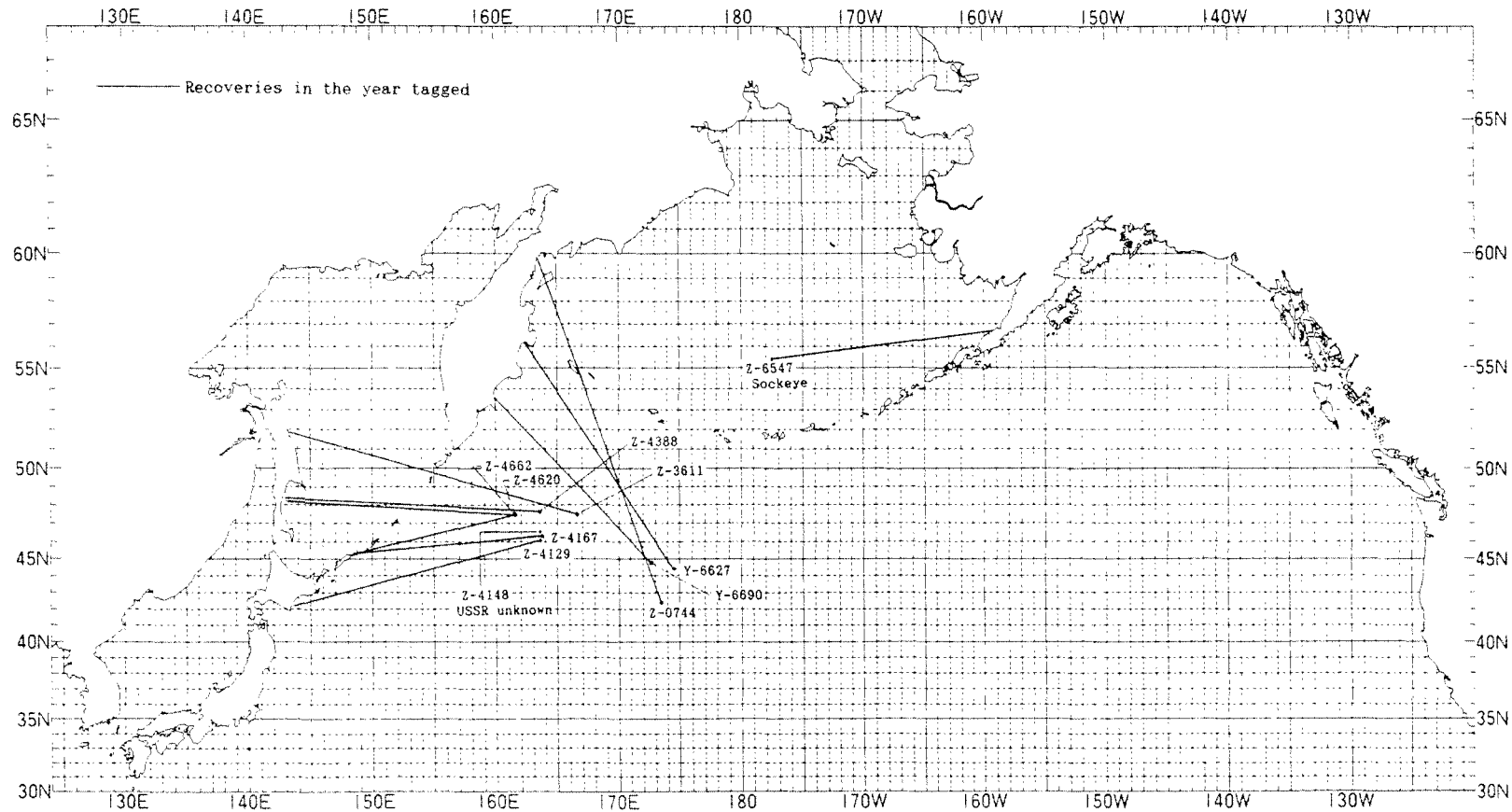


Fig 3. Additional tag recoveries of 1 sockeye(Z-6547) and 10 pink salmon recovered in 1987 released in 1987

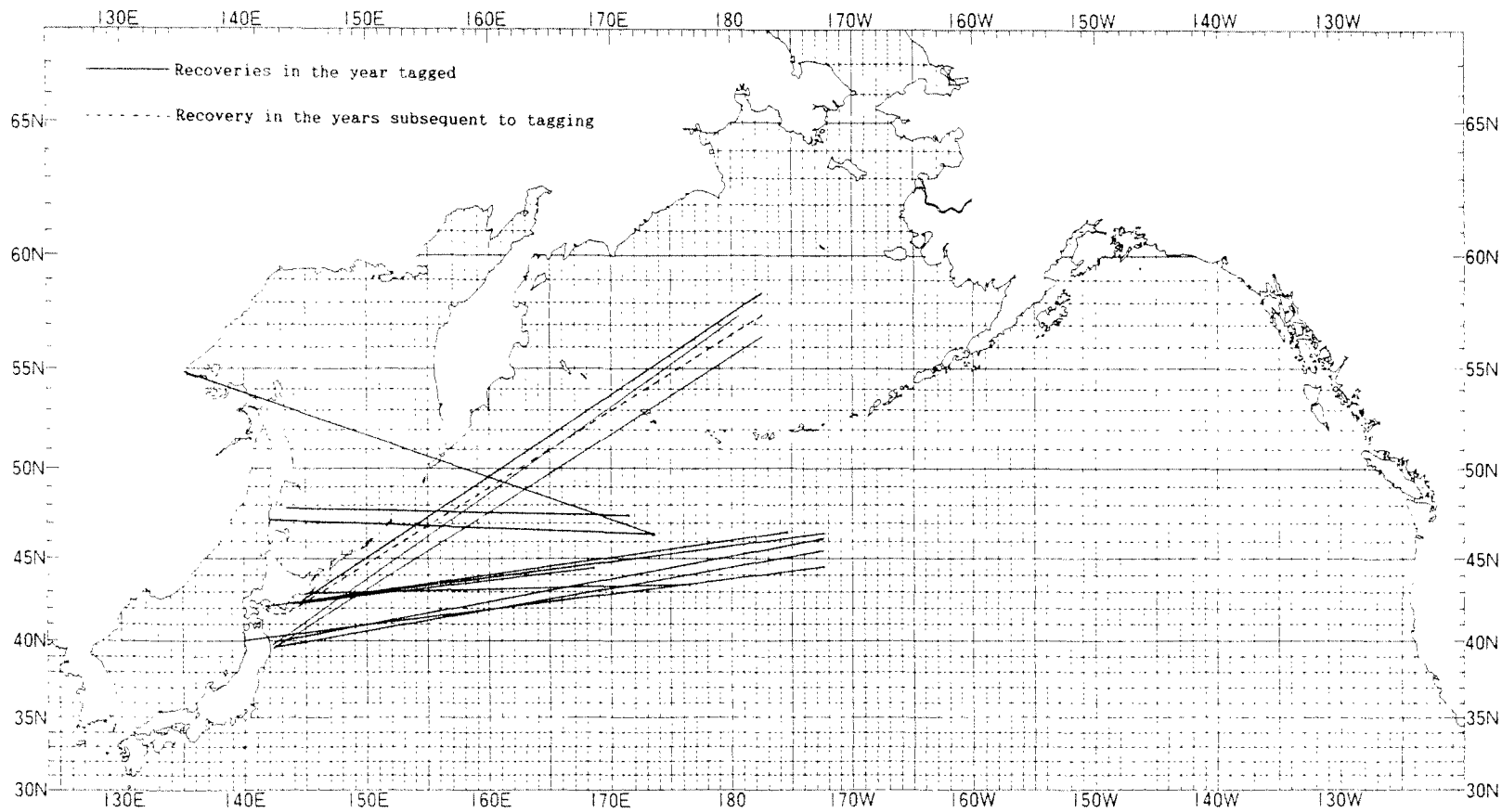


Fig 4. Additional tag recoveries of 14 chum salmon recovered in 1987 released in 1986 and 1987

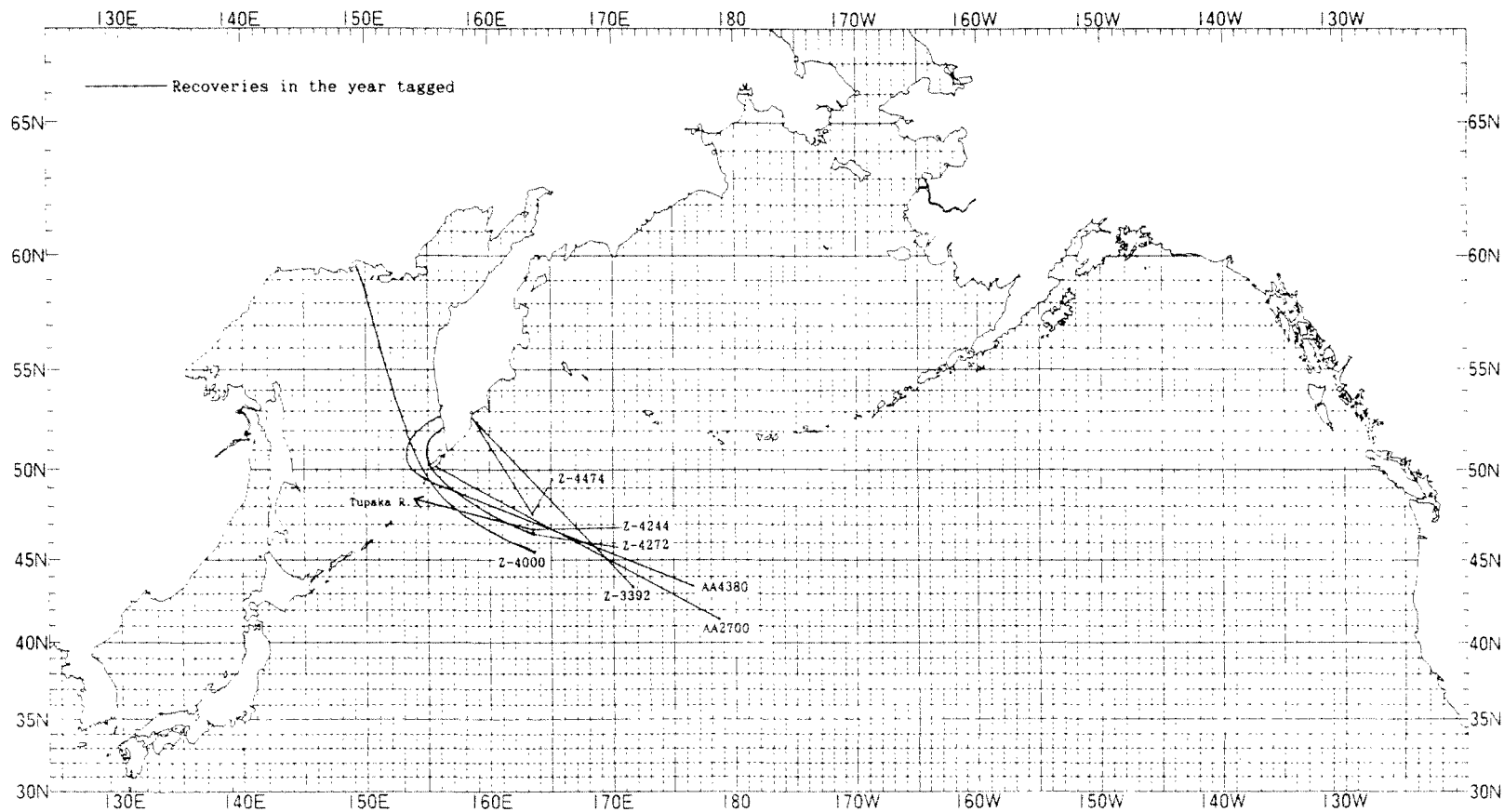


Fig 5. Additional tag recoveries of 7 coho salmon recovered in 1987 released in 1987

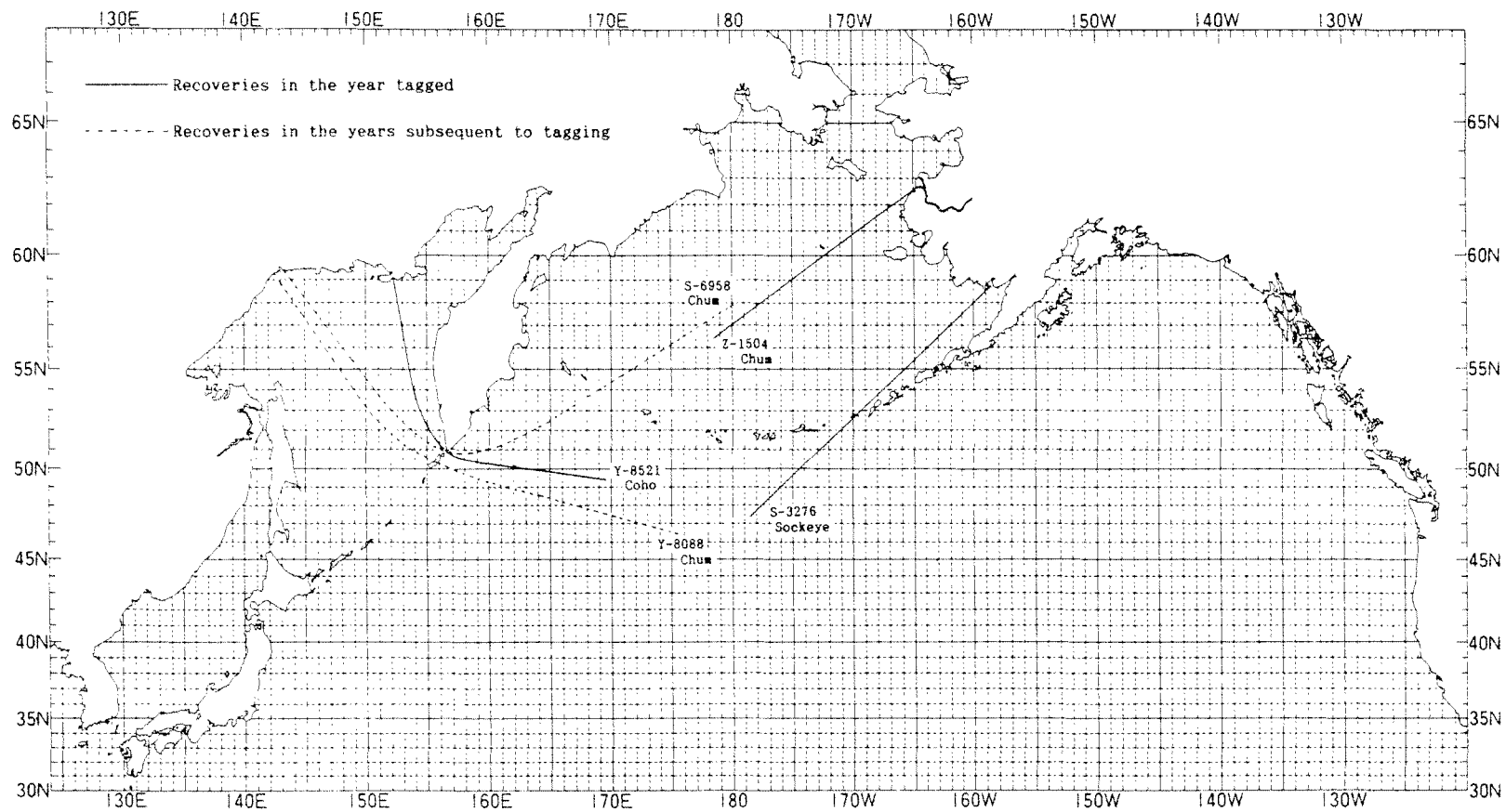


Fig 6. Additional tag recoveries of 1 sockeye, 3 chum and 1 coho salmon recovered in 1984,1985,1986 and year unknown

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TRANSLATION

RELEASE DATA FOR JAPANESE SALMON TAGGING EXPERIMENTS
IN 1988 AND RECOVERY DATA UP TO AUGUST, 1988

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Introduction

This report describes the results of salmon tagging experiments conducted by Japan in the North Pacific and Bering Sea with seven research vessels (six in 1987 -- hereafter in this report, the numbers in parentheses () indicate the comparable figures for 1987) from 1988 June 4 to July 18 and also reports on recoveries of tagged salmonids in the period up to 1988 August of those tagged and released in and before 1988.

In 1988, five research vessels were engaged in tagging activities in waters south of 46°N in order to determine the continental origin of salmon which migrate to waters south of 46°N as prescribed in Article III 1.(d) of the International Convention for the High Seas Fisheries of the North Pacific ocean and the Memorandum of Understanding on Scientific Research (signed on April 9, 1986).

In addition to the regular morning longline sets, evening sets were also conducted. Mainly, disk tags were used for tagging, but some spaghetti tags were also used. A Canadian scientist was on board the Kanki maru No. 3 and U.S. scientists were on board the Shin riasu maru, in accordance with the above-mentioned Memorandum of Understanding.

Data obtained from these research activities are being analyzed and preliminary figures are included in this report.

2. Release of tagged fish

The tagging operations were conducted by seven research vessels from 1988 June 4 to July 18. The longlining locations are shown in Fig. 1, the numbers of fish caught and released by research vessel are shown in Table 1, and numbers of fish released by area

are shown in Table 2. A total of 256 (240) longline operations were conducted in 1988 and 7,708 (7,624) salmon and steelhead trout of the 21,201 (23,391) caught were tagged and released.

Of the 7,708 tagged, 7,098 fish or 92% (7,321 or 96%) were released in the North Pacific ocean and 610 fish or 8% (303 fish or 4%) in the Bering Sea. In the North Pacific, there were 248 (1,878) released in waters north of 46°N and 6,850 (5,443) releases south of 46°N. In waters south of 46°N, 208 (668) fish were released in waters east of 175°W, and 6,642 (4,775) fish in waters between 160°E and 175°W which were prescribed in the Memorandum of Understanding on Scientific Research.

3. Recovery of tagged salmonids

3-1 Recoveries in 1988

To date, a total of 11 recoveries of tagged fish (4 sockeye, 3 chum, 1 pink, 1 coho, 1 chinook and 1 steelhead) have been reported (Table 3-1). Locations of high seas recoveries, except for 3 chum whose recovery location was unknown, are shown in Fig. 2.

3-1-1 Sockeye Salmon

One sockeye salmon released as a mature fish in the Bering Sea and 3 sockeye salmon released as immature fish in the North Pacific were recovered in Alaska.

3-1-2 Chum Salmon

All the three chum salmon recovered on the ocean were released in the North Pacific ocean. Of those chum salmon, one was an immature fish at release.

3-1-3 Pink Salmon

One pink salmon released in the west longitudinal area of the Pacific ocean was recovered in the Kuskokwin Bay.

3-1-4 Coho Salmon

One coho salmon reported was recovered on the high seas, and showed a northeastward movement from the release point.

3-1-5 Chinook Salmon

One chinook salmon released in the Bering Sea in 1985 was recovered in the Yukon River.

3-1-6 Steelhead

One steelhead trout released in waters of 45°19'N and 176°69'W of the Pacific ocean in 1987 was recovered in the Nisqually River of the State of Washington.

3-2 Additional information on salmonids recovered in 1987

A total of 32 salmon (sockeye 1, chum 14, pink 10 and coho 7) have been recovered in addition to those previously reported for 1987 (Table 3-2 and Figs. 3, 4 and 5).

3-2-1 Sockeye salmon

One sockeye salmon reported was a fish which was released as a mature fish in the Bering Sea and recovered in the north side of the Alaskan Peninsula.

3-2-2 Chum salmon

Ten chum salmon of the 14 fish recovered were caught in the set

net fisheries in the Japanese coastal areas. Of those, 3 chum salmon were fish released in the Bering Sea and 1 chum salmon was a fish which was an immature fish at release. All remaining 7 chum salmon were fish released in the Pacific Ocean side as mature fish. One chum salmon of the remaining four chum salmon was a fish released in the Bering Sea as a mature fish and caught with longline in waters off Hokkaido. One chum salmon recovered in waters of the southeastern U.S.S.R. and one chum salmon recovered in the southwestern Sakhaline were fish released as mature fish. The tag (Z-1101) of a chum salmon released in the Pacific ocean of 46°30'N and 173°30'E was recovered in the stomach of a "sea trout" in the Uda River of the U.S.S.R.

3-2-3 Pink salmon

All recoveries of the ten pink salmon recovered, except for one fish recovered in a river in Hokkaido of Japan were reported from the U.S.S.R.

3-2-4 Coho salmon

For seven coho salmon released in the east longitude area of the Pacific Ocean, we received the report of recovery from the U.S.S.R.

3-3 Additional information on recoveries in which the year of recovery was unknown and on recoveries prior to 1986

Additional information on the recoveries of two chum salmon and one coho salmon was obtained from the coast of Okhotsk Sea, one chum salmon obtained from the Yukon River, and one sockeye salmon obtained from the Bristol Bay were received (Table 3-3, Fig. 6).

4. New information obtained from recoveries of tagged salmonids

New information on salmonid distribution on the high seas was extracted from the results of recoveries of tagged fish and is summarized as follows:

- 1) An immature sockeye salmon of southern Alaskan Peninsula origin AA3386 (Table 3-1 (No. 1), Fig. 2)

Released position of 45°34'N and 173°18'W extended the known southern limit (48°15'N, 144°22'W and 50°57'N and 176°25'W) towards the south.

- 2) An immature sockeye salmon of A-Y-K (Arctic-Yukon-Kuskokwim) origin AA3743 (Table 3-1 (No. 2), Fig. 2)

Released position of 46°31'N, 176°29'W of the south of Aleutian Islands extended the known southern limit (50°58'N and 175°45'E) towards the south.

- 3) An immature chum salmon originated in the coast of the Okhotsk Sea, S-6958 (Table 3-3, Fig. 6)

Although a release at 57°56'N and 180°00 in the Bering Sea did not extend the known northern limit (59°18'N and 171°40'E) and eastern limit (53°12'N and 166°49'W), this was the first record on chum salmon released in the central part of the Bering Sea.

- 4) Pink salmon originated in the northeastern Kamchatka, Z-0744 (Table 3-2 (No. 41), Fig. 3)

Release position of 42°30'N and 173°30'E extended 1° toward the south of the known southern limit (43°30'N and 178°30'W).

- 5) Pink salmon originated in A-Y-K area, P-2408 (Table 3-1 (No. 7), Fig. 2)

Release position of 43°30'N, 173°30'W extended the known southern limit (47°00'N, 136°50'W and 55°07'N, 176°40'W) towards the south.

- 6) Pink salmon originated in the Kuril Islands, Z-4620 (Table 3-2 (No. 44), Fig 3)

Release position of 47°30'N and 161°30'E extended slightly 20' toward the north of the known northern limit (47°10'N and 162°05'E).

- 7) Asian origin coho salmon, AA2700 (Table 3-2 (No. 50) Fig. 5)

The release position (41°32'N and 178°32'E) of coho salmon recovered off Paramushir Island which is considered as an Asian origin extended 1° toward the south of the known southern limit (42°30'N and 177°30'W) obtained in the past.

Tables 1 to 3-3 and Figs. 1 to 6 are in English in the Japanese document.