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Data Formats and Codes for the INPFC/NPAFC All-Agency High Seas Salmon and Steelhead Tag Recovery Computer Data File (1956-2005)

by

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Data Formats and Codes for the INPFC/NPAFC All-Agency High Seas Salmon and Steelhead Tag Recovery Computer Data File (1956-2005)

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Abstract: This document lists the formats and codes used since 1971 for the all-agency INPFC-NPAFC high seas salmon and steelhead tag recovery computer data file (1956-2005). A brief overview and history of the computer data file is provided.

Overview and Brief History of the High Seas Tag Recovery Data File

This document lists the data formats and codes used since 1971 for the all-agency International North Pacific Fisheries Commission (INPFC) and North Pacific Anadromous Fish Commission (NPAFC) high seas salmon and steelhead high tag recovery computer data file (1956-2005; Tables 1-3; Figs. 1-9).

Harris (1989) briefly described the history of the development of the original INPFC all-agency high seas salmon and steelhead tag recovery computer data file, as follows:

"Recoveries from high seas tagging experiments have been reported by the various INPFC national sections in the form of INPFC Documents. Each country has reported recoveries of only its own tags. A Canadian scientist created an INPFC tag recovery computer database by coding all nations' reported 1956-69 recoveries (Aro et al. 1971), and by updating the database every two or three years (Aro 1972, 1974, 1977, 1980). These data, through 1976 recoveries, were provided to Japan and the United States on computer tape, and codings of subsequent recoveries through 1979 documents were provided to the United States. Personnel at the Fisheries Research Institute, University of Washington, have maintained and updated the database after the 1979 reports. In working with the recovery data, I [C.K. Harris] noticed numerous errors and coding inconsistencies, and also noticed handwritten corrections in original INPFC Documents that were not made on the computer file. Japan has maintained an independent database of all nations' reported recoveries, and has from time to time noted errors and made corrections to that database. Recently, efforts have been made to reconcile the Japanese and U.S./Canadian versions of the INPFC tag recovery data and to incorporate all corrections into one file."

The electronic data file described in this document is the corrected U.S./Canada version (Harris 1989). This version incorporates corrections to Canada's original codings, as described in correspondence between the United States (C. K. Harris) and Japan (K. Takagi) dated through April 1986. Files of original correspondence pertaining to these corrections are currently located at the School of Aquatic and Fishery Sciences (SAFS), University of Washington.

After the implementation of NPAFC, the U.S. government contracted SAFS (1993-2005) to provide a processing center for all North American recoveries of Canadian, Japanese, Russian, and U.S. high-seas salmon and steelhead tags, and recoveries of U.S. high-seas salmon and steelhead tags

by all nations. SAFS's high-seas tag processing center activities included: (1) advertising for tag recoveries, (2) returning tags and original recovery information to the appropriate release agencies, (3) mailing information on tag recoveries and a tag reward to fishermen and processors, (4) maintaining a file of original correspondence, data, and tags of all recoveries of U.S., U.S.-Russia, and Japan-U.S. tags (1956-present), (5) maintaining and updating an all-agency tag release and recovery computer data file, and (6) reporting all recoveries of U.S., U.S.-Russia, and Japan-U.S. high-seas tags to NPAFC. In addition, SAFS scientists periodically prepared reports and maps based on historical recoveries of high-seas tags that described the known ocean ranges of major regional stocks of Asian and North American salmonids (e.g., Myers et al. 1996). The all-agency high-seas tag recovery data file was available from SAFS upon request by the parties of NPAFC, which gave all NPAFC parties access to a common database. For example, in 2001 the Russian party requested and used the data to prepare an atlas of the marine distribution of salmon (Klovatch et al. 2002).

SAFS personnel continued to code and archive tag recovery data reported to NPAFC through 2005 in the original INPFC format (80-column IBM format text file; Table 1). Use of this format was continued because the resulting data file is compact in size, freely interchangeable and readable by most computer operating systems and software, and less susceptible than other formats to data loss through corruption of stored files or changes in computer software and operating systems. In April 2007, SAFS transferred an electronic copy of the data file to the NPAFC Secretariat. This text file includes all tag recovery records reported in INPFC and NPAFC documents from 1956 through 2005 (18,281 records with no header line).

References

Aro, K.V. 1972. Recoveries of sal mon tagged offshore in the North Pacific Ocean by Japan and the United States in 1970 and 1971, and additional recoveries from earlier taggings by Canada, Japan, and the United States. Fish. Res. Bd. Can. MS Rep. 1186. (INPFC Doc. 1468)

Aro, K.V. 1974. Recoveries of salmon tagged offshore in the North Pacific Ocean by Japan and the United States in 1972 and 1973, and additional recoveries from earlier taggings by Canada, Japan, and the United States. Fish. Res. Bd. Can. MS Rep. 1328. (INPFC Doc. 1746)

Aro, K.V. 1977. Recoveries of salmon tagged offshore in the North Pacific Ocean by Japan and the United States in 1974, 1975, and 1976, and additional recoveries from earlier tagings by Canada, Japan, and the United States. Fish. and Mar. Serv. Data Record 25. (INPFC Doc. 1950)

Aro, K.V. 1980. Recoveries of salmon tagged offshore in the North Pacific Ocean by Japan and the United States in 1977, 1978, and 1979, and additional recoveries from earlier tagings by Canada, Japan, and the United States. Can. Data Rep. Fish. Aquat. Sci. 223. 19 pp. (INPFC Doc. 2328)

Aro, K.V., J.A. Thomson, and D.P. Giovando. 1971. Recoveries of salmon tagged offshore in the North Pacific Ocean by Canada, Japan, and the United States, 1956-1969. Fish. Res. Bd. Can. MS Rep. 1147. (INPFC Doc. 1377).

Harris, C.K. 1989. The effects of international treaty changes on Japan's high seas salmon fisheries, with emphasis on their catches of North American sockeye salmon, 1972-1984. Doctoral dissertation, University of Washington, Seattle.

Klovach, N.V., V.I. Karpenko, A.E. Bobyrev, A.K. Gruzevich, E.M. Klovach, and S.S. Kozlov. 2002. Atlas of marine distribution of Pacific salmons during the spring-summer feeding and pre-spawning migrations. Edited by O.F. Gritsenko. VNIRO Publishing, Moscow.

Myers, K.W., K.Y. Aydin, R.V. Walker, S. Fowler, and M.L. Dahlberg. 1996. Known ocean ranges of stocks of Pacific salmon and steelhead as shown by tagging experiments, 1956-95. NPAFC Document 192. North Pacific Anadromous Fish Commission, Vancouver, B.C. (Available at http://www.npafc.org)

Table 1. INPFC/NPAFC tag recovery data format (all-agency).

Column no.	Information
1	agency that released tagged fish (description of codes in Table 2)
2-6	INPFC 2°x5° statistical area (see Fig. 1)
7-10	release longitude (initial '1' is dropped, since all longitudes are over 100°; e.g., 7139=171°39')
11	release hemisphere (E or W)
12-15	release latitude (e.g., 4946 = 49°46' North)
16	vessel or operation code (description of codes in Table 2)
17-19	set number; numbered consecutively from 001-999; blank= not reported
20-21	month of release (date applying to east of dateline)
22-23	day of release (date applying to east of dateline)
24-25	year of release (date applying to east of dateline)
26	code for gear used to catch fish for tagging (description of codes in Table 2)
27	direction of movement of fish (only FRI data; blank in CDFO, FAJ, & ADFG data)
28	code for statistical areas bisected by Aleutian and Kurile Islands; 'P' for tagging on Pacific side, 'B' for tagging on Bering Sea side, 'O' for tagging on Sea of Okhotsk side, otherwise blank
29-30	ADFG offshore index station number (description of codes in Table 2); blank for all other agencies
31-33	tag type (col. 31-32) & color (col. 33) (description of codes in Table 2)
34-39	tag number*
40	species code (description of codes in Table 2)
41-43	length at release (FRI = tip of snout to fork of tail) in millimeters
44	condition at release (blank = not reported; description of codes in Table 2)
45-47	code for scale sample taken at release (blank = not reported)
48-50	weight at recovery, in decagrams (e.g., 2186 gm is coded 219; 999 = wt >9985 gm)
51-52	age at release (determined from scale sample; description of codes in Table 2)
53-54	code for general area of recovery (see Table 3; Figs. 2-9)
55-58	longitude at recovery (the initial '1' is dropped)
59	hemisphere at recovery
60-63	latitude at recovery
64-65	month of recovery (also used to indicate year; see explanation and description of codes in Table 2)
66-67	day of recovery (description of codes in Table 2)
68	method of recovery (gear type) (description of codes in Table 2)
69-71	length at recovery, in millimeters (use with caution as type of length measurement varies or may be an estimate; blank = no data)
72-74	gonad weight at recovery, in grams (000 or blank = no data; 999 = weight >999 grams)
75	code for sex and maturity at recovery (description of codes in Table 2)
76	code for subarea of general area at recovery (see Table 3; Figs. 2-9)
77-80	code for scale sample taken at recovery (blank = no sample or not coded)

* Depending on the tagging agency, tag numbers may consist of a 3, 4, 5, or 6 digit number, a single letter prefix followed by a 4 or 5 digit number, or a double letter prefix followed by a 4 digit number.

Table 2. Additional codes for selected information.

Col. 1: Agency Code

Code	Description (agency acronym, name, tag release years)	
1	FRI	Fisheries Research Institute, Univ. Washington, USA: 1956-1990 Note: cooperative FRI-TINRO tagging from 1983-1990 coded as agency '1', cooperative FRI-FAJ tagging from 1991-2005 coded as agency '3'
2	CDFO	Department of Fisheries and Oceans, Canada and earlier Fisheries Research Board of Canada: 1960-1967, 1988, 1990
3	FAJ	Fisheries Agency of Japan, 1958-2005
4	ADFG	Alaska Dept. Fish and Game, USA: 1967-1970
5	USFWS	Fish & Wildlife Service, USA (code never used)
6		TINRO, Russia, and former USSR (code never used)
7		Washington Dept. of Fish., USA (code never used)
8		Oregon Fish. Commission, USA (code never used)
9		Other (code never used)

Col. 16: Vessel or operation code

Code	Release Vessel Name (release agency, year)
A	G. B. Reed (CDFO, spring 1965-67) or California Rose (FRI, 1956-58)
B	Canadian No. I (CDFO, 1965-67)
C	T. W. Sea Queen (CDFO, 1965-67) or Commander (FRI, 1956-78)
D	Investigator No. 1 (CDFO, 1965-67)
E	A. P. Knight (CDFO, 1965-67) or FAJ operation (1962-63)
F	Cape Flattery (FRI)
G	Kristen Gail (FRI, 1980 & 1982)
H	Harmony (FRI, 1966) or FAJ operation number (1961-63)
K	Kelez (FRI, 1964) or FAJ operation number (1963)
L	Alaska (FRI, 1980 & 1982)
M	Marine View (FRI, 1974) or FAJ operation (1962)
N	Nemirov (Russia-FRI, 1983-90)
O	Ocean Pride (FRI, 1961-63)
P	R/V TINRO (code not used, Russia-FRI)
R	Renown (FRI, 1956-63)
S	St. Michael (FRI, 1969)
T	Karen T (FRI, 1965) or FAJ operation (1958-63)
U	Windward (FRI, 1959)
X	Storm (FRI, 1961-70)
W	Seawitch (FRI) , W. E. Ricker (CDFO, 1990) or FAJ operation (1959-63)
Z	G.B. Reed (1965-67, CDFO fall-winter) or Zavitinsk (Russia-FRI)
1	Skardale (CDFO, 1960-64)
2	Western Crusader (CDFO, 1960-64)
3	Western Producer (CDFO 2, 1960-64)
4	Midnight Sun (CDFO, 1960-64)
5	G. B. Reed (CDFO, 1960-64)
6	T.W. Zelley (CDFO , 1960-64)
7	Key West (CDFO, 1960-64)
8	Fort Ross (CDFO, 1960-64)
(blank)	vessel not reported or not coded

Col. 26 : Release Gear Code

Code	Description
1	purse seine
2	gill net
3	longline
4	trap (code never used)
5	troll (code never used)
6	beach seine (code never used)
7	rope trawl
8	hook and line (sports gear)

Col. 27 : Direction of movement of fish at the time of capture for tagging (FRI data only)

Code	Description
0	round haul
1	northeast
2	east
3	southeast
4	south
5	southwest
6	west
7	northwest
8	north
9	(no direction assigned)

Note: This code is 180° opposite to the direction the net is held open while fishing.

Col. 29-30: ADGF offshore index station

Code	Latitude & Longitude	Location Reference
1	58° 25’ x 138° 00’	15 miles southwest of Lituya Bay
2	58° 00’ x 137° 30’	30 miles west of Yakobi Island
2A	58° 00’ x 137° 00’	16 miles west of Yakobi Island
3	57° 30’ x 137° 00’	32 miles west of Khaz Point
3A	57° 30’ x 136° 00’	16 miles west of Khaz Point
4	57° 00’ x 137° 00’	37 miles west of Cape Edgecumbe
4A	57° 00’ x 136° 30’	16 miles west of Cape Edgecumbe
4B	57° 00’ x 136° 00’	5 miles west of Cape Edgecumbe
5	56° 15’ x 135° 35’	31 miles west of Puffin Bay
5A	56° 15’ x 135° 00’	8 miles west of Puffin Bay
6	55° 30’ x 134° 35’	26 miles west of Noyes Island
6A	55° 30’ x 134° 00’	6 miles west of Noyes Island
7	54° 45’ x 134° 00’	16 miles west of Forrester Island
8	54° 00’ x 134° 00’	30 miles west-southwest of Cape Knox

Col. 31-33: Tag Code (col. 31-32 = Tag Type; col. 33 = Tag Color; blank = unknown)

Code	Tag Type, tag color
011	3/4 inch Petersen disk, red and white (FRI)
022	1/2 inch Petersen disk, white (FRI)
032	1/16 inch soft spaghetti tube, white (FRI)
043	1/16 inch soft spaghetti tube, yellow (FRI)
052	1/16 inch hard spaghetti tube, white (FRI)
063	Dart tube, yellow (FRI)
074	Knotted tube, orange (FRI)
075	Knotted tube, green (FRI)
08	11/16 inch Petersen disk (CDFO; red in 1962-67, prefix MS; red in 1962, prefix S, or white 1961-62, prefix MS)
096	Dennison flag, blue (FRI)
097	Dennison flag, red (FRI)
103	Dart or Dennison tube tag, yellow (FRI)
104	Dart or Dennison tube tag, orange (FRI)
105	Dart or Dennison tube tag, green (FRI)
106	Dart or Dennison tube tag, blue (FRI)
107	Dart or Dennison tube tag, red (FRI, CDFO)
108	Dart or Dennison tube tag, international orange (FRI)
114	Carlin dangler, orange (FRI)
116	Carlin dangler, blue (FRI)
121	16 mm diameter Petersen disk (FAJ), red or orange & white
A	Floy Swiftacher, yellow (ADFG)
B	Floy Swiftacher, yellow with 1 inch section of orange vinyl (ADFG)
C	Floy Swiftacher, international orange (ADFG)
D	Dual tagged, Floy Swiftacher, international orange & Floy Swiftacher, yellow (ADFG)
E	Dual tagged, Floy Swiftacher, international orange & Petersen disk (ADFG)

Col. 40: Species code

Code	Species
1	sockeye
2	chum
3	pink
4	coho
5	chinook
6	steelhead
7	unknown
8	masu

Col. 44: Condition code

Code	Description of condition of individual fish at release
Blank or 1	good condition or little or no scale loss up to 10%
2	moderate scale loss up to 25%
3	heavy scale loss up to 50%
4	fish died after release, tag not recovered
5	hook or other man-made wounds
6	little or no scaling with predator wound
7	moderate scaling with predator wound
8	heavy scaling with predator wound
9	net mark

note: consider all wounds whether healed or not

Col. 51-52: Age at release

Freshwater age at release (col. 51)

Code	
0-5	freshwater annuli
blank	not read or unreadable; or 0 for PINKS AND CHUM ONLY note: code starts in 1960-1970; col. 51 for years 1956-1959 is blank

Ocean age (col. 52)

Code	
0-5	saltwater annuli
6-8	6=age .0; 7=age .1; 8=age .2; 9 = age .3 or more, when ages estimated from length frequency
blank	not read or unreadable

Col. 64-67: Date of recovery

The first 2 digits indicate the month and year of recovery, as follows:

00 = recovery month and year unknown
01-12 = recovery month in 1st year (year of tagging)
13-24 = recovery month in 2nd year (minus 12)
25-36 = recovery month in 3rd year (minus 24)
etc.

month 01, 13, 25, 37, 49 are used with day coded 32 when year is known, but month and day is unknown; used with a day of 01-31 to indicate recovery in January

Day of recovery indicated as follows:

00 = day of month unknown, but month is known
01-31 = actual day of month known
32 = day and month unknown, but year is known

When year is known, but month and day are unknown, recovery date is coded as 0132, 1332, 2532, etc., depending on year of recovery.

0000 is used when year, month, and day of recovery are all unknown.

Col. 68: Recovery Gear

Code	Description
1	drift gillnet
2	set gillnet
3	seine net
4	troll line, marine sport
5	trap or reef net
6	stream gear (weir, hook, fish-wheel, spear, cast net, hatchery, etc.)
7	dead, in stream
8	longline
9	commercial gear - unknown
0	unknown

Col. 75: Sex and maturity at recovery

Code	Description
1	male, unknown maturity
2	male, mature
3	male, immature
4	female, unknown maturity
5	female, mature
6	female, immature
7	unknown sex and maturity
8	unknown sex, mature
9	unknown sex, immature

Table 3. General and sub-area codes for tag recovery areas.

General Area (COLS. 53-54)	Sub-Area (COL. 76)	DESCRIPTION
		Asian coastal recovery areas (see Fig. 2)
1		HONSHU I.
	0	PACIFIC COAST INCLUDING TSUGARU STRAIT
	1	JAPAN SEA COAST, SOUTH OF C. TAPPI
	2	UNKNOWN
2		HOKKAIDO I.
	0	NOKKE STRAIT, C. SHIRETOKO-C, NOSAPPU, NEMIRO ST.
	1	PACIFIC COAST INCLUDING TSUGARU STRAIT
	2	OKHOTSK COAST, C. SOYA TO C. SHIRETOKO
	3	JAPAN SEA COAST
	4	UNKNOWN
3		KURILE ISLANDS
	0	SOUTH KURILES, ITURUP I. AND SOUTH
	1	CENTRAL KURILES, MAKANRU I. TO URUP I.
	2	NORTH KURILES, PARAMUSHIR I. AND NORTH
	3	UNKNOWN
4		JAPAN SEA COAST OF RUSSIA, SOUTH OF REINEKE ISLAND, PRIMORE
	0	SOUTH OF C. LAZAREV
	1	REINEKE I. TO C. LAZAREV (INCLUDING SAKHALIN B. AND AMUR FIRTH)
	3	UNKNOWN
5		AMUR RIVER
	0	ESTUARY (VICINITY OF NIKOLAEVSK)
	1	RIVER MOUTH TO THE ENTRANCE OF AMGUM R.
	2	AMGUM R.
	3	UPSTREAM FROM THE ENTRANCE OF AMGUM R.
	4	UNKNOWN
6		SAKHALIN ISLAND
	0	EAST AND WEST COASTS, NORTH OF 50N
	1	SOUTHWEST COAST, SOUTH OF 50N
	2	ANIVA BAY
	3	SOUTHEAST COAST, SOUTH OF 50NN
	4	UNKNOWN
7		N. OKHOTSK SEA COAST
	0	REINEKE I. TO ANTYKAN
	1	ANTYKAN TO C. ENKAN
	2	C. ENKAN TO C. IZMAILOVA
	3	C. IZMAILOVA TO C. TOLSTOI
	4	UNKNOWN
8		SHELEKHOVA BAY
	0	C . TOLSTOI TO C. TAIGONOS
	1	C . TAIGONOS TO C. VOZHEDOMAVA
	2	C. VOZHEDOMOVA TO C. YUZHNY
	3	UNKNOWN
9		WEST COAST OF KAMCHATKA
	0	C. YUZHNY TO KIKHCHIK
	1	SOUTH OF KIKHCHIK

	2	BOLSHAYA R.
	3	OZERNAYA R.
	4	UNKNOWN
10		EAST COAST OF KAMCHATKA
	0	SOUTH OF C. SHIPUNSKI
	1	C. KRONOTSKI TO C. SHIPUNSKI
	2	C. AFRIKA TO C. KRONOTSKI
	3	KOMANDORSKI IS.
	4	UNKNOWN
11		KAMCHATKA RIVER
	0	ESTUARY
	1	KAMCHATKA R.
	2	KAMCHATKA R. TRIBUTARIES
	3	UNKNOWN
12		KARAGINSKI DISTRICT
	0	C. AFRIKA TO C. OZERNOI
	1	C. OZERNOI TO KICHIGA (INCLUDING KARAGINSKI I.)
	2	KICHIGA TO C. ILPINSKI (UALA BAY AND ANAPKA BAY)
	3	C. ILIPINSKI TO C. GOVENA (KORFA BAY)
	4	C. GOVENA TO C. OLIUTORSKI (OLIUTORSKI BAY)
	5	UNKNOWN
13		N.E. SIBERIAN COAST
	0	C. OLIUTORSKI TO C. NAVARIN
	1	C. NAVARIN TO C. CHUKOTSKI (ANADYR BAY)
	2	NORTH OF C. CHUKOTSKI
	3	UNKNOWN
14		ANADYR RIVER
	0	ESTUARY
	1	ANADYR R.
	2	UNKNOWN
15		RUSSIA - UNKNOWN
	0	FRESH WATER-UNKNOWN
	1	COASTAL-UNKNOWN
	2	UNKNOWN
16		SOUTH KOREA (REPORTED IN 1992)
17		
18		ASIAN COASTAL - OTHERS
19		ASIAN COASTAL - UNKNOWN
	0	FRESH WATER--UNKNOWN
	1	COASTAL-UNKNOWN
	2	UNKNOWN
		High Seas recovery areas (see Fig. 3)
20		HIGH SEAS - SEA OF JAPAN
21		OKHOTSK SEA
22		BERING SEA WEST OF 170E
23		BERING SEA 175E-175E
24		BERING SEA 175E-180
25		BERING SEA 175W-180
26		BERING SEA EAST OF 175W
27		NORTH PACIFIC SOUTH OF 48N AND WEST OF 165E
	0	WEST OF 145E
	1	145 - 150E
	2	150 - 155E
	3	155 - 160E

4 160 - 165E
28 NORTH PACIFIC SOUTH OF 48N 165E-175W
0 165 - 170E
1 170 - 175E
2 175E- 180
3 180 - 175W
29 N. PAC. N OF 48N AND W OF 160E
30 " " " " " 160E-165E
31 " " " " " 165E-170E
32 " " " " " 170E-175E
33 " " " " " 175E-180
34 " " " " " 175W-180
35 " " 160W-175W
36 " " 145W-160W
37 " " N OF 50 N AND E OF 145W
38 " " S OF 50 N AND E OF 145W
39 HIGH SEAS-UNKNOWN

Alaska recovery areas (see Figs. 4 and 5)

ALASKA NORTH OF CAPE PRINCE OF WALES (KOTZEBUE SOUND) ADFG
40 STAT AREA 331
BLANK ENTIRE AREA (NO SUB-AREAS)
41 NORTON SOUND AREA (C. PRINCE OF WALES TO STUART I.)
BLANK UNKNOWN, OR GENERAL AREA
0 PORT CLARENCE (C. PR. OF WALES-C. DOUGLAS) 332
1 C. DOUGLAS - STUART ISLAND 333
42 YUKON RIVER
BLANK UNKNOWN, OR GENERAL AREA
0 COASTAL AREA FROM STUART I.-C. ROMANZOF NONE
1 YUKON RIVER PROPER - ABOVE MOUTH 334
43 YUKON RIVER - KUSKOKWIM RIVER (C. ROMANZOF-C. AVINOF)NONE
BLANK ENTIRE AREA (NO SUB-AREAS)
44 KUSKOKWIM RIVER AND BAY
BLANK UNKNOWN, OR GENERAL AREA
0 KUSKOKWIM BAY FROM C. AVINOF-C. NEWENHAM NONE
1 KUSKOKWIM R. - ABOVE MOUTH 335
45 TOGIAK VICINITY (C. NEWENHAM-C. CONSTANTINE) 326
BLANK UNKNOWN, OR GENERAL AREA
0 TOGIAK BAY (COMMERCIAL FISHERY)
1 TOGIAK R. } ABOVE COMMERCIAL
2 OTHER RIVERS IN AREA } FISHERIES
46 NUSHAGAK VICINITY 325
BLANK UNKNOWN, OR GENERAL AREA
0 NUSHAGAK BAY (COMMERCIAL FISHERY)
1 IGUSHIK R. SYSTEM }
2 SNAKE R. SYSTEM }
3 WOOD R. SYSTEM } ABOVE COMMERCIAL
4 NUSHAGAK R. SYSTEM } FISHERY
5 OTHER RIVERS IN AREA }
47 NAKNEK-KVICHAK 324
BLANK UNKNOWN, OR GENERAL AREA
0 KVICHAK BAY (NAKNEK-KVICHAK COMMERCIAL FISHERY)
1 KVICHAK R. SYSTEM
2 ALAGNAK (BRANCH) R. SYSTEM } ABOVE
3 NAKNEK R. SYSTEM } COMMERICAL

4 OTHER RIVERS IN AREA } FISHERY
48 EGEGIK 322
BLANK UNKNOWN, OR GENERAL AREA
0 COMMERCIAL FISHERY }
1 EGEGIK R. SYSTEM } ABOVE COMMERCIAL
2 OTHER RIVERS IN AREA } FISHERY
49 UGASHIK 321
BLANK UNKNOWN, OR GENERAL AREA
0 COMMERCIAL FISHERY }
1 UGASHIK R. SYSTEM } ABOVE COMMERCIAL
2 OTHER RIVERS IN AREA } FISHERY
50 UGASHIK TO UNIMAK PASS (NORTH SIDE ALASKA PENINSULA) 311-318
BLANK UNKNOWN, OR GENERAL AREA
0 ADF AREA 318 4 ADF AREA 314
1 " " 317 5 " " 313
2 " " 316 6 " " 312
3 " " 315 7 " " 311
51 BRISTOL BAY-UNKNOWN (SOMEWHERE WITHIN AREAS 45-49)
BLANK ENTIRE AREA (NO SUB-AREAS)
52 ALEUTIAN ISLANDS (WEST OF UNIMAK PASS) 302-309
BLANK UNKNOWN, OR GENERAL AREA
0 ADF AREA 302 4 ADF AREA 306
1 " " 303 5 " " 307
2 " " 304 6 " " 308
3 " " 305 7 " " 309
53 SOUTH OF ALASKA PENINSULA (WEST OF 159W) 257, 281-284
BLANK UNKNOWN, OR GENERAL AREA
0 ADF AREA 284
1 " " 283-10 THRU 283-62
2 " " 283-70 THRU 283-90
3 " " 282 (SHUMAGI I.)
4 " " 281
5 " " 275
54 SOUTH OF ALASKA PENINSULA (EAST OF 159W) 262, 271-273
BLANK UNKNOWN, OR GENERAL AREA
0 ADF AREA 273
1 " " 271-10, 272-20 (CHIGNIK)
2 " " 272-30 THRU 272-50
3 " " 272-60 THRU 272-96
4 " " 262-80 THRU 262-85
5 " " 262-55 THRU 262-75
6 " " 262-10 THRU 262-50
55 AFOGNAK ISLAND & KODIAK ISLAND, SHELIKOF SIDE 251, 253-256
BLANK UNKNOWN, OR GENERAL AREA
0 ADF AREA 251 3 ADF AREA 255
1 " " 253 4 " " 256
2 " " 254
56 KODIAK ISLAND, GULF SIDE 252, 257-259
BLANK UNKNOWN, OR GENERAL AREA
0 ADF AREA 257 2 ADF AREA 259
1 " " 258 3 " " 252
57 COOK INLET (CAPE DOUGLAS - GORE PT.) 241-249
BLANK UNKNOWN, OR GENERAL AREA
0 ADF AREA 241 5 ADF AREA 246

1 " " 242 6 " " 247
2 " " 243 7 " " 248
3 " " 244 8 " " 249
4 " " 245

58 SOUTHEAST SIDE KENAI PENINSULA (GORE PT. TO C. FAIRFIELD) 231-233
BLANK UNKNOWN, OR GENERAL AREA
0 ADF AREA 231 2 ADF AREA 233
1 " " 232

59 PRINCE WILLIAM SOUND (C. FAIRFIELD TO PT. STEELE, HINCHINBROOK IS.) 221-228
BLANK UNKNOWN, OR GENERAL AREA
0 ADF AREA 221 4 ADF AREA 225
1 " " 222 5 " " 226
2 " " 223 6 " " 227
3 " " 224 7 " " 228

60 COPPER AND BERING RIVER 200, 212
BLANK UNKNOWN, OR GENERAL AREA
0 COPPER R. (ADF AREA 212)
1 BERING R. (ADF AREA 200)

61 YAKUTAT DISTRICT 181-192
BLANK UNKNOWN, OR GENERAL AREA
0 ADF AREA 181 4 ADF AREA 185
1 " " 182 5 " " 186
2 " " 183 6 " " 191
3 " " 184 7 " " 192

62 S.E. ALASKA ICY STRAIT DISTRICT 113-115
BLANK UNKNOWN, OR GENERAL AREA
0 ADF AREA 113
1 " " 114
2 " " 115

63 S.E. ALASKA CHATHAM DISTRICT 109-112
BLANK UNKNOWN, OR GENERAL ARA
0 ADF AREA 109 2 ADF AREA 111
1 " " 110 3 " " 112

64 S.E. ALASKA PETERSBURG DISTRICT 105-108
BLANK UNKNOWN, OR GENERAL AREA
0 ADF AREA 105 2 ADF AREA 107
1 " " 106 3 " " 108

65 S.E. ALASKA PRINCE OF WHALES DISTRICT 102-104
BLANK UNKNOWN, OR GENERAL AREA
0 ADF AREA 102
1 " " 103
2 " " 104

66 S.E. ALASKA KETCHIKAN DISTRICT 101
BLANK ENTIRE AREA (NO SUB-AREAS)

67 S.E. ALASKA - UNKNOWN
BLANK ENTIRE AREA (NO SUB-AREAS)

68 ALASKA - OTHER
BLANK ENTIRE AREA (NO SUB-AREAS)

69 ALASKA - UNKNOWN
BLANK ENTIRE AREA (NO SUB-AREAS)

British Columbia (see. Figs. 6 and 7)

70 BRITISH COLUMBIA - QUEEN CHARLOTTE ISLANDS CANADIAN STAT. AREA 1 - 2

BLANK UNKNOWN, OR GENERAL AREA
0 DIXON ENTRANCE - OUTSIDE NET BOUNDARY
1 DIXON ENTRANCE - INSIDE NET BOUNDARY
2 NADEN HARBOUR
3 MASSETT INLET
4 WEST COAST - OUTSIDE NET BOUNDARY
5 WEST COAST - INSIDE NET BOUNDARY
6 EAST COAST - OUTSIDE NET BOUNDARY
7 EAST COAST - INSIDE NET BOUNDARY
8
9

71 NASS RIVER 3
BLANK UNKNOWN, OR GENERAL AREA
0 STATISTICAL SUB-AREA 3X
1 STATISTICAL SUB-AREA 3Y
2 PORTLAND INLET
3 PORTLAND-PEARSE CANALS
4 WORK CHANNEL
5 KHUTZEYMATEEN INLET
6 OBSERVATORY INLET
7 NASS R., ABOVE LINE FORT POINT-DOUBLE ISLET PT.
8
9

72 SKEENA RIVER 4
BLANK UNKNOWN OR GENERAL AREA
0 OUTSIDE NET BOUNDARY
1 INSIDE NET BOUNDARY OF AREA 4 UP TO MOWITCH PT.-VETCH PT. LINE
LOWER SKEENA R.; GUST PT.-VETCH PT. TO HAZELTON, INCLUDING
2 TRIBUTARIES BUT EXCLUDING LAKELSE R. SYSTEM
3 LAKELSE R. SYSTEM
UPPER SKEENA R.; FROM HAZELTON TO BABINE FENCE, INCLUDING
4 TRIBUTARIES BUT EXCLUDING BULKLEY R. SYSTEM
5 BULKLEY R. SYSTEM
6 BABINE-MORRISON LAKES
7
8
9

73 CENTRAL BRITISH COLUMBIA 5-8
BLANK UNKNOWN OR GENERAL AREA
0 STATISTICAL AREA 5 - OUTSIDE NET BOUNDARY (GRENVILLE-PRINCIPE)
1 STATISTICAL AREA 5 - INSIDE NET BOUNDARY (GRENVILLE-PRINCIPE)
2 STATISTICAL AREA 6 - OUTSIDE NET BOUNDARY (BUTEDALE)
3 STATISTICAL AREA 6 - INSIDE NET BOUNDARY (BUTEDALE)
4 STATISTICAL AREA 7 - OUTSIDE NET BOUNDARY (BELLA BELLA)
5 STATISTICAL AREA 7 - INSIDE NET BOUNDARY (BELLA BELLA)
6 STATISTACAL AREA 8 - OUTSIDE NET BOUNDARY (BELLA COOLA)
7 STATISTICAL AREA 8 - INSIDE NET BOUNDARY (BELLA COOLA)
8
9

74 RIVERS-SMITH INLETS 9-11, (12)
BLANK UNKNOWN OR GENERAL AREA
0 STATISTICAL AREA 9 - OUTSIDE NET BOUNDARY
OUTSIDE RIVERS INLET, INSIDE NET BOUNDARY OF STAT. AREA 9 (SEE CDFO
1 STAT. MAPS)

2 INSIDE RIVERS INLET (SEE MAP*)
3 STATISTICAL AREA 10 - OUTSIDE NET BOUNDARY
4 OUTSIDE SMITH INLET - INSIDE NET BOUNDARY OF STAT. AREA 10 (SEE CDFO STAT. MAPS)
5 INSIDE SMITH INLET (SEE MAP*)
6 OUTSIDE NET BOUNDARY OF STAT. AREA 11
7 INSIDE NET BOUNDARY OF STAT. AREA 11, EXCLUDING SEYMOUR INLET
8 SEYMOUR INLET
9 OUTSIDE NET BOUNDARY OF STAT. AREA 12

75 QUEEN CHARLOTTE STRAIT - JOHNSTONE STRAIT 12-13
BLANK UNKNOWN OR GENERAL AREA
0 EAST COAST VANCOUVER I. - STAT. AREA 12, INLAND WATERS
1 EAST COAST VANCOUVER I. - STAT. AREA 13, INLAND WATERS
2 QUEEN CHARLOTTE STRAIT - JOHNSTONE STRAIT, STAT. AREA 12 (SEE CDFO STAT. MAPS)
3 QUEEN CHARLOTTE STRAIT - JOHNSTONE STRAIT, MAINLAND WATERS AND ISLANDS, INCLUDING INLAND WATERS, BUT EXCLUDING KINGCOME AND KNIGHT INLETS
4 KINGCOME INLET
5 KNIGHT INLET
6 JOHNSTONE STRAIT - STAT. AREA 13 (SEE CDFO STAT. MAPS)
7 JOHNSTONE STRAIT - STAT. AREA 13, MAINLAND WATERS AND ISLANDS, INCLUDING BUTE INLAND WATERS, BUT BUTE INLET
8 BUTE INLET
9

76 STRAIT OF GEORGIA 14-18. 28
BLANK UNKNOWN, OR GENERAL AREA
0 STATISTICAL AREA 14
1 STATISTICAL AREA 17
2 STATISTICAL AREA 18
3 STATISTICAL AREA 15, EXCLUDING TOBA INLET
4 TOBA INLET
5 STATISTICAL AREA 16, EXCLUDING JERVIS INLET
6 JERVIS INLET
7 STATISTICAL AREA 28, HOWE SOUND
8 STATISTICAL AREA 28, BURRARD INLET
9

77 FRASER RIVER OR STRAITS OF JUAN DE FUCA (CANADIAN WATERS) 19-21, 29,
BLANK FRASER RIVER UNKNOWN
0 STRAITS OF JUAN DE FUCA (CANADIAN WATERS):STATISTICAL AREA 21
1 STRAITS OF JUAN DE FUCA (CANADIAN WATERS):STATISTICAL AREA 20
2 STRAITS OF JUAN DE FUCA (CANADIAN WATERS):STATISTICAL AREA 19
3 FRASER RIVER (CANADIAN WATERS): STATISTICAL AREA 29, TO MISSION
4 FRASER RIVER (CANADIAN WATERS):LOWER FRASER SYSTEM: FRASER CANYON AND BELOW, INCLUDING TRIBUTARIES
5 FRASER RIVER (CANADIAN WATERS):THOMPSON R. SYSTEM
6 FRASER RIVER (CANADIAN WATERS):CHILCOTIN R. SYSTEM
7 FRASER RIVER (CANADIAN WATERS):QUESNEL R. SYSTEM
8 FRASER RIVER (CANADIAN WATERS):NECHAKO AND STUART R. SYSTEMS
9 FRASER RIVER (CANADIAN WATERS): OTHER

78 WEST COAST VANCOUVER ISLAND 23-27
BLANK UNKNOWN OR GENERAL AREA
0 STATISTICAL AREAS 23-27, OUTSIDE NET BOUNDARIES
1 STATISTICAL AREA 23, INSIDE NET BOUNDARY
2 STATISTICAL AREA 24, INSIDE NET BOUNDARY

3 INSIDE NET BOUNDARY OF NOOTKA SOUND
4 INSIDE NET BOUNDARY OF EZPERANZA INLET
5 INSIDE NET BOUNDARY OF STAT. AREA 26, EXCLUDING KYUQUOT SOUND
6 INSIDE NET BOUNDARY OF KYUQUOT SOUND (SEE CDFO STAT. MAPS)
7 INSIDE NET BOUNDARY OF STAT. AREA 27, EXCLUDING QUATSINO SOUND
8 INSIDE NET BOUNDARY OF QUATSINO SOUND
9

79 BRITISH COLUMBIA - OTHERS 30
0 STATISTICAL AREA 30
1
2
3
4
5
6 FRESH WATER - PANHANDLE RIVERS
7 UNKNOWN - SOMEWHERE IN BRITISH COLUMBIA
8 UNKNOWN - BUT IN FRESH WATER
9 UNKNOWN - BUT IN OCEAN WATER

Washington, Columbia River, Oregon, California recovery areas (see Figs. 8 and 9)

80 STRAITS OF JUAN DE FUCA - U.S. WATERS
BLANK NO SUB-AREAS INCLUDES WASH. STATE STAT. AREAS 542, C. FLATTERY; 503, CLALLAL BAY; AND 509, PORT ANGELES

81 SALMON BANKS AREA
BLANK NO SUB-AREAS INCLUDES ALL AREAS GENERALLY N OF THE LINE FROM THE E ENTRANCE OF DISCOVERY BAY TO PARTRIDGE PT. ON WHIDBEY I. (WASH. STATE STAT. AREAS 505, DUNGENESS; 504, DISCOVERY BAY; 522, WEST BEACH; 517, SALMON BANKS; 516, ROSARIO; 518, SAN JUAN CHANNEL; STUART I., 502, LUMMI I.; 531, BELLINGHAM BAY; 513, PT. ROBERTS).

82 SKAGIT RIVER
BLANK UNKNOWN, OR GENERAL AREA
0 SKAGIT BAY (WASH. STATE STAT. AREA 520)
1 SKAGIT R. (FRESH WATER)

83 PUGET SOUND
BLANK NO SUB-AREAS
INCLUDES ALL AREAS GENERALLY S OF THE LINE FROM THE E ENTRANCE OF DISCOVERY BAY TO PARTRIDGE PT. ON WHIDBEY I. (WASH. STATE STAT. AREAS 501, 519, 514, 507, 512, 511, 515, 508, 523, 506, AND SOUTHWARD)

84 WASHINGTON COAST
BLANK UNKNOWN, OR GENERAL AREA
0 GRAYS HARBOR
1 WILLAPA HARBOR

85 COLUMBIA RIVER (INCLUDING WASHINGTON, OREGON, IDAHO, AND TRIBUTARIES)
BLANK UNKNOWN OR GENERAL
0 COLUMBIA R. BELOW BONNEVILLE (WASHINGTON STATE)
1 COLUMBIA R. BELOW BONNEVILLE (OREGON STATE)
2 COLUMBIA R. ABOVE BONNEVILLE (ALL AREAS)

86
87
88

89 WASHINGTON STATE UNKNOWN
90 OREGON (S. OF COLUMBIA R.)

	0	OREGON COASTAL
	1	OREGON FRESH WATER
91		CALIFORNIA
	0	CALIFORNIA COASTAL
	1	CALIFORNIA FRESH WATER
98		NORTH AMERICAN COASTAL-UNKNOWN
	0	FRESH WATER-UNKNOWN
	1	COASTAL-UNKNOWN
	2	UNKNOWN
99		ENTIRELY UNKNOWN

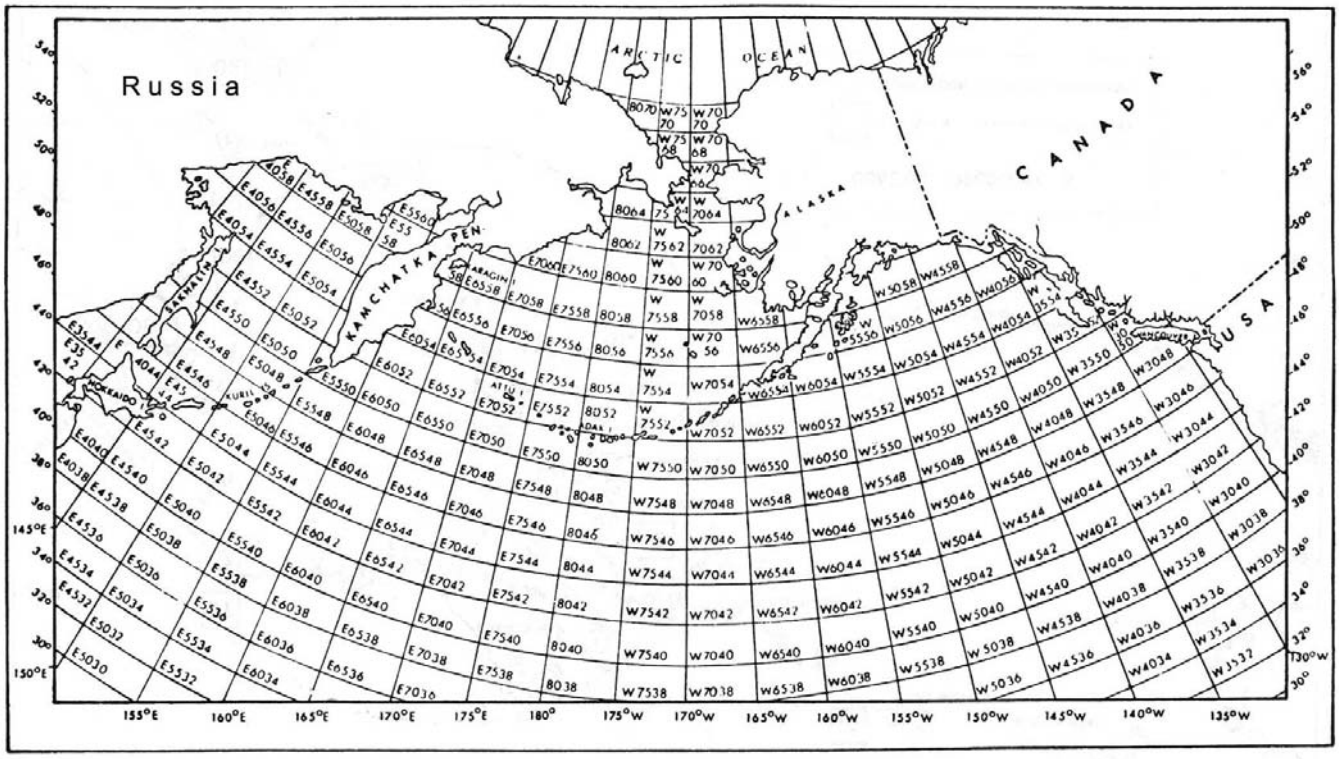

Fig. 1. Tagging (2°latitude x 5° longitude) areas in the North Pacific Ocean (International North Pacific Fisheries Commission (INPFC) coding system. Source: Aro et al. Xxx. Code names are the hemisphere (E, W, or blank on the 180° longitude line), degrees longitude (last two digits), and degrees latitude in the lower left corner of each area. Source: Aro et al. 1971.

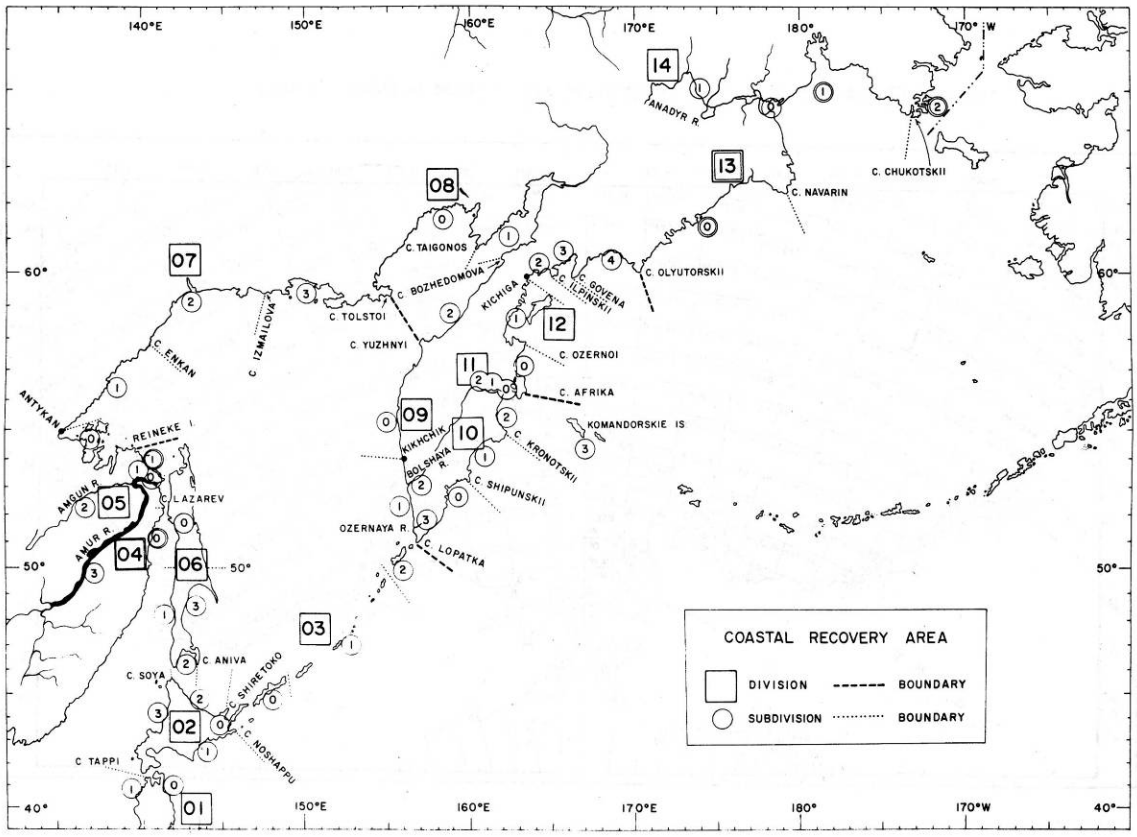

Fig. 2. General tag recovery areas or divisions (numbered boxes) and subdivisions (numbered circles). Source: Aro et al. 1971.

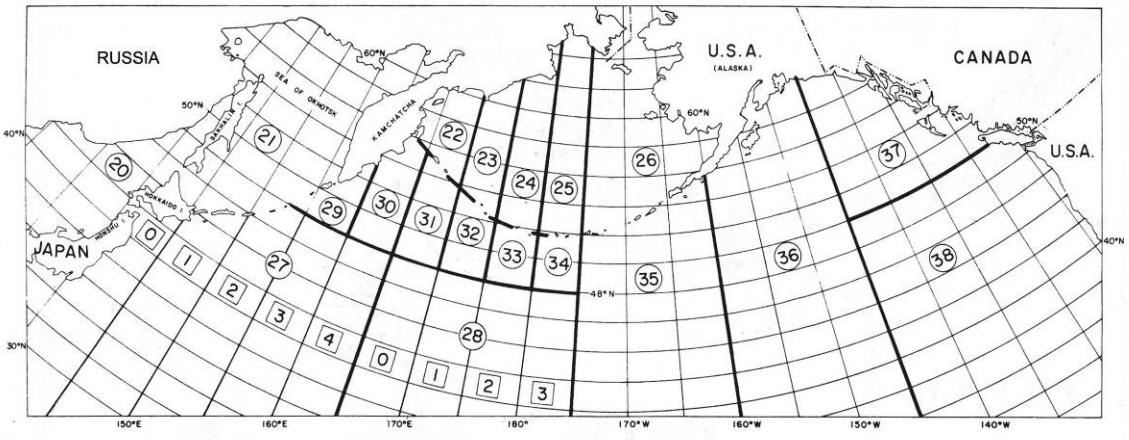

Fig. 3. General tag recovery areas (numbered circles) and subareas (numbered boxes) on the high seas. Source: Aro et al. 1971.

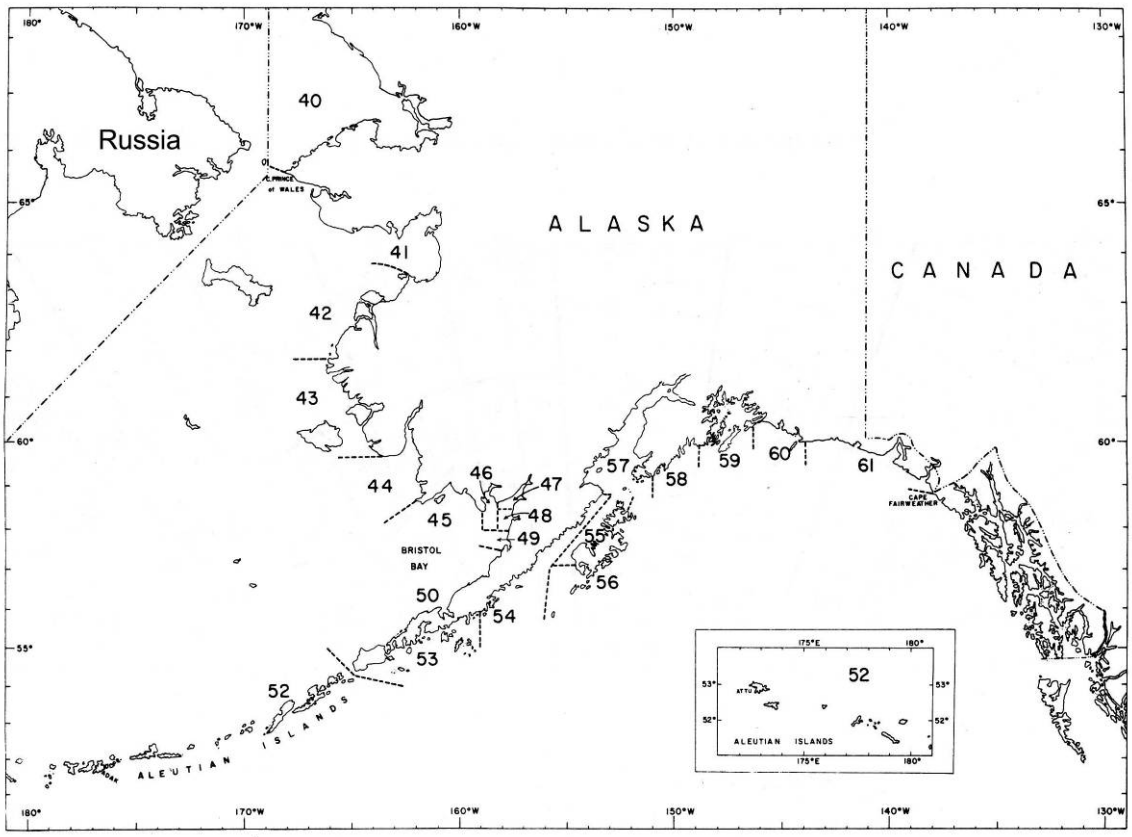

Fig. 4. General recovery areas in western and central Alaska. Source: Aro et al. 1971.

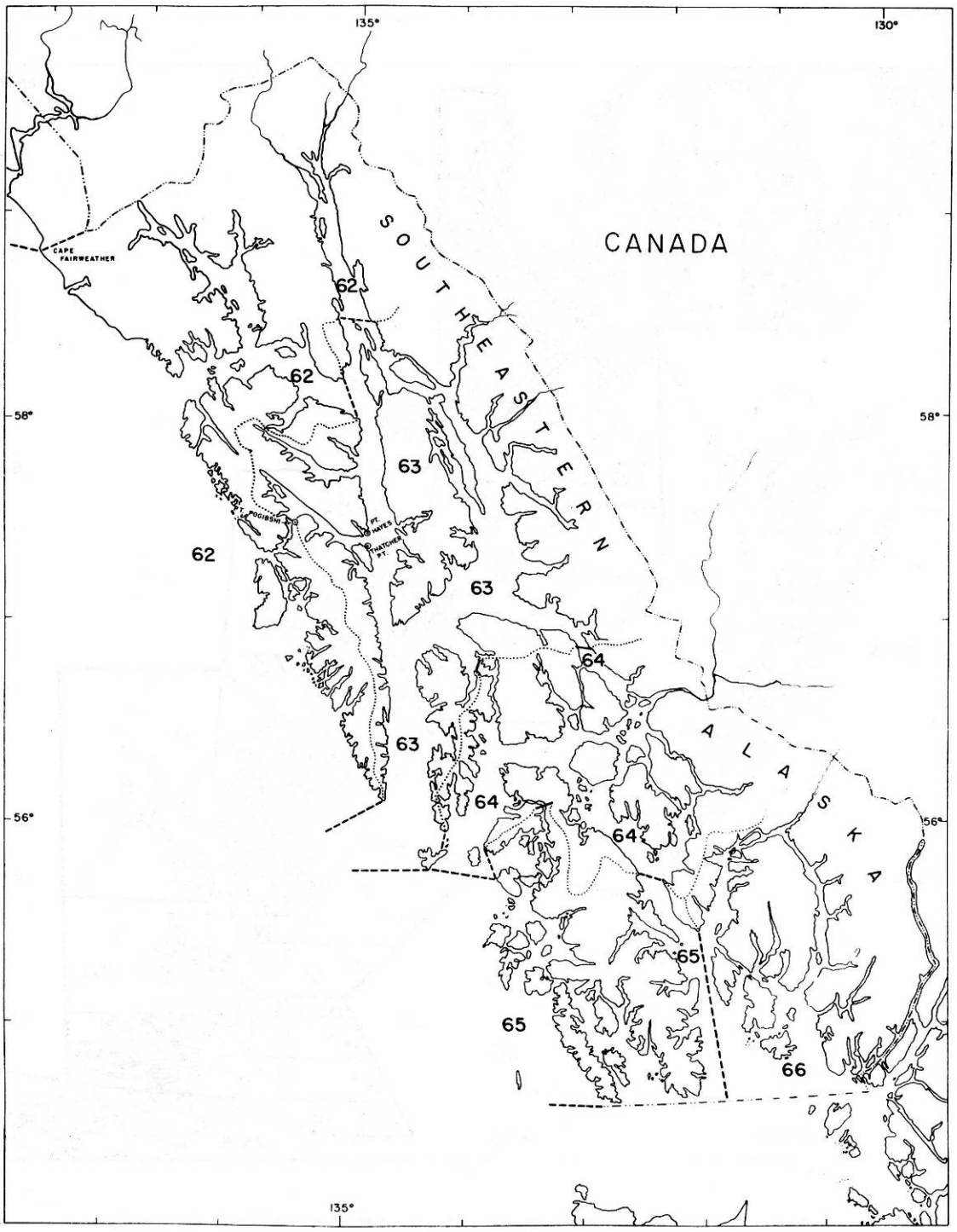

Fig. 5. General recovery areas in southeastern Alaska. Source: Aro et al. 1971.

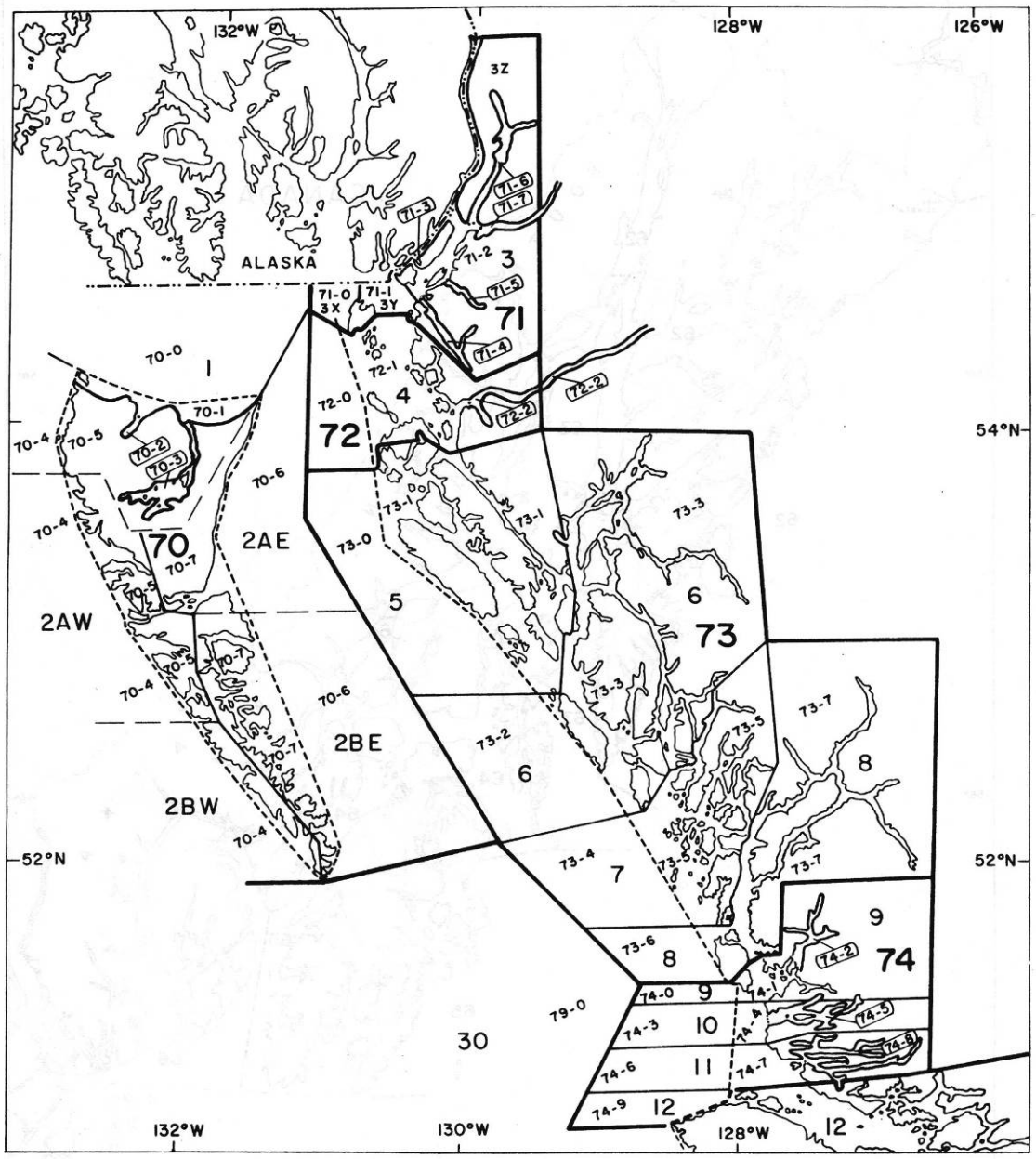

Fig. 6. General recovery areas in northern British Columbia. Source: Aro et al. 1971.

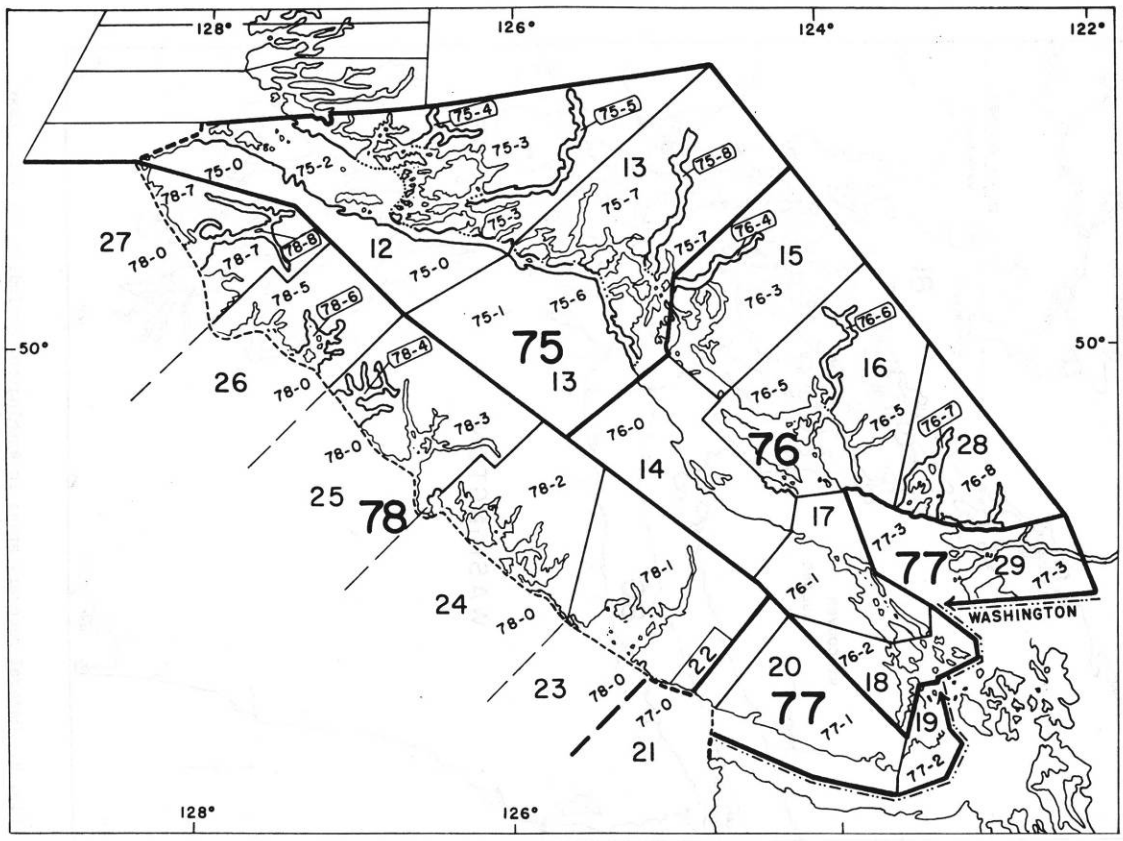

Fig. 7. General Recovery areas in southern British Columbia. Source: Aro et al. 1971.

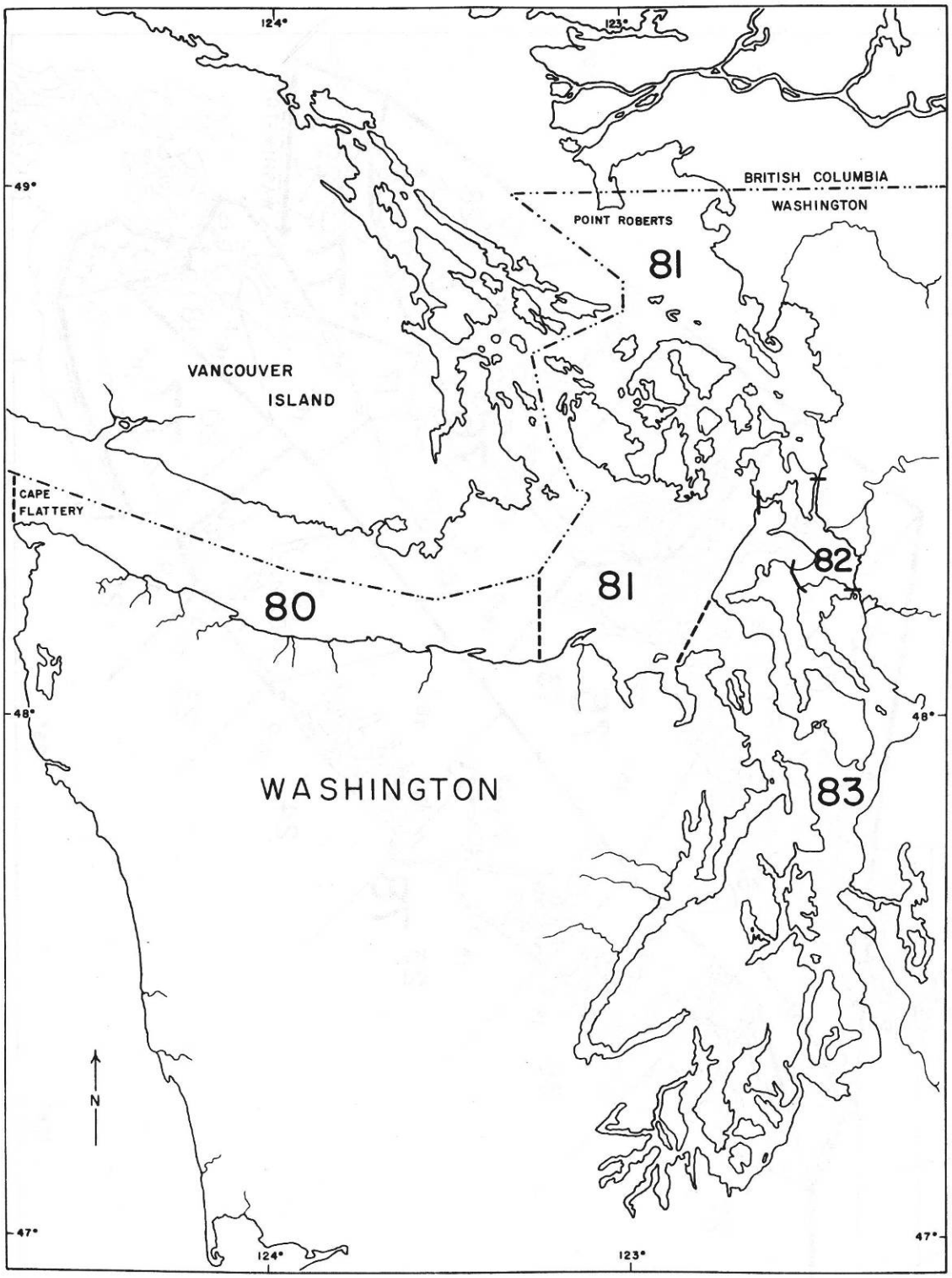

Fig. 8. General recovery areas in Washington, excluding the outer coast south of Cape Flattery. Source: Aro et al. 1971.

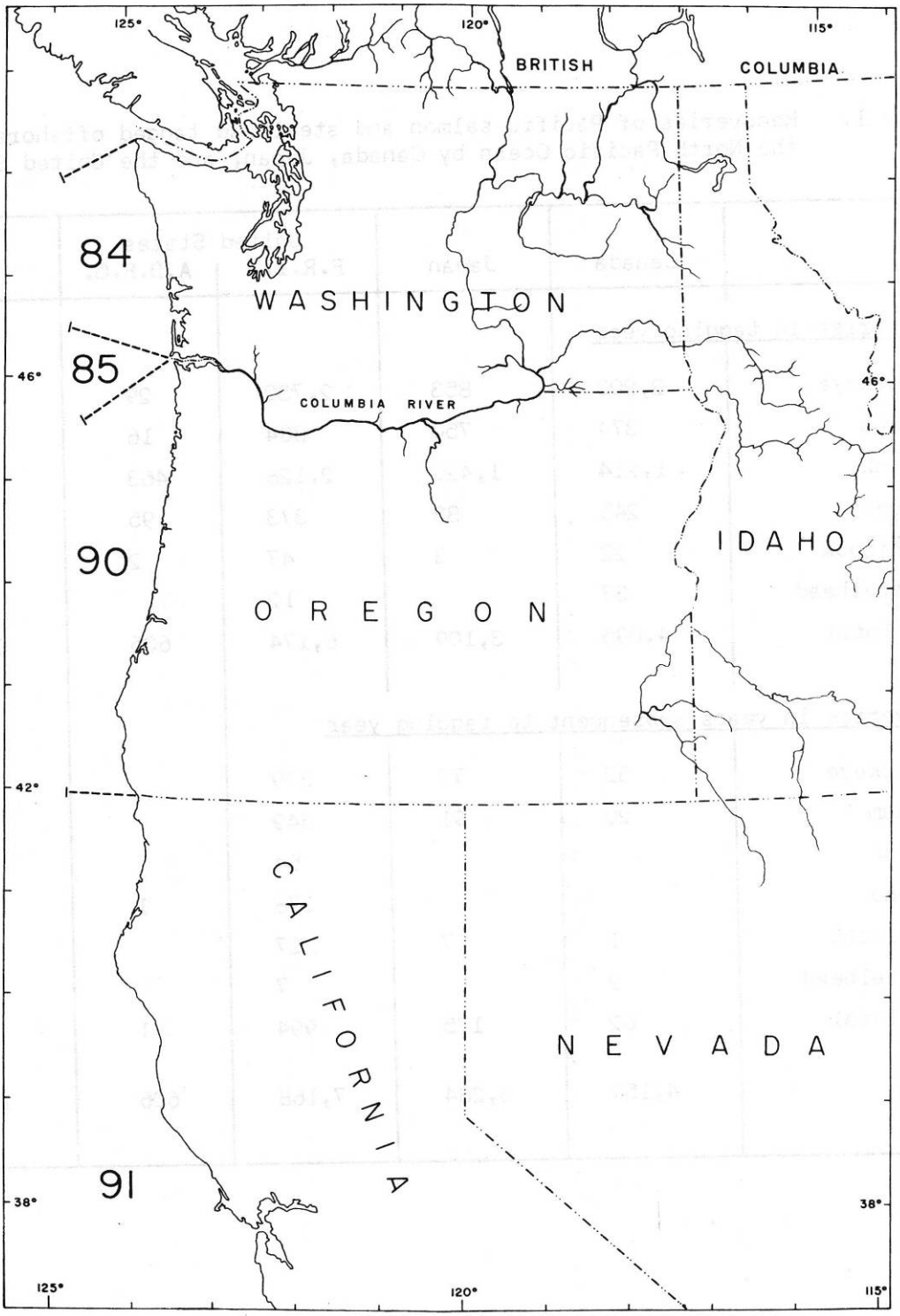

Fig. 9. General recovery areas along the outer coast of Washington, the Columbia River, Oregon, and California. Source: Aro et al. 1971.