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1994

PIT TAG SPECIFICATION DOCUMENT

Columbia River Basin

PIT Tag Information System

Data Source Input Specifications

Prepared By
PIT Tag Work Group

March 1, 1994

STTY erase Key

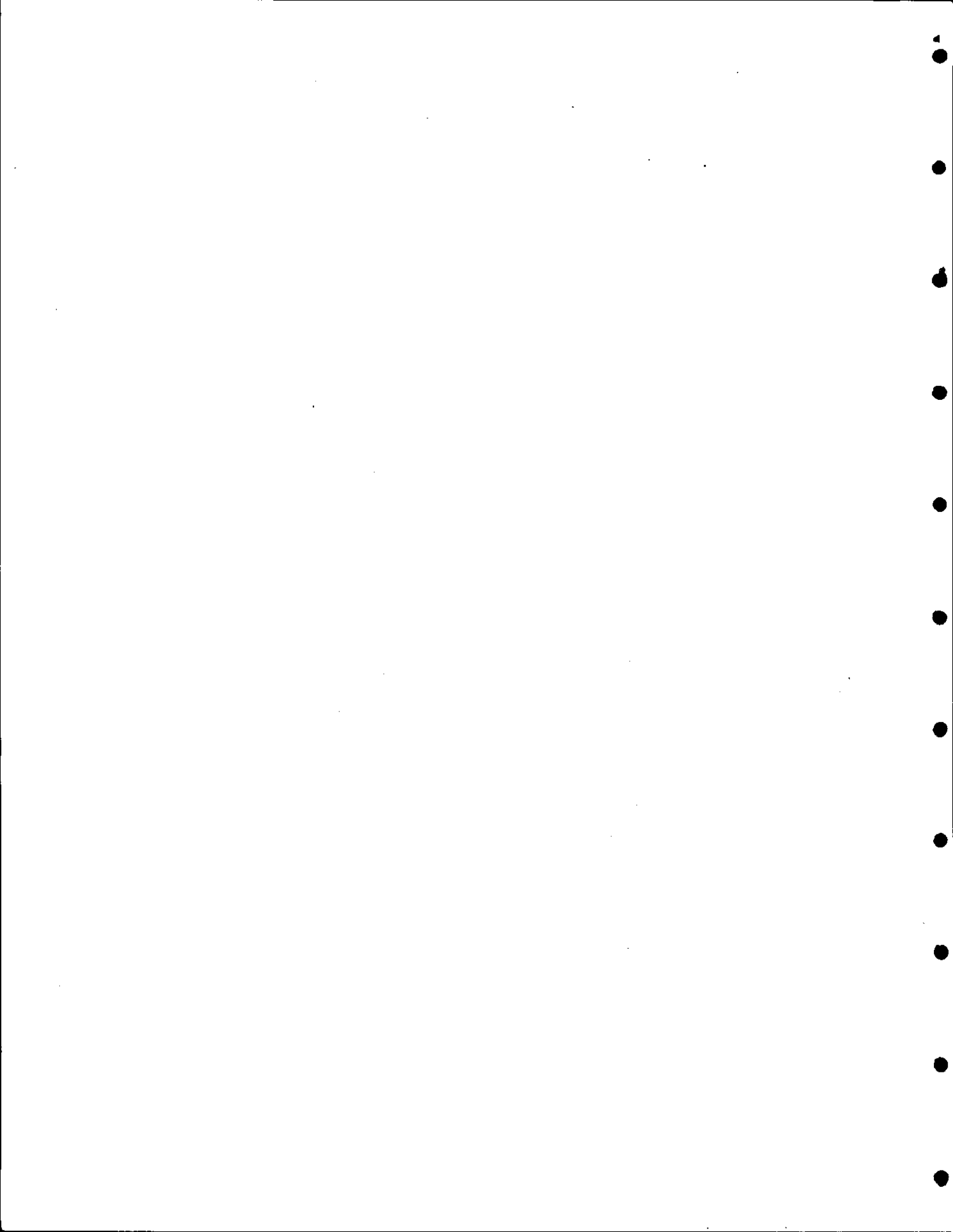
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Add Julian Date
Calendar to Spec Document.

Make jdate program
available for download.
+
Include with PITPAQ.EXE
Distribution

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1994 CHANGES

Below is a list of 1994 changes from the 1993 Specification Document that you should be aware of. Be sure you incorporate these changes into your 1994 PIT tag work. **These changes will go into effect March 1, 1994.** Any data submitted to PTAGIS after that date will be in the new format or it will be returned to the researcher for corrections. If you have any questions, feel free to contact any of the PIT Tag Steering Committee members or the people at the PIT Tag Operations Center (PTOC). For a list of names and telephone numbers refer to section III.K. in the Specification Document.

Spelling of Yakima Indian Nation throughout the document has been changed to Yakama per their request. Spelling of Yakima River will remain Yakima.

There are no changes to Pitval.exe or Pittag.exe. These programs are being distributed this year with updated validation tables.

3. Header Records

Header Records r. **RELEASE WATER TEMP**; v. **RELEASE DATE**; w. **RELEASE SITE**; x. **RELEASE RIVER KM** have been moved to title heading 4. **Tag Records**.

What does this mean?

III. CODE LISTS:

Note: All current validation codes and release sites and river KMs can be downloaded from the PTAGIS system.

III.A. Coordinator ID Codes:

New additions to the list.

Peter Lofy	PTL	CTUIR
Alan Byrne	AAB	IDFG
Brian Beckman	BRB	NMFS
Doug D. Taki	DDT	SHOBAN
Jody Brostrom	JKB	IDFG
J. Scott Spalding	JSS	SHOBAN
Kim Apperson	KAA	IDFG
T. Dean Rhine	TDR	IDFG
Tom Curet	TSC	IDFG

III.E. Flag Codes:
Two flag codes have been added to the list.

Y = Possible Age 1
AT = Tagged as Adults

III.G. Capture Method Codes:
Two method codes added to the list.

MTRAP = Minnow Trap
HOOK = Hook and Line

III.H. Organization and Recovery Organization Codes:
Three codes added to the list.

CPUD
CTUIR
YIN

III.I. Interrogation Sites Codes:
Six site codes added to the list.

Imnaha Juvenile Trap	=	IMJ
Lower Monumental Juvenile	=	LMJ
Lower Monumental Juv (Sub Sample)	=	LM2
Lemhi Weir Juvenile	=	LWJ
Salmon River Juvenile Trap	=	SAJ
Sullivan Dam	=	SUJ

One change made:

Kohn Day Dam is John Day Dam

III.J. Tag, Release, and Collection Sites Codes and Associated River Km's:

Due to massive changes these will not be itemized. Please refer to Section III.J for updated list.

III.K. PIT Tag Steering Committee Members, 1993:
One name has been removed.

Lee Blankenship

Fax numbers have been added to each member. See section for numbers.

III.L. PIT Tag System Codes.

Nine additions to Lower Monumental Juv. locations.

New section added: McNary Juv. (1993-Present). Eleven location additions.

Change from PTAGIS to PTOC.

Figure 2.

Change on RELEASE WATER TEMP : 15.0

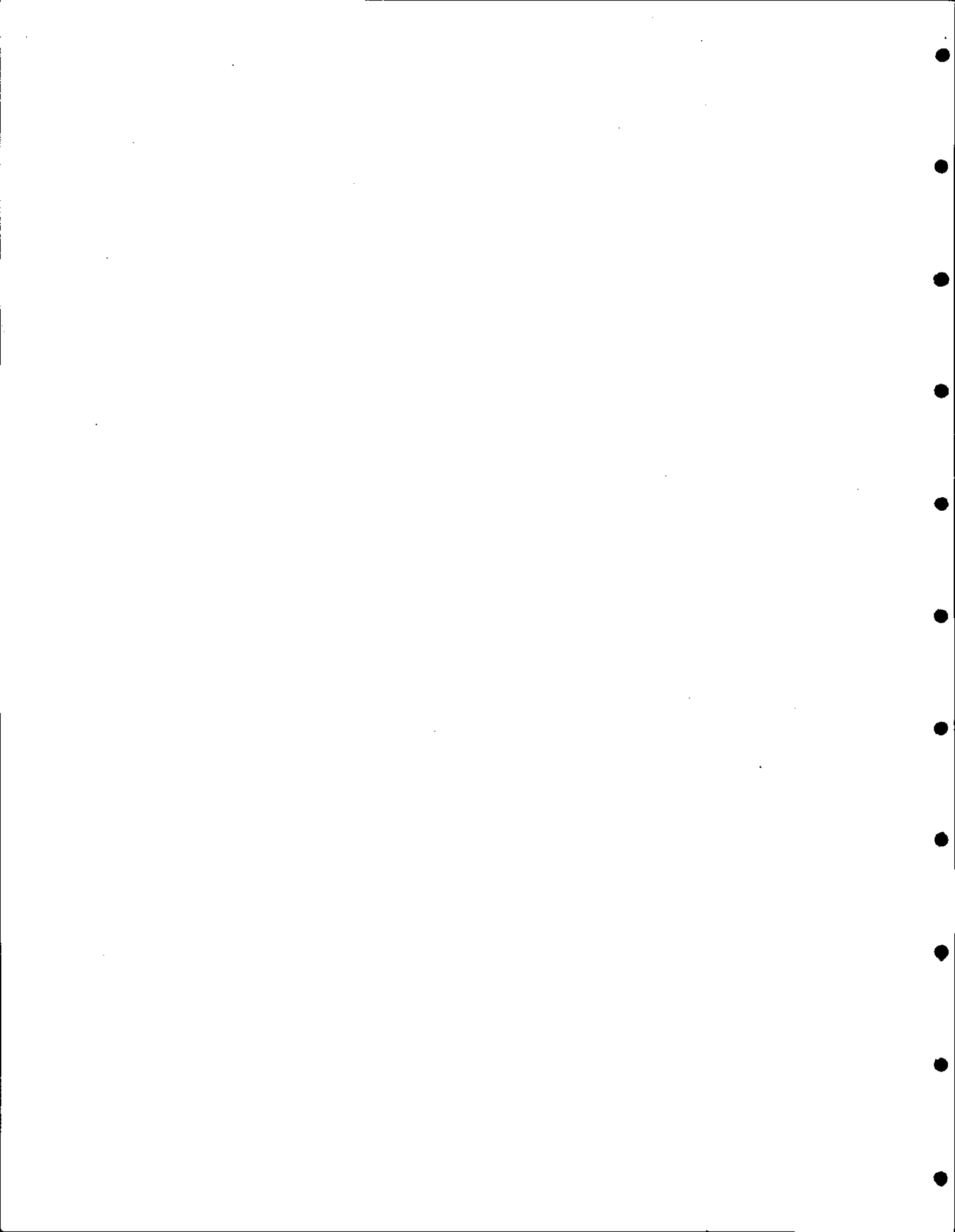
Glossary

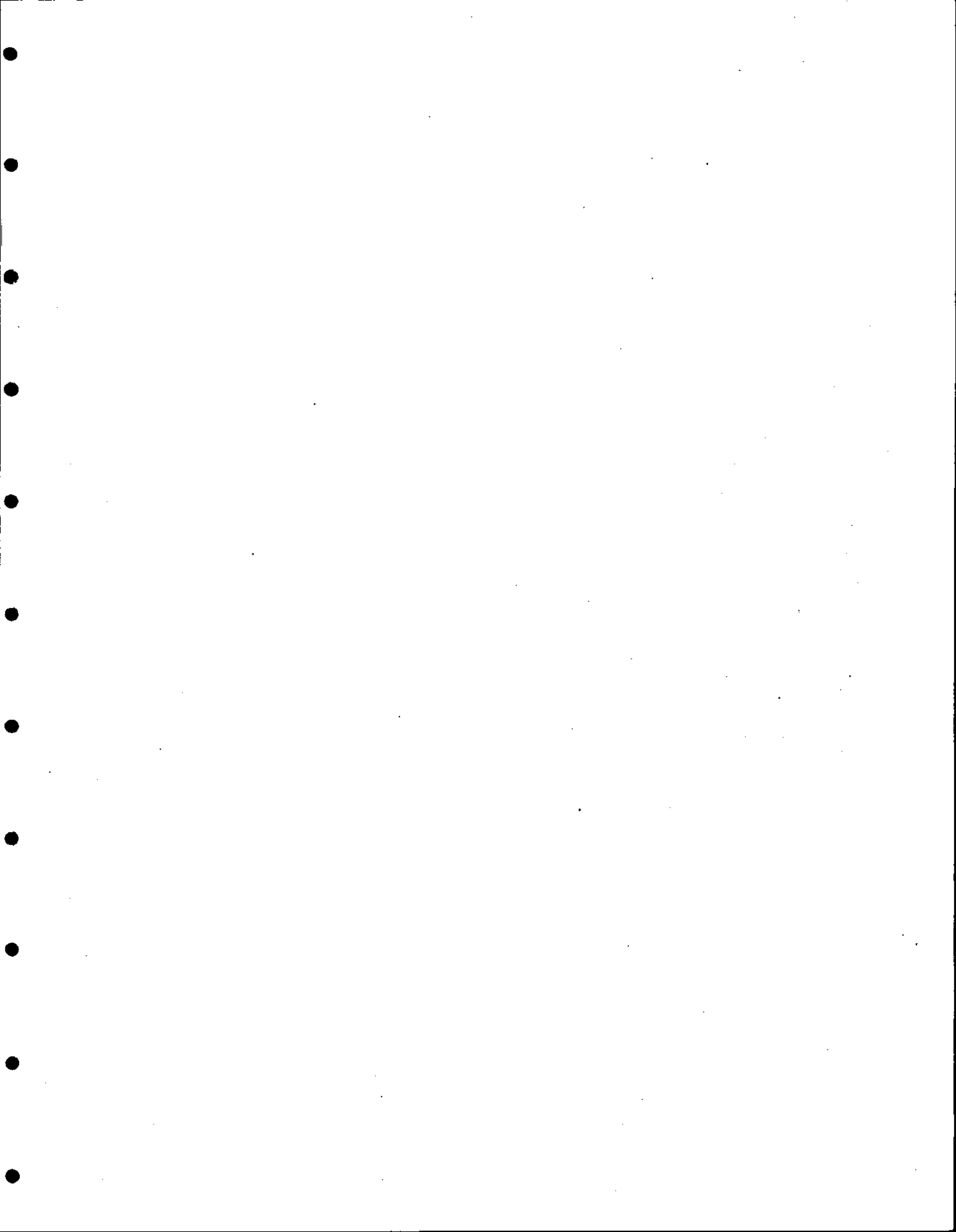
Changes made in the following definitions:

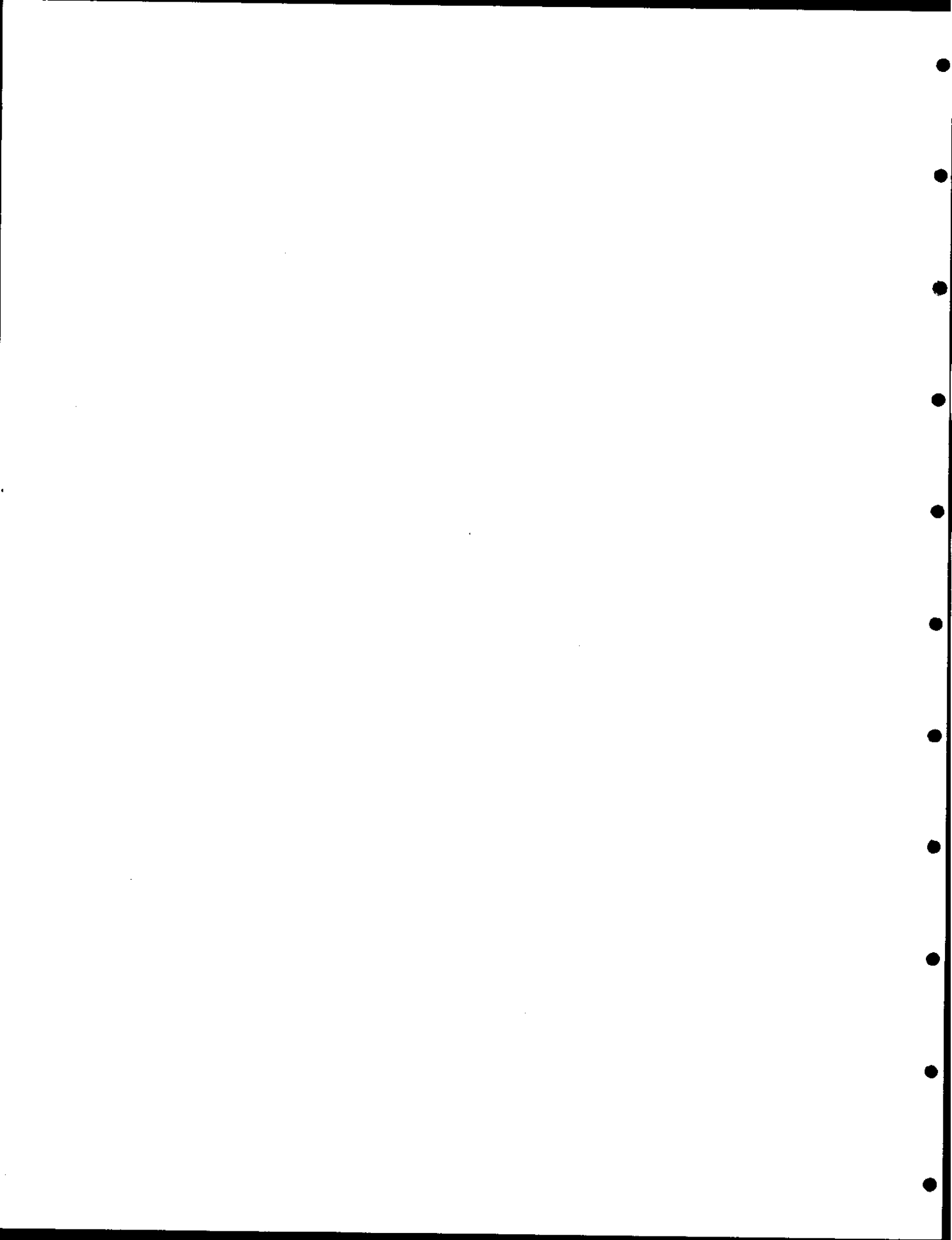
CHECKSUM; COLLECTION SITE; COIL; ORGANIZATION; PASS-THROUGH REFERENCE TAG; RECOVERY ORGANIZATION; SEPARATION EFFICIENCY; TAG SITE; TAGGING TEMP; TEST TAG.

Additional definition added to: **RECAPTURE; RELEASE RIVER KM; RELEASE INFORMATION FILE; RELEASE SITE; RELEASE TIME; and RELEASE WATER TEMP.**

New definitions added: **COIL ASSEMBLY; COIL EFFICIENCY OR COIL READING EFFICIENCY; CREATION TIME; DIVERSION EFFICIENCY; DETECTOR; FIXED REFERENCE TAG; EPA-REACH; GIS HYDRO UNIT; INTERROGATION FILE; INTERROGATION UNIT READING EFFICIENCY; OBSERVATION; PASS-THROUGH REFERENCE TAG; PIT TAG DETECTOR; PIT-TAG INTERROGATION NETWORK, PIT-TAG INTERROGATION SYSTEM; PIT-TAG INTERROGATION UNIT; PIT-TAG SEPARATION SUBSYSTEM; PIT-TAG SEPARATION SYSTEM; PIT-TAG SLIDE-GATE ASSEMBLY; SEPARATION EFFICIENCY; RIVER REACH; STICK TAG; TEST TAG; SWING GATE; SLIDE GATE; SLIDE-GATE EFFICIENCY; SPIDER TAG; SYSTEM READING EFFICIENCY; TIMER TAG; TUNNEL; USGS HYDROLOGIC UNIT.**







1994
PIT TAG SPECIFICATION DOCUMENT

I. Rationale

This specification document has been prepared to ensure interagency continuity of PIT tag data as well as facilitate data entry and retrieval to and from the Columbia River Basin PIT Tag Information System (PTAGIS). Some flexibility exists to modify data inputs as the system evolves. However, all proposed changes to this document must be reviewed annually by the PIT Tag Steering Committee. Reviewing and changing this specification document will occur annually prior to March. Questions concerning this document should be addressed to the PIT Tag Steering Committee members (see section III.K.).

II. Data Files

There are five file types that are recognized by the PTAGIS system. These are **Tagging, Release Information, Interrogation, Monitored Release, and Mortality**. All files must be in ASCII format and comply with the following specifications. The first record of each of these files will be the "FILE TYPE" record.

Format: "FILE TYPE" starting in column 5; a colon (:) in column 36; and the File Type Name (as listed below) starting in column 38 ("TAGGING", "RELEASE INFORMATION", "INTERROGATION", "MONITORED RELEASE", or "MORTALITY")

See Figures 1-5 (examples) for additional information.

A. Tagging File

Tagging files are created using the program **PITTAG.EXE** or an equivalent program that is 100% compatible. Only the most current version of the program (03/05/93 Version 6.10) should be used. This document refers to features not found in previous versions of the program. Older versions of the program should be discarded. Updated programs are available through the PTOC (see section III.K.).

A tagging file consists of six record categories: **File Type, Program Version, Header, Tag, Note, and Additional Record Types**. All records must have at least four characters (even blank records will have four spaces). Any number of TAG and NOTE records are allowed. A HEADER record is distinguished by spaces in columns 1-4 and a colon (:) in column 36. The first 24 HEADER records must match this specification document in format and order. A TAG record is distinguished by at least one right-justified integer (0-9) in columns 1-4. NOTE, HEADER, and SESSION MESSAGE records are distinguished by spaces in columns 1-4.

Recaptures: (A recaptured fish is a fish that is handled subsequent to the tagging event). The tagging file is used to record recaptures (RE). The flag code (RE) must be added to each recapture tag record in the Tagging Record. If all records in the file are Recaptures, the file should be submitted to PTAGIS using Upload Recaptures.

1. **File Type Record** (Format description, see section II).
 - a. **FILE TYPE: TAGGING** (Computer generated, mandatory)
2. **Program Version Record** (See Figure 1)
 - a. **PROGRAM VERSION: PITTAG.EXE ___;PITVAL.EXE ___** (Computer generated, presence of PITVAL.EXE is mandatory)

3. **Header Records**

The HEADER format used during the PIT tagging process will be provided by PTAGIS. The format of the header is standardized and cannot be changed. If the format is changed, it will not be recognized by the PTAGIS data system. The Mutable/Immutable designator (M/I) can be modified as necessary by the individual researcher and the default contents of the fields can also be modified to reflect individual data requirements as long as the format of the HEADER Record is not changed. Data should be entered using the following format: Data (columns 38 on to end) follows the colon (: column 36). A line of alternate dashes and spaces will be generated in the Header record on line 3. If a Session Message is entered, an additional line of alternate dashes and spaces will be generated on line 5.

PTAGIS TAG

- a. **SESSION or PROJECT MESSAGE:** TEXT, 76 characters max., optional, entered when in initialization portion of PITTAG.EXE program.
- b. **FILE TITLE:** xxxYYDDD.zzz Mandatory format, includes a three character ID (initials) of the individual tagging supervisor and the julian date. The extension is optional, variable, and up to the discretion of the tagging supervisor.
- c. **CREATION DATE:** MM/DD/YY (Computer generated, mandatory. This is the default Tagging Date.).
- d. **CREATION TIME:** HH:MM (Computer generated, Pacific Standard Time, mandatory. This is the default Tagging Time.).
- e. **TAGGER:** Primary tagger, last name followed by a space and first initial of first name, 15 characters max. Mandatory. *Optional is ^{allowed} if tag id has 2 letters*
- f. **SPECIES:** Primary species in Tagging Record, one character max. See III.B. for codes. Mandatory. *Optional but exists for each tag record*
- g. **RUN:** Primary run in Tagging Record, one character max. See III.C. for codes. Mandatory. *Optional but*
- h. **REARING TYPE:** Primary rearing type in Tagging Record, one character max. See III.D. for codes. Mandatory.
- i. **HATCHERY SITE:** Four characters max. See III.F. for codes. Leave blank if not tagged at hatchery. Optional.
- j. **STOCK:** 15 characters max. Optional.
- k. **BROOD YR:** Last two digits of calendar year when eggs were collected. Optional.
- l. **MIGRATORY YEAR:** Last two digits of earliest possible calendar year when largest percent of fish in opinion of principal researcher will outmigrate. Mandatory.

- m. **TAG SITE:** Six characters max. See III.J.3. for correct code. Mandatory.
- n. **RACEWAY/TRANSECT:** Six characters max. Optional.
- o. **CAPTURE METHOD:** Six characters max. See III.G. for codes. Optional. *mandatory*
- p. **TAGGING TEMP:** nn.n, temp. (C°) in tagging troughs. Mandatory.
- q. **POST TAGGING TEMP:** nn.n, temp. (C°) of water in post-tagging holding facilities (e.g.— an outdoor raceway). Optional.
- r. **TAGGING METHOD:** AUTO, HAND or NONE. Mandatory.
- s. **ORGANIZATION:** Six characters max. See III.H. Mandatory.
- t. **COORDINATOR ID:** See III.A. for codes. Mandatory.
- u. **RELEASE WATER TEMP:** nn.n, temp. (C°) of water in stream fish were released into. Optional. Required if Tagging File ~~doubles~~ as Release File. *Recapture File*
- v. **RELEASE DATE:** MM/DD/YY HH:MM. Optional, required only if fish is released directly to stream and the Tagging File will act as a Release Information File. The time is in Pacific Standard Time (not needed if using Variable Release Times, see below).
- w. **RELEASE SITE:** Six characters max. See III.J.3. for correct codes. Optional, required only if Tagging File will double as a Release File. *OR*
- x. **RELEASE RIVER KM:** See III.J.3 for codes. Optional, required only if Tagging File doubles as a Release File.

4. **Tag Records**

- a. **SEQUENCE NUMBER:** Columns 1-4, numeric. Mandatory.
- ¹ b. **PITCODE:** Columns 7-16, alpha-numeric. Mandatory.
- c. **CHECKSUM:** Columns 19-20, alpha-numeric. Mandatory.
- d. **FORKLENGTH:** Columns 21-28, numeric and right-justified, in millimeters. Mandatory.
- e. **WEIGHT:** Columns 29-38, numeric with one digit to the right of the decimal point and right-justified, in grams. Optional.
- f. **COMMENTS:** Three types: specific comments for individual fish.
 - (1) **POSITIONAL COMMENTS** (normally entered via the digitizer). Only Positional Comments defined in this specification document can be used. Additional Positional Comments, required by individual research projects can be added after column 45, up to the maximum total of 50 columns, but will not be recognized by PTAGIS without prior committee approval. Positional Comments will overwrite corresponding header information for the individual tag record it is assigned to when the tagging file is loaded into the central data base. The Positional Comments currently specified are as follows:
 - (a). **SPECIES:** Column 41, numeric, required if different than Species in HEADER Record, see III.B. for codes.

¹ PIT tags can only be re-used in the Columbia River system if the tag is removed from a fish and the tag code with check sum are changed to ten periods followed by a space and two periods (..... ..) prior to the tagging file being submitted to PTAGIS. All other fields in the individual record must remain intact for future reference.

- (b). **RUN:** Column 42, numeric, required if different than **Run** in **HEADER** Record, see III.C. for codes.
 - (c). **REARING TYPE:** Column 43, alpha-numeric, required if different than **Rearing Type** in **HEADER** Record, see III.D. for codes.
 - (d). **VARIABLE RELEASE TIME = 01...99:** Columns 44-45. Each unique release time variable must have a corresponding accompanying note record that reports the actual date and time of release (see Section II.A.4. "Note Records"). Required if fish are released after tagging to a stream and Tagging File will double as a Release Information File.
- (2) **CONDITIONAL COMMENTS** (normally entered via the digitizer). Only approved Flag Codes will be recognized as Conditional Comments (see section III.E. "Flag Codes"). Conditional Comments, if present, are preceded by a pipe symbol "|" and are separated by spaces. Space is allocated for up to 50 characters in this field.
 - (3) **TEXTUAL COMMENTS** (entered via the keyboard). Textual Comments are separated from Conditional Comments by a single pipe symbol "|". If no Conditional Comments are present, Textual Comments are preceded by two pipe symbols "||" and consist of information specific to the individual fish. Space is allocated for up to 50 characters in this field.

5. Note Records

Note Records are defined as all text comments beginning in column five. Note Records are entered via the keyboard. All notes of a non-specific nature, or those pertaining to previous or subsequent fish recorded in the file, can be entered from the keyboard starting at column five.

- a. **VARIABLE RELEASE TIME** Required if Tagging File doubles as a Release Information File. Notations are included in this category, but follow a strict format. The record begins with an upper case "V" in column five, followed by the two digit release variable in columns six and seven, an equals sign "=" in column eight, the two digit month "MM" in columns nine and ten, a slash "/" in column 11, the two digit day "DD" in columns 12 and 13, a slash "/" in column 14, the two digit year "YY" in columns 15 and 16, a space in column 17, the two digit military-style hour of release, in Pacific Standard time, in column 18 and 19, a colon ":" in column 20, and the two digit minutes of release in columns 21 and 22
 i.e. V01=04/08/91 16:45. Only one Variable Release Time per line in the NOTE Record.

6. Additional Record Types

Additional Record Types include Time Stamp (pre-formatted), blank lines, and Closing records. All Additional Record types start in column five. The Closing records are the same format as **HEADER** records and are created by the **PITTAG.EXE** program.

- a. **CLOSED DATE**, ":" at column 36, MM/DD/YY starting at column 38.
- b. **CLOSED TIME**, ":" at column 36, HH:MM starting at column 38.

B. Release Information File

A **Release Information File** consists of information about a Tagging file, or a group of Tagging files, which was not available at the time of tagging. This type of file contains three records categories: **File Type**, **Header**, and **Tag File Name(s)**. The **FILE TYPE** record must be formatted as previously mentioned (section II. Data Files). The **HEADER** records are formatted with the description beginning in column 1, the colon (:) at column 36, and the data beginning in column 38. **TAG FILE NAME** records are formatted the same as the previously mentioned **HEADER** records. Additional Tag file titles must form a column, each with the same format (see figure 2). The Release Information File must be created and sent to PTAGIS prior to any of the fish from the tagging files reaching any interrogation site.

1. File Type record (For format, see section II. Data)

a. **FILE TYPE: RELEASE INFORMATION (Mandatory)**

2. Header Records

a. **FILE TITLE: REL <YY> <ID >.xxx** Format includes REL, year of release (two digits), and the coordinator ID. The extension is up to the tagging coordinator and is optional. See section III.A. for the list of coordinator ID codes.

b. **RELEASE DATE: MM/DD/YY** Mandatory.

c. **RELEASE TIME: HH:MM** Mandatory. Pacific Standard time.

d. **RELEASE SITE: Name, six characters max., see section III.J.2.** Mandatory.

e. **RELEASE RIVER KM: See section III.J.2.** Mandatory.

f. **TRANSPORT DURATION: HH:MM** Time elapsed while fish are being transported. Optional.

g. **TRANSPORT TYPE: Ten characters.** Optional.

h. **RELEASE WATER TEMP: nn.n, (C°)** Mandatory.

i. **ASSOCIATED MARK: (TEXT)** Optional. 76 characters max.

3. Tag File List

TAG FILE NAME: Name of tag file associated with release tags (12 characters max.). Follows the naming convention in section II.A.2.b. One or more tag file records are allowed. For example;

TAG FILE NAME	: CSM88189.FC1
TAG FILE NAME	: CSM88188.BS1
TAG FILE NAME	: CSM88189.BS2

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4. Release Remarks

Note field begins in column 5, up to 10 lines with no more than 200 characters total.

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C. Interrogation Files

Interrogation files are files created at the monitor sites by the automatic detection equipment. The format is explained below, see Figure 3. All records are computer generated. Interrogation site codes (see III.I), system ID codes, and coil ID codes (see III.L.) are assigned by PTAGIS when a new system is installed. At least 10 test tags should be passed through the system daily, if possible, to ensure the system is functioning. Test tags are a special PIT tag whose tag code begins with 090. Use only these tags for test tags. Interrogation files consist of four categories of records: **File Type, Start and End Messages, Interrogation Data Records, and Other Record Types.**

1. **File Type Record** (For format, see section II. Data)
FILE TYPE: INTERROGATION (Mandatory)

2. **Start and End Message**

- a. **FILE TITLE:** File name. Mandatory. File Titles are 12 characters (format includes a three character site code and the julian date. The extension is reserved for partitions -- e.g. PRJ89114.A).
- b. **FILE CREATED:** date and time (e.g. 24 April 1989 at 16:45). Mandatory.
- c. **FILE CLOSED:** date and time (e.g. 25 April 1989 at 16:45). Mandatory.

3. **Interrogation Data Records** Computer generated. Mandatory.

- a. | Column 1
- b. **CONTROLLER:** Columns 3-4, alpha-numeric.
- c. **DATE:** MM/DD/YY Columns 6-13.
- d. **TIME:** HH:MM:SS Columns 15-22, Pacific Standard Time
- e. **PITCODE:** Columns 24-33, alpha-numeric.
- f. **CHECKSUM:** Columns 35-36, alpha-numeric.
- g. **COILID:** Columns 39-40, 42-43, 45-46, 48-49, 51-52, 54-55, 57-58, and 60-61; alpha-numeric.

4. **Other Record Types** (Do not begin with "|" in column 1).

- a. System checks
- b. Time Checks
- c. Blank Line.

D. Monitored Release File

Same format as interrogation file, except that first record is **FILE TYPE: MONITORED RELEASE.**

Beginning in April 1994, processes will be run to process these files.

Copy II.E. 5 here pg 4

E. Mortality File

Mortality files are created using PITTAG.EXE. A mortality file consists of the following categories: **File Type Record; Header Records; Mortality Records; Note Records; and Additional Record Types** (see Figure 5).

1. File Type Record (For format, see section II. Data)

- a. **FILE TYPE: MORTALITY** Mandatory.
By typing "PITTAG /M" (PITTAG <space> /capital M) to start the PITTAG.EXE program, the file type MORTALITY will automatically be entered.

2. Header Records

- a. **SESSION or PROJECT MESSAGE:** Text; 76 characters max. Mandatory.
- b. **FILE TITLE:** xxxYYDDD.zzz Format includes a 3 character ID (initials) of the individual creating the mortality file and the julian date. The extension is up to the coordinator and is optional.
- c. **CREATION DATE:** MM/DD/YY Mandatory.
- d. **CREATION TIME:** HH:MM Mandatory.
- e. **COLLECTION SITE:** 6 character max. See section III.J.2. for correct code list. Mandatory.
- f. **COLLECTION RIVER KM:** See III.J.2. Mandatory.
- g. **CAPTURE METHOD:** 6 character max. - see III.G. Mandatory.
- h. **RECOVERY ORGANIZATION:** Organization creating mortality file. 6 character max. - see III.H. Mandatory.
- i. **COORDINATOR ID:** See III.A. Mandatory.

S.B. Mandatory?
Mandatory. optional

T/ra 2339

3. Mortality Records

- a. **SEQUENCE NUMBER:** Columns 1-4, numeric. Mandatory.
- b. **PITCODE:** Columns 7-16, alpha-numeric. Mandatory.
- c. **CHECKSUM:** Columns 19-20, alpha-numeric. Mandatory.
- d. **FORKLENGTH:** Columns 21-28, numeric. Optional.
- e. **WEIGHT:** Columns 29-38, numeric with 1 digit right of the decimal point. Optional.
- f. **MORT. DATE:** MM/DD/YY Columns 41-48. Optional.
- g. **COMMENTS:** Conditional (Flag Codes, see III.E. below) and textual, See II.A.3.J.(3) for format. Optional.

4. Note Records See section II.A.4. Note Records.

5. Additional Record Types See Section II.A. Additional Record Types.

6

III. Code Lists

The following are lists of standardized codes that must be used in the Columbia River Basin PIT Tag Information System (PTAGIS). If tagging coordinators have additional codes they would like to use, please submit these to your organization's PIT Tag Steering Committee member for review by the committee and inclusion in the next Specification Document.

A. **Coordinator ID Codes** are the initials (use all, three max.) for the project leader responsible for the data (not necessarily the person conducting the tagging or creating the tagging file). Only codes reported in this specification document will be recognized. (The date column of the following table represents the dates these tag coordinators will be found in the data base.)

Coordinator Identification Codes:

ID	NAME	ORGANIZATION	DATE
SA	Steve Achord	NMFS	1987-PRESENT
KAA	Kim Apperson	IDFG	1993-PRESENT
BDA	Bill Arnsberg	NPT	1992-PRESENT
KB	Kent Ball	IDFG	1992-PRESENT
LRB	Larry Basham	FPC	1988-PRESENT
BRB	Brian R. Beckman	NMFS	1993-PRESENT
TCB	Ted Bjornn	ICFWRU	1991-PRESENT
JKB	Jody Brostrom	IDFG	1993-PRESENT
EWB	Ed Buettner	IDFG	1988-PRESENT
HLB	Howard Burge	USFWS	1992-PRESENT
AAB	Alan Byrne	IDFG	1993-PRESENT
DAC	Dave Cannamela	IDFG	1990-PRESENT
TGC	Tim Cochnauer	IDFG	1989- PRESENT
WPC	William Conner	NPT	1990-1991
WPC	William Conner	USFWS	1991-PRESENT
DPC	Doug Cramer	PGE	1992-PRESENT
TSC	Tom Curet	IDFG	1993-PRESENT
TAF	Tom Flagg	NMFS	1989-PRESENT
RNI	Robert Iwamoto	NMFS	1993-PRESENT
TBH	Terry Holubetz	IDFG	1994-PRESENT
BCJ	Brian Jonasson	ODFW	1992-PRESENT
RMK	Robbert Keith	SHOBAN	1993-PRESENT
RBK	Russ Kiefer	IDFG	1988-PRESENT
PAK	Paul Kucera	NPT	1992-PRESENT
EJL	Eric Leitzinger	IDFG	1991-PRESENT
PTL	Peter Lofy	CTUIR	1993-PRESENT
DMM	Doug Marsh	NMFS	1993-PRESENT
CSM	Scott McCutcheon	NMFS	1985-1990
WDM	William D. Muir	NMFS	1990-PRESENT
DAN	Duane A. Neitzel	PNL	1991-PRESENT
FSE	Steve Elle	IDFG	1994-present

EFP	Earl Prentice	NMFS	1989
TDR	T. Dean Rhine	IDFG	1993-PRESENT
TER	Tom Ruehle	NMFS	1990-PRESENT
RBR	Ralph Roseberg	USFWS	1993-PRESENT
JSS	J. Scott Spalding	SHOBAN	1993-PRESENT
LCS	Lowell Stuehrenburg	NMFS	1987-1989
DDT	Doug D. Taki	SHOBAN	1993-PRESENT
TRW	Tim Walters	ODFW	1993-PRESENT
PTL	Peter Lofy	CTUIR	1993-PRESENT

PKL PAUL KLEIN IDFG

1000 --- 1000

B. Species Codes:

- 1 = Chinook
- 2 = Coho
- 3 = Steelhead
- 4 = Sockeye
- 5 = Chum

C. Run Codes:

- 0 = Null value
- 1 = Spring
- 2 = Summer
- 3 = Fall
- 4 = Winter
- 5 = Unknown (use for riv unknown).

Adult data Analysis
 Need to consider
 travel times < 1yr
 as not legitimate

Mifs are ready

D. Rearing Type Codes:

- H = Hatchery reared fish
- W = Wild fish or natural production
- U = Unknown or mixed hatchery & wild

E. Flag Codes: (An abbreviated comment field used in the Tagging and Mortality files.)

- 0 = Possible 0 aged chinook
- 1< = Descaled less than 10%
- 1> = Descaled greater than 10%
- <2 = Descaled between 11% and 20%
- >2 = Descaled greater than 20%
- 1P = Descaled - patchy
- 1S = Descaled - scattered
- AD = Adipose fin clip
- AF = Adipose fin damage
- AN = Anal fin damage
- AT = Tagged as Adult
- B = Bleeding after tagged

What about
 No Descaling?

X. TAGGING METHOD:
 HAND
 AUTO
 NONE

BL = Bloated
 BR = Brood stock
 BS = Body scars
 CA = Caudal fin damage
 CW = Coded wire tagged
 CY = Cyst
 D0...D9 = Sturgeon reproductive stages
 D = Dropped
 DB = Double tagged
 DE = Dorsal fin damage
 DI = Deep insertion
 DK = Dark
 DO = Dis-orbited eye
 DT = Duplicate tag
 EB = Electro-shocker burn
 EL = Damaged eye - left (found after tagged)
 EM = Excessive mucous
 ER = Damaged eye - right (found after tagged)
 FE = Female
 FU = Fungus
 GS = Gill sample
 HE = Hemorrhage
 I = Body injury - prior to tagging
 IM = Immature
 JA = Jack
 JW = Jaw damage
 KD = Possible BKD
 L = Fish lost/or rejected or shed tag prior to release
 LA = Lacerations
 LF = Large fish flume from separator at a collection facility
 LP = Left pectoral fin ray sample
 LT = Light body color
 LV = Left ventral fin clip
 M = Mortality
 MA = Male
 MB = Bleeding at tagging/died prior to release
 MK = Removed from release group (killed)
 MS = Sample mort (fish killed for experimental purposes)
 MT = Mature
 NF = Non-functional tag also in fish
 NM = No mucous
 OP = Opercule damage
 PA = Parasite
 PB = Previously branded
 PR = Precocious
 PT = Pectoral fin damage
 PV = Pelvic fin damage

595 BWC KEIN IDCD 71207

Q1 = Complete and legible freeze brand
 Q2 = Brand is legible but defective in some manner
 Q3 = Brand is not legible
 Q4 = Brand rotation or position is wrong
 Q5 = No brand
 Q6 = Brand caused light, moderate or excessive burning
 RE = Recapture
 RP = Right pectoral fin ray sample
 RV = Right ventral fin clip
 SC = Scoliosis
 SF = Small fish flume from separator at a collection facility
 SM = Subsequent mortality (found dead or died at interrogation site)
 SU = Surgery
 SV = Silvery body color
 TM = Tagged in muscle
 UL = Ulcer
 WD = Possible whirling disease (dolphin head and/or black tail)
 X = Duplicate tag used to indicate mortality prior to release
 Y = Possible Age 1

F. Hatchery Site Codes:

ABEH ABERNATHY HATCHERY
 BEAH BEAVER CREEK HATCHERY
 BIGC BIG CREEK HATCHERY
 BONH BONNEVILLE HATCHERY
 CARS CARSON NATIONAL FISH HATCHERY
 CASC CASCADE HATCHERY
 CHEL CHELAN PUD HATCHERY
 CLAH CLACKAMAS HATCHERY
 CLWH CLEARWATER HATCHERY
 COWH COWLITZ HATCHERY
 CROP CROOKED RIVER REARING POND
 DEXT DEXTER POND
 DWOR DWORSHAK NATIONAL FISH HATCHERY
 EAGH EAGLE CREEK HATCHERY
 ELOK ELOKOMIN HATCHERY
 ENTH ENTIAT NATIONAL FISH HATCHERY
 GNAT GNAT CREEK HATCHERY
 GRAY GRAYS RIVER HATCHERY
 HAGE HAGERMAN NATIONAL FISH HATCHERY
 IRRI IRRIGON HATCHERY
 KALA KALAMA FALLS HATCHERY
 KLAS KLASKANINE HATCHERY
 KLIH KLUCKITAT HATCHERY
 KOOS KOOSKIA NATIONAL FISH HATCHERY
 LEAB LEABURG HATCHERY

LEAV	LEAVENWORTH NATIONAL FISH HATCHERY
LEWH	LEWIS RIVER HATCHERY
LOOH	LOOKINGGLASS HATCHERY
LOWK	LOWER KALAMA HATCHERY
LWSH	LITTLE WHITE SALMON HATCHERY
LYFE	LYONS FERRY HATCHERY
MARI	MARION FORKS HATCHERY
MAVA	MAGIC VALLEY HATCHERY
MCCA	MCCALL HATCHERY
MCKE	MCKENZIE HATCHERY
MONT	MONTLAKE HATCHERY
NCHH	NACHES HATCHERY
NISP	NIAGARA SPRING HATCHERY
OASP	OAK SPRINGS HATCHERY
OXBO	OXBOW HATCHERY
PAHH	PAHSIMEROI HATCHERY
POWP	POWELL REARING POND
PRDH	PRIEST RAPIDS HATCHERY
RAPH	RAPID RIVER HATCHERY
REDP	RED RIVER REARING POND
RING	RINGOLD HATCHERY
ROAR	ROARING RIVER HATCHERY
ROBU	ROUND BUTTE
RRHH	ROCKY REACH HATCHERY
SAND	SANDY HATCHERY
SAWT	SAWTOOTH HATCHERY
SKAM	SKAMANIA HATCHERY
SOSA	SOUTH SANTIAM HATCHERY
SPEE	SPEELYAI HATCHERY
SPRC	SPRING CREEK NATIONAL FISH HATCHERY
STAY	STAYTON POND
TOUT	TOUTLE HATCHERY
TRAS	TRASK HATCHERY
TROJ	TROJAN POND
TUCH	TUCANNON HATCHERY
TURO	TURTLE ROCK HATCHERY
VANC	VANCOUVER HATCHERY
WAHA	WASHOUGAL HATCHERY
WAHK	WAHKEENA POND
WALH	WALLOWA HATCHERY
WELF	WELLS HATCHERY, WDF
WELG	WELLS HATCHERY, WDW
WILH	WILLAMETTE/DEXTER HATCHERY
WILL	WILLARD NATIONAL FISH HATCHERY
WINT	WINTHROP NATIONAL FISH HATCHERY
WSPH	WARM SPRINGS HATCHERY
YAKH	YAKIMA HATCHERY

G. Capture Method Codes:

BPSUB = Bypass facility sub-sample
BSEINE = Beach Seine
BTRAP = Box Trap
CMTRAP = Cray-Meeken Trap
DIPNET = Dip Net
DIPTRP = Dipper Trap
DIVSYS = PIT Tag diversion system
GWDIP = Gatewell Dip net
GWFYKE = Gatewell Fyke net
HOOK = Hook and line
MTRAP = Minnow Trap
PSEINE = Purse Seine
SCOTRP = Scoop Trap
SCREWT = Screw Trap
SHOCK = Electro-Shock
WTRAP = Weir Trap

Gate Well Air Lift
GWAIRL

H. Organization and Recovery Organization Codes:

BIOMRK = Biomark
CPUD = Chelan People's Utility District
CTUIR = Confederated Tribes of Umatilla I.R.
FPC = Fish Passage Center
ICFWRU = Idaho Cooperative Fish and Wildlife Research Unit
IDFG = Idaho Dept. of Fish and Game
NMFS = National Marine Fisheries Service
NPT = Nez Perce Tribe
ODFW = Oregon Dept. of Fish and Wildlife
PGE = Portland General Electric
PNL = Pacific Northwest Laboratory
PSMFC = Pacific States Marine Fisheries Commission
SHOBAN = Shoshone-Bannock Indian Nation
USFWS = U.S. Fish and Wildlife Service
WDF = Washington Dept. of Fish
WDFW = Washington Dept. of Fish & Wildlife
WDW = Washington Dept. of Wildlife
YINN = Yakama Indian Nation

I. Interrogation Sites Codes:

	Code	River Kilometer	Active Period
Bonneville Dam	= BVJ	234	5/1/92-PRESENT
Challis North	= CHN	522.525	9/11/91-PRESENT
Challis South	= CHS	522.523	9/9/91-PRESENT
Clearwater River Trap Juvenile	= CLJ	522.224.10	3/30/89-PRESENT
Innaha Juvenile Trap	= IMJ	522.308.007	3/1/94-PRESENT
John Day Dam	= JDJ	347	5/14/92-PRESENT
Lemhi Weir Juvenile	= LWJ	522.303.416.049	
Little Goose Juvenile	= GOJ	522.113	4/7/87-PRESENT
Little Goose Juvenile sub-sample	= GO2	522.113	4/7/91-PRESENT
Lower Granite Juvenile	= GRJ	522.173	3/25/88-PRESENT
"	= LGR		3/29/87-6/20/87
Lower Granite Adult	= GRA	522.173	4/22/88-PRESENT
Lower Monumental Juvenile	= LMJ	522.067	3/93-PRESENT
Lower Monumental Juv (Sub Sample)	= LM2	522.067	
McNary Juvenile	= MCJ	470	4/8/88-PRESENT
"	= MCN	470	4/21/87-6/22/87
McNary Juvenile sub-sample	= MC2	470	4/10/91-PRESENT
Prosser Juvenile	= PRJ	539.76	4/25/89-PRESENT
Prosser Juvenile sub-sample (B)	= PR2	539.76	3/5/91-PRESENT
Rosa Dam	= ROZ	539.206	3/26/92-3/29/92
Salmon River Juvenile Trap	= SAJ	522	
Snake River Trap Juvenile	= SNJ	522.225	3/23/89-PRESENT
Sullivan Dam	= SUJ		
Sunnyside Juvenile	= SSJ	539.167	4/11/91-6/4/91
Wapato Juvenile	= WPJ	539.172	5/8/91-6/4/91
Yakima River Trap (1) Juvenile	= YIJ	539.14	5/4/90-6/10/90

Wanapum Dam WAS 415.8 miles
 Grana CO PUD.
 • ~~Sawtooth~~ Trap = ~~SAT~~ SAW TRAP

~~Marsh~~

• Marsh C T = MAR TRAP

21) Define Point Release Sites - or fixed release sites. Not to be used for anchors for other in-stream locations. Rather, use river locations or variable release sites. River Hierarchy.

J. Tag, Release, and Collection Site Codes and Associated River KM's:

1. River kilometer - Hierarchical coding scheme: Kilometers from mouth of Columbia to Tag, Release or Collection site or (up to 7th order stream), with each tributary delimited with a period. (eg. code for location of Lower Granite dam is 522.173 = 522 km from the mouth of the Columbia to the mouth of the Snake, and 173 km from the mouth of the Snake to the dam.) Each segment of the code is three characters long, zero padded from the left. If additional sites are required contact PTAGIS to add requests to the list.

For in-river marking specify river kilometers using the release site in this list that is closest down-river. Then, append an additional suffix to the release river kilometer that represents the distance (in kilometers) of your marking from that release site.

For example, for a project that is tagging 10 Kilometers from the Salmon River South Fork confluence, the correct codes to use would be:

SALSF 522.303.215.010

2. GIS Hydrounits - An eight digit number assigned to areas of land based on drainages. The GIS Hydrounits for the recognized site codes are listed below. However, there are several rivers (Columbia, Snake, Middle Fork of the Salmon) that flow through more than one drainage. The hydrounit codes listed below for these rivers only contain the digits that are common to all drainages along that river. For example, for the tag site COLR (Columbia River), only the first three digits, 170, are common to all the areas drained by the Columbia river. To determine the complete GIS Hydrounit code for the site you are tagging at, you need to know the precise point along the river where you are tagging, and then locate that point on a GIS map. Your state or federal representative on the PIT Tag Steering Committee should be able to aid in this. Also known as USGS Hydro-unit.

3. List of Tag, Release or Collection Sites with associated River Kilometer and GIS Hydrounits.

Codes that are not in the list (New Codes)

RELEASE SITES BY TAG, RELEASE OR COLLECTION SITE

Codes	Tag, Release, or Collection Site	River Kilometer	Total Rkm	GIS Hydrounits
ALTULC	ALTURAS L C	522.303.633	1458	17060201
AMERR	AMERICAN R	522.224.120.101	967	17060305
BCANF	BIG CANYON FACILITY	522.271.131.018.001	943	17060105
BEARC	BEAR C	522.224.120.037.081	984	17060301
BEARVC	BEAR VALLEY C	522.303.319.170	1314	17060205
BEAVEC	BEAVER C	522.303.642	1467	17060201
BIGC	BIG C	522.303.319.029	1173	17060206
BIGFLC	BIG FLAT C	522.224.120.037.113.026	1042	17060204
BO1	BONNEVILLE D PH1	234	234	17080001
BO2	BONNEVILLE D PH2	234	234	17080001

Should be entered with 18
 TBD TO BE DETERMINED 000 0 000000

625
 Last changed mm/dd/yy

in ignore
 tag, if
 rel info
 Not Pres
 get river
 km to assoc
 tag site
 river km

Codes	Tag, Release, or Collection Site	River Kilometer	Total Rkm	GIS Hydrounits
BOUNDC	BOUNDARY C	522.303.319.154	1298	17060206
BRUSHC	BRUSHY FORK C	522.224.120.037.113.006	1022	17060303
BSHEEC	BIG SHEEP C	522.308.032	862	17060102
CAMASC	CAMAS C	522.303.319.057	1201	17060206
CAPEHC	CAPEHORN C	522.303.319.170.010	1324	17060205
CATHEC	CATHERINE C	522.271.232	1025	17060104
CFCTRP	CROOKED FK C T	522.224.120.037.113.003	1019	17060303
CHAMBC	CHAMBERLAIN C	522.303.282	1107	17060207
CHAMPC	CHAMPION C	522.303.631	1456	17060201
CHAMWF	CHAMBERLAIN C WF	522.303.282.024	1131	17060207
CHANDL	CHANDLER CANAL	539.076	615	17030003
CLEARC	CLEAR C	522.224.120.004	870	17060305
CLELMD	CLE ELUM D	539.299.013	851	17030001
CLELMR	CLE ELUM R	539.299	838	17030001
CLWH	CLEARWATER H	*		N/A
CLWR	CLEARWATER R	522.224	746	17060306
CLWRNF	CLEARWATER R, N FK	522.224.065	811	17060308
CLWRSF	CLEARWATER R, S FK	522.224.120	866	17060305
CLWTRP	CLEARWATER T	522.224.010	756	17060306
COLR	COLUMBIA R			170
COLTC	COLT C	522.224.120.037.113.020	1036	17060303
CROOKC	CROOKED F C	522.224.120.037.113	1016	17060303
CROOKR	CROOKED R	522.224.120.094	960	17060305
CROTRP	CROOKED R T	522.224.120.094.001	961	17060305
DAGGEC	DAGGER C	522.303.319.155	1299	17060206
DECKEC	DECKER C	522.303.624.001	1450	17060201
DWOR	DWORSHAK H	522.224.065	811	17060306
EAGLEC	EAGLE C	522.224.120.037.253.003	1159	17060301
ELDORC	ELDORADO C	522.224.087.041	874	17060304
ELKC	ELK C	522.303.319.170.014	1328	17060205
ENTH	ENTIAT H	778.017	795	17020010
FALLC	FALL C	522.303.319.163	1307	17060206
FISHC	FISH C	522.224.120.037.039	942	17060303
FISHEC	FISHER C	522.303.628	1453	17060201
FISTRP	FISH C T	522.224.120.037.039.002	1044	17060303
FIVEMC	FIVE MILE C	522.224.120.094.018	978	17060305
FLOSSC	FLOSSIE C	522.303.282.027	1134	17060207
4JULYC	FOURTH OF JULY C	522.303.630	1455	7060201
FRENCC	FRENCHMAN C	522.303.647	1472	17060201
GOLDC	GOLD C	522.303.621	1446	17060201
GRANDR	GRANDE RONDE R	522.271	793	17060106

Codes	Tag, Release, or Collection Site	River Kilometer	Total Rkm	GIS Hydrounits
HAGE	HAGERMAN H	*		N/A
HAZARC	HAZARD C	522.303.140.031	996	17060209
HCD	HELLS CANYON D	522.397	919	17050201
HELLRC	HELL ROARING C	522.303.631	1456	17060201
HERDC	HERD C	522.303.552.014	1391	17060202
HUCKLC	HUCKELBERRY C	522.303.624	1449	17060201
HWY93B	US HWY 93 BRIDGE	522.303.647	1472	17060201
ICICLC	ICICLE C	754.041	795	17020011
IHR	ICE HARBOR D	522.016	538	17060110
IMNAHR	IMNAHA R	522.308	830	17060102
IMNAHW	IMNAHA R W	522.308.074	904	17060102
IMNTRP	IMNAHA T	522.308.007	837	17060102
IRRI	IRRIGON H	*		17060102
JDA	JOHN DAY D	347	347	17070101
JOHNC	JOHNS C	522.224.120.056	922	17060305
JOHNSC	JOHNSON C	522.303.215.060.024	1124	17060208
KNAPPC	KNAPP C	522.303.319.170.015	1329	17060205
KNOXB	KNOX BRIDGE	522.303.215.112	1152	17060208
KOOS	KOOSKIA H	522.224.120.004.001	871	17060305
LAKEC	LAKE C	522.303.215.059.045	1144	17060208
LEAB	LEABURG H	163.282.056	501	17090004
LEAV	LEAVENWORTH H	754.041.005	800	17020011
LEMHIR	LEMHI R	522.303.416	1241	17060204
LEMHIW	LEMHI W	522.303.416.049	1290	17060204
LGR	LOWER GRANITE D	522.173	695	17060107
LGS	LITTLE GOOSE D	522.113	635	17060107
LMN	LOWER MONUMENTAL D	522.067	589	17060110
LOLOC	LOLO C	522.224.087	833	17060306
LOOH	LOOKINGGLASS H	522.271.137.003	933	17060106
LOOKGC	LOOKING GLASS C	522.271.137	930	17060106
LOONC	LOON C	522.303.319.073	1217	17060205
LOSTIR	LOSTINE R	522.271.131.042	966	17060105
LSALR	LITTLE SALMON R	522.303	825	170602
LSHEEF	LITTLE SHEEP FACILITY	522.308.032.005.008	875	17060102
LYFE	LYONS FERRY H	522.095	617	17060107
MARSHC	MARSH C	522.303.319.170	1314	17060205
MARTRP	MARSH C T	522.303.319.170.011	1325	17060205
MAVA	MAGIC VALLEY H	*		N/A
MAYSC	MAYS C	522.303.631	1456	17060201
MCCA	MCCALL H	*		N/A
MCKE	MCKENZIE H	163.282.053	498	1709004

Codes	Tag, Release, or Collection Site	River Kilometer	Total Rkm	GIS Hydrounits
MCKER	MCKENZIE R	163.282	445	1709004
MCN	MCNARY D	470	470	17070101
MINAMR	MINAM R	522.271.131.016	940	17060106
MONT	MONTLAKE H	*		N/A
MOOSEC	MOOSE C	522.303.282.031	1138	17060207
NATCHR	NATCHES R	539.187	726	17030002
NEWSOC	NEWSOME C	522.224.120.084	950	17060305
NISP	NIAGARA SPRINGS H	*		N/A
PAHP	PAHSIMEROI	522.303.489.011	1325	17060202
PAHSIR	PAHSIMEROI R	522.303.489	1314	17060202
PAHSIW	PAHSIMEROI W	522.303.489.002	1316	17060202
PAHTRP	PAHSIMEROI R T	522.303.489.002	1316	17060202
PAPOOC	PAPOOSE C	522.224.120.037.105	1008	17060303
PETEK C	PETE KING C	522.224.120.037.003	906	17060303
PETTLC	PETTIT L C	522.303.633.002	1460	17060201
POLEC	POLE C	522.303.642	1467	17060201
POWP	POWELL REARING P	522.224.120.037.113	1016	17060302
PRD	PRIEST RAPIDS D	639	639	17020016
PROSRD	PROSSER D	539.076	615	17030003
PROTRP	PROSSER T	539.076	617	17030003
RAPH	RAPID R H	522.303.140.007.006	978	17060210
RAPIDR	RAPID R	522.303.140.007	978	17060210
REDFLC	REDFISH L C	522.303.615	1440	17060201
REDP	RED R REARING P	522.224.120.101.027	994	17060305
REDR	RED R	522.224.120.101	967	17060305
REDRSF	RED R, S FK	522.224.120.101.028	995	17060305
REDTRP	RED R T	522.224.120.101.001	968	17060305
RELIEC	RELIEF C	522.224.120.094.013	973	17060305
RIS	ROCK ISLAND D	730	730	17020010
RLCTRP	REDFISH L C T	522.303.615.003	1443	17060201
ROSD	ROSA D	539.206	745	17030001
RPDTRP	RAPID R T	522.303.140.007.007	979	17060210
RRE	ROCKY REACH D	763	763	17020010
RUNNIC	RUNNING C	522.224.120.037.253	1156	17060301
RUSHC	RUSH C	522.303.319.029.011	1187	17060206
SALEFT	SALMON R, E FK T	522.303.552.029	1406	17060201
SALEFW	SALMON R, E FK W	522.303.552.030	1407	17060202
SALR	SALMON R	522.303	825	17060209
SALREF	SALMON R E FK	522.303.552	1377	17060202
SALRMF	SALMON R M FK	522.303.319	1144	17060206
SALRNF	SALMON R N FK	522.303.381	1206	17060204

Codes	Tag, Release, or Collection Site	River Kilometer	Total Rkm	GIS Hydrounits
SALRSF	SALMON R S FK	522.303.215	1040	17060208
SALSFW	SALMON R S FK W	522.303.215.111	1151	17060202
SALTRP	SALMON T	522.303.085	910	17060209
SAWT	SAWTOOTH H	522.303.617	1442	17060201
SAWTRP	SAWTOOTH T	522.303.617	1442	17060201
SECESR	SECESH R	522.303.215.059	1099	17060208
SFSTRP	SALMON R S FK T	522.303.215.111	1151	17060202
SLATEC	SLATE C	522.303.106	931	17060209
SMILEC	SMILEY C	522.303.644	1469	17060201
SNAKER	SNAKE R	522	522	17060110
SNKTRP	SNAKE T	522.225	747	17060103
SQUAWC	SQUAW C	522.224.120.037.096	999	17060303
SSD	SUNNYSIDE D	539.167	706	17030003
SSIDEC	SUNNYSIDE CANAL	539.167	706	17030003
SSIDES	SUNNYSIDE SCREEN	539.167.001	707	17030003
STANLC	STANLY L C	522.303.609.009	1443	17060201
STANLE	STANLEY (GAGE2945)	522.303.609	1434	17060201
SUL	SULLIVAN D	163.043	206	17090102
SULFUC	SULFER C	522.303.319.150	1294	17060206
TDA	THE DALLES D	308	308	17070101
TURO	TURTLE ROCK P	765	765	17020010
VALEYC	VALLEY C	522.303.609	1434	17060201
VATC	VAT C	522.303.633.003	1461	17060201
VGISNB	VAN GIESSEN BRIDGE	539	539	17030003
WALH	WALLOWA H	522.271.131.063.001	988	17060105
WALLOR	WALLOWA R	522.271.131	924	17060106
WAPATC	WAPATO CANAL	539.171	710	17030003
WAPATD	WAPATO D	539.172	711	17030003
WAPATS	WAPATO SCREEN	539.172.001	712	17030003
WELF	WELLS H	830	830	17020005
WENATR	WENATCHEE R	754	754	17020011
WENR	WENAHA R	522.271.073	866	17060106
WENRNF	WENAHA R, N FK	522.271.073.035	901	17060106
WENRSF	WENAHA R, S FK	522.271.073.035	901	17060106
WHITCC	WHITE CAP C	522.224.120.037.264	1167	17060303
WHITSC	WHITE SAND C	522.224.120.037.113	1016	17060303
WILLIC	WILLIAMS C	522.303.622	1447	17060201
WILLR	WILLAMETTE R	163	163	17090012
WINT	WINTHROP H	843.081	924	17020005
WOPTXD	WOPATOX D	539.187.028	754	17030002
WPOOSH	WISH POOSH C	539.299.004	852	17030001

Codes	Tag, Release, or Collection Site	River Kilometer	Total Rkm	GIS Hydrounits
YAKIMR	YAKIMA R	539	539	17030003
YANKWF	YANKEE FK, W FK	522.303.591.011	1427	17060201
YELLC	YELLOWBELLY L C	522.303.633.001	1459	17060201

* Hatchery from which fish are outplanted only. No direct release into the Columbia River basin from these facilities.

RELEASE SITES BY RIVER KILOMETER

Codes	Tag, Release, or Collection Site	River Kilometer	Total Rkm	GIS Hydrounits
COLR	COLUMBIA R	*		170
IRRI	IRRIGON H	*		17060102
MAVA	MAGIC VALLEY H	*		N/A
MCCA	MCCALL H	*		N/A
MONT	MONTLAKE H	*		N/A
NISP	NIAGARA SPRINGS H	*		N/A
CLWH	CLEARWATER H	*		N/A
HAGE	HAGERMAN H	*		N/A
WILLR	WILLAMETTE R	163	163	17090012
SUL	SULLIVAN D	163.043	206	17090102
MCKER	MCKENZIE R	163.282	445	17090004
MCKE	MCKENZIE H	163.282.053	498	17090004
LEAB	LEABURG H	163.282.056	501	17090004
BO1	BONNEVILLE D PH1	234	234	17080001
BO2	BONNEVILLE D PH2	234	234	17080001
TDA	THE DALLES D	308	308	17070101
JDA	JOHN DAY D	347	347	17070101
MCN	MCNARY D	470	470	17070101
SNAKER	SNAKE R	522	522	17060110
IHR	ICE HARBOR D	522.016	538	17060110
LMN	LOWER MONUMENTAL D	522.067	589	17060110
LYFE	LYONS FERRY H	522.095	617	17060107
LGS	LITTLE GOOSE D	522.113	635	17060107
LGR	LOWER GRANITE D	522.173	695	17060107
CLWR	CLEARWATER R	522.224	746	17060306
CLWTRP	CLEARWATER T	522.224.010	756	17060306
CLWRNF	CLEARWATER R, N FK	522.224.065	811	17060308
DWOR	DWORSHAK H	522.224.065	811	17060306
LOLOC	LOLO C	522.224.087	833	17060306
ELDORC	ELDORADO C	522.224.087.041	874	17060304
CLWRSF	CLEARWATER R, S FK	522.224.120	866	17060305
CLEARC	CLEAR C	522.224.120.004	870	17060305
KOOS	KOOSKIA H	522.224.120.004.001	871	17060305
PETKCC	PETE KING C	522.224.120.037.003	906	17060303
FISHC	FISH C	522.224.120.037.039	942	17060303
FISTRP	FISH C T	522.224.120.037.039.002	1044	17060303
BEARC	BEAR C	522.224.120.037.081	984	17060301

Codes	Tag, Release, or Collection Site	River Kilometer	Total Rkm	GIS Hydrounits
SQUAWC	SQUAW C	522.224.120.037.096	999	17060303
PAPOOC	PAPOOSE C	522.224.120.037.105	1008	17060303
BIGFLC	BIG FLAT C	522.224.120.037.113.026	1042	17060204
BRUSHC	BRUSHY FORK C	522.224.120.037.113.006	1022	17060303
CFCTRP	CROOKED FK C T	522.224.120.037.113.003	1019	17060303
COLTC	COLT C	522.224.120.037.113.020	1036	17060303
CROOKC	CROOKED F C	522.224.120.037.113	1016	17060303
POWP	POWELL REARING P	522.224.120.037.113	1016	17060302
WHITSC	WHITE SAND C	522.224.120.037.113	1016	17060303
EAGLEC	EAGLE C	522.224.120.037.253.003	1159	17060301
RUNNIC	RUNNING C	522.224.120.037.253	1156	17060301
WHITCC	WHITE CAP C	522.224.120.037.264	1167	17060303
JOHNC	JOHNS C	522.224.120.056	922	17060305
NEWSOC	NEWSOME C	522.224.120.084	950	17060305
CROOKR	CROOKED R	522.224.120.094	960	17060305
CROTRP	CROOKED R T	522.224.120.094.001	961	17060305
RELIEC	RELIEF C	522.224.120.094.013	973	17060305
FIVEMC	FIVE MILE C	522.224.120.094.018	978	17060305
AMERR	AMERICAN R	522.224.120.101	967	17060305
REDR	RED R	522.224.120.101	967	17060305
REDTRP	RED R T	522.224.120.101.001	968	17060305
REDP	RED R REARING P	522.224.120.101.027	994	17060305
REDRSF	RED R, S FK	522.224.120.101.028	995	17060305
SNKTRP	SNAKE T	522.225	747	17060103
GRANDR	GRANDE RONDE R	522.271	793	17060106
WENR	WENAHA R	522.271.073	866	17060106
WENRNF	WENAHA R, N FK	522.271.073.035	901	17060106
WENRSF	WENAHA R, S FK	522.271.073.035	901	17060106
WALLOR	WALLOWA R	522.271.131	924	17060106
MINAMR	MINAM R	522.271.131.016	940	17060106
BCANF	BIG CANYON FACILITY	522.271.131.018.001	943	17060105
LOSTIR	LOSTINE R	522.271.131.042	966	17060105
WALH	WALLOWA H	522.271.131.063.001	988	17060105
LOOKGC	LOOKING GLASS C	522.271.137	930	17060106
LOOH	LOOKINGGLASS H	522.271.137.003	933	17060106
CATHEC	CATHERINE C	522.271.232	1025	17060104
LSALR	LITTLE SALMON R	522.303	825	170602
✓SALR	SALMON R	522.303	825	17060209
SALTRP	SALMON T	522.303.085	910	17060209
SLATEC	SLATE C	522.303.106	931	17060209
RAPIDR	RAPID R	522.303.140.007	978	17060210

Codes	Tag, Release, or Collection Site	River Kilometer	Total Rkm	GIS Hydrounits
RAPH	RAPID R H	522.303.140.007.006	978	17060210
RPDTRP	RAPID R T	522.303.140.007.007	979	17060210
HAZARC	HAZARD C	522.303.140.031	996	17060209
SALRSF	SALMON R S FK	522.303.215	1040	17060208
SECESR	SECESH R	522.303.215.059	1099	17060208
LAKEC	LAKE C	522.303.215.059.045	1144	17060208
JOHNSC	JOHNSON C	522.303.215.060.024	1124	17060208
SALSPW	SALMON R S FK W	522.303.215.111	1151	17060202
SFSTRP	SALMON R S FK T	522.303.215.111	1151	17060202
KNOXB	KNOX BRIDGE	522.303.215.112	1152	17060208
CHAMBC	CHAMBERLAIN C	522.303.282	1107	17060207
CHAMWF	CHAMBERLAIN C WF	522.303.282.024	1131	17060207
FLOSSC	FLOSSIE C	522.303.282.027	1134	17060207
MOOSEC	MOOSE C	522.303.282.031	1138	17060207
SALRMF	SALMON R M FK	522.303.319	1144	17060206
✓BIGC	BIG C	522.303.319.029	1173	17060206
RUSHC	RUSH C	522.303.319.029.011	1187	17060206
CAMASC	CAMAS C	522.303.319.057	1201	17060206
LOONC	LOON C	522.303.319.073	1217	17060205
SULFUC	SULFER C	522.303.319.150	1294	17060206
BOUNDC	BOUNDARY C	522.303.319.154	1298	17060206
DAGGEC	DAGGER C	522.303.319.155	1299	17060206
FALLC	FALL C	522.303.319.163	1307	17060206
BEARVC	BEAR VALLEY C	522.303.319.170	1314	17060205
MARSHC	MARSH C	522.303.319.170	1314	17060205
CAPEHC	CAPEHORN C	522.303.319.170.010	1324	17060205
MARTRP	MARSH C T	522.303.319.170.011	1325	17060205
ELKC	ELK C	522.303.319.170.014	1328	17060205
KNAPPC	KNAPP C	522.303.319.170.015	1329	17060205
SALRNF	SALMON R N FK	522.303.381	1206	17060204
LEMHIR	LEMHI R	522.303.416	1241	17060204
LEMHIW	LEMHI W	522.303.416.049	1290	17060204
PAHSIR	PAHSIMEROI R	522.303.489	1314	17060202
PAHSIW	PAHSIMEROI W	522.303.489.002	1316	17060202
PAHTRP	PAHSIMEROI R T	522.303.489.002	1316	17060202
PAHP	PAHSIMEROI	522.303.489.011	1325	17060202
SALREF	SALMON R E FK	522.303.552	1377	17060202
HERDC	HERD C	522.303.552.014	1391	17060202
SALEFT	SALMON R, E FK T	522.303.552.029	1406	17060201
SALEFW	SALMON R, E FK W	522.303.552.030	1407	17060202
YANKWF	YANKEE FK, W FK	522.303.591.011	1427	17060201

Paul Klein

Codes	Tag, Release, or Collection Site	River Kilometer	Total Rkm	GIS Hydrounits
STANLE	STANLEY (GAGE2945)	522.303.609	1434	17060201
VALEYC	VALLEY C	522.303.609	1434	17060201
STANLC	STANLY L C	522.303.609.009	1443	17060201
REDFLC	REDFISH L C	522.303.615	1440	17060201
RLCTRP	REDFISH L C T	522.303.615.003	1443	17060201
SAWT	SAWTOOTH H	522.303.617	1442	17060201
SAWTRP	SAWTOOTH T	522.303.617	1442	17060201
GOLDC	GOLD C	522.303.621	1446	17060201
WLLJIC	WLLIAMS C	522.303.622	1447	17060201
HUCKLC	HUCKELBERRY C	522.303.624	1449	17060201
DECKEC	DECKER C	522.303.624.001	1450	17060201
FISHEC	FISHER C	522.303.628	1453	17060201
4JULYC	FOURTH OF JULY C	522.303.630	1455	7060201
CHAMPC	CHAMPION C	522.303.631	1456	17060201
HELLRC	HELL ROARING C	522.303.631	1456	17060201
MAYSC	MAYS C	522.303.631	1456	17060201
ALTULC	ALTURAS L C	522.303.633	1458	17060201
YELLIC	YELLOWBELLY L C	522.303.633.001	1459	17060201
✓PETTLC	PETTT L C	522.303.633.002	1460	17060201
VATC	VAT C	522.303.633.003	1461	17060201
BEAVEC	BEAVER C	522.303.642	1467	17060201
POLEC	POLE C	522.303.642	1467	17060201
SMILEC	SMILEY C	522.303.644	1469	17060201
FRENCC	FRENCHMAN C	522.303.647	1472	17060201
HWY93B	US HWY 93 BRIDGE	522.303.647	1472	17060201
IMNAHR	IMNAHA R	522.308	830	17060102
IMNTRP	IMNAHA T	522.308.007	837	17060102
BSHEEC	BIG SHEEP C	522.308.032	862	17060102
LSHEEF	LITTLE SHEEP FACILITY	522.308.032.005.008	875	17060102
IMNAHW	IMNAHA R W	522.308.074	904	17060102
HCD	HELLS CANYON D	522.397	919	17050201
VGISNB	VAN GIESSEN BRIDGE	539	539	17030003
YAKIMR	YAKIMA R	539	539	17030003
CHANDL	CHANDLER CANAL	539.076	615	17030003
PROSRD	PROSSER D	539.076	615	17030003
PROTRP	PROSSER T	539.076	617	17030003
SSD	SUNNYSIDE D	539.167	706	17030003
SSIDEC	SUNNYSIDE CANAL	539.167	706	17030003
SSIDES	SUNNYSIDE SCREEN	539.167.001	707	17030003
WAPATC	WAPATO CANAL	539.171	710	17030003
WAPATD	WAPATO D	539.172	711	17030003

Codes	Tag, Release, or Collection Site	River Kilometer	Total Rkm	GIS Hydrounits
WAPATS	WAPATO SCREEN	539.172.001	712	17030003
NATCHR	NATCHES R	539.187	726	17030002
WOPTXD	WOPATOX D	539.187.028	754	17030002
ROSA D	ROSA D	539.206	745	17030001
CLELMR	CLE ELUM R	539.299	838	17030001
WPOOSH	WISH POOSH C	539.299.004	852	17030001
CLELMD	CLE ELUM D	539.299.013	851	17030001
PRD	PRIEST RAPIDS D	639	639	17020016
RIS	ROCK ISLAND D	730	730	17020010
WENATR	WENATCHEE R	754	754	17020011
ICICLC	ICICLE C	754.041	795	17020011
LEAV	LEAVENWORTH H	754.041.005	800	17020011
RRE	ROCKY REACH D	763	763	17020010
TURO	TURTLE ROCK P	765	765	17020010
ENTH	ENTIAT H	778.017	795	17020010
WELF	WELLS H	830	830	17020005
WINT	WINTHROP H	843.081	924	17020005

* Hatchery from which fish are outplanted only. No direct release into the Columbia River basin from these facilities.

K. PIT Tag Steering Committee Members, 1994.

Name	Organization	Street	City	State	ZIP	Voice Phone	Fax Phone
Ed Buettner	IDFG	1540 Warner Ave.	Lewiston	ID	83501	(208)799-3475	(208)799-5212
Billy Connor	USFWS	PO Box 18	Ahsahka	ID	83520	(208)476-7242	(208)476-3252
Carter Stein	PSMFC	2501 S.W. First Ave., Suite 200	Portland	OR	97201	(206)326-7025	(503)650-5426
Brian Jonasson	ODFW	1410 L Ave 211 Inlow Hall EOSC	La Grande	OR	97850	(503)962-3884	(503)962-3849
Doug Marsh	NMFS-CZES	2725 Montlake Boulevard E.	Seattle	WA	98112	(206)860-3235	(206)860-3267
X Dave Marvin	FPC/CRITFC	2 501 S.W. First Ave., Suite 230	Portland	OR	97232-2295	(503)230-4289	(503)230-7559
Charles Morrill	WDW	600 N. Capital Way	Olympia	WA	98504-1091	(206)753-3009	(206)586-0248

Does not go in list

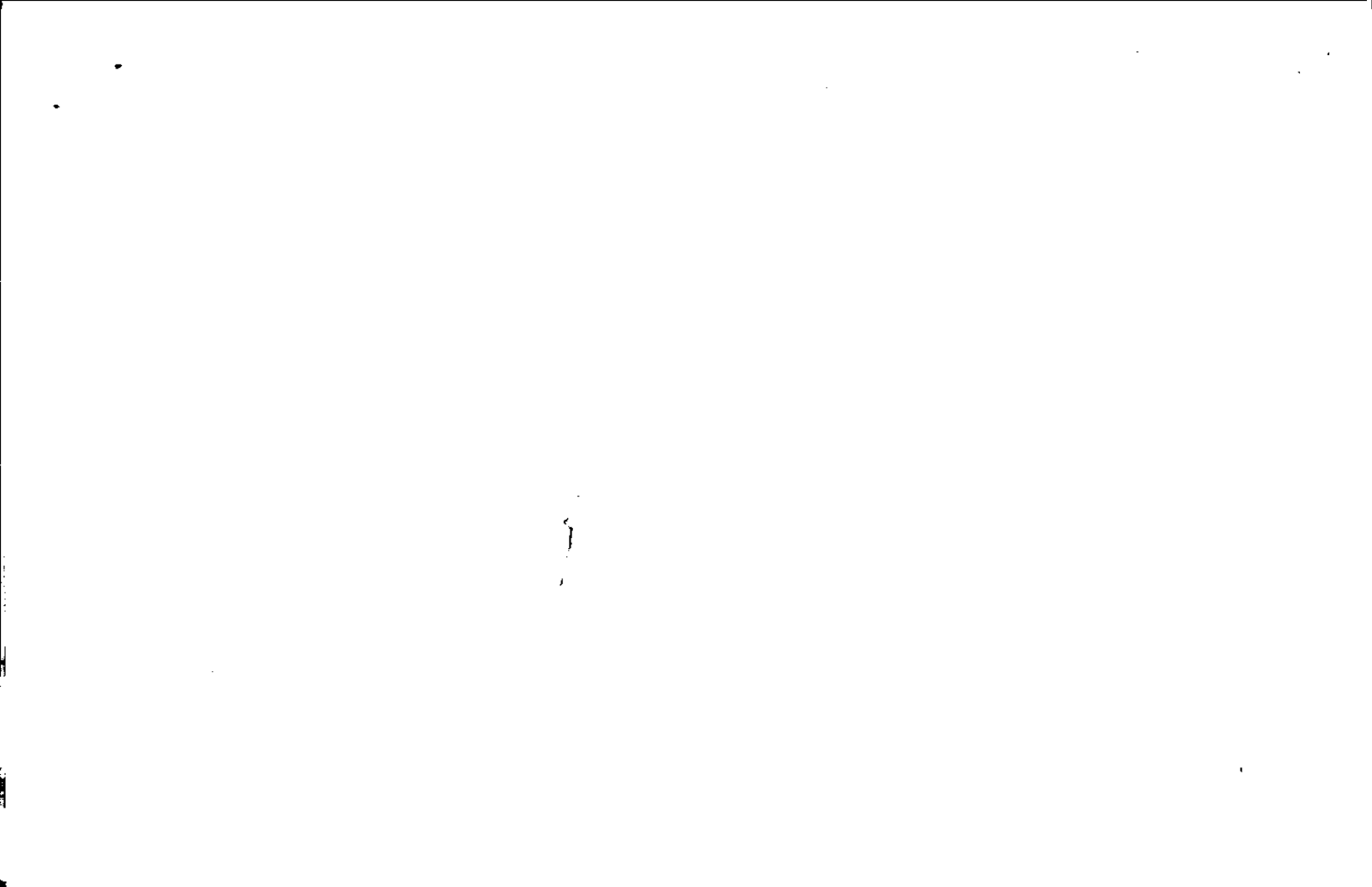
Tom Morse BPA 230-3314

May 2 10:02

psmfcl:\x\pittag\Doc\Coil Eff\coil map
/tmp/coil map

1

BVJ BONNEVILLE JUVENILE	SAMPLE ROOM	CO	A 4/99
CHN CHALLIS	NORTH	F1	3/9/99
CLJ CLEARWATER JUV	MAIN	D0 D2	9/9/99
G02 LITTLE GOOSE JUVENILE	SAMPLE ROOM	50 52	9/9/99
GOJ LITTLE GOOSE JUVENILE	A DIVERSION	A0 A2 A4	9/9/99
GOJ LITTLE GOOSE JUVENILE	A RACEWAY/EXIT	90 92 94 96	9/9/99
GOJ LITTLE GOOSE JUVENILE	A SEPARATOR/GATE	40 42 44 46	9/9/99
GOJ LITTLE GOOSE JUVENILE	B DIVERSION	A6 A8 AA	9/9/99
GOJ LITTLE GOOSE JUVENILE	B RACEWAY/EXIT	98 9A 9C 9E	9/9/99
GOJ LITTLE GOOSE JUVENILE	B SEPARATOR/GATE	48 4A 4C 4E	9/9/99
GOJ LITTLE GOOSE JUVENILE	DIVERSION EXIT	54 56 58 5A	9/9/99
GRA LOWER GRANITE ADULT	EAST	00 02 04 06	9/9/99
GRA LOWER GRANITE ADULT	WEST	08 0A 0C 0E	9/9/99
GRJ LOWER GRANITE JUV	A SEPARATOR GATE	28 2A	9/9/99
GRJ LOWER GRANITE JUV	B SEPARATOR GATE	2C 2E	9/9/99
GRJ LOWER GRANITE JUV	DIVERSION 1	36 38 3A	9/9/99
GRJ LOWER GRANITE JUV	DIVERSION 2	30 32 34	9/9/99
GRJ LOWER GRANITE JUV	RACEWAY EAST	10 12 14 16	9/9/99
GRJ LOWER GRANITE JUV	RACEWAY WEST/EXIT	18 1A 1C 1E	9/9/99
GRJ LOWER GRANITE JUV	SUBSAMPLE	20 22 24 26	9/9/99
JDJ JOHN DAY JUVENILE	SAMPLE ROOM	F4	9/9/99
LM2 LOWER MONUMENTAL JUVENILE	SAMPLE ROOM	48 4A	9/9/99
LMJ LOWER MONUMENTAL JUVENILE	A DIVERSION	20 22 24 26	9/9/99
LMJ LOWER MONUMENTAL JUVENILE	A EXIT	30 32 34 36	9/9/99
LMJ LOWER MONUMENTAL JUVENILE	A RACEWAY	10 12 14 16	9/9/99
LMJ LOWER MONUMENTAL JUVENILE	A SEPARATOR GATE	00 02 04 06	9/9/99
LMJ LOWER MONUMENTAL JUVENILE	B DIVERSION	28 2A 2C 2E	9/9/99
LMJ LOWER MONUMENTAL JUVENILE	B EXIT	38 3A 3C 3E	9/9/99
LMJ LOWER MONUMENTAL JUVENILE	B RACEWAY	18 1A 1C 1E	9/9/99
LMJ LOWER MONUMENTAL JUVENILE	B SEPARATOR GATE	08 0A 0C 0E	9/9/99
LMJ LOWER MONUMENTAL JUVENILE	DIVERSION EXIT	40 42 44 46	9/9/99
MC2 MCNARY JUV	SAMPLE ROOM	80 82	9/9/99
MCJ MCNARY	A DIVERSION	20 22 24 26	9/9/99
MCJ MCNARY	A RACEWAY	10 12 14 16	9/9/99
MCJ MCNARY	A SEPARATOR GATE	00 02	9/9/99
MCJ MCNARY	A SUBSAMPLE	30 32 34	9/9/99
MCJ MCNARY	A-SEPARATOR	50 52	9/9/99
MCJ MCNARY	B DIVERSION	28 2A 2C 2E	9/9/99
MCJ MCNARY	B RACEWAY	18 1A 1C 1E	9/9/99
MCJ MCNARY	B RIVER	48 4A 4C 4E	9/9/99
MCJ MCNARY	B SEPARATOR GATE	08 0A	9/9/99
MCJ MCNARY	B SUBSAMPLE	36 38 3A	9/9/99
MCJ MCNARY	B-SEPARATOR	54 56	9/9/99
MCJ MCNARY	DIV RIVER/A RIVER	40 42 44 46	9/9/99
PR2 PROSSER JUV	SAMPLE ROOM	C4 C6	9/9/99
PRJ PROSSER JUV	SEPARATOR	C8 CA CC CE	9/9/99
SAJ SALMON RIVER	MAIN	D8	9/9/99
SNJ SNAKE RIVER TRAP	MAIN	D4 D6	9/9/99
SUJ SULLIVAN DAM	SAMPLE ROOM	AA	9/9/99



- L. PIT Tag System Codes are assigned by the agency maintaining the monitoring equipment. During 1994, the majority of the monitoring equipment will be maintained by PTOC. Therefore, any questions, changes, or corrections should be addressed to that agency.

PIT TAG SYSTEM CODING BY LOCATIONS AND COIL NUMBERS
(As of 3/01/94)

MONITOR SITE	LOCATION	COIL NUMBERS	RESPONSIBLE ORGANIZATION
LOWER GRANITE ADULT	EAST	00-02-04-06	PSMFC
	WEST	08-0A-0C-0E	PSMFC
LOWER GRANITE JUV.	A MAIN	18-1A-1C-1E	PSMFC
	B MAIN	10-12-14-16	PSMFC
	GATE CONTROL A	28-2A	PSMFC
	GATE CONTROL B	2C-2E	PSMFC
	FISH DIVERSION A	30-32-34	PSMFC
	FISH DIVERSION B	36-38-3A	PSMFC
A SUB.	20-22-24-26	PSMFC	
LITTLE GOOSE JUV.	A MAIN	90-92-94-96	PSMFC
	B MAIN	98-9A-9C-9E	PSMFC
	A GATE CONTROL/SEPARATOR	40-42/44-46	PSMFC
	B GATE CONTROL/SEPARATOR	48-4A/4C-4E	PSMFC
	A FISH DIVERSION	A0-A2-A4-A6	PSMFC
	B FISH DIVERSION	A8-AA-AC-AE	PSMFC
	RIVER RELEASE	54-56-58-5A	PSMFC
SAMPLE ROOM	50-52	PSMFC	
LOWER MONUMENTAL JUV.	A DIVERSION	20-22-24-26	PSMFC
	A EXIT	30-32-34-36	PSMFC
	A RACEWAY	10-12-14-16	PSMFC
	A SEPARATOR GATE	00-02-04-06	PSMFC
	B DIVERSION	28-2A-2C-2E	PSMFC
	B EXIT	38-3A-3C-3E	PSMFC
	B RACEWAY	18-1A-1C-1E	PSMFC
	B SEPARATOR GATE	08-0A-0C-0E	PSMFC
	DIVERSION EXIT	40-42-44-46	PSMFC

McNARY JUV. (1990-1993)	A MAIN B MAIN A SUB. SAMPLE ROOM	68-6A-6C-6E 60-62-64-66 70-72-74-76 80-82	PSMFC PSMFC PSMFC PSMFC
McNARY JUV. (1994-PRESENT)	SAMPLE ROOM A DIVERSION A RACEWAY A SEPARATOR GATE A SUBSAMPLE B DIVERSION B RACEWAY B RIVER B SEPARATOR GATE B SUBSAMPLE DIV RIVER/A RIVER	3C-3E 20-22-24-26 10-12-14-16 00-20 30-32-34 28-2A-2C-2E 18-1A-1C-1E 48-4A-4C-4E 08-0A 36-38-3A 40-42-44-46	PSMFC PSMFC PSMFC PSMFC PSMFC PSMFC PSMFC PSMFC PSMFC PSMFC PSMFC
SNAKE JUV. TRAP	MAIN	D4-D6	IDFG
CLEARWATER JUV. TRAP	MAIN	D0-D2	IDFG
PROSSER	MAIN SAMPLE ROOM	C8-CA-CC-CE C4-C6	PSMFC PSMFC
YAKIMA JUV. TRAP 1	MAIN	B8-BA	NMFS
SUNNYSIDE	MAIN	S0-S2	PNL
WAPATO	MAIN	W0-W2	PNL
CHALLIS	NORTH SOUTH	F1-F3 F5-F7	IDFG IDFG
SALMON JUV. TRAP	MAIN	D8	IDFG

Figure 1. Tagging file Example.

```

FILE TYPE                : TAGGING
PROGRAM VERSION          : PITTAG.EXE 6.1;PITVAL.EXE 1.1
-----
EXAMPLE FOR SPEC. DOC. OF PIT TAGGING AT THE SNAKE RIVER TRAP
-----
FILE TITLE               : EWB91050.SNK
CREATION DATE            : 02/19/91
CREATION TIME           : 11:45
TAGGER                   : NELSON L
SPECIES                  : 1
RUN                      : 5
REARING TYPE            : U
HATCHERY SITE           :
STOCK                    :
BROOD YR                 :
MIGRATORY YR            : 91
TAG SITE                 : SNKTRP
RACEWAY/TRANSECT       :
CAPTURE METHOD           : DIPTRP
TAGGING TEMP            : 07.5
POST TAGGING TEMP       :
RELEASE WATER TEMP      : 07.5
TAGGING METHOD           : AUTO
ORGANIZATION            : IDFG
COORDINATOR ID          : EWB
RELEASE DATE            : 02/19/91
RELEASE LOCATION        : SNKTRP
RELEASE RIVER KM        : 522.225

```

1	7F7A2D4912	86	123	15U 01	
2	7F7A2D4775	E7	120	32W 01	
3	7F7A2C3177	D2	109	15U 01	
4	7F7A2C325B	B7	139	15U 01	
5	7F7A2D5116	92	111	15U 02	
6	7F7A2D4C02	79	245	32H 02	SC EATEN BY THIS STHD
7	7F7A2D4D0B	83	111	15U 02	
8	7F7A2D4817	8A	115	15U 02	ER
9	7F7A2D4B7E	F4	100	15U 02	
<TIME CHECK> 28 NOVEMBER AT 13:01					
10	7F7A290B4A	7C	113	16.7	15U 02 DI D BS

V01=02/19/91 12:00
V02=02/19/91 13:15

CLOSE DATE : 02/19/91
CLOSE TIME : 13:20

Figure 2. Release information file example.

FILE TYPE : RELEASE INFORMATION
FILE TITLE : REL89CMS.MCN
RELEASE DATE : 07/10/89
RELEASE TIME : 11:10
RELEASE SITE : MCN
RELEASE RIVER KM : 526
TRANSPORT DURATION : 00:15
TRANSPORT TYPE : TRUCK
RELEASE WATER TEMP : 15.0
ASSOCIATED MARK : RAF1
TAG FILE NAME : CSM88189.FC1
TAG FILE NAME : CSM88188.BS1
TAG FILE NAME : CSM88189.BS2

RELEASE MADE WITHIN BYPASS SYSTEM AT UNIT 2

Figure 3. Interrogation and Monitored Release file example.

Format is consistent for both files except the File Type is INTERROGATION for the Interrogation file and MONITORED RELEASE for the Monitored Release file. All times must be recorded in Pacific Standard Time even if the location of the Interrogation or Monitored Release is in Mountain Standard/Daylight or Pacific Daylight time.

FILE TYPE : INTERROGATION
FILE TITLE : PRJ89114.A
FILE CREATED : 24 April 1989 AT 00:00

04/24/89 01:00:00

| F2 04/12/89 01:26:47 7F7E495445 DF C8 CA

04/24/89 02:00:00

| F2 04/12/89 02:26:49 7F7E4D1A30 94 C8 CA CC

04/24/89 03:00:00

04/24/89 04:00:00

04/24/89 05:00:00

04/24/89 06:00:00

04/24/89 07:00:00

04/24/89 08:00:00

SYSTEM ID

STATION #F2

04/12/89 14:26:38

TOTAL NUMBER ID CARDS = 04

CARD ADDRESSES|C8 CA CC CE

C8-SELFTTEST|00

CA-SELFTTEST|00

CC-SELFTTEST|00

CE-SELFTTEST|00

04/24/89 08:10:00

04/24/89 09:00:00

04/24/89 10:00:00

| F2 04/12/89 10:26:52 7F7E4D5236 D2 C8 CA CC CE

04/24/89 11:00:00

04/24/89 12:00:00

04/24/89 13:00:00

04/24/89 14:00:00

| F2 04/12/89 14:26:49 7F7E201243 72 CC CE

04/24/89 15:00:00

04/24/89 16:00:00

04/24/89 17:00:00

04/24/89 18:00:00

FILE CLOSED : 25 April 1989 AT 00:00

Figure 4. Mortality file example.

FILE TYPE : MORTALITY
 PROGRAM VERSION : PITTAG.EXE 6.1

 1994 SPECIFICATION DOCUMENT

FILE TITLE : CSM89333.BS1
 CREATION DATE : 11/29/89
 CREATION TIME : 11:45
 COLLECTION SITE : GOJ
 COLLECTION RIVER KM : 522.113
 CAPTURE METHOD : BPSUB
 ORGANIZATION : NMFS
 COORDINATOR ID : CSM

SPECIFICATION DOCUMENT EXAMPLES

1	7F7B2D4912	86	123	10/20/89	M	FU	
2	7F7B2D4775	E7	120	10/21/89	M		FOUND IN SQUAWFISH
3	7F7B2C3177	D2	109	10/24/89	MS		BKD SAMPLE 89-234
4	7F7B2C325B	B7	139	10/30/89	MS		BKD SAMPLE 89-555
5	7F7B2D5116	92	111	10/30/89	MS		BKD SAMPLE 89-558
6	7F7B2D4C02	79	1045	10/30/89	M		DIED ON SEPARATOR
7	7F7B2D4D0B	83	111	10/24/89	M		
8	7F7B2D4817	8A	115	10/30/89	M		
9	7F7B2D4B7E	F4	100	10/24/89	M		TAG IN INTESTINE
<TIME CHECK> 28 NOVEMBER AT 13:01							
10	7F7B290B4A	7C	113	16.7 10/24/89	M		
11	7F7A274C42	B3	108	14.6 10/30/89	MS		BLOOD LOT 5-51
12	7F7A274B39	A9	113	22.2 10/24/89	MS		BKD SAMPLE 89-675
13	7F7A267C64	04	121	21.5 10/30/89	MS		BKD SAMPLE 89-690

CLOSE DATE : 11/29/89
 CLOSE TIME : 15:36

GLOSSARY

ASSOCIATED MARKS Other identification marks associated with the group of fish being released, such as freeze brand marks, fin clips, or wire tags.

BROOD YEAR The last two digits of the calendar year when the eggs were laid.

CAPTURE METHOD The abbreviated code (see section III.G.) for the method used to collect the fish.

CHECKSUM Value comprising the 11th and 12th characters of the PITcode. The Checksum is computer generated with the 11th character representing the last digit of the hex sum of the first five characters of the PITcode and the 12th character representing the last digit of the hex sum of the five characters of the ten character PITcode.

COLLECTION SITE The six character code of the collection site. See Section III.J.3. for the list of valid codes.

COIL A loop antenna, made from a coil of wire, which transmits a signal that excites the PIT tag and receives the signal from the PIT tag. Coils or loops are found in all interrogation equipment from table top detectors to automatic interrogation systems.

COIL ASSEMBLY A system of components used to create an electromagnetic field used to excite a PIT Tag and receive the signal sent by the PIT Tag. These components consist of 14-20 gauge wire insulated copper wire and a non-metallic pipe of flume used to pass fish.

COIL EFFICIENCY OR COIL READING EFFICIENCY The number of PIT tags read (written onto a computer file) divided by the total number of tags that could have been read at that particular coil. See "Statistical Method of Determining PIT Tag Coil Reading Efficiency", Benjamin Sandford, Prentice et.al. 1991. Produced by the ANALYZER report.

COIL ID The unique identification number associated with each coil of the automatic interrogation systems.

CONTROLLER The computer hardware in an automatic interrogation system that operates two coils associated with an interrogation system. A unique identification number is associated with each controller.

CONDITIONAL COMMENT A comment in the Tag Records section of the Tagging file that corresponds to an individual fish. A list of approved conditional comments appears in section III.E. (Flag Codes). They can be entered from either the keyboard or the digitizer during the operation of the PITTAG.EXE program. Other conditional comments, important to the individual researcher, can be used but will not be recognized by the PTAGIS data system.

COORDINATOR ID A three letter code consisting of the initials of the coordinator. The coordinators are the individuals who are in charge of the research that the PIT tag is being used for. Coordinators are not necessarily the people doing the tagging.

CREATION DATE The date the file was created. It will automatically be entered into the file by the computer and will be the current date on the computer. Therefore, it is important to have the proper date in your computer. The creation date is the default tagging date.

CREATION TIME The time the file was created. It will be added to the file by the computer and should be Pacific Standard Time in military format with a colon between hours and minutes. Therefore it is important that the computer running the PITTAG.EXE program be set to Pacific Standard Time. The creation time is the default tagging time.

DETECTOR A colloquial term used to describe one or more coil assemblies used to interrogate PIT Tagged fish.

DIVERSION EFFICIENCY See Slide-Gate Efficiency.

DRAINAGE — USGS Hydro Unit Accounting Unit - 6 digit Code

EPA-REACH See USGS Hydrologic Unit.

FILE TITLE The file ID or name given to the particular file created. Each File Title must be unique from all others in the Columbia River Basin and therefore it is very important to follow the formats described in the PIT tag Specification Document for each individual file type.

FILE TYPE RECORD This record type designates the type of file being created. It is generated by the PITTAG.EXE program for Tagging and Mortality files and by the researcher creating the other types of files. See the Specification Document for the correct format.

FIXED REFERENCE TAG A tag having a unique code and an internal clock that is permanently connected inside of the PIT-tag monitor and is used to test the performance of individual coils. It receives power from the excitation coil and automatically transmits its code one or more times daily.

FLAG CODE A PIT Tag conditional comment code (see Section III.E.). These codes are used to provide information about the health and condition of individual fish.

FORKLENGTH The length of the fish from the tip of the snout to the fork of the tail, recorded to the nearest millimeter.

GIS HYDRO UNIT See USGS Hydrologic Unit.

HATCHERY SITE A four character abbreviation to represent the hatchery at which the fish were reared, if tagging is being done at a hatchery. See section III.F. for the approved list of hatchery abbreviations.

HEADER RECORD A record found at the beginning of the file and describing general information representative of the whole file. Only Tagging, Release information, and Mortality files have header records.

INTERROGATION FILE A file created at a monitoring site by the automatic detection equipment and containing the PIT tag codes, date and time of interrogation, and the coil ID on which the tag was interrogated.

INTERROGATION UNIT READING EFFICIENCY This would be the combined reading efficiencies for one or more coils depending upon the type of interrogation unit being evaluated (e.g., both coils in a dual coil monitor). Produced by the **ANALYZER** report.

MIGRATION YEAR Last two digits of the earliest calendar year when fish are expected to smolt and outmigrate to the ocean.

MONITORED RELEASE A release situation in which the PIT-tagged fish are passively exposed to an interrogation system as they leave a holding area such as a hatchery. In a Monitored Release, all fish are interrogated as they leave a holding area so the individual PITcode of each fish leaving is recorded along with the date and time of interrogation.

MONITORED RELEASE FILE A file containing release information from a monitored release.

MORTALITY FILE A file that contains information and PIT codes of fish that died after being PIT tagged. Mortality files are created for fish that die at hatcheries or that are found dead or die somewhere along their migration path, like at one of the dams, or are killed for sampling purposes.

MORTALITY RECORD That portion of a Mortality file that contains the PIT tag code and any other pertinent information about the individual fish, such as fork length, weight, etc.

NOTE RECORDS A comment section in the Tag Records portion of the Tagging file. Note records can pertain to a group of fish instead of an individual fish. The Variable Release Time notation is the most common type of Note Record.

OBSERVATION A colloquial name for an interrogation event as recorded in an **INTERROGATION FILE**.

ORGANIZATION The code for the agency or organization that is responsible for the data in a tagging, mortality, or rel-info gate.

PASS-THROUGH REFERENCE TAG A PIT Tag is embedded in a wooden block, which is periodically passed through the interrogation system to determine coil, interrogation unit and system reading efficiencies. Normally, 10 tags are embedded into the wooden block. Also called **STICK TAGS**.

PIT-TAG DETECTOR See DETECTOR.

PIT-TAG INTERROGATION NETWORK All of the equipment related to exciting, detecting, and on-site recording of PIT tags at all detection sites within the river or monitoring system.

PIT-TAG INTERROGATION SYSTEM All of the equipment related to exciting, detecting, and on-site recording of PIT tags.

PIT-TAG INTERROGATION UNIT (Combination of individual equipment) Smallest independent unit that can excite and read a tag. The present configuration that meets this definition would include the RF-emission shield, excitation/detection coil(s), coil housing, tuner box, exciter, power supply, and controller. The multiport, computer and printer are not included. Today, most of the interrogation units are dual coil PIT-tag interrogation units.

PIT-TAG = Passive Integrated Transponder Tag A computer chip attached to a wire antenna and encapsulated in a glass tube. The tag is excited when it is passed through the electromagnetic field of a detector and the information on the computer chip is transmitted to the detector.

PIT-TAG SEPARATION EFFICIENCY The effectiveness of the individual slide-gate assemblies. This term applies only to PIT-tagged fish that according to the computer program should have been separated. The number of tagged fish read and successfully separated divided by the total number of tagged fish read. Contrast with Slide-Gate Efficiency. Different from CORP OF ENGINEERS SEPARATION.

PIT-TAG SEPARATION SUBSYSTEM Presently, there are typically two PIT-tag separation subsystems (A and B) at each dam. In the future, there may be more if tagged fish were to get separated into multiple pathways. These subsystems include the flumes, the electronic and mechanical hardware including the computer program for controlling slide gates used to separate PIT-tagged fish.

PIT-TAG SEPARATION SYSTEM (Entire site) This includes all components (e.g., flumes, interrogation units, slide gates, electronic, computer-related) involved in separating PIT-tagged fish from untagged fish by any method. All of the PIT-tag interrogation units would also be part of the interrogation system.

PIT-TAG SLIDE-GATE ASSEMBLY – the electronic and mechanical hardware including the computer program for controlling an individual slide gate.

PIT TAG STEERING COMMITTEE (PTSC) A sub-committee of the Fish Passage Advisory Committee of the Columbia Basin Fish and Wildlife Authority. The committee is made up of representatives of the agencies and tribes. The committee's function is to provide guidance in the development and operation of PTAGIS and the PIT tag system.

PITCODE A unique ten character alpha-numeric hexadecimal code recorded on the computer chip in the PIT tag.

POSITIONAL COMMENT A comment that has a designated and reserved location in the Tag Records section of the Tagging file and pertains to an individual fish. Such Positional comments are Species, Run, Rearing type, and Release Time Variable. Individual researchers can designate their own positional comments but the PTAGIS data system will not recognize them. Positional comments are entered from the keyboard or from the digitizer.

POST TAGGING TEMP The temperature (C) of the raceway or live box the fish are held in after tagging but prior to release to a stream. This variable should be left blank if the fish are released directly to the stream after tagging.

PTAGIS The PIT Tag Information System (PTAGIS) is the central repository of all the information generated by the PIT tag system of the Columbia River basin. The PTAGIS is managed by the Pacific States Marine Fisheries Commission and funded by the Bonneville Power Administration.

PTOC The PIT Tag Operations Center (PTOC), which operates and maintains the PTAGIS, all detection equipment on the dams, and creates and updates software for the Columbia River Basin-wide PIT tag system. Administrative management is through the Pacific States Marine Fisheries Commission.

RACEWAY/TRANSECT The raceway number or designation, or the transect number or name where the fish being PIT tagged came from.

REARING TYPE A one character code (see Section III.D.) to indicate whether the fish was raised in a hatchery or reared in the wild. If the fish reared in an environment where both wild and hatchery fish existed, then it would be unknown because you are not sure if the fish is wild or hatchery, unless it is clipped.

RECAPTURE A recaptured fish is a fish that is handled subsequent to the tagging event. A recaptured fish is designated with the flag code RE. See Section II.A. of this document regarding tagging files.

RECOVERY ORGANIZATION The organization creating the mortality or Recapture file.

RELEASE DATE The date fish were released to a stream to rear or outmigrate naturally. This variable is left blank in the header record of the tagging file if the fish are released at a later date. If fish are released at a later date this date is recorded in a Release Information or the Monitored Release file.

RELEASE RIVER KM The location of release, in river kilometers from the mouth of the Columbia River. This is a hierarchical coding scheme from the mouth of the Columbia River to the release site (up to 5th order streams) with each tributary delimited with a period. An example would be a Release KM for Lower Granite Dam is 522.173 which means that it is 522 km from the mouth of the Columbia River to the mouth of the Snake River and 173 km from the mouth of the Snake River to Lower Granite Dam. Section III.J.2 in the PIT Tag Specification Document has a list of the release km for various Release sites. If you have additional release locations please provide PitTAG Steering Committee Representative with the Name of the location, a six character code and the release KM so the location can be added to the list.

RELEASE INFORMATION FILE A Release Information File consists of information about a Tag file or a group of tag files which was not available at the time of tagging. The Release Information File must be created and sent to PTAGIS prior to any of the fish from the tagging files reaching any interrogation site. If fish are released at the time of tagging, the tagging file can double as the release information file. If you have additional release locations please provide PitTAG Steering Committee Representative with the Name of the location, a six character code and the release KM so the location can be added to the list.

RELEASE SITE The six character code of the site or body of water the fish are released into. See section III.J.3. for the proper code of the release sites. If you have additional release locations please provide PitTAG Steering Committee Representative with the Name of the location, a six character code and the release KM so the location can be added to the list.

RELEASE TIME The time (In Pacific Standard Time and Military format with a colon between the hours and minutes, i.e., HH:MM) the fish were released to a stream after tagging. The release time is recorded in the Release Information or the Monitored Release file if released at a later date or in the Tagging Record section of the Tagging File if the fish are released at the time of tagging. Variable Release Times are used in Tagging Files (see Variable Release Times). If you have additional release locations please provide PitTAG Steering Committee Representative with the Name of the location, a six character code and the release KM so the location can be added to the list.

RELEASE WATER TEMP The temperature (°C) of the stream the fish are released into to rear naturally or migrate downstream. If the fish are released immediately after tagging and recovery this variable should be filled out in the header record of the Tagging file. If the fish are released at a later date, then this temperature is recorded in the Release Information file or Monitored Release file and not in the Tagging file. If you have additional release locations please provide PitTAG Steering Committee Representative with the Name of the location, a six character code and the release KM so the location can be added to the list.

RIVER REACH See Release River KM in Section III.J.3.

RUN A one character code (see Section III.C.) to continue the phylogenetic breakdown, to race, to describe the fish. Run is represented by spring, summer, etc. (Spring chinook, Summer steelhead, etc.).

SEQUENCE NUMBER A sequential number from 1 to 9999 that individually identifies each tag record within the TAG RECORDS section of the tagging file; created by the PITTAG.EXE program.

SESSION MESSAGE A textual comment at the beginning of the header record of the Tagging and Mortality files in which the researcher can record important information pertinent to that tagging session.

SLIDE GATE A gate that slides open and shut on the bottom of a flume or pipe, causing the water and fish to enter a flume or pipe below the one they were flowing through. This would include all mechanical components immediately associated with gate operation.

SLIDE-GATE EFFICIENCY The ratio of untagged fish diverted per diversion cycle. See Achord et.al., Nov. 1992. "Research Related to Transportation of Juvenile Salmonids on The Columbia and Snake Rivers 1991". This information can only be gathered by a qualified field researcher. PTOC cannot determine this information because of lack of data regarding non-PIT tagged fish.

SPECIES A one character code (see Section III.B.) representing the species of the fish being tagged.

SPIDER TAG See FIXED REFERENCE TAG.

STICK TAG See PASS-THROUGH REFERENCE TAG.

STOCK An additional population describer but in this instance it has no defined codes. Examples would be entries such as Rapid River stock or Wells stock.

SWING GATE A gate positioned in a flume where that flume splits into two. The gate selects one of the two by blocking the other and changes by swinging across the original flume.

SYSTEM READING EFFICIENCY Overall reading efficiency for the interrogation system (all of the coils combined for an entire site). This is the reading efficiency that must meet the 95% criterion established for the individual Columbia River dams.

TAG RECORD That portion of a Tagging file that contains the PIT tag code, length, weight, and comments associated with each individual tagged fish.

TAG SITE A six character code representing the geographic location of the tagging operation. See section III.J.2. for the correct Tag site code list. If you have additional Tag sites please submit the name, six character code, and river km for the site to PTAGIS so it can be added to the list.

TAGGER The last name and initial of first name of the primary person doing the tag injection for that specific file.

TAGGING FILE A file that contains information from a PIT tagging session during which PIT tags are implanted in fish. The file consists of five record category types: File type, Header record, Tag record, Notes, and Additional record types. The tagging file is created by the PITTAG.EXE program. The Tagging file can double as a Release file if the fish are released immediately after tagging and the release parameters in the Header Record of the Tagging file are filled out.

TAGGING METHOD There are two methods of injecting tags into fish. One uses a hand held tagging needle (HAND) and the other uses a tagging machine that is fastened to a platform and has a clip which holds multiple tags (AUTO).

TAGGING TEMP Temperature (°C) of the trough or pan the fish are anesthetized in during the tagging operation.

TEST TAG A special tag registered by PTOC as a "Test-Tag". Not used in fish. Eg., STICK TAG, FIXED REFERENCE TAG.

TEXTUAL COMMENT A comment or message area with no established format and pertaining to an individual fish.

TIMER TAG See FIXED REFERENCE TAG.

TRANSPORTATION DURATION The amount of time from loading of fish onto the transport vehicle until they are released into the stream.

TRANSPORTATION TYPE The type of transport vehicle mainly pertaining to tank truck, back pack, helicopter, etc.

TUNNEL An enclosed detector.

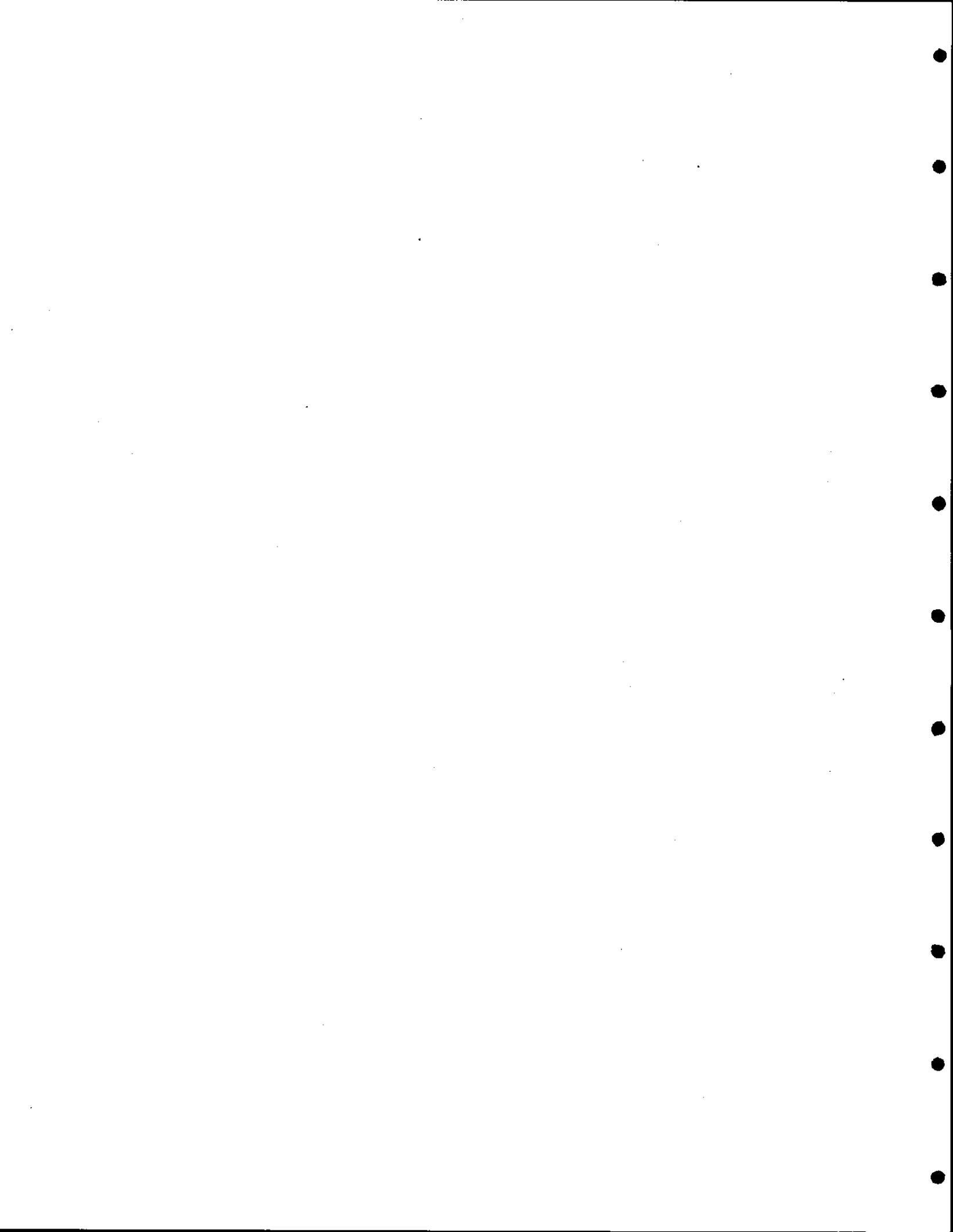
USGS HYDROLOGIC UNIT See Appendix B, "State Hydrologic Unit Maps".

VARIABLE RELEASE TIME If groups of fish within a Tagging file are being tagged and released to a stream independently of other groups within the same Tagging file then release date and times must be recorded for each group of fish. This is done with the Variable Release Time which is a Positional Comment and ranges from 01 to 99. The Variable Release Time is located in columns 44 and 45 of the Tag Records section of the Tagging file. There must be a corresponding Variable Release Time comment in the Note Records section of the Tagging file to define each Variable Release Time in the Tag Records section.

WEIGHT The weight of the fish recorded to the nearest tenth of a gram.

Direct Release Sites
Hatchery - Trap. Wier Dam
don't need * at end of Rkm
in sites. FIL 43

APPENDIX A



Naming Standard for PIT Tag Tunnels at Juvenile Fish Facilities

Begin at the first tunnel(s) fish encounter on entering the facility (generally, at the separator). To name each tunnel, take the first of the following which applies to the tunnel's location within the plumbing.

1. If the tunnel comes directly from the separator, such that all fish leaving the separator through that flume pass through that tunnel (with no intervening gates or splits), name it "SEPARATOR".
2. If the tunnel is not in the PIT Tag diversion system, but leads to any of the following (trace the pipes and flumes downstream of the tunnel), name the tunnel what it goes to:
 - a) raceway(s): "RACEWAY". If a particular set, append that set's name.
 - b) back to the river: "RIVER"
 - c) truck loading: "TRUCK"
 - d) barge loading: "BARGE"
 - e) either truck or barge loading: "TRANSPORT"
 - f) back to the river, or truck or barge loading: "EXIT"

If one term describes the tunnel's location, use it. Otherwise, use all necessary to describe the tunnel (Ex: RACEWAY/EXIT).

3. If the tunnel is between the Corps sample gate and the sample holding tank (the tunnel may be before or after the sample head box), name it "SUBSAMPLE".
4. If the tunnel is between the Corps sample holding tank and the lab, name it "SAMPLE ROOM".
5. If the tunnel is the first tunnel encountered after a PIT Tag diversion gate, name it "DIVERSION".
6. If the tunnel is in the PIT Tag diversion system, but is not the first tunnel encountered, call it "DIVERSION" plus the applicable term(s) from item 2 (Ex: DIVERSION EXIT).

Some of these names will be modified based on certain design features of the facility:

1. If there are two parallel paths through part or all of the facility, beginning with the separator, prefix "A" or "B" to each tunnel in the parallel portion; "A" will be the first encountered by the flow through the separator, "B" the second (Ex: A SEPARATOR, B TRANSPORT). If there are more than two parallel paths, continue with "C", "D", etc. Only use these prefixes for as long as the paths are parallel from the separator.
2. If there are two parallel paths through part of the facility, but they diverge from a point other than the separator, suffix "1" or "2" to each tunnel in the parallel portion; "1" will be the first encountered by the flow into the parallel sections, "2" the second (Ex: DIVERSION 1, DIVERSION 2). If there are more than two parallel paths, continue with "3", "4", etc. Only use these suffixes for as long as the paths are parallel.
3. If the tunnel controls a diversion gate, suffix "GATE" to the tunnel. NOTE: If there are several coils in line, some controlling a diversion gate and others not, those that control the gate should be designated as a separate tunnel from the others.
4. Abbreviations may be used to shorten the name of a tunnel, providing the abbreviations are commonly known (Ex: "E" for "EAST") and do not create a situation where two tunnels have the same name.

EXAMPLES

1. Lower Granite

At Lower Granite, there are seven tunnels. The first two coming from the separator are the two 2-coil units which control the diversion gates. These are parallel; therefore, they are called "A SEPARATOR GATE" and "B SEPARATOR GATE".

Continuing down the undiverted path, the flumes come together; therefore, "A" and "B" will not be used further on this path. The flumes diverge again, with a gate to select between the two sets of raceways (East and West). These do not release anywhere else. The tunnels on those flumes are called "RACEWAY EAST" and "RACEWAY WEST".

Now, going down the diversion system, the flumes which carry the fish from the diversion gates come together into a head box, from which two pipes with tunnels emerge. These are parallel, but not from the separator; therefore, they are called "DIVERSION 1" and "DIVERSION 2".

There is also a tunnel for the Corps sample. It diverges from before that head box, leading toward the lab. There is a holding tank between the tunnel and the lab; therefore, this tunnel is called "SUBSAMPLE".

2. Little Goose

At Little Goose, there are ten tunnels. The first four coming from the separator are two 2-coil units that control the diversion gates and an additional 2-coil unit in line with each of the first. These are parallel; two are gate controllers. They are called "A SEPARATOR", "A SEPARATOR GATE", "B SEPARATOR" and "B SEPARATOR GATE".

Continuing down the undiverted path, each side has a tunnel just after the Corps sample gate. The flow from these tunnels can be sent to the raceways, truck loading, barge loading or the river. Since they are still parallel, these tunnels are called "A RACEWAY/EXIT" and "B RACEWAY/EXIT".

Now, going down the diversion system, the flumes which carry the fish from the diversion gates lead to separate head boxes, then down separate pipes with tunnels to holding tanks. Since these are also parallel, they are called "A DIVERSION" and "B DIVERSION".

There is one more tunnel in the diversion system; this one leads to truck loading, barge loading or the river. The two sides come together before this tunnel; therefore it is called "DIVERSION EXIT".

The last tunnel is in the Corps Sample; it leads into the lab, after the holding tank. It is called "SAMPLE ROOM".

3. McNary

At McNary, there are four tunnels. There are two flumes coming from the separator; one of these has a tunnel on it. That flume is the second exit from the separator, so it will be called "B SEPARATOR". The other flume has a gate on it before any tunnels; therefore, there is no "A SEPARATOR" tunnel.

There is a Corps Sample gate on each side. The B flume has no tunnel after the gate; the A flume does. Since there is a holding tank between the A side tunnel and the lab, that tunnel is called "A SUBSAMPLE".

The A flume has a tunnel after the sample gate on the non-diverted side of the gate. Since this is not directly from the separator, it will not be called "A SEPARATOR"; instead, it will be called "A RACEWAY/EXIT", since it feeds to either the raceways, the truck loading area or the barge loading area.

The fourth tunnel is at the entrance to the lab; therefore, it is called "SAMPLE ROOM".

DEFINITIONS

HOLDING TANK: a tank where fish are gathered and held for research purposes

HEAD BOX: a small holding tank located just beyond a diversion gate on the diverted pipe or flume. Used to stage fish through a diversion system.

DETECTOR: a single PITTAG detection coil, with supporting electronics, wrapped around a pipe or flume.

TUNNEL: a group of detectors around the same pipe or flume within the same or adjoining shielding boxes, with no gates between them.

SLIDE GATE: a gate which slides open and shut on the bottom of a flume, causing the water and fish to enter a pipe or flume below the one they were flowing through.

SWING GATE: a gate positioned in a flume where that flume splits into two. The gate selects one of the two by blocking the other and changes by swinging across the original flume.

CORPS SAMPLE GATE: any gate used by the Corps of Engineers to divert fish into a sampling system for Corps research and monitoring. Controlled by a timer.

PITTAG DIVERSION GATE: any gate used to divert PIT tagged fish (only) into a sampling system. Controlled by a timing device attached to a PIT Tag detector.

PROSSER

- SEPARATOR
- SUB SAMPLE

McNARY

- A RACEWAY/EXIT
- A SUBSAMPLE
- B SEPARATOR
- SAMPLE ROOM

LOWER GRANITE ADULT

- EAST
- WEST

LOWER GRANITE JUVENILE

- A SEPARATOR GATE
- B SEPARATOR GATE
- RACEWAY WEST/EXIT
- RACEWAY EAST
- SUBSAMPLE
- DIVERSION 1
- DIVERSION 2

LITTLE GOOSE

- A SEPARATOR
- A SEPARATOR GATE
- B SEPARATOR
- B SEPARATOR GATE
- A RACEWAY/EXIT
- B RACEWAY/EXIT
- SAMPLE ROOM
- A DIVERSION
- B DIVERSION
- DIV EXIT

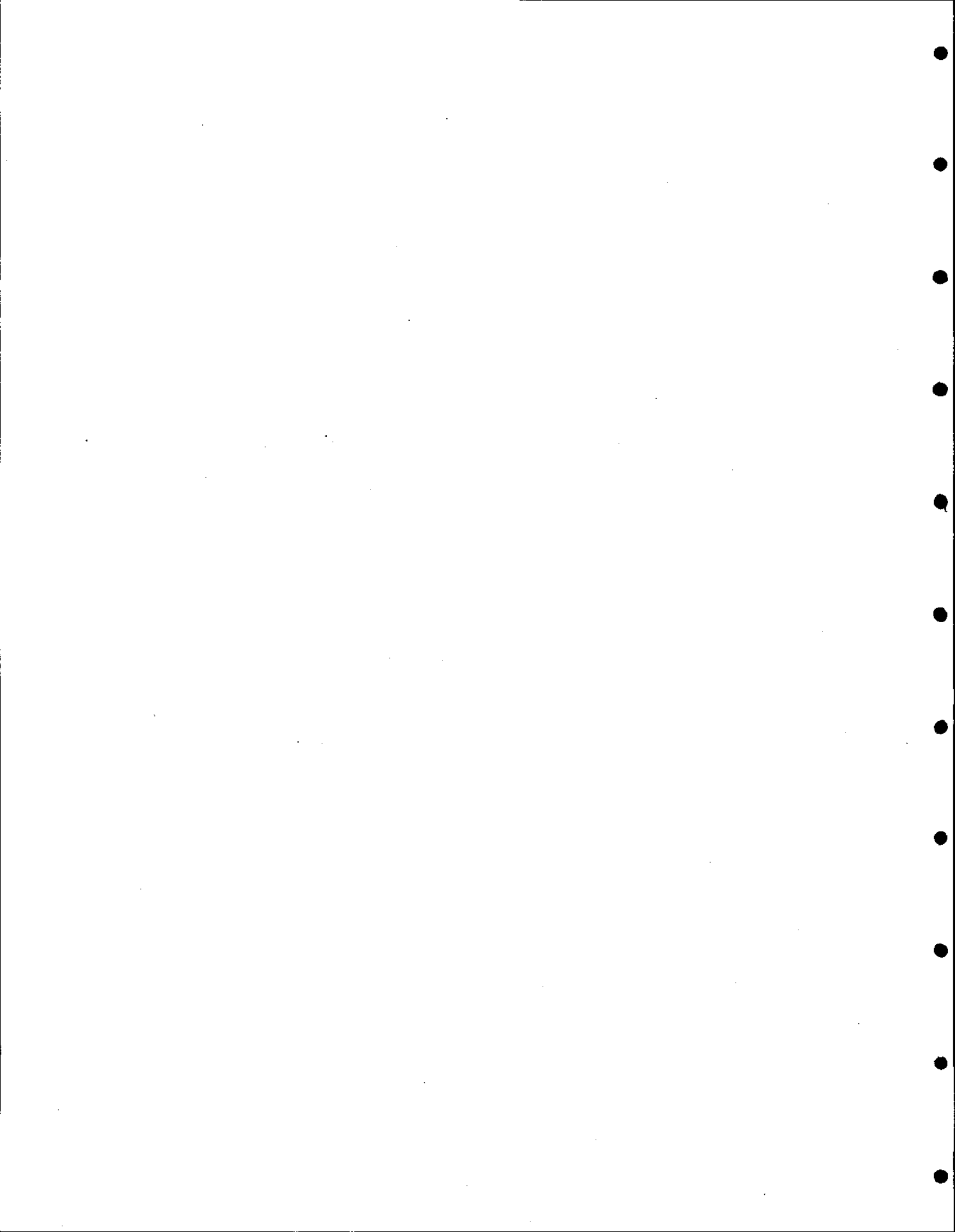
LOWER MONUMENTAL

- A SEP
- A SEP GATE
- B SEP
- B SEP GATE
- A DIVERSION
- B DIVERSION
- DIV EXIT
- A RACEWAY
- B RACEWAY
- A EXIT
- B EXIT
- SAMPLE ROOM

McNARY

- A SEPARATOR GATE
- B SEPARATOR GATE
- B DIVERSION
- A SUBSAMPLE
- B SUBSAMPLE
- A RACEWAY
- B RACEWAY
- DIV [RIVER]/ A RIVER
- EXIT
- SAMPLE ROOM

APPENDIX B



**UNITED STATES DEPARTMENT OF THE INTERIOR
WILLIAM P. CLARK, Secretary**

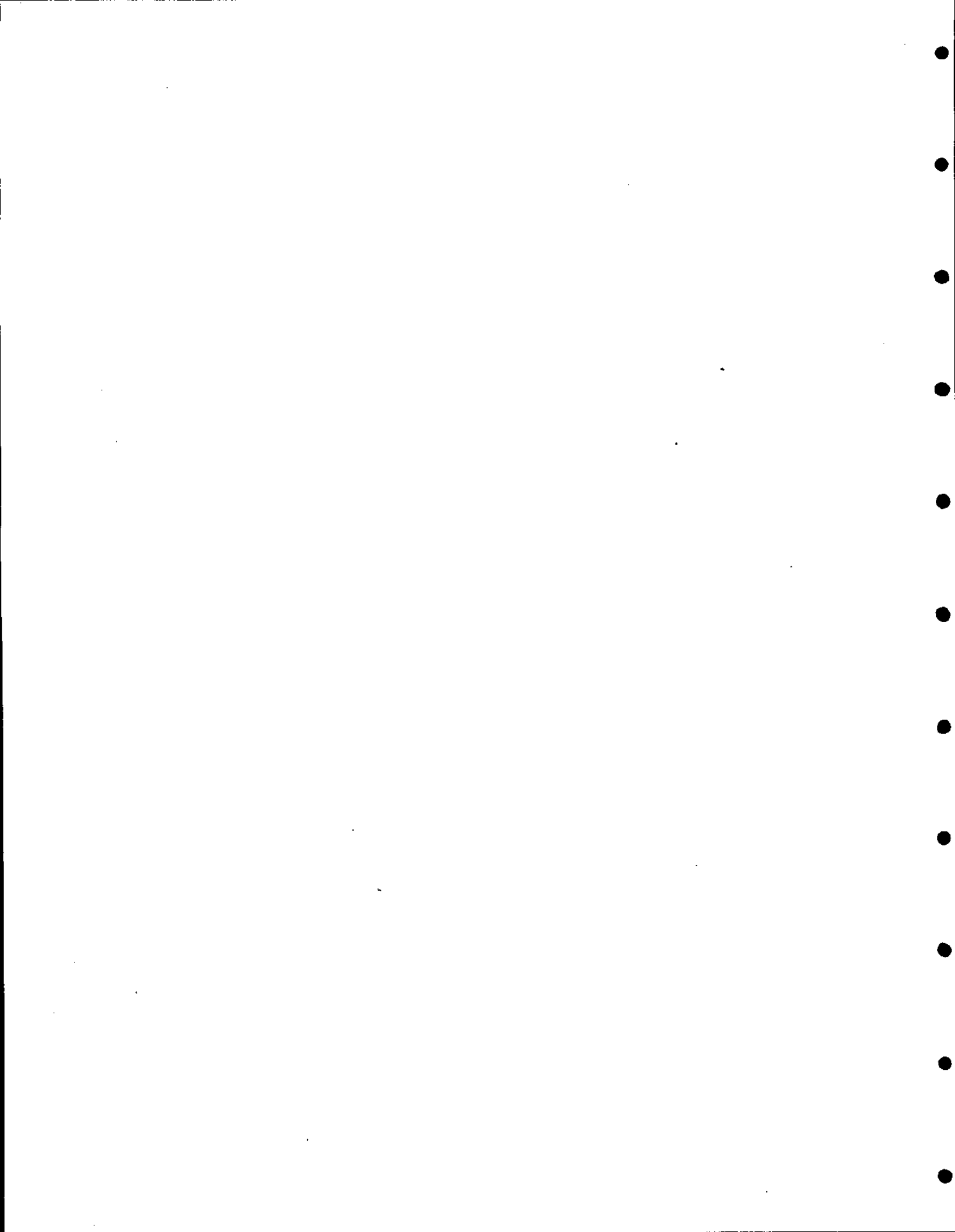
**GEOLOGICAL SURVEY
Dallas L. Peck, Director**

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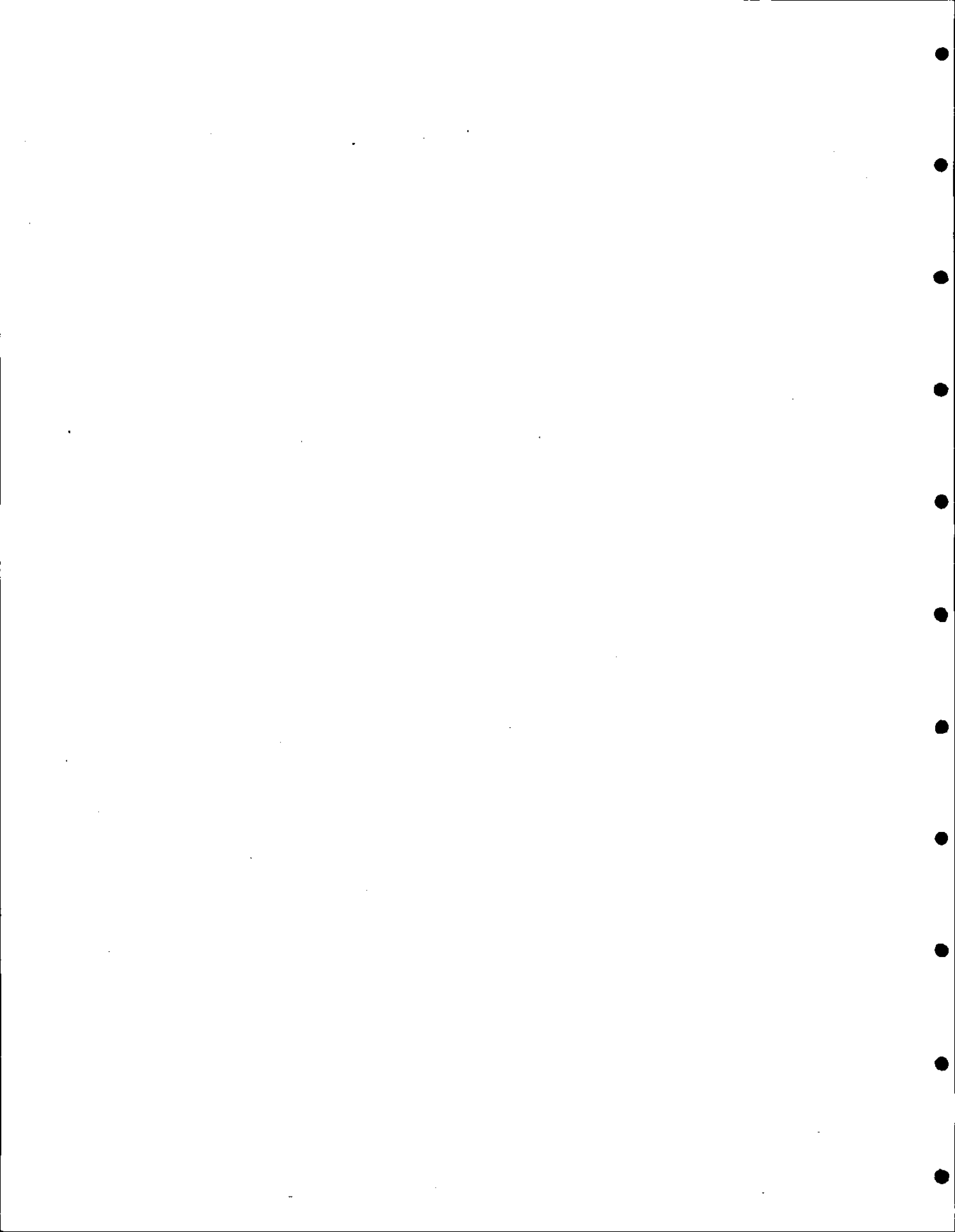


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DESCRIPTION OF THE HYDROLOGIC UNITS

Basically, the United States was divided and subdivided into successively smaller hydrologic units, which were classified into four levels as shown on Figure 1. The hydrologic units are arranged within each other, starting from the smallest (cataloging units) to the largest (regions). All hydrologic units have been identified by a unique numeric hydrologic unit code consisting of from two to eight digits based on the four levels of classification in the hydrologic unit system.

The first level of classification divides the Nation into 21 major geographic areas or regions (Figure 2). These geographic areas (hydrologic areas based on surface topography) contain either the drainage areas of a major river, such as the Missouri Region, or the combined drainage areas of a series of rivers, such as the Texas-Gulf Region, which includes a number of rivers draining into the Gulf of Mexico. Eighteen of the regions occupy the land area of the conterminous United States. Alaska is Region 19, the Hawaiian Islands constitute Region 20, and Puerto Rico and other outlying Caribbean areas are Region 21. The Pacific Trust Territories are a potential Region 22.

The second level of classification divides the 21 regions into 222 subregions. A subregion includes that area drained by a river system, a reach of a river and its tributaries in that reach, a closed basin(s), or a group of streams forming a coastal drainage area.

The third level of classification subdivides many of the subregions into accounting units. These 352 hydrologic accounting units nest within, or are equivalent to, the subregions. The accounting units are used by the Geological Survey for designing and managing the National Water Data Network. The areal extent of the accounting units is shown on Plate 1.

The fourth level of classification is the cataloging units, the smallest element in the hierarchy of hydrologic units. A cataloging unit is a geographic area representing part or all of a surface drainage basin, a combination of drainage basins, or a distinct hydrologic feature. These units subdivide the subregions and accounting units into smaller area (approximately 2,150 in the Nation) that are used by the U.S. Geological Survey for cataloging and indexing water-data acquisition activities in the Catalog of Information on Water Data.

Within this hierarchy, units have been defined so that almost all cataloging units are larger than 700 square miles (1,813 square kilometers) in area. In special circumstances, units smaller than 700 square miles are identified on some of the maps.

The boundaries or areal extent of the hydrologic units may be revised at the request of local users, and with the approval of the Geological Survey. Changes are more likely to occur in the cataloging unit boundaries than in those of the regions, subregions, and accounting units.

An eight-digit code uniquely identifies each of the four levels of classification within four two-digit fields. The first two digits identify the water-resources region; the first four digits identify the subregion; the first six identify the accounting unit; and the addition of two more digits for the cataloging unit completes the eight-digit code. An example is given below using hydrologic unit code 01080204:

01	-	the <u>region</u>
0108	-	the <u>subregion</u>
010802	-	the <u>accounting unit</u>
01080204	-	the <u>cataloging unit</u>

A 00 in the two-digit accounting unit field indicates that the accounting unit and the subregion are the same. Likewise, if the cataloging unit code is 00, it is the same as the accounting unit.

Hydrologic Units Names

In addition to hydrologic unit codes, all hydrologic units have been assigned names corresponding to the principal hydrologic feature(s) within the unit. In the absence of such features, the assigned name may reflect a cultural or political feature within the unit. All regions and subregions are uniquely named; however, the accounting units are uniquely named only within each accounting unit. Duplication of some names at the cataloging unit level is unavoidable because a large number of streams found throughout the Nation share the same names.

A complete list of all hydrologic unit codes, their names, the names of the States or outlying areas in which they reside, and their drainage areas is given in Table 1.

DESCRIPTION OF THE HYDROLOGIC UNIT MAPS

The State Hydrologic Unit Map Series consists of 47 maps on 53 sheets. The maps present 49 States at a scale of 1:500,000 or about 8 miles to the inch (1 cm to 5 km). This scale permits most States to be shown on a single map of convenient size. Texas is shown on four sheets and Montana, Michigan, and California are shown on two sheets each. Three groups of States--Massachusetts, Rhode Island, and Connecticut; Maryland, Delaware, and the District of Columbia; and Vermont and New Hampshire--are combined on a single sheet for each group. Alaska, because of its large size and less accurately defined drainage, is shown at a scale of 1:2,500,000 or about 40 miles to the inch (1 cm to 25 km). Puerto Rico is shown on the Caribbean Region map at a scale of 1:340,000 or about 4 miles to the inch (1 cm to 2.4 km). The other outlying Caribbean areas are shown on this map at scales ranging from 1:250,000 to 1:1,000,000.

SUBREGION 1702 - UPPER COLUMBIA: THE COLUMBIA RIVER BASIN WITHIN THE UNITED STATES ABOVE THE CONFLUENCE WITH THE SNAKE RIVER BASIN, EXCLUDING THE YAKAMA RIVER BASIN. WASHINGTON.

AREA = 22600 SQ.MI.

ACCOUNTING UNIT 170200 -- UPPER COLUMBIA. WASHINGTON.
AREA = 2170 SQ.MI.

CATALOGING UNITS 17020001 -- FRANKLIN D. ROOSEVELT LAKE. WASHINGTON.
AREA = 2170 SQ.MI.
17020002 -- KETTLE. WASHINGTON.
AREA = 966 SQ.MI.
17020003 -- COLVILLE. WASHINGTON.
AREA = 1030 SQ.MI.
17020004 -- SANPOIL. WASHINGTON.
AREA = 1080 SQ.MI.
17020005 -- CHIEF JOSEPH. WASHINGTON.
AREA = 1390 SQ.MI.
17020006 -- OKANOGAN. WASHINGTON.
AREA = 1640 SQ.MI.
17020007 -- SIMILKAMEEN. WASHINGTON.
AREA = 671 SQ.MI.
17020008 -- METHOW. WASHINGTON.
AREA = 1820 SQ.MI.
17020009 -- LAKE CHELAN. WASHINGTON.
AREA = 955 SQ.MI.
17020010 -- UPPER COLUMBIA-ENTIAT. WASHINGTON
AREA = 1520 SQ.MI.
17020011 -- WENATCHEE. WASHINGTON.
AREA = 1350 SQ.MI.
17020012 -- MOSES COULEE. WASHINGTON.
AREA = 926 SQ.MI.
17020013 -- UPPER CRAB. WASHINGTON.
AREA = 1860 SQ.MI.
17020014 -- BANKS LAKE. WASHINGTON.
AREA = 609 SQ.MI.
17020015 -- LOWER CRAB. WASHINGTON.
AREA = 2510 SQ.MI.
17020016 -- UPPER COLUMBIA-PRIEST RAPIDS. WASHINGTON.
AREA = 2070 SQ.MI.

SUBREGION 1703 -- YAKIMA. THE YAKIMA RIVER BASIN. WASHINGTON.
AREA = 6210 SQ.MI.

ACCOUNTING UNIT 170300 -- YAKIMA. WASHINGTON.

AREA = 6210 SQ.MI.

CATALOGING UNITS 17030001 -- UPPER YAKIMA. WASHINGTON.

AREA = 2130 SQ.MI.

17030002 -- NACHES. WASHINGTON.

AREA = 1130 SQ.MI.

17030003 -- LOWER YAKIMA. WASHINGTON.

AREA = 2950 SQ.MI.

SUBREGION 1705 -- MIDDLE SNAKE: THE SNAKE RIVER BASIN BELOW THE CLOVER CREEK BASIN TO HELLS CANYON DAM. IDAHO, NEVADA, OREGON.

AREA = 36700 SQ.MI.

ACCOUNTING UNIT 170502 -- MIDDLE SNAKE-POWDER: THE SNAKE RIVER BASIN BELOW THE WEISER RIVER BASIN TO HELLS CANYON DAM. IDAHO, OREGON.

AREA = 4100 SQ.MI.

CATALOGING UNITS 17050201 -- BROWNLEE RESERVOIR. IDAHO, OREGON.

AREA = 1290 SQ.MI.

17050202 -- BURNT. OREGON.

AREA = 1090 SQ.MI.

17050203 -- POWDER. OREGON.

AREA = 1720 SQ.MI.

SUBREGION 1706 -- LOWER SNAKE: THE SNAKE RIVER BASIN BELOW HELLS CANYON DAM TO ITS CONFLUENCE WITH THE COLUMBIA RIVER. IDAHO, OREGON, WASHINGTON.

AREA = 35200 SQ.MI.

ACCOUNTING UNIT 170601 -- LOWER SNAKE: THE SNAKE RIVER BASIN BELOW HELLS CANYON DAM TO ITS CONFLUENCE WITH THE COLUMBIA RIVER, EXCLUDING THE SALMON AND CLEARWATER RIVER BASINS. IDAHO, OREGON, WASHINGTON.

AREA = 11800 SQ.MI.

CATALOGING UNITS 17060101 -- HELLS CANYON. IDAHO, OREGON.

AREA = 545 SQ.MI.

17060102 -- IMNAHA. OREGON.

AREA = 855 SQ.MI.

17060103 -- LOWER SNAKE-ASOTIN. IDAHO, OREGON, WASHINGTON

AREA = 711 SQ.MI.

17060104 -- UPPER GRANDE RONDE. OREGON.

AREA = 1650 SQ.MI.

- 17060105 -- WALLOWA. OREGON.
AREA = 950 SQ.MI.
- 17060106 -- LOWER GRANDE RONDE. OREGON,
WASHINGTON.
AREA = 1530 SQ.MI.
- 17060107 -- LOWER SNAKE-TUCANNON. WASHINGTON.
AREA = 1480 SQ.MI.
- 17060108 -- PALOUSE. IDAHO, WASHINGTON.
AREA = 2360 SQ.MI.
- 17060109 -- ROCK. IDAHO, WASHINGTON.
AREA = 962 SQ.MI.
- 17060110 -- LOWER SNAKE. WASHINGTON.
AREA = 731 SQ.MI.

ACCOUNTING UNIT 170602 -- SALMON: THE SALMON RIVER BASIN. IDAHO.
AREA = 14000 SQ.MI.

- CATALOGING UNITS
- 17060201 -- UPPER SALMON. IDAHO.
AREA = 2410 SQ.MI.
- 17060202 -- PAHSIMEROI. IDAHO.
AREA = 825 SQ.MI.
- 17060203 -- MIDDLE SALMON-PANTHER. IDAHO.
AREA = 1810 SQ.MI.
- 17060204 -- LEMHI. IDAHO.
AREA = 1270 SQ.MI.
- 17060205 -- UPPER MIDDLE FORK SALMON. IDAHO.
AREA = 1490 SQ.MI.
- 17060206 -- LOWER MIDDLE FORK SALMON. IDAHO.
AREA = 1370 SQ.MI.
- 17060207 -- MIDDLE SALMON-CHAMBERLAIN. IDAHO.
AREA = 1700 SQ.MI.
- 17060208 -- SOUTH FORK SALMON. IDAHO.
AREA = 1310 SQ.MI.
- 17060209 -- LOWER SALMON. IDAHO.
AREA = 1240 SQ.MI.
- 17060210 -- LITTLE SALMON. IDAHO.
AREA = 582 SQ.MI.

ACCOUNTING UNIT 170603 -- CLEARWATER: THE CLEARWATER RIVER BASIN.
IDAHO, WASHINGTON.
AREA = 9420 SQ.MI.

- CATALOGING UNITS
- 17060301 -- UPPER SELWAY. IDAHO.
AREA = 997 SQ.MI.
- 17060302 -- LOWER SELWAY. IDAHO.
AREA = 1030 SQ.MI.
- 17060303 -- LOCHSA. IDAHO.
AREA = 1180 SQ.MI.

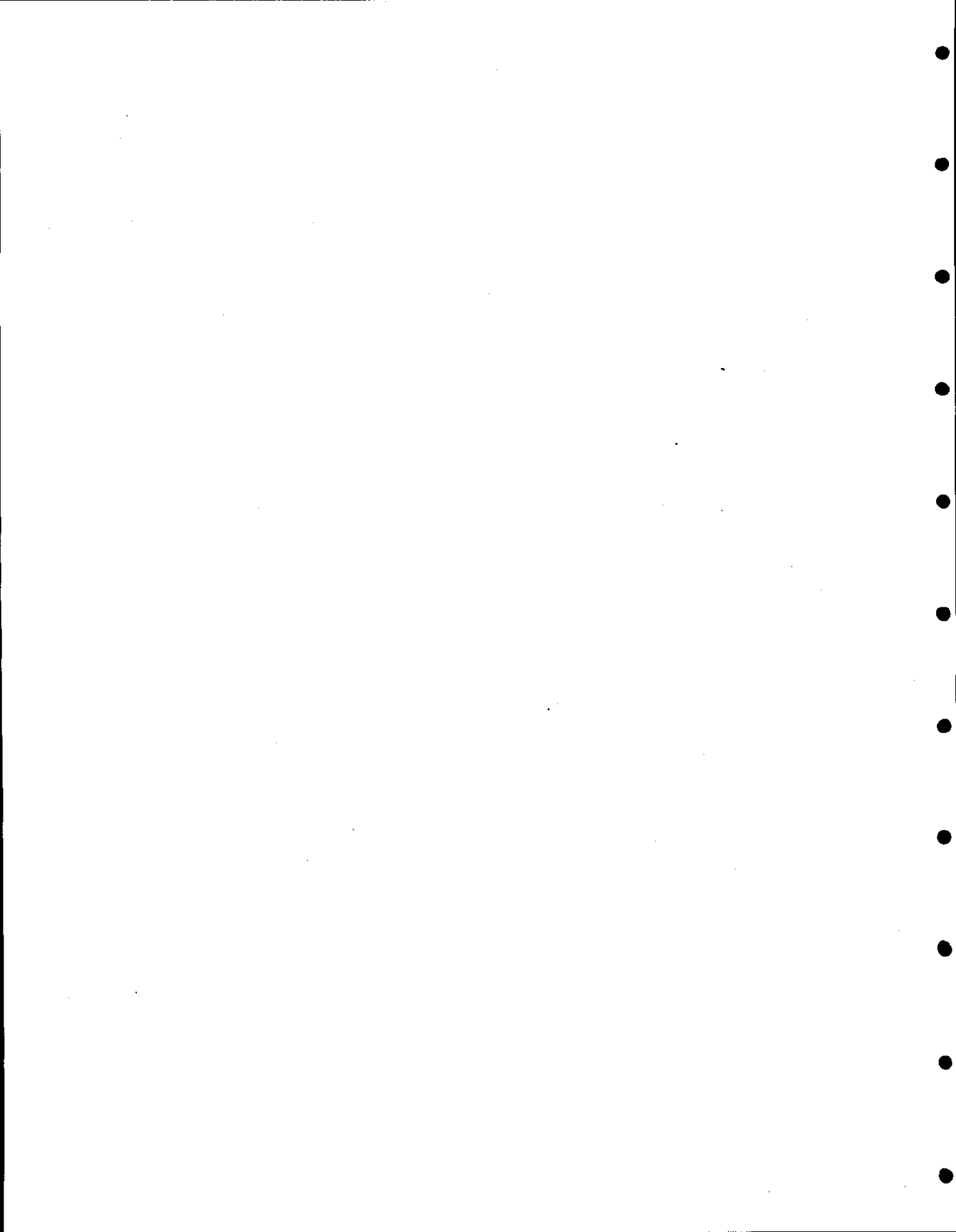
- 17060304 -- MIDDLE FORK CLEARWATER. IDAHO.
AREA = 213 SQ.MI.
- 17060305 -- SOUTH FORK CLEARWATER. IDAHO.
AREA = 1170 SQ.MI.
- 17060306 -- CLEARWATER. IDAHO, WASHINGTON
AREA = 2340 SQ.MI.
- 17060307 -- UPPER NORTH FORK CLEARWATER.
IDAHO.
AREA = 1320 SQ.MI.
- 17060308 -- LOWER NORTH FORK CLEARWATER.
IDAHO.
AREA = 1170 SQ.MI.

SUBREGION 1707 -- MIDDLE COLUMBIA: THE COLUMBIA RIVER BASIN BELOW THE CONFLUENCE WITH THE SNAKE RIVER BASIN TO BONNEVILLE DAM. OREGON, WASHINGTON.
AREA = 29800 SQ.MI.

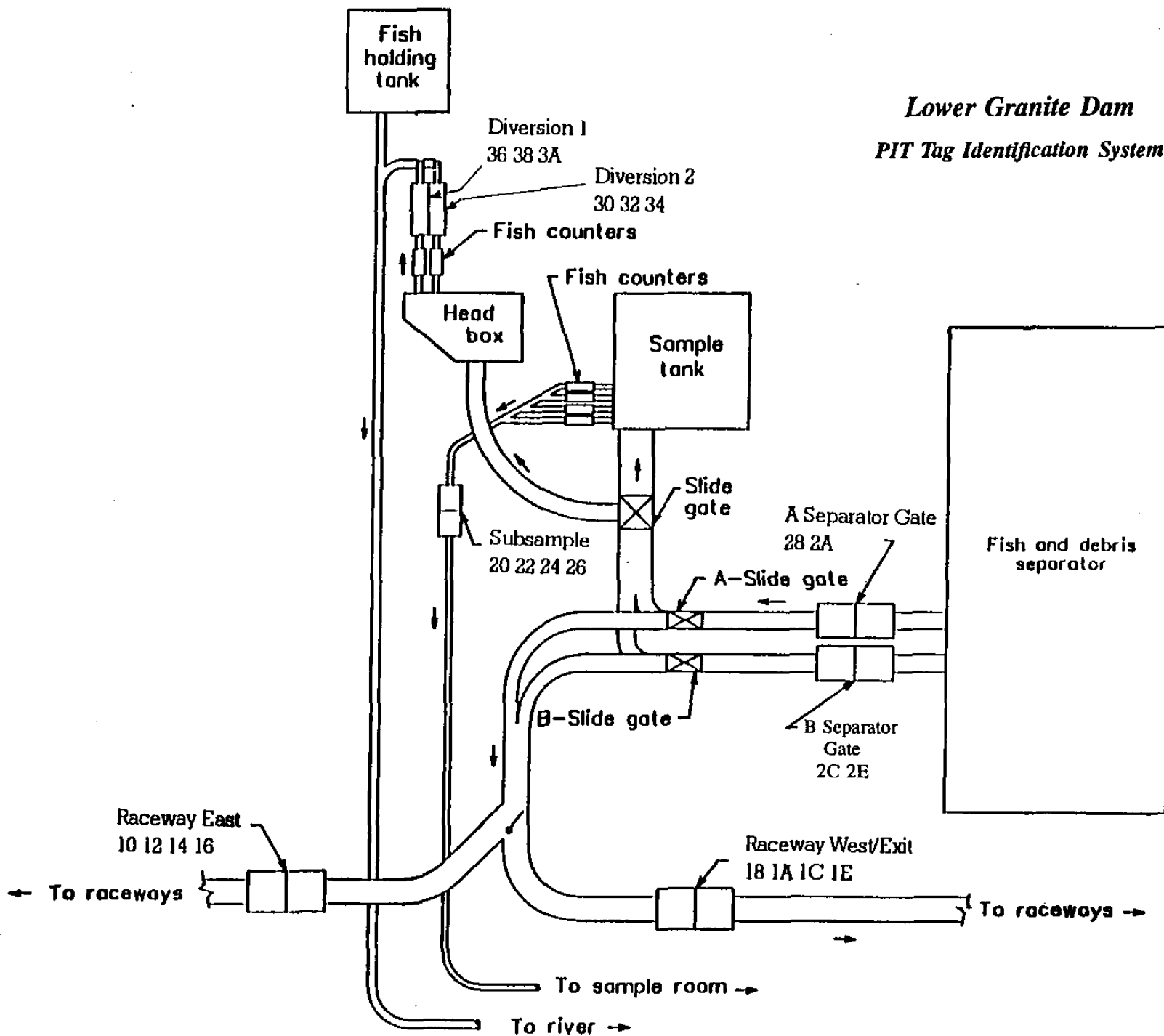
ACCOUNTING UNIT 170701 -- MIDDLE COLUMBIA: THE COLUMBIA RIVER BASIN BELOW THE CONFLUENCE WITH THE SNAKE RIVER BASIN TO BONNEVILLE DAM, EXCLUDING THE DESCHUTES AND JOHN DAY RIVER BASINS. OREGON, WASHINGTON.
AREA = 11200 SQ.MI.

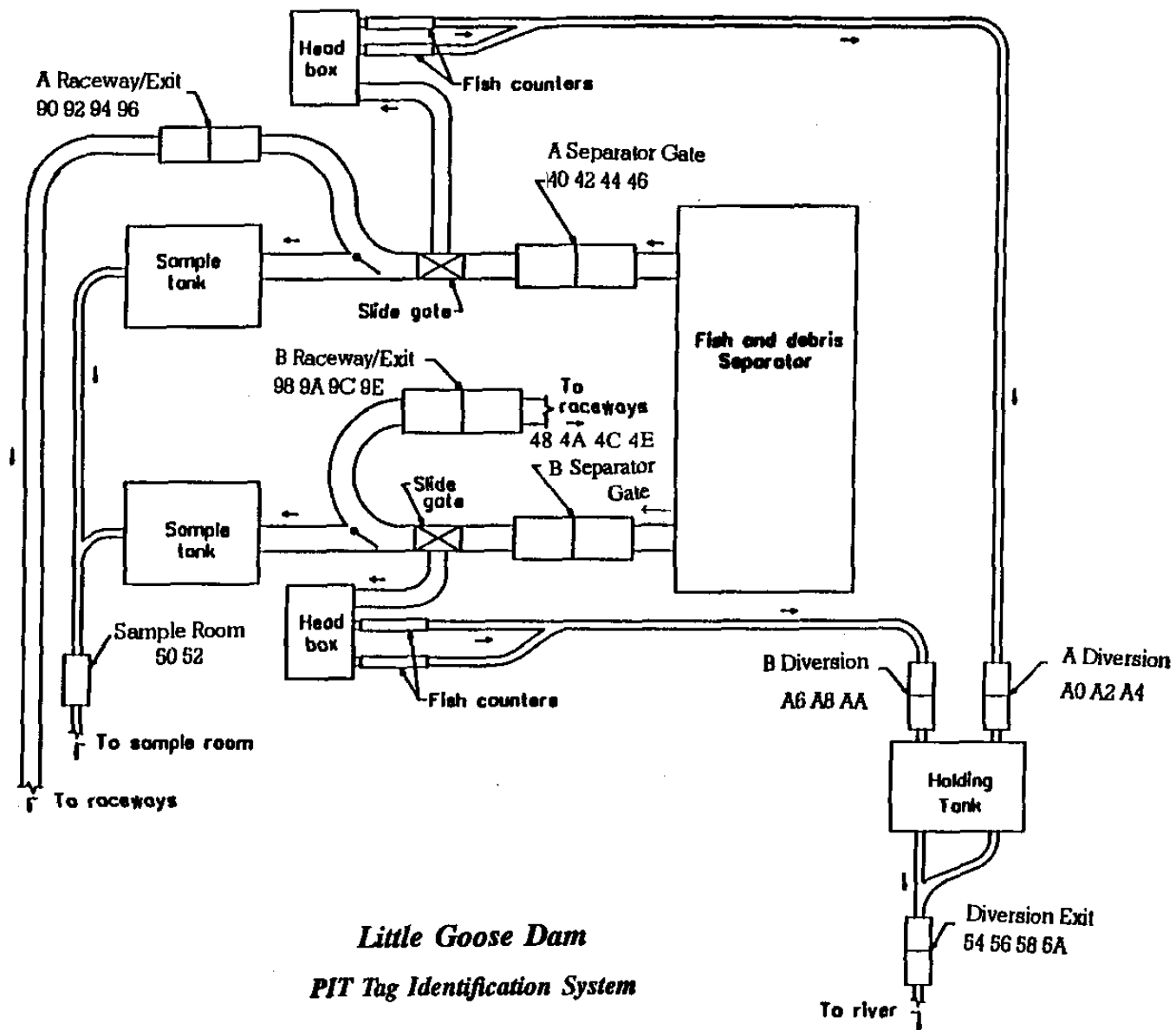
- CATALOGING UNITS**
- 17070101 -- MIDDLE COLUMBIA-LAKE WALLULA.
OREGON, WASHINGTON.
AREA = 2550 SQ.MI.
 - 17070102 -- WALLA WALLA, OREGON, WASHINGTON.
AREA = 1750 SQ.MI.
 - 17070103 -- UMATILLA. OREGON.
AREA = 2540 SQ.MI.
 - 17070104 -- WILLOW. OREGON.
AREA = 881 SQ.MI.
 - 17070105 -- MIDDLE COLUMBIA-HOOD. OREGON,
WASHINGTON.
AREA = 2170 SQ.MI.
 - 17070106 -- KLUCKITAT. WASHINGTON.
AREA = 1330 SQ.MI.

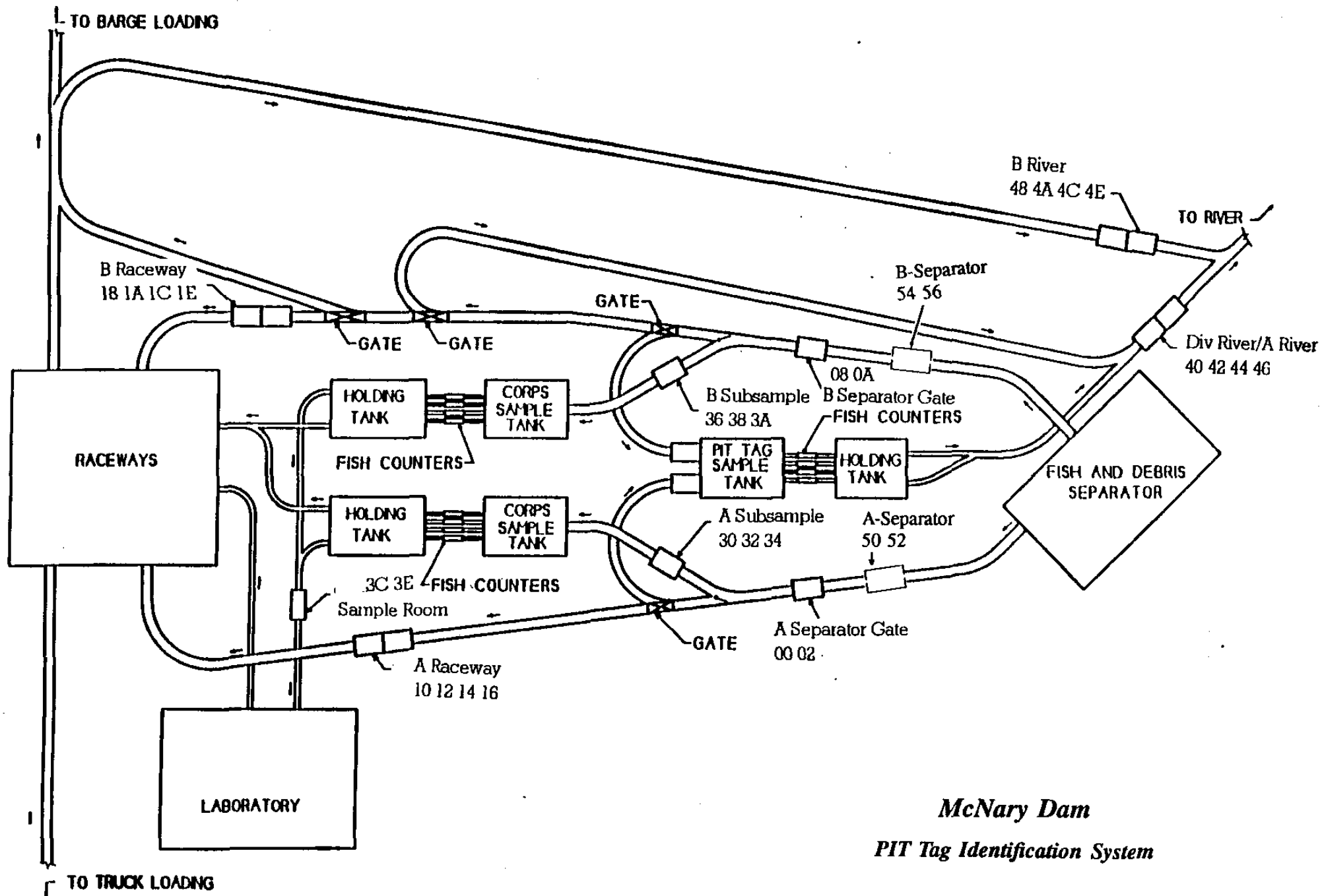
APPENDIX C



*Lower Granite Dam
PIT Tag Identification System*

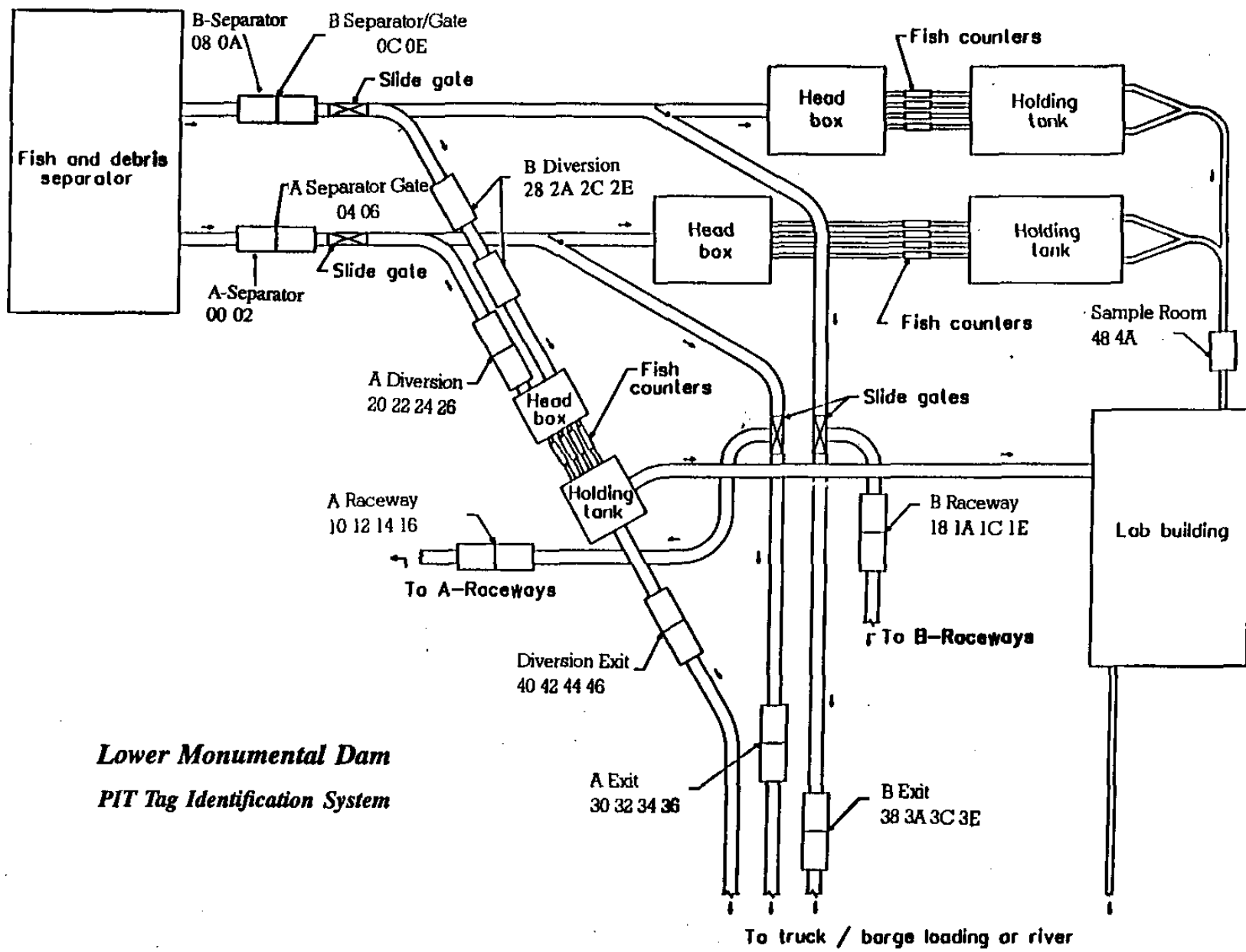




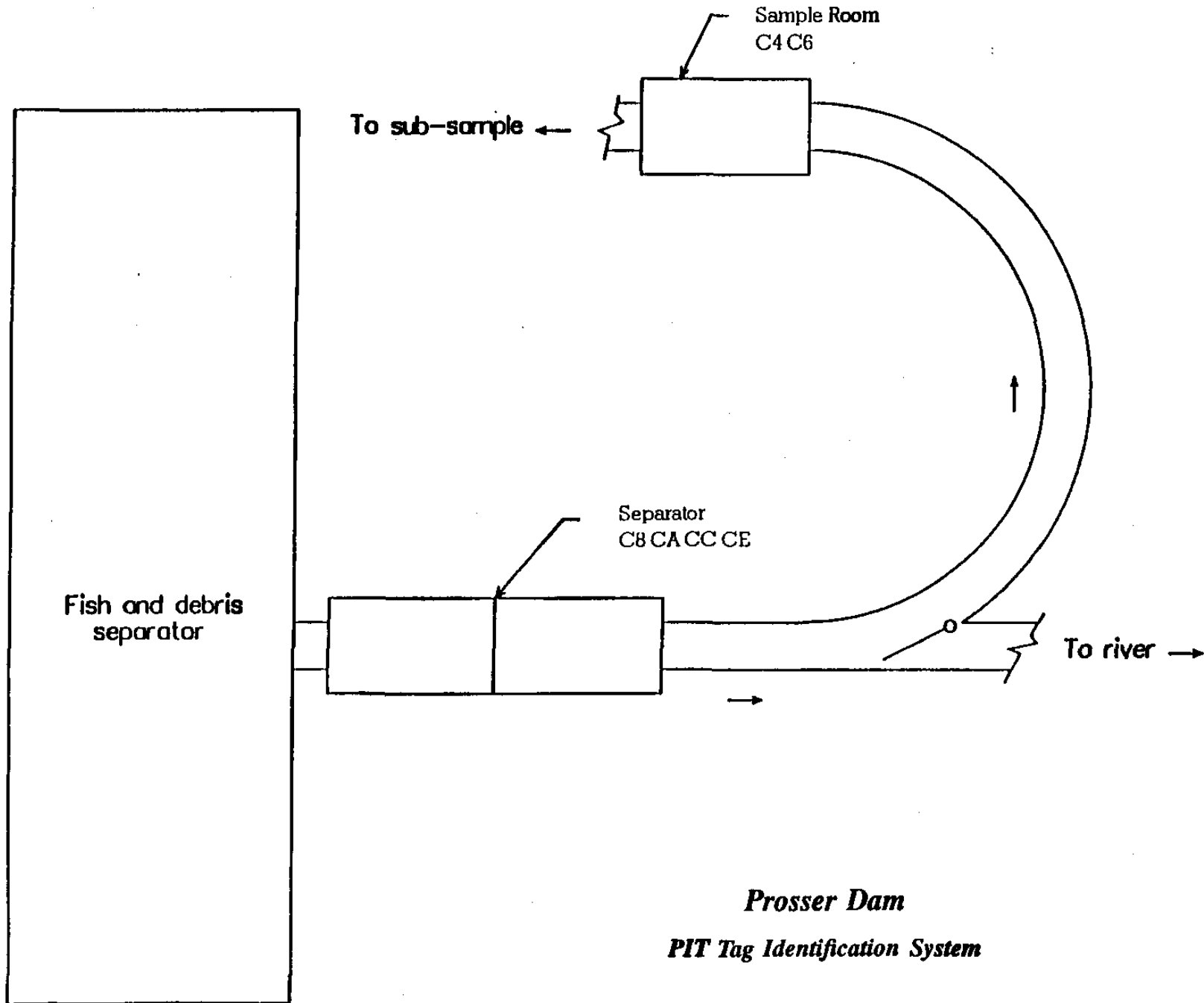


McNary Dam

PIT Tag Identification System



Lower Monumental Dam
PIT Tag Identification System



***Prosser Dam
PIT Tag Identification System***

