

**Proposed New Formats and Codes of the NPAFC High Seas Tagging Data
to Adapt to the Current INPFC/NPAFC Tagging Database**

By

**Working Group on Salmon Tagging
Committee on Scientific Research and Statistics (CSRS)**

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Proposed New Formats and Codes of the NPAFC High Seas Tagging Data to Adapt to the Current INPFC/NPAFC Tagging Database

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Abstract

This document lists the new formats and codes of the NPAFC high seas tagging data to combine with the current INPFC/NPAFC Tagging Database. Myers and Walker (2007) listed 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). To combine recent tagging data tables with the INPFC-NPAFC tagging database, we modified formats and codes of the current INPFC/NPAFC database for the NPAFC tagging data and adapted to the MS-Excel[®] format.

Reasons of the revision

After the implementation of NPAFC, the U.S. government contracted the School of Aquatic and Fishery Sciences (SAFS), University of Washington (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 personnel continued to code and archive tag release and recovery data reported to the NPAFC through 2005 in the original INPFC format (fix length IBM format text file; Tables 1-4, Figs. 1-9). In April 2007, SAFS transferred an electronic copy of the data file to the NPAFC Secretariat. Myers and Walker (2007) listed the data formats and codes of the current data file.

The Working Group on Salmon Tagging (WGST) was established under the CSRS at the 15th Annual Meeting in 2007 to manage the INPFC-NPAFC tagging database and to coordinate high seas tagging activities of the Parties. WGST adopted a MS-Excel[®] format to exchange annual tagging data. The MS-Excel is familiar to many of WGST members and can be easy to treat a fix length file. To combine recent tagging data table with the INPFC-NPAFC tagging database, we modified the formats and codes of the current INPFC/NPAFC tagging database and adapted to the MS-Excel format.

References

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- Myers, K. W., and R. V. Walker. 2007. Data formats and codes for the INPFC/NPAFC all-agency high seas salmon and steelhead tag recovery computer data file (1956-2005). *NPAFC Doc.* 1026. 26 pp. (Available at <http://www.npafc.org>).

Table 1. New NPAFC tag recovery data format.

Fix length Column	MS Excel Sheet!Column	Information
na	release_ind!A	number of primary tag
1	release_ind!B	Agency (description of codes in Table 2)
2-6	release_ind!C	INPFC 2°x5° statistical area
7-8	release_ind!D	release longitude (degrees) (initial '1' is dropped, since all longitudes are over 100°; e.g., 171°39' becomes 71)
9-10	release_ind!E	release longitude (minutes) (e.g., 171°39' becomes 39)
11	release_ind!F	release hemisphere (E or W)
12-13	release_ind!G	release latitude (degrees) (e.g., 49°46' becomes 49)
14-15	release_ind!H	release latitude (minutes) (e.g., 49°46' becomes 46)
16-19	release_ind!I	set number; numbered consecutively from 001-999; blank= not reported)
20-21	release_ind!J	month of release (date applying to east of dateline)
22-23	release_ind!K	day of release (date applying to east of dateline)
24-25	release_ind!L	year of release (date applying to east of dateline)
26	release_ind!M	code for gear used to catch fish for tagging (description of codes in Table 2)
27	release_ind!N	direction of movement of fish (only FRI data; blank in CDFO, FAJ, & ADFG data)
28	release_ind!O	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	release_ind!P	blank
31-33	release_ind!Q;	type & color of primary tag (description of codes in Table 2)
	recovery!A	
34-39	release_ind!R;	number of primary tag*
	recovery!B	
40	release_ind!S;	species code (description of codes in Table 2)
	recovery!V	
41-43	release_ind!T	length (FRI & FAJ = fork length) at release, in millimeters
44	release_ind!U	condition at release (blank = not reported; description of codes in Table 2)
45-47	release_ind!V	code for scale sample taken at release (blank = not reported)
48-50	release_ind!W	weight at recovery, in decagrams (e.g., 2186 gm is coded 219; 999 wt >9985 gm)
51	recovery!Q	freshwater age at release (determined from scale sample; description of codes in Table 2)
52	release_ind!X	ocean age at release (determined from scale sample; description of codes in Table 2)
na	release_ind!Y;	type & color of secondary tag (if used; description of codes in Table 2)
	recovery!R	
na	release_ind!Z;	number of secondary tag* (if used)
	recovery!S	
na	release_ind!AA	type & color of tertiary tag (if used; description of codes in Table 2)
	; recovery!T	

Table 1. (continued)

Fix length Column	MS Excel Sheet!Column	Information
na	release_ind!AB ; recovery!U	number of tertiary tag* (if used)
na	release_ind!AC	operation number (8 digits number: year (4 digits) + consecutive number in the year (4 digits))
53-54	recovery!C	code for general area of recovery
55-56	recovery!D	longitude at recovery (degrees; again, the initial '1' is dropped)
57-58	recovery!E	longitude at recovery (minutes)
59	recovery!F	hemisphere at recovery
60-61	recovery!G	latitude at recovery (degrees)
62-63	recovery!H	latitude at recovery (minutes)
64-65	recovery!I	month of recovery (also used to indicate year; see explanation and description of codes in Table 2)
66-67	recovery!J	day of recovery (description of codes in Table 2)
68	recovery!K	method of recovery (gear type) (description of codes in Table 2)
69-71	recovery!L	length at recovery, in millimeters (use with caution as type of length measurement varies or may be an estimate; blank = no data)
72-74	recovery!M	gonad weight at recovery, in grams (000 or blank = no data; 999 = weight > 999 grams)
75	recovery!N	code for sex and maturity at recovery (description of codes in Table 2)
76	recovery!O	code for subarea of general area at recovery
77-80	recovery!P	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 digit number.

na Not available.

Table 2. New NPAFC tag release data format.

Fix length Column	MS Excel Sheet!Column	Information
na	release_ope!A	operation number (same information as in release_ind!AC; 8 digits number: year (4 digits) + consecutive number in the year (4 digits))
1	release_ope!B	Agency (same as in release_ind!B In Table 1)
2-6	release_ope!C	INPFC 2°x 5° statistical area (same as in release_ind!C in Table 1)
7-8	release_ope!D	month of release (same as in release_ind!J in Table 1)
9-10	release_ope!E	day of release (same as in release_ind!K in Table 1)
11-12	release_ope!F	year of release (same as in release_ind!L in Table 1)
13-14	release_ope!G	release longitude (degrees; initial '1' is dropped; same as in release_ind!D in Table 1)
15-16	release_ope!H	release longitude (minutes; same as in release_ind!E in Table 1)
17-18	release_ope!I	release latitude (degrees; same as in release_ind!G in Table 1)
19-20	release_ope!J	release latitude (minutes; same as in release_ind!H in Table 1)
21-24	release_ope!K	number of sockeye released - age .0
25-28	release_ope!L	number of sockeye released - age .1 and older
29-32	release_ope!M	number of chum released - age .0
33-36	release_ope!N	number of chum released - age .1 and older
37-40	release_ope!O	number of pink released - age .0
41-44	release_ope!P	number of pink released - age .1
45-48	release_ope!Q	number of coho released - age .0
49-52	release_ope!R	number of coho released - age .1
53-56	release_ope!S	number of chinook released - age .0
57-60	release_ope!T	number of chinook released - age .1 and older
61-64	release_ope!U	number of steelhead released - age .0
65-68	release_ope!V	number of steelhead released - age .1 and older
69-72*	release_ope!W	number of sockeye caught
73-76*	release_ope!X	number of chum caught
77-80*	release_ope!Y	number of pink caught
81-84*	release_ope!Z	number of coho caught
85-88*	release_ope!AA	number of chinook caught
89-92*	release_ope!AB	number of steelhead caught
93-96*	release_ope!AC	amount of effort: number of hachi (each containing 49 hooks) of longline gear for Japanese and Canadian operations, 1 (purse seine set) for U.S.-U.S.S.R. operations
na	release_ope!AD	number of unknown species released
na	release_ope!AE	number of masu released
na	release_ope!AF	number of Dolly Varden released
na	release_ope!AG	number of unknown species caught
na	release_ope!AH	number of masu caught
na	release_ope!AI	number of Dolly Varden caught

* For data from 1987 to the present, FRI has also coded the number of fish caught and the amount of effort in columns 69-96. Since 1987, FRI also codes all operations, even if no fish were caught or released.

na Not available.

Table 3. 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 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, Fisheries Research Agency, and Hokkaido University, Japan: 1957-
4	ADFG Alaska Dept. Fish and Game, USA: 1967-1970
5	USFWS US Fish and Wildlife Service, USA (code never used)
6	TINRO, Russia and former USSR (code never used)
7	Washington Dept. Fisheries, USA (code never used)
8	Oregon Fish. Comm., USA (code never used)
9	NMFS National Marine Fisheries Service, NOAA, USA

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. Zelle (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 (first 2 digits = Tag type; 3rd digit = Tag color; blank = unknown)

Code	Tag Type, tag color
011*	3/4 inch Petersen disk, red & white or red (FRI, NPAFC)
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 Petersen disk, red or orange and white (FAJ)
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)
DST*	data storage tag or archival tag

* Codes used in recent years.

Col. 40: Species code

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

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
x	unreadable
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
x	unreadable
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 4. 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 } COMMERCIAL
 4 OTHER RIVERS IN AREA } FISHERY
 48 EGEK 322
 BLANK UNKNOWN, OR GENERAL AREA
 0 COMMERCIAL FISHERY }
 1 EGEK 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	STATISTICAL 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	
		OUTSIDE SMITH INLET - INSIDE NET BOUNDARY OF STAT. AREA 10 (SEE CDFO	
	4	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	
		QUEEN CHARLOTTE STRAIT - JOHNSTONE STRAIT, STAT. AREA 12 (SEE CDFO	
	2	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)	
		JOHNSTONE STRAIT - STAT. AREA 13, MAINLAND WATERS AND ISLANDS,	
	7	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, BURREARD 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
FRASER RIVER (CANADIAN WATERS):LOWER FRASER SYSTEM: FRASER
4 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
 COLUMBIA RIVER (INCLUDING WASHINGTON, OREGON, IDAHO, AND
 TRIBUTARIES)

85 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

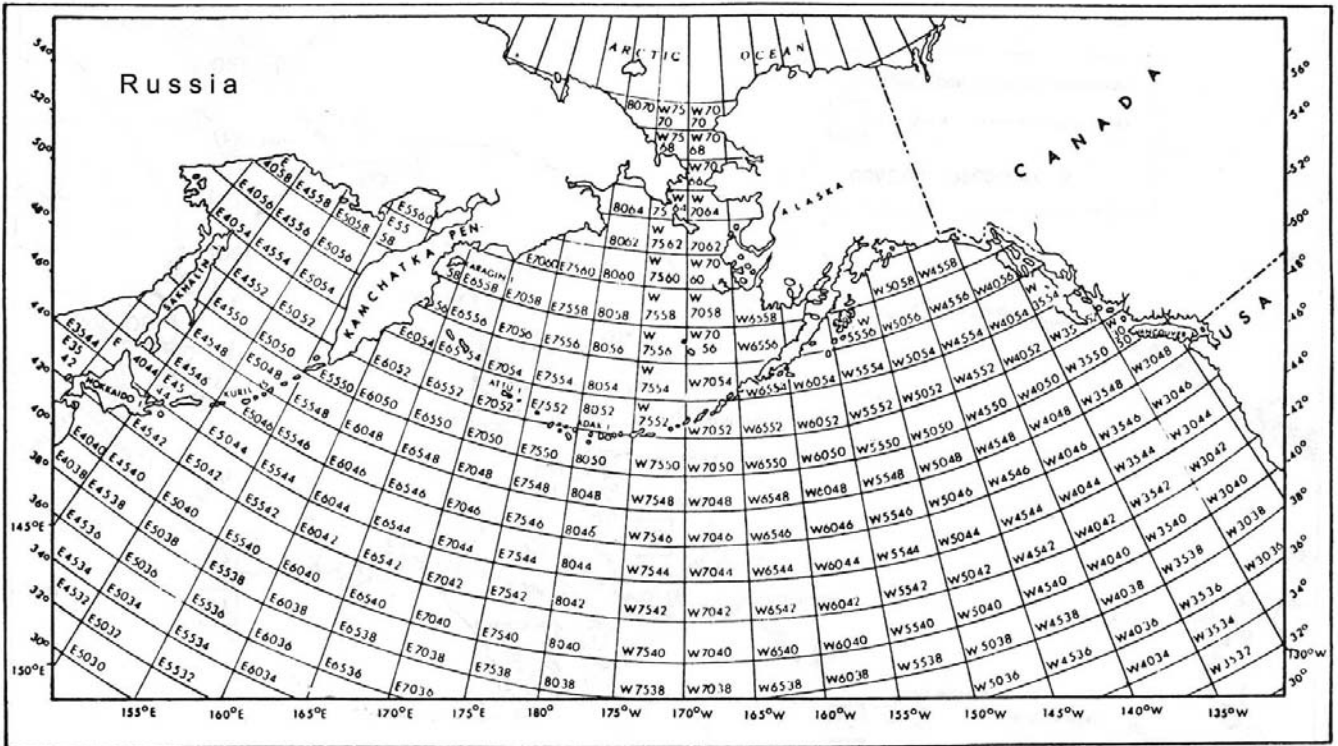


Fig. 1. Tagging (2° latitude x 5° longitude) areas in the North Pacific Ocean (International North Pacific Fisheries Commission (INPFC) coding system. Source: Aro et al. Xxx. Code names are the hemisphere (E, W, or blank on the 180° longitude line), degrees longitude (last two digits), and degrees latitude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

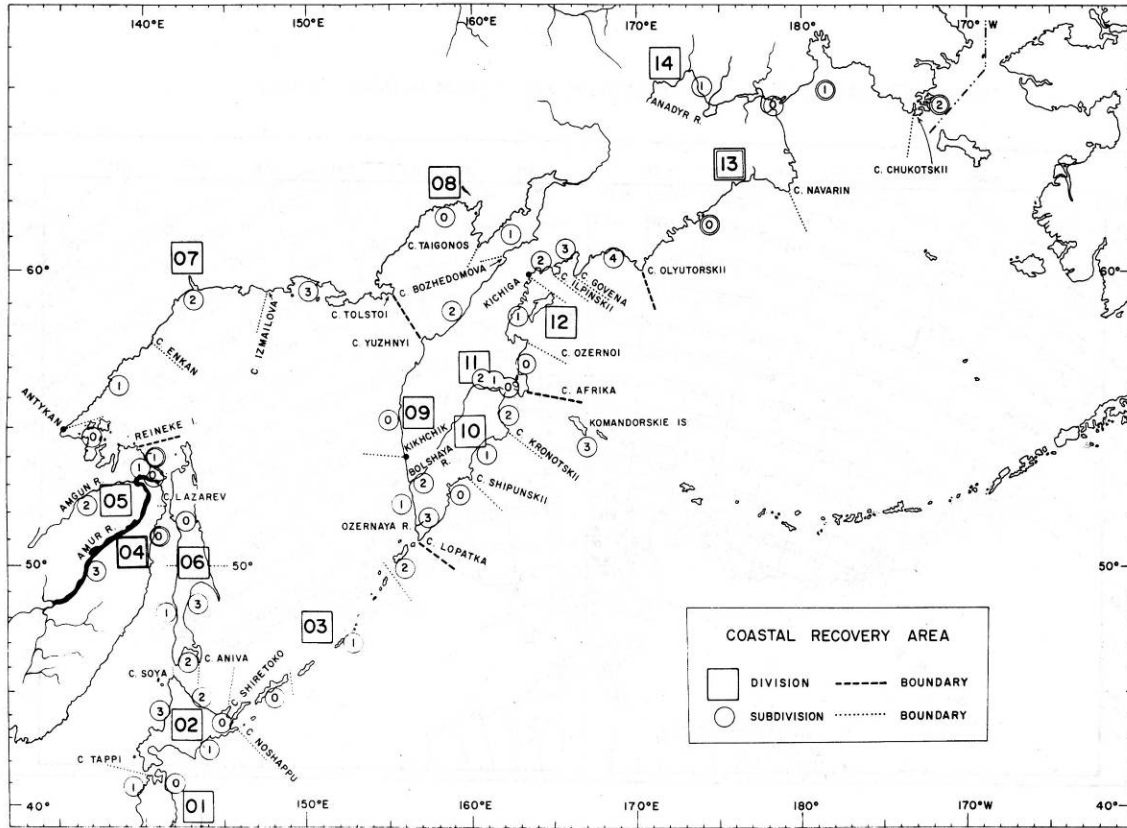


Fig. 2. General tag recovery areas or divisions (numbered boxes) and subdivisions (numbered circles). Source: Aro et al. 1971.

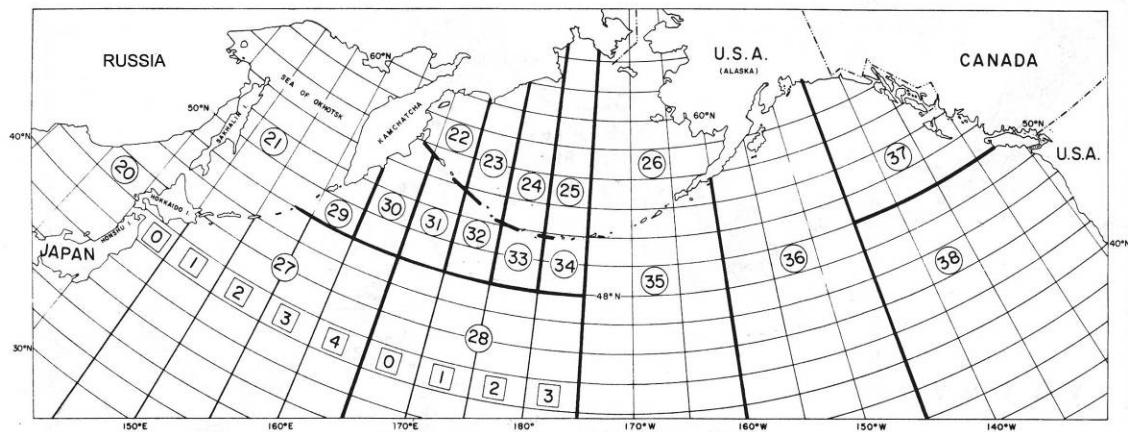


Fig. 3. General tag recovery areas (numbered circles) and subareas (numbered boxes) on the high seas. Source: Aro et al. 1971.

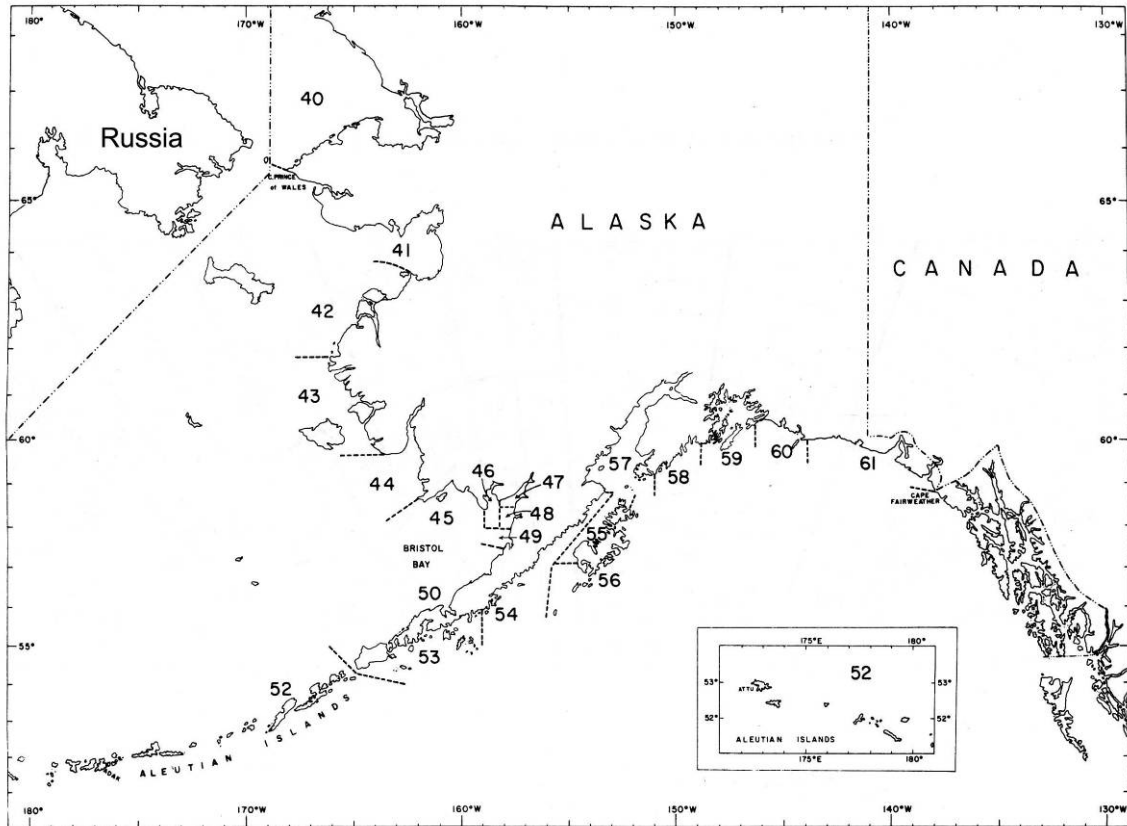


Fig. 4. General recovery areas in western and central Alaska. Source: Aro et al. 1971.

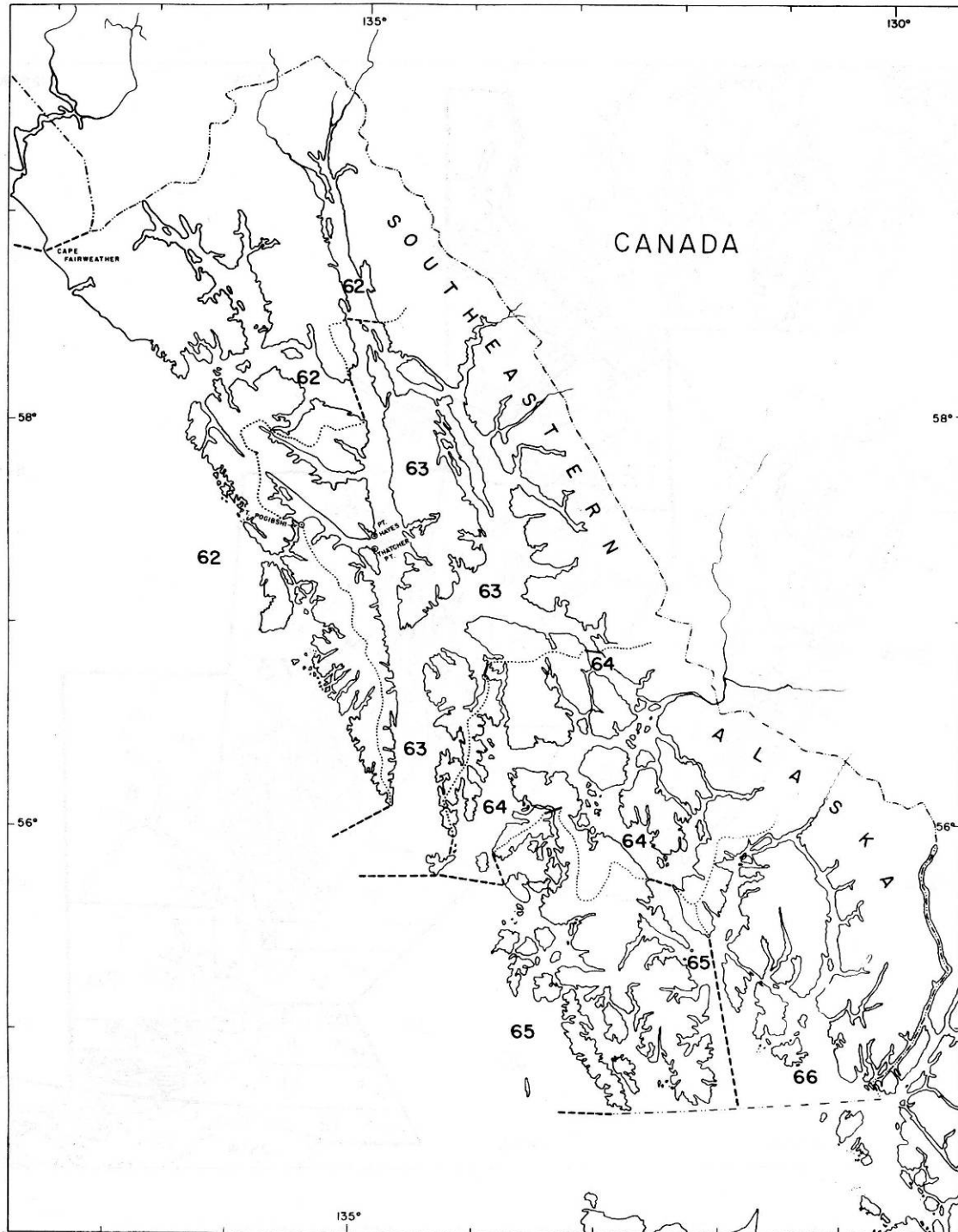


Fig. 5. General recovery areas in southeastern Alaska. Source: Aro et al. 1971.

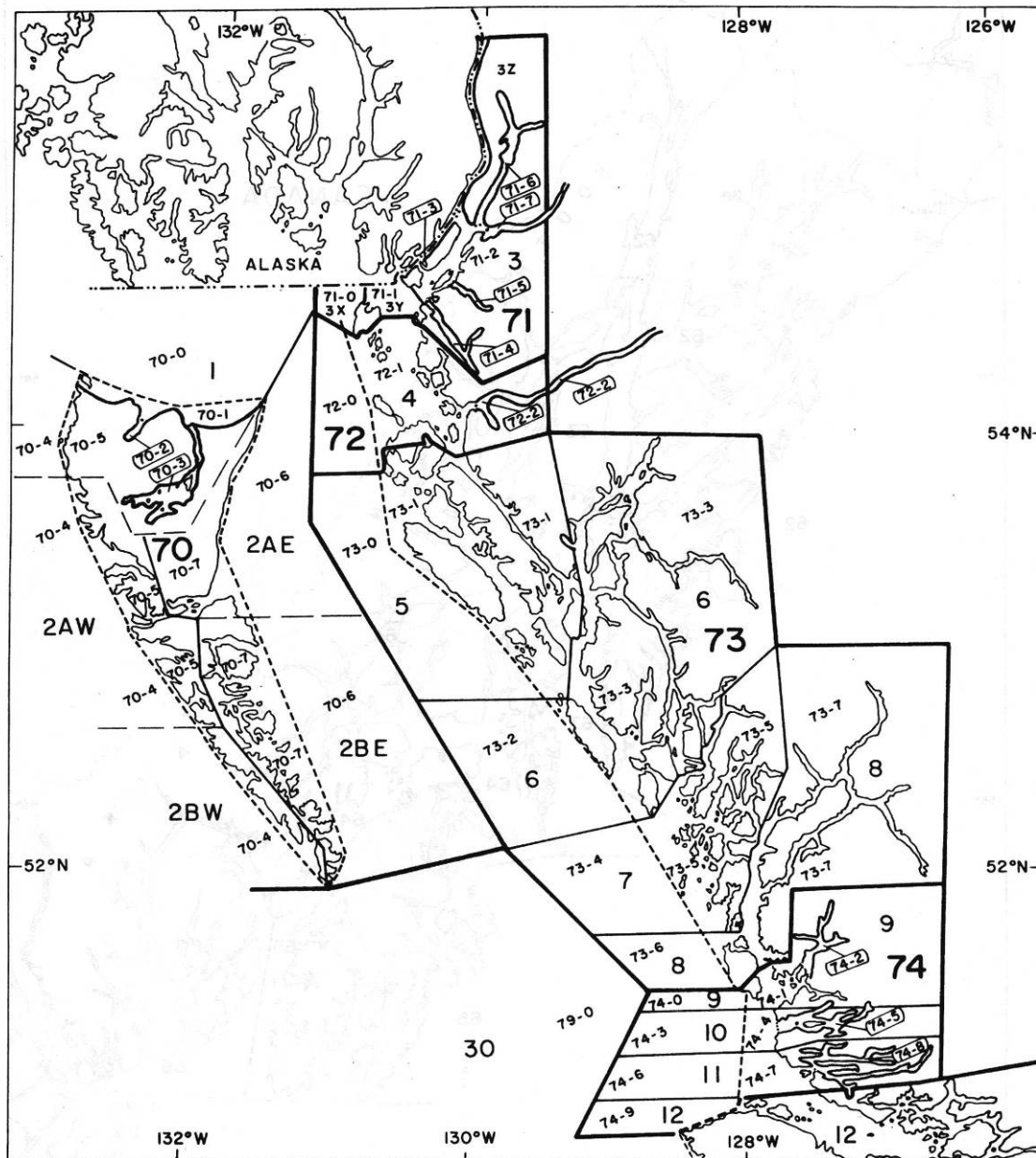


Fig. 6. General recovery areas in northern British Columbia. Source: Aro et al. 1971.

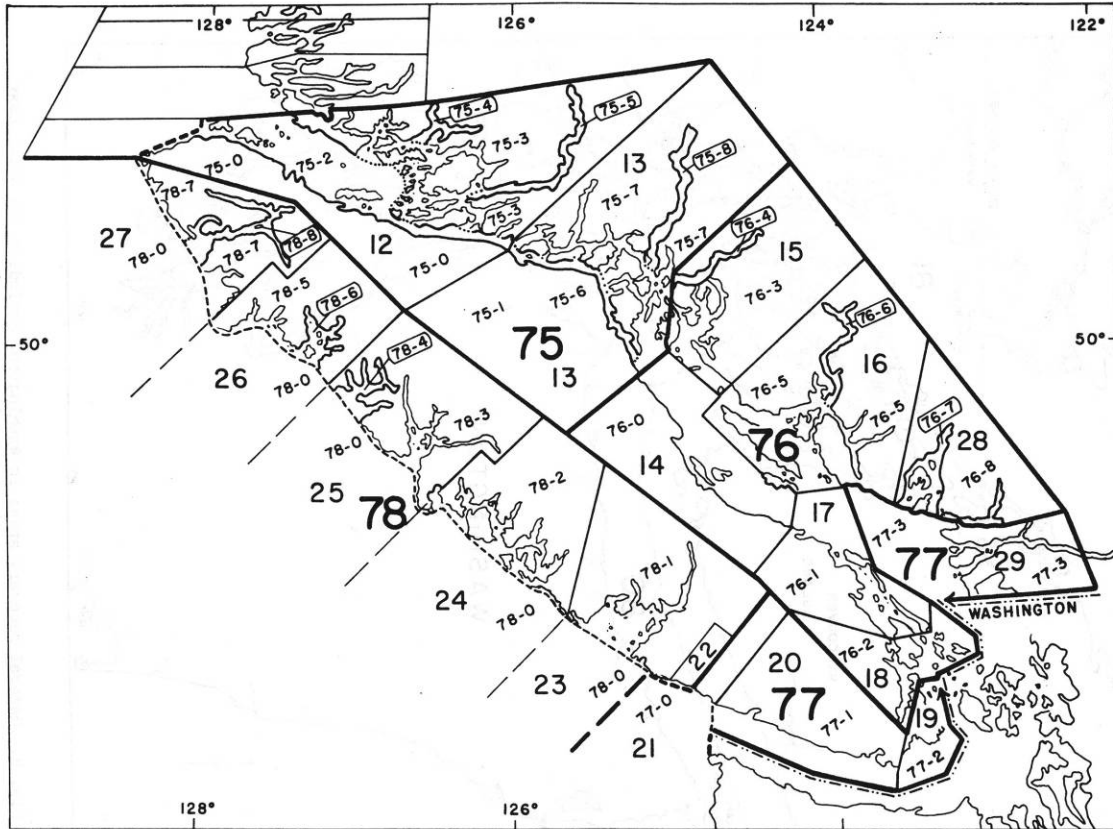


Fig. 7. General Recovery areas in southern British Columbia. Source: Aro et al. 1971.

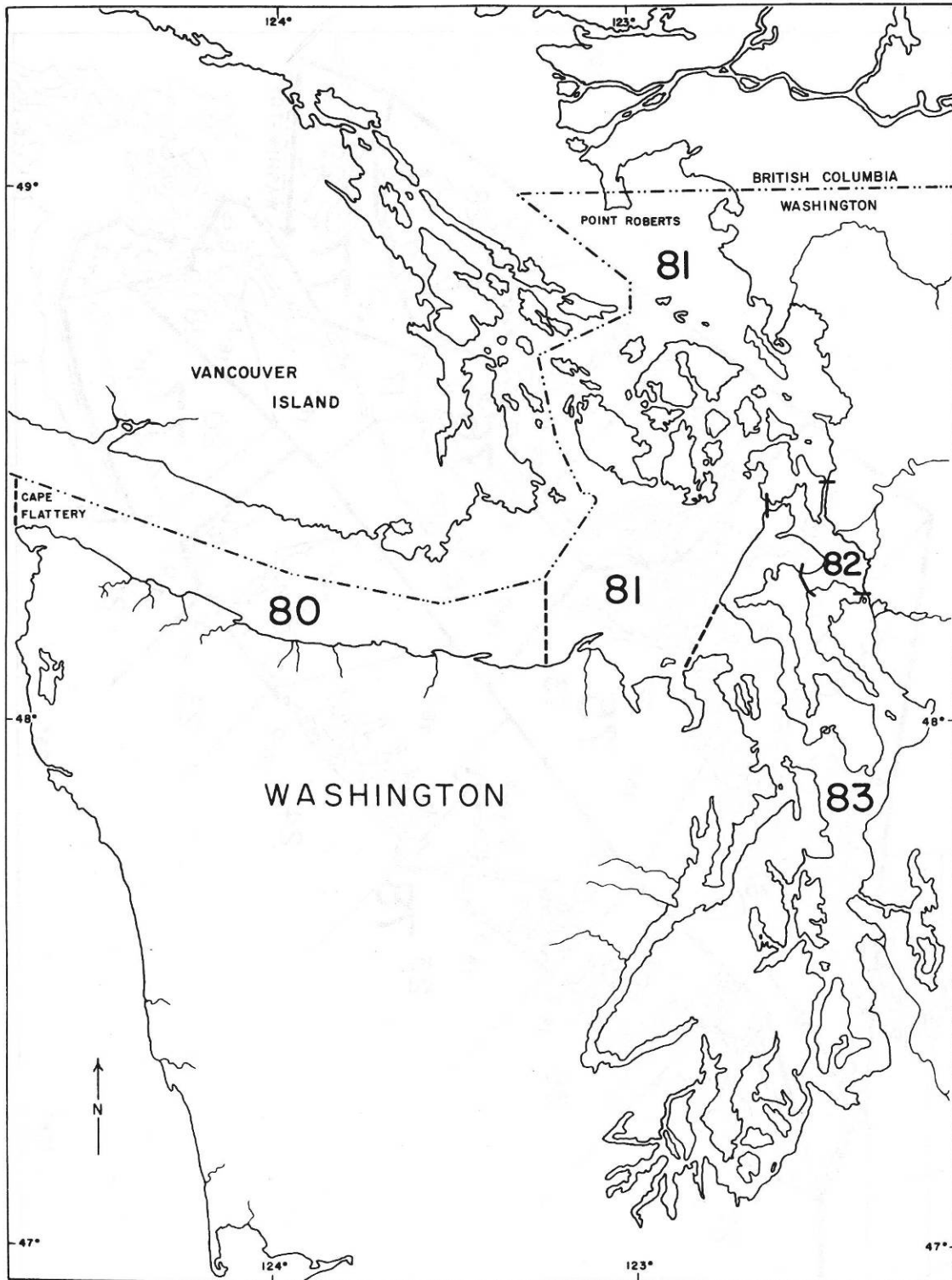


Fig. 8. General recovery areas in Washington, excluding the outer coast south of Cape Flattery. Source: Aro et al. 1971.

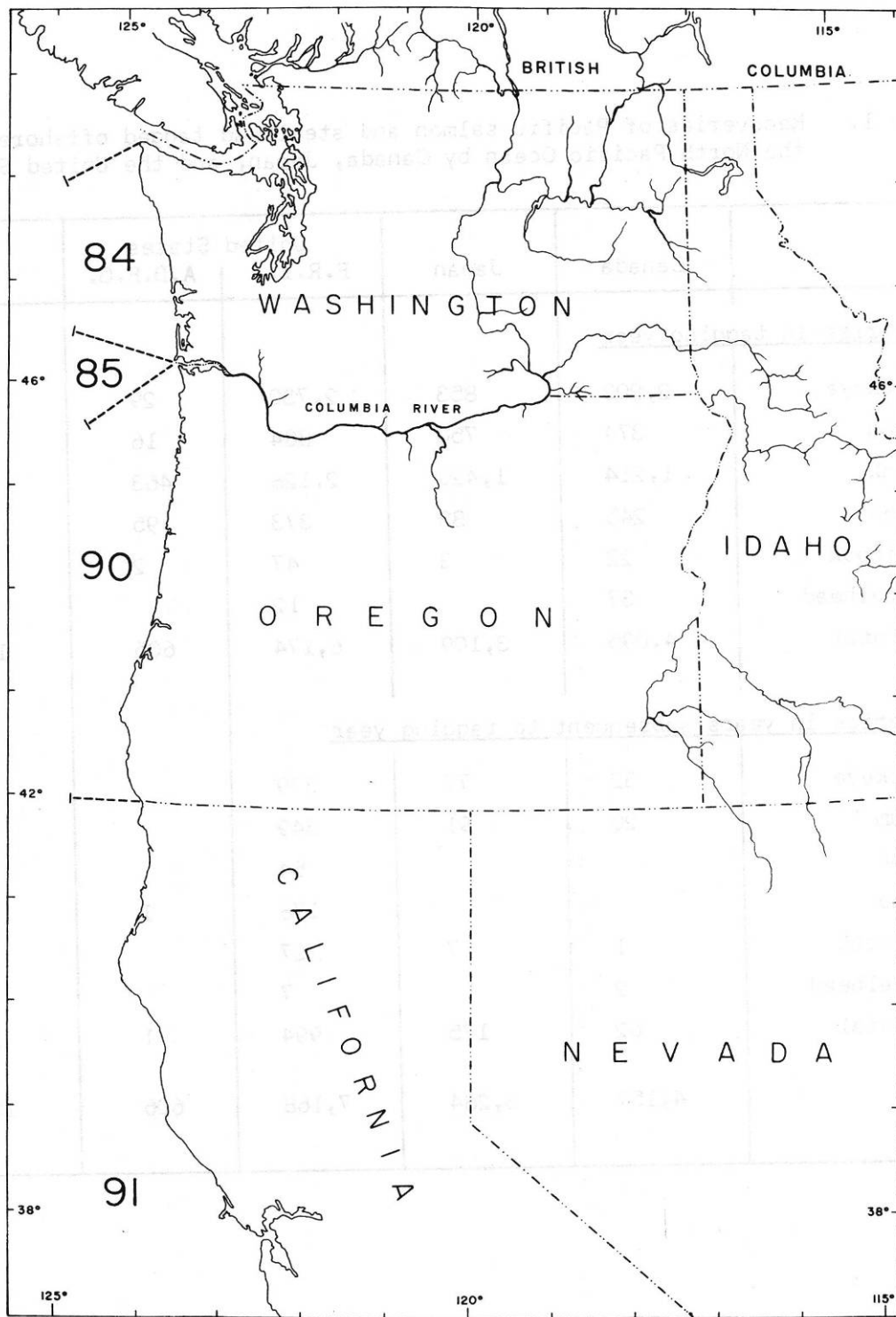


Fig. 9. General recovery areas along the outer coast of Washington, the Columbia River, Oregon, and California. Source: Aro et al. 1971.