Spawning Distribution of Fall Chinook Salmon in the Snake River

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SPAWNING DISTRIBUTION OF FALL CHINOOK SALMON IN THE SNAKE RIVER

2001 ANNUAL REPORT

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CHAPTER ONE

Spawning Distribution of Supplemented Fall Chinook
Salmon in the Snake River Basin Upriver of Lower Granite Dam

2001 ANNUAL REPORT

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Introduction

In 1996, a supplementation program was started to increase the natural production of fall chinook salmon (*Oncorhynchus tshawytscha*) upriver of Lower Granite Dam. This program involved releasing yearling fall chinook salmon from Lyons Ferry Hatchery at three acclimation facilities: Pittsburg Landing, Captain John, and Big Canyon (Figure 1). The Pittsburg Landing facility was first used in the spring of 1996, followed by Big Canyon in 1997, and Captain John in 1998. Fish were released annually from each site after its completion.

Fishery managers chose to use multiple acclimation/release facilities with the intent of distributing spawning throughout the habitat normally used by fall chinook salmon. In the Snake River, spawning occurs throughout a 100 river-mile (RM) reach between Asotin, Washington (RM 147), and Hells Canyon Dam (RM 247). The Captain John facility is located in the lower half of this reach, and Pittsburg Landing is in the upper half. In the Clearwater River, most spawning occurs between the river mouth (RM 0) and the North Fork Clearwater River (RM 41), and the Big Canyon Creek facility is located therein.

Figure 1. Map of the study area showing the major rivers in the lower Snake River, and the three fall chinook salmon acclimation facilities and corresponding river miles.

The supplementation program was designed to include a thorough evaluation (WDFW et al. 1996). Our part in this evaluation was to determine where the supplemented fish spawned, if the intended spawning distribution was achieved, and expand the information available on the spawning distribution of hatchery fish released as subyearlings, and natural fish.

Our work began in 1997 and is scheduled for completion in 2002 (Garcia et al. 1999, 2000). In this report we present summary information on data collected thus far.

Study Area

The study area included the Snake River from Ice Harbor Dam to Hells Canyon Dam, portions of the Grande Ronde, Imnaha, and Salmon rivers, all of the Clearwater River, and some tributaries of the Salmon and Clearwater rivers (Figure 1). River locations were based on river miles. Our work was routinely conducted along 178 miles of the Snake River from Little Goose to Hells Canyon dams, 41 miles of the Clearwater River from the mouth to Dworshak Fish Hatchery, 53 miles of the Grande Ronde River from the mouth to Wildcat Creek, and 4 miles of the Imnaha River from the mouth to Cow Creek Bridge. Radio-tracking was also conducted in other parts of the study area, though less frequently.

Methods and Materials

We used radio-telemetry to examine the movements and spawning distribution of supplemented fish after they returned from their ocean migration cycle. In our previous reports we coupled redd search data with telemetry data to determine spawning locations of individual fish. We found, however, that this approach severely limited our sample sizes and weakened our analysis. Thus we have moved to using telemetry data alone to analyze movements and spawning distribution.

Prior to release as juveniles, all yearling fall chinook salmon were coded-wire tagged, fin clipped, and injected with a colored elastomer tag that, in combination with placement (right or left eye), could be used to determine where each fish was released. The origin of hatchery fish released as subyearlings was determined using PIT-tags that were implanted prior to release. PIT-tags were also used to identify known natural fish. These fish were initially captured in the Snake and Clearwater rivers when they were juveniles and PIT-tagged for research purposes.

Ocean returns were captured as they ascended the Lower Granite Dam fish ladder and were anesthetized before radio tagging. Radio tags were coated with glycerine and inserted into the esophagus of study fish. Two sizes of radio tags were used depending on the length of the fish; 16-g tags (Lotek MCFT-3) were used for fish less than 60 cm (jacks), and 29-g tags (Lotek MCFT-7A) for fish 60 cm and larger. All radio tags were obtained free-of-charge from the University of Idaho. Most of these tags were previously used which decreased the available battery life.

Tracking was conducted by the U.S. Fish and Wildlife Service (USFWS), Nez Perce Tribe (NPT), University of Idaho, and Washington Department of Fish and Wildlife (WDFW). Fish were tracked using fixed receivers and mobile tracking methods.

Fixed-telemetry receivers were maintained and operated by the USFWS and the University of

Idaho. In the Snake River, fixed receivers were positioned at, and downriver of, Lower Granite Dam, and near Heller Bar (RM 168), Dug Bar (RM 197), Pittsburg Landing (RM 216), and near Hells Canyon Dam (RM 247)(Figure 2). In the Clearwater River, fixed telemetry stations were located near the Potlatch Mill (RM 5) and above Orofino at the Nez Perce Tribe Fisheries Office (RM 47). Telemetry stations were also positioned within the lower mile of the Grande Ronde and Salmon rivers. Tracking data were downloaded from these receivers periodically. Receivers indicated when an individual radio tag (fish) arrived and departed, and in some cases, which direction (upriver or downriver) the fish was traveling.

Mobile tracking was conducted by the USFWS, NPT, and WDFW. Portions of the Snake River reservoirs were surveyed weekly using fixed-wing aircraft. The roaded sections of the Snake, Clearwater, and lower Grande Ronde rivers were surveyed weekly via automobile. Portions of the un-roaded section of the Snake River were surveyed weekly by boat (in the course of downloading fixed receivers) and helicopter (while conducting redd searches).

Figure 2. Map of the study area showing locations of fixed telemetry stations used for tracking fall chinook salmon.

Results and Discussion

In 2001, we radio-tagged 223 adult fall chinook salmon. This brought the total number of radio-tagged fish to 515, consisting of 449 yearling releases, 49 subyearling, and 17 natural fish (Appendix 1). Of the yearling releases tagged, 13 were known losses, with the tags either being regurgitated in the fish trap, returned by anglers, or otherwise recovered during the spawning season.

Thus far we have conducted preliminary analysis on data for yearling releases. An average of 82% of the 436 yearlings we studied entered at least one of the three release reaches (Table 1). Fish released in the Lower Clearwater mainly entered the Lower Clearwater and Lower Snake reaches (Figure 3). Likewise, fish from the Lower Snake were mainly observed in the Lower Snake and Lower Clearwater reaches. However, larger percentages of the Lower Snake release group were distributed across non-release reaches compared to the other release groups. This was partially the result of individual Lower Snake fish entering more reaches on average than fish from the other two release groups (Figure 4). Upper Snake fish were primarily observed in the Lower and Upper reaches of the Snake River (Figure 3). The Upper Snake release group was the only group that had more fish enter a non-release reach than the release reach. Overall, we expected males to enter non-release reaches more than females but found the opposite often occurred.

We defined the reach in which a fish spawned as the last reach it entered. Using this definition we determined that 68% of our study fish spawned in their corresponding release reaches (i.e., homed) with the highest fidelity exhibited by those released in the Lower Clearwater (Table 2; Figure 5). There were large differences in the homing percentages of males and females released in the Lower Snake and Upper Snake (Figure 6) with females straying more than males in the former and males straying more than females in the latter. However, only 11% of the females from the Lower Snake spawned in the Upper Snake, whereas 78% of the males from the Upper Snake spawned in the Lower Snake (Figure 7). Thus stray males from the Upper Snake showed a high fidelity to release river if not release reach compared to stray females from the Lower Snake. This difference in fidelity was also evident across genders with 99% of the Upper Snake fish spawning in the Snake River compared to 68% for Lower Snake fish. Overall, 80% of the fish released in the Snake River spawned therein. We observed no obvious differences in the spawning distributions of release groups within release reaches (Figure 8).

Summary

In summary, the movements of yearling releases generally reflected spawning distributions. The majority of our study fish spawned in their corresponding release reaches. And inconsistencies in the fidelity of males and females played a large role in shaping the spawning distributions of fish released in the Lower Snake and Upper Snake reaches.

In comparing fidelity to release reach, fish released at the Big Canyon Facility in the lower Clearwater performed the best (85%) followed by fish released at the Captain John Facility in the lower Snake (58%) and fish released at the Pittsburg Landing Facility in the upper Snake (56%). However, in comparing fidelity to release river, upper Snake fish performed the best (99%) followed by fish from the lower Clearwater (85%) and lower Snake (68%).

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Chapter 1
Tables and Figures

Table 1. Numbers of fall-chinook salmon radio-tagged at Lower Granite Dam and the numbers that entered a spawning reach, by release group and gender.

Release Group	Females	Males	Totals
Numbers radio-tagged			
Lower Clearwater	134	35	169
Lower Snake	136	28	164
Upper Snake	69	34	103
Totals	339	97	436
Numbers entering a spawning reach			
Lower Clearwater	114	28	142
Lower Snake	109	25	134
Upper Snake	54	27	81
Totals	277	80	357

Table 2. Spawning distribution of radio-tagged fall-chinook salmon by release group and gender (LCR=Lower Clearwater Reach, LSR=Lower Snake Reach, USR=Upper Snake Reach, GRR=Grande Ronde River, IMR=Imnaha River, SAR=Salmon River, and SFC=South Fork Clearwater River).

Release group	Spawning reach							Sample Sizes
	LCR	LSR	USR	GRR	IMR	SAR	SFC	
Females								
Lower Clearwater	86%	9%	2%	3%	0%	0%	1%	114
Lower Snake	32%	53%	11%	2%	1%	1%	0%	109
Upper Snake	0%	26%	74%	0%	0%	0%	0%	54
Males								
Lower Clearwater	79%	21%	0%	0%	0%	0%	0%	28
Lower Snake	16%	80%	4%	0%	0%	0%	0%	25
Upper Snake	4%	78%	19%	0%	0%	0%	0%	27

Figure 3. Percent of fish observed in return reaches by release group and gender (LCR=Lower Clearwater Reach, LSR=Lower Snake Reach, USR=Upper Snake Reach, GRR=Grande Ronde River, IMR=Imnaha River, SAR=Salmon River, and SFC=South Fork Clearwater River). The first passage of Upper Snake fish through the Lower Snake was not counted as an observation.

Figure 4. Percent of radio-tagged fall-chinook salmon that entered one or more release reaches by release group and gender.

Figure 5. Percent of radio-tagged fall-chinook salmon that homed to release reach by release group.

Figure 6. Percent of radio-tagged fall-chinook salmon that homed to release reach by release group and gender.

Figure 7. Percent spawning distribution of release groups by gender and return reach (LCR=Lower Clearwater Reach, LSR=Lower Snake Reach, USR=Upper Snake Reach, GRR=Grande Ronde River, IMR=Imnaha River, SAR=Salmon River, and SFC=South Fork Clearwater River).

Figure 8. Numbers of radio-tagged fall-chinook salmon that spawned in the Lower Clearwater, Lower Snake, and Upper Snake reaches by release group and reach length, based on the last recorded location (river kilometer) during mobile tracking surveys (N=317; not all fish were observed during mobile tracking). Reaches were standardized into 100-unit lengths, and data were grouped into 10-unit increments.

CHAPTER TWO

Fall Chinook Salmon Spawning Ground Surveys in The Snake River Basin
Upriver of Lower Granite Dam

2001 ANNUAL REPORT

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Introduction

Redd searches were conducted between Lower Granite Dam and Hells Canyon Dam as part of an ongoing effort to annually monitor fall chinook salmon spawning in the Snake River and tributaries. The first reports of redds observed in this area were from aerial searches of the Snake River conducted intermittently between 1959 and 1978 (Irving and Bjornn 1981, Witty 1988; Groves and Chandler 1996)(Appendix 2). In 1986, the Washington Department of Fish and Wildlife (WDFW) began an annual redd-search program that included aerial searches of the Grande Ronde River the first year (Seidel and Bugert 1987), and the Imnaha River in subsequent years (Seidel et al. 1988; Bugert et al. 1989-1991; Mendel et al. 1992). The U. S. Fish and Wildlife Service (USFWS) and Idaho Power Company (IPC) began contributing to this monitoring effort in 1991 by increasing the number of aerial searches conducted each year, and by adding underwater searches in areas of the Snake River that were too deep to be searched from the air (Connor et al. 1993; Garcia et al. 1994a, 1994b, 1996-2001; Groves 1993; Groves and Chandler 1996). The Nez Perce Tribe (NPT) also contributed to the effort by adding aerial searches within the Clearwater River basin beginning in 1988 (Arnsberg et. al 1992), and the Salmon River basin beginning in 1992.

The objective of this report is to consolidate the findings from annual redd searches into a single document containing detailed information from the most recent spawning season, and summary information from that of previous years. The work conducted was funded by the Bonneville Power Administration (Projects: 9403400, 9801003), Idaho Power Company, U.S. Bureau of Land Management – Cottonwood Resource Area, and U.S. Forest Service – Wallowa Whitman National Forest.

Description of Project Area

The study area included the free-flowing Snake River between Lower Granite and Hells Canyon dams, and portions of the major tributaries that enter therein (Figure 1). We refer to redd locations using river miles (RM), and nearby landmarks. The following eight river sections were regularly searched: (1) the Snake River from the head of Lower Granite Reservoir (RM 147) to Hells Canyon Dam (RM 247); (2) the Clearwater River, to its confluence with the Selway River (RM 98); (3) the Selway River to Meadow Creek (RM 19); (4) the North Fork Clearwater River to Dworshak Dam (RM 2); (5) the South Fork Clearwater River to Butcher Creek (RM 12); (6) the Grande Ronde River to Wildcat Creek (RM 53); (7) the Imnaha River to near Freezeout Saddle (RM 35); and (8) the Salmon River to about French Creek (RM 105).

Figure 1. Map of the Snake River drainage in Oregon, Washington, and parts of Idaho.

Methods and Materials

Redd searches were conducted from a helicopter flown at an altitude of about 700-ft. or less. Observations were made by the pilot and one or two observers. Only the number of new redds observed on each search were included in this report. From 1991 to 2001, searches in the Snake, Clearwater, Grande Ronde, and Imnaha rivers were scheduled to be conducted at approximately 7-d intervals starting around mid-October and ending around mid-December. In previous years, and in the other rivers, searches were typically conducted less frequently. In most years, some of the scheduled searches were canceled or shortened due to poor visibility or inclement weather. Redds observed in the Snake River that could not clearly be distinguished from the air were examined from the ground beginning in 1991. This practice was also performed in the other rivers, though less consistently.

In addition to the helicopter searches, redd searches in the Snake River were conducted using underwater search methods to locate redds in areas too deep to be effectively searched from the air. In 1991 and 1992 the USFWS conducted underwater searches using methods developed by Swan (1989) that involved direct observation of the river bottom by scuba divers (Connor et al. 1993; Garcia et al. 1994a). From 1993-2001, the USFWS and IPC conducted underwater searches using a video system consisting of a DC-powered video recorder, submersible camera with a 110° lens and 65-ft camera cable, and at least one monitor. The submersible camera was either enclosed in an aluminum sheath mounted on a 90-lb lead weight, or attached to an aluminum frame mounted between two 30-lb lead weights, and could be adjusted 45 to 90 degrees down from horizontal (Groves and Garcia, 1998). The camera was suspended from a boat using a wire rope passed through a roller on the bow and attached to a sounding-reel/depth-indicator mounted in the boat cabin.

Searches using submersible cameras were conducted by passing the camera over the river bottom in a zigzag pattern, or by moving upriver along parallel paths. In each case, the distance between passes was about 30 ft. From 1993 to 1998, only the zig-zag search pattern was used, and the distance between passes was judged either by estimating distance using natural land features, or by placing a rope constructed of different colored 30-ft sections along the shoreline. Beginning in 1999, both the parallel-path and zig-zag search patterns were used. Parallel paths were maintained using a GPS receiver and a computer display that showed real-time position relative to prescribed paths drawn in over a map of each study site. During all searches, the distance between the camera and river bottom, and the angle of the camera, was adjusted to maximize the amount of viewable area without losing our ability to observe details of the bottom substrates. If a redd was observed, the distance between passes in the search pattern was reduced by about half, and in most cases, the entire area was searched at least one more time.

Underwater observations of redds were recorded on video tape beginning in 1993. When large groups of redds were found, corresponding survey coordinates were also recorded using electronic surveying equipment positioned on shore, or a GPS receiver positioned on the boat. These coordinates were used to plot the position of redds observed on each search so they could be referenced along with the video tape to determine the total number of redds at each spawning location. In areas where redds overlapped and could not be identified individually, the perimeter

of the redd group was surveyed and the overall area divided by the average size of fall chinook salmon redds. The conversion values used were 17 m² per redd (1993-2000) based redds observed in the Columbia River (Chapman et al. 1986), and 45.8 m² per redd (2001) based on redds observed in the Snake River (Phil Groves, Idaho Power Company, unpublished data). This produced an index count of the total number of redds in the group.

Underwater searches were limited to areas greater than about 10-ft deep with a dominant bottom substrate particle size (Bovee 1982) ranging from 1- to 6-in. diameter (Raleigh et al. 1986). In 1991 and 1992, a few pilot searches were conducted at known spawning sites. Then from 1993 to 2001, we attempted to annually search about 90 deep-water areas that fit the substrate size and the depth criteria (based on Hells Canyon Dam discharged of about 9,000 cfs). Some of the spawning sites that were typically only searched from the air were also searched using submersible video cameras during spawning seasons when Hells Canyon Dam discharge was higher than 9,000 cfs.

Results and Discussion

Snake River

A total of 710 redds were observed in the Snake River in 2001 (Table 1), of which 535 were observed during ten aerial searches and ground observations (Table 2), and 175 during searches of 67 deep-water sites (Tables 3 and 4). The locations of all redds counted in the Snake River since 1986 are given in Appendix 3. Overall, the redds counted in the Snake River amounted to 55% of all redds observed upriver of Lower Granite Dam in 2001, compared to 65% in 2000, 64% in 1999, 61% in 1998, 31% in 1997, and 55% in 1996.

The number of searches conducted in the Snake River was comparable to that of recent years (Table 5). Overall, aerial search conditions were reported as “poor” to “good”(Table 2).

Clearwater River basin

A total of 336 redds were observed in the Clearwater River basin in 2001, 306 in the Clearwater River (during eight aerial searches; Tables 1, 5, and 6), one in the North Fork Clearwater, five in the South Fork Clearwater, and 24 in the Potlatch River (Table 1). Redds counted in the Clearwater River basin amounted to 26% of all redds observed upriver of Lower Granite Dam in 2001, 32% in 2000, 32% in 1999, 26% in 1998, and 38% in 1997. Observation conditions varied from “poor” to “excellent” during aerial searches of the Clearwater River in 2001 (Table 6).

Redds were observed in the Potlatch River during three surveys (23 on 19-Nov, 0 on 4-Dec, and 1 on 12-Dec). There is some uncertainty as to whether these redds were constructed by fall-chinook or coho, however. In 2001, a total of 164 coho salmon, and 6 fall chinook (1 female and 5 males) were trapped and released above a weir on the Potlatch, with 4 redds counted just above the weir by coho staff. All redds counted in 2001 were observed below the weir were probably a combination of coho and chinook salmon redds. One spawned-out female fall chinook carcass was collected below the weir. In 2000, seven redds were observed in the Potlatch River during

telemetry surveys for coho salmon, but they were not reported in our 2000 report.

Grande Ronde River

A total of 197 redds were observed during nine searches of the Grande Ronde River in 2001 (Tables 1, 5, and 7). Observation conditions were reported as “poor” to “good”. Overall, the redds counted in the Grande Ronde River amounted to 15% of all redds observed upriver of Lower Granite Dam in 2001, compared to 1% in 2000, 2% in 1999, 8% in 1998, 29% in 1997, and 10% in 1996.

Salmon River

A total of 22 redds were observed during one search of the Salmon River in 2001 (Tables 1, 5, and 8). The flight was conducted from RM 104.7 to the river mouth. River flow at Whitebird Gage was 3,400 cfs. Observation conditions were reported as “good”.

Imnaha River

A total of 38 redds were observed during nine searches of the Imnaha River in 2001 (Tables 1 and 5). No records of in-river locations (i.e., RM) were recorded. No redds were counted on the first three flights (9-, 15-, and 22-Oct), 4 redds were observed on 29-Oct, 1 on 5-Nov, 11 on 19-Nov, 8 on 26-Nov, 7 on 26-Nov, 0 on 3-Dec, and 7 on 10-Dec.

Summary

A total of 1,303 redds were observed upriver of Lower Granite Dam in 2001. Most of the redds (54%) were observed in the Snake River, followed by the Clearwater River basin (26%), and the Grande Ronde River (15%).

We included redds counted in the Potlatch River in this report. The confirmed presence of coho salmon in the Potlatch River is problematic.

Redd counts above Lower Granite Dam continued to parallel counts of adult fall chinook salmon at Lower Granite Dam (Figure 2), although the actual fish per redd ratio was relatively poor in 2001 with 5.6 adult fall-chinook salmon counted at Lower Granite Dam for every redd counted above the dam, compared to four fish per redd in 2000.

Figure 2. Number of adult fall chinook salmon counted at Lower Granite Dam, and number of redds counted above the dam, 1986-2001.

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Chapter 2

Tables

Table 1. Number of fall chinook salmon redds counted in the Snake River and tributaries between Lower Granite and Hells Canyon dams, 1986-2001. An empty cell indicates no searches were conducted in the corresponding river and year. Some of the data is broken down into method, and river mile (RM) sections.

River (method or RM)	Year															
	'86	'87	'88	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01
Snake (helicopter) ^a	7	66	64	58	37	41	47	60	53	41	71	49	135	273	255	535
Snake (underwater video) ^b						5	0	67	14	30	42	9	50	100	91	175
Clearwater (RM 0-41)			21	10	4	4	25	36	30	20	66	58	78	179	164	290
Potlatch																24
Clearwater (RM 41-74)							1	0	0	0	0	0	0	2	8	16
M.F. Clearwater (RM 74- 98)									0	0	0	0	0	0	0	0
Selway									0	0	0	0	0	0	0	0
N. F. Clearwater			0	0	0	0	0	0	7	0	2	14	0	1	0	1
S. F. Clearwater							0	0	0	0	1	0	0	2	1	5
Grande Ronde	0	7	1	0	1	0	5	49	15	18	20	55	24	13	8	197
Imnaha		0	1	1	3	4	3	4	0	4	3	3	13	9	9	38
Salmon							1	3	1	2	1	1	3	0	0	22
Totals	7	73	87	69	45	54	82	219	120	115	206	189	303	579	536	1,303

^a The targeted search area was the entire reach from the head of Lower Granite Reservoir to Hells Canyon Dam.

^b The targeted search areas were discrete sites composed mainly of 1-6 in. bottom substrates in water over 10 ft. deep. The number of sites searched varied.

Table 2. New fall chinook salmon redds counted during aerial searches of the Snake River in 2001. Counts are presented by river mile (RM), river kilometer (RK) and date. An empty cell indicates no survey was conducted over the corresponding river mile, and a dash (-) indicates no redd were found on the corresponding date.

RM	RK	Flight Date										Totals
		09-Oct	15-Oct	22-Oct	29-Oct	05-Nov	13-Nov	19-Nov	26-Nov	03-Dec	10-Dec	
148.5	238.9	-	-	-	-	-	1	-	-	1	1	3
149.1	239.9	-	-	-	-	-	2	-	-	-	-	2
149.2	240.1	-	-	1	-	-	1	1	-	1	-	4
151.5	243.8	-	-	-	-	-	3	2	-	-	-	5
152.1	244.7	-	-	-	-	-	-	-	-	1	-	1
152.3	245.1	-	-	2	4	5	12	7	22*	-	-	52
156.8	252.3	-	-	-	-	-	1	2	-	-	-	3
158.0	254.2	-	-	-	-	-	-	-	-	1	-	1
159.3	256.3	-	-	-	-	-	-	-	-	-	1	1
159.5	256.6	-	-	-	-	-	-	1	-	-	-	1
160.5	258.2	-	-	-	-	-	-	-	-	1	-	1
161.0	259.0	-	-	-	5	-	7	-	-	-	-	12
161.8	260.3	-	-	-	-	-	-	-	-	1	-	1
162.5	261.5	-	-	-	-	3	29	12	6	-	-	50
164.7	265.0	-	-	-	1	3	7	4	4	-	-	19
165.1	265.6	-	-	-	-	-	-	-	-	1	-	1
165.8	266.8	-	-	1	5	-	25	1	-	-	-	32
168.7	271.4	-	-	-	-	1	-	6	-	-	-	7
172.5	277.6	-	-	-	-	-	10	7	-	1	-	18
173.9	279.8	-	-	-	-	-	-	-	1	-	-	1
175.2	281.9	-	-	-	-	-	-	-	2	-	-	2
176.5	284.0	-	-	-	-	-	-	-	-	1	-	1
178.9	287.9	1	-	-	-	1	-	-	1	-	-	3
179.6	289.0	-	-	-	-	-	2	1	1	1	-	5
181.7	292.4	-	-	-	-	-	1	-	-	-	-	1
187.5	301.7	-	-	-	-	1	-	-	-	-	-	1
187.7	302.0	-	-	-	-	-	-	1	-	-	-	1
188.2	302.8	-	-	-	-	-	4	1	-	-	-	5
190.2	306.0	-	-	-	-	-	-	1	1	-	-	2
190.8	307.0	-	-	-	1	3	8	3	3	-	-	18

Table 2 (Continued)

RM	RK	Flight Date										Totals
		09-Oct	15-Oct	22-Oct	29-Oct	05-Nov	13-Nov	19-Nov	26-Nov	03-Dec	10-Dec	
191.7	308.4	-	-	-	1	-	2	-	-		-	3
193.6	311.5	-	-	-	-	-	1	-	1		-	2
193.7	311.7	-	-	-	-	-	6	-	1		-	7
193.8	311.8	-	-	-	-	1	-	-	-		-	1
194.0	312.1	-	-	-	7	4	10	1	-		-	22
194.1	312.3	-	-	-	-	-	-	-	-	1*	-	1
196.0	315.4	-	-	-	2	8	3	4	1		2	20
198.2	318.9	-	-	-	1	3	7	6	-		-	17
198.8	319.9	-	-	-	6	4	6	3	-		-	19
201.0	323.4	-	-	-	-	-	-	1	-		1	2
206.5	332.3	-	-	-	-	2	-	-	-		-	2
208.0	334.7	-	-	-	7	6	5	4	-		-	22
211.9	340.9	-	-	-	2	5	5	1	-		1	14
212.3	341.6	-	-	-	-	-	-	1	-		-	1
213.3	343.2	-	-	-	-	-	2	-	-		-	2
213.4	343.4	-	-	-	-	-	1	1	-		-	2
213.7	343.8	-	-	-	-	4	2	-	-		-	6
214.5	345.1	-	-	-	-	1	-	-	-		-	1
216.1	347.7	-	-	-	-	-	5	1	-		-	6
216.9	349.0	-	-	-	-	-	6	-	-		-	6
217.3	349.6	-	-	-	3	1	4	2	3		-	13
218.7	351.9	-	-	-	-	1	7	1	2		-	11
219.0	352.4	-	-	-	-	-	1	2	-		-	3
219.3	352.9	-	-	-	1	2	2	-	2		-	7
221.5	356.4	-	-	-	-	-	-	1	-		-	1
222.7	358.3	-	-	-	-	-	-	-	-		1	1
222.9	358.6	-	-	-	-	1	-	2	1		-	4
235.0	378.1	-	-	-	2	-	4	2	-		-	8
235.7	379.2	1	-	-	6	5	3	-	1		-	16
236.1	379.9	-	-	-	-	1	-	-	-		-	1
237.0	381.3	5	-	-	7	-	2	-	-		-	14
238.6	383.9	2	-	-	3	-	3	-	-		-	8

Table 2 (Continued)

RM	RK	Flight Date										Totals
		09-Oct	15-Oct	22-Oct	29-Oct	05-Nov	13-Nov	19-Nov	26-Nov	03-Dec	10-Dec	
240.4	386.8	-	-	-	2	-	1	-	-		-	3
240.6	387.1	-	-	-	4	4	3	1	-		1	13
241.0	387.8	-	-	-	-	1	3	-	-		-	4
242.8	390.7	-	-	-	-	-	3	-	-		-	3
243.5	391.8	-	-	-	-	5	-	-	-		-	5
244.5	393.4	-	-	-	-	6	3	-	-		-	9
245.3	394.7	-	-	-	-	-	-	1	-		-	1
		9	0	4	70	82	213	85	53	11	8	535
River mile start		145	145	145	145	145	145	145	145	145	145	
River mile end		247	247	247	247	247	247	247	247	184	247	
Visibility rating Asotin to G. Ronde		Good	Poor	Poor	Poor	Poor	Good	Good	Fair	Good	Good	
G. Ronde to Salmon		Good	Poor	Poor	Poor	Poor	Good	Good	Fair	Good	Good	
Salmon to Hells Canyon Dam		Good	Good	Good	Good	Good	Good	Good	Good	N.A.	Good	

Notes:

* Redds reported at RM152.3 on 26-Nov-01 were observed from the ground by IPC on 28-Nov-01.

** The redd reported at RM 194.1 on was observed from the ground by IPC on 04-Dec-01.

Table 3. Record of fall chinook salmon redds counted in the Snake River using submersible cameras in 2001. Counts are presented by river mile (RM) and river kilometer (RK). At RM 179.6, 40 individual redds could be counted, plus an area of 1,226 sq. m. of disturbed substrate.

RM	RK	Redds
148.5	238.9	1
162.5	261.5	6
165.1	265.6	4
165.8	266.8	6
179.6	289.0	67
188.2	302.8	2
193.6	311.5	4
193.7	311.7	1
198.2	318.9	19
198.8	319.9	2
199.4	320.8	2
208.0	334.7	4
212.2	341.4	37
212.3	341.6	8
213.3	343.2	4
216.9	349.0	1
218.7	351.9	4
242.8	390.7	1
245.8	395.5	1
Total		174

Table 4. List of the 67 sites searched for fall chinook salmon redds in the Snake River, 2001, by river mile (RM).

RM	RM	RM	RM
139.5	179.6	202.2	228.0
148.5	181.5	202.8	237.9
149.8	181.8	203.1	238.5
150.5	182.3	203.9	242.2
151.5	183.1	208.0	242.9
153.2	183.5	208.3	245.6
154.3	184.1	209.9	245.8
155.6	184.7	212.2	
158.0	188.2	212.3	
162.4	188.6	213.3	
163.7	193.5	216.9	
164.4	193.7	218.2	
165.3	193.8	218.5	
165.7	194.1	218.7	
166.2	194.4	221.0	
166.6	194.6	222.3	
171.4	196.5	223.1	
171.9	198.2	223.7	
175.3	198.8	227.5	
177.6	199.4	227.9	

Table 5. Number of redd searches conducted in the Snake River and tributaries between Lower Granite and Hells Canyon dams, 1986-2001
 Data for underwater searches indicates the number of discrete patches of gravels searched, whereas all other data indicates the number of helicopter flights over portions of the corresponding river. River miles (RM) are shown for continuous sections of the Clearwater River.

River (search method or RM)	Year															
	'86	'87	'88	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01
Snake (helicopter)	1	2	2	2	3	9	8	8	8	7	7	8	8	9	9	10
Snake (underwater video)						1	3	50	73	42	32	63	48	73	60	67
Clearwater (RM 0-41)			1	2	2	2	2	5	5	3	4	9	5	10	11	8
Potlatch															1	5
Clearwater (RM 41-74)									5	2	1	7	5	8	11	4
M.F. Clearwater (RM 74-98)									1	2	2	2	5	3	4	5
N.F. Clearwater							2	4	5	3	5	9	5	7	11	4
S.F. Clearwater							2	4	4	1	3	7	5	8	6	7
Grande Ronde	1	3	2	1	1	3	6	8	7	3	4	8	6	7	7	9
Imnaha		1	2	2	1	9	6	8	8	6	5	7	6	9	9	9
Salmon							2	3	3	1	4	3	3	3	2	1
Selway									1	2	2	2	5	3	5	6

Table 6. New fall chinook salmon redds counted in the Clearwater River in 2001 (B. Arnsberg, NPT, unpublished data). Counts are presented by river mile (RM) and date. A dash (-) indicates no redds were found on the corresponding date. An empty cell indicates no search was conducted at the corresponding river mile.

RM	RK	New Redds Counted by Flight Date								Totals
		10/03	10/08	10/22	11/05	11/12	11/19	12/04	12/12	
6.7	10.8	-	-	-	-	-	2	-	-	2
7.2	11.6	-	-	-	-	-	-	2	-	2
7.8	12.3	-	-	-	-	-	6	-	1	7
8.8	14.2	-	-	-	-	-	-	1	-	1
13.9	22.3	-	-	-	3	5	-	4	-	12
18.0	29.0	-	-	3	5	-	10	-	-	18
19.1	30.7	-	-	-	-	4	2	-	-	6
19.5	31.3	-	-	-	7	5	2	-	-	14
21.7	35.0	-	-	-	-	-	2	-	-	2
22.0	35.4	1	-	19	7	18	10	5	-	60
23.3	37.5	-	-	-		10	18	1	-	29
24.0	38.6	-	-	-		1	-	-	-	1
26.5	42.7	-	-	-		-	2	-	-	2
31.5	50.7	-	-	-		-	-	3	-	3
32.5	52.3	-	-	-		11	8	-	-	19
34.0	54.7	-	-	2		6	5	-	-	13
35.4	56.9	3	-	7		7	15	15	-	47
35.7	57.5	-	-	-		-	-	1	-	1
37.9	61.0	-	-	-		-	1	-	-	1
39.6	63.7	-	-	1		3	-	-	-	4
40.3	64.8	-	-	2		14	29	1	-	46
45.0	72.4	-	-	-		9	-	-	-	9
52.1	83.8	-	-	-		3	-	-	-	3
66.0	106.1	-	-	-		4	-	-	-	4
		4	0	34	22	100	112	34	1	306
River Mile Start		4	4	4	4	4	4	4	4	
River Mile End		41	41	41	22	74.6	74.6	52.5	74.6	
Flow at Spalding Gauge (cfs)		2600	2540	3980	5020	3950	4000	3850	3630	
Observation Conditions		Excel	Poor	Poor	Poor	Good	Good	Poor	Fair	

Notes:

- 1) Rain event on 10/13 muddied the Clearwater and Salmon and prevented a survey the week of 10/15.
- 2) Rains and turbidity prevented a survey the week of 10/29.
- 3) Poor visibility prevented a good redd count on 11/5, ended survey at Fir Island (RM 22) because of high winds and poor conditions.
- 4) Rain event prevented a survey the week of 11/26.
- 5) Poor visibility prevented a good redd count on 12/4, could not see redds in deeper areas that were seen on previous surveys. Ended survey at Greer, Rm 52.5 because of bad weather.

Table 7. New fall chinook salmon redds counted during aerial searches of the Grande Ronde River, 2001. Counts are presented by river mile (RM) and river kilometer (RK) and date. All flights covered from RM 0-53.

RM	RK	Flight Date									Totals
		09-Oct	15-Oct	22-Oct	29-Oct	05-Nov	19-Nov	26-Nov	03-Dec	10-Dec	
0.1	0.2					5	2		5		12
0.7	1.1			3	1		5		10	3	22
1.0	1.6						1			1	2
1.2	1.9					1	1				2
1.9	3.1						3				3
2.0	3.2									2	2
2.2	3.5								4		4
3.0	4.8									1	1
3.2	5.1						3		3	1	7
3.6	5.8					2	5	4		3	14
4.4	7.1				1						1
4.5	7.2									2	2
4.6	7.4			1	1		4		1		7
5.5	8.8						8				8
6.2	10.0							4			4
6.8	10.9								1		1
7.9	12.7		1								1
8.5	13.7							7			7
9.2	14.8								6		6
10.5	16.9					5	1		3		9
11.7	18.8						3				3
12.0	19.3						2				2
12.5	20.1					4	7	1			12
12.6	20.3				2	1	3				6
12.7	20.4		2	1							3
13.8	22.2						1				1
17.6	28.3			3		2	5				10
19.1	30.7								1		1
20.0	32.2				1	1					2
21.0	33.8							3			3
22.0	35.4					1					1
26.4	42.5									1	1
27.1	43.6	1				1					2
27.3	43.9			1			1				2
33.3	53.6			3			3	4			10
37.5	60.3						2				2
37.6	60.5						2				2
39.0	62.8					2			1		3
43.2	69.5			7	1	1		2			11
47.8	76.9					2					2
49.3	79.3					3					3
		1	3	19	7	31	62	25	35	14	197
Observation conditions		Good	Poor	Good	Fair	Good	Good	Poor	Good	Good	

Table 8. Fall chinook salmon redds counted during a single aerial search of the Salmon River conducted in 2001. Counts are presented by river mile (RM), river kilometer (RK), landmark, and date. All flights covered from RM 0-53.

RM	RK	Landmark	Redds
4.8	7.7	Just upstream of Miller Creek	1
14.2	22.8	0.5 miles upstream of Deer Creek	1
15.3	24.6	0.5 miles downstream of Dry Creek	2
15.7	25.3	Just downstream of Dry Creek	1
26.5	42.6	0.5 miles below Home Sweet Home Cr.	1
31.4	50.5	1 mile below Telcher Creek	1
48.8	78.5	Mouth of McCulley Creek	3
56.7	91.2	1 mile upstream of Cooper Bar	1
62.0	99.8	Beginning of Horseshoe Bend	3
65.0	104.6	1 mile upstream of Horseshoe Bend	2
65.7	105.7	0.5 miles below Slate Creek	2
65.8	105.9	Just below Slate Creek	1
70.5	113.4	Just above Sherwin Creek	1
70.6	113.6	Sherwin Bar	1
85.0	136.8	Just above Race Cr. (near Riggins)	1
Total			22

Appendix 1

Fall chinook salmon tagging records for all fish tagged, 1997-2001.

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO TAG YEAR	LENGTH AT RETURN	SEX	ENTERED FREEFLOW YES=1	<u>LAST IN-RIVER OBS.</u> REACH MOBILE		KNOWN LOSS
1	15	50	12-Sep-97	SNR	PITTS	SUB	1997	65	M	1	LSR	212.7	
2	15	80	12-Sep-97	LSR	WILD	SUB	1997	61	M				
3	15	57	21-Sep-97	SNR	BILLY C	SUB	1997	71	M	1	LSR	176.7	
4	15	16	23-Sep-97	SNR	PITTS	YRLNG	1997	56	M	1	N.A.		1
5	15	20	24-Sep-97	SNR	PITTS	YRLNG	1997	51	M	1	LSR	183.0	
6	15	22	26-Sep-97	SNR	PITTS	YRLNG	1997	52	M	1	LSR	191.9	
7	15	55	26-Sep-97	GRR	WILD	SUB	1997	66	M				
8	15	15	27-Sep-97	SNR	PITTS	YRLNG	1997	55	M	1	LSR		
9	15	74	28-Sep-97	SNR	PITTS	YRLNG	1997	54	M	1	USR	199.7	
10	15	40	29-Sep-97	SNR	PITTS	YRLNG	1997	53	M	1	LSR	152.3	
11	15	100	29-Sep-97	SNR	PITTS	YRLNG	1997	56	M				
12	15	69	30-Sep-97	SNR	PITTS	YRLNG	1997	52	M				
13	15	99	01-Oct-97	SNR	PITTS	YRLNG	1997	55	M				
14	16	85	03-Oct-97	SNR	PITTS	YRLNG	1997	50	M				
15	15	14	03-Oct-97	SNR	PITTS	YRLNG	1997	59	M				
16	16	56	04-Oct-97	SNR	PITTS	YRLNG	1997	51	M	1	LSR	179.6	
17	16	36	05-Oct-97	SNR	BILLY C	SUB	1997	67	M				
18	16	17	07-Oct-97	SNR	PITTS	YRLNG	1997	54	M	1	LSR	150.3	
19	16	46	07-Oct-97	SNR	PITTS	YRLNG	1997	54	M	1	USR	236.0	
20	16	76	12-Oct-97	USR	WILD	SUB	1997	51	M				
21	16	89	14-Oct-97	SNR	PITTS	YRLNG	1997	57	M	1	LSR	4.0	
22	16	72	23-Oct-97	SNR	PITTS	YRLNG	1997	52	M	1	LSR	149.7	
23	10	50	01Oct-98	SNR	PITTS	YRLNG	1998	83	F				
24	10	49	01Oct-98	SNR	PITTS	YRLNG	1998	72	F				
25	10	51	01Oct-98	SNR	PITTS	YRLNG	1998	73	F				

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO TAG YEAR	LENGTH AT RETURN	SEX	ENTERED FREEFLOW YES=1	<u>LAST IN-RIVER OBS.</u> REACH MOBILE		KNOWN LOSS
26	24	80	03-Sep-98	SNR	PITTS	SUB	1998	90	F	1	USR	207.4	
27	10	17	12-Sep-98	LSR	WILD	SUB	1998	84	M	1	LSR	179.6	
28	10	18	12-Sep-98	SNR	PITTS	SUB	1998	88	F	1	USR	237.0	
29	10	19	12-Sep-98	CLW	WILD	SUB	1998	94	M	1	CLW	18.0	
30	24	134	12-Sep-98	SNR	PITTS	YRLNG	1998	62	F	1	LSR	177.8	
31	10	20	12-Sep-98	SNR	BILLY C	SUB	1998	93	M				
32	24	55	13-Sep-98	CLW	BIG CAN	YRLNG	1998	50	M				
33	10	39	13-Sep-98	SNR	PITTS	SUB	1998	91	F	1	USR	236.0	
34	24	15	14-Sep-98	CLW	BIG CAN	YRLNG	1998	57	M				
35	24	71	14-Sep-98	CLW	BIG CAN	YRLNG	1998	60	M	1	CLW	28.0	
36	24	99	15-Sep-98	SNR	PITTS	YRLNG	1998	80	F	1	LSR	210.5	
37	24	130	15-Sep-98	SNR	BILLY C	SUB	1998	78	F	1	LSR	150.3	
38	24	113	16-Sep-98	CLW	BIG CAN	YRLNG	1998	60	M				
39	24	107	17-Sep-98	SNR	PITTS	YRLNG	1998	66	F	1	N.A.		1
40	24	58	18-Sep-98	CLW	BIG CAN	YRLNG	1998	55	M				
41	24	51	18-Sep-98	CLW	BIG CAN	YRLNG	1998	53	M	1	CLW	18.7	
42	24	132	19-Sep-98	SNR	BILLY C	SUB	1998	76	F	1	LSR	194.0	
43	25	117	19-Sep-98	SNR	PITTS	YRLNG	1998	60	F	1	USR	204.2	
44	24	75	19-Sep-98	SNR	PITTS	YRLNG	1998	73	F	1	USR	233.0	
45	24	110	19-Sep-98	SNR	PITTS	YRLNG	1998	60	F				1
46	25	90	20-Sep-98	SNR	PITTS	YRLNG	1998	67	F				
47	25	143	20-Sep-98	CLW	BIG CAN	YRLNG	1998	64	M				
48	24	50	20-Sep-98	CLW	BIG CAN	YRLNG	1998	55	M	1	CLW	24.7	
49	24	39	20-Sep-98	CLW	BIG CAN	YRLNG	1998	55	M	1	CLW	30.0	
50	25	152	20-Sep-98	SNR	PITTS	YRLNG	1998	74	F	1	USR	219.2	
51	25	134	20-Sep-98	SNR	BILLY C	SUB	1998	84	F	1	GRR	1.0	
52	25	18	21-Sep-98	CLW	BIG CAN	YRLNG	1998	54	M	1	CLW	41.0	

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO TAG YEAR	LENGTH AT RETURN	SEX	ENTERED FREEFLOW YES=1	<u>LAST IN-RIVER OBS.</u> REACH MOBILE		KNOWN LOSS
53	25	161	21-Sep-98	LSR	WILD	SUB	1998	80	F	1	LSR	193.8	
54	25	82	21-Sep-98	SNR	PITTS	SUB	1998	72	F				
55	25	36	21-Sep-98	CLW	BIG CAN	YRLNG	1998	56	M	1	CLW	17.5	
56	25	154	21-Sep-98	SNR	PITTS	YRLNG	1998	71	F	1	USR		
57	25	108	21-Sep-98	SNR	PITTS	SUB	1998	74	F	1	USR	234.0	
58	25	137	21-Sep-98	SNR	PITTS	YRLNG	1998	63	F	1	USR	237.0	
59	25	3	21-Sep-98	CLW	BIG CAN	YRLNG	1998	50	M	1	CLW	6.0	
60	25	17	22-Sep-98	CLW	BIG CAN	YRLNG	1998	55	M	1	LSR	179.7	
61	25	91	23-Sep-98	SNR	PITTS	YRLNG	1998	74	F				
62	25	22	23-Sep-98	CLW	BIG CAN	YRLNG	1998	57	M	1	CLW	31.0	
63	25	4	23-Sep-98	CLW	BIG CAN	YRLNG	1998	58	M	1	CLW	38.5	
64	25	121	25-Sep-98	SNR	PITTS	YRLNG	1998	68	F	1	USR	220.0	
65	23	59	25-Sep-98	SNR	PITTS	YRLNG	1998	74	F				
66	23	66	26-Sep-98	SNR	PITTS	YRLNG	1998	70	F	1	USR	213.9	1
67	23	164	27-Sep-98	SNR	PITTS	YRLNG	1998	67	F				
68	23	151	27-Sep-98	SNR	PITTS	YRLNG	1998	73	F	1	LSR	191.8	
69	23	129	27-Sep-98	SNR	PITTS	YRLNG	1998	70	F	1	LSR	152.0	
70	23	135	27-Sep-98	LSR	WILD	SUB	1998	83	F	1	USR	214.9	
71	23	80	27-Sep-98	SNR	PITTS	YRLNG	1998	74	F				1
72	10	47	30-Sep-98	SNR	PITTS	YRLNG	1998	67	F	1	LSR	193.5	
73	10	46	30-Sep-98	SNR	PITTS	YRLNG	1998	72	F	1	USR	219.0	
74	10	44	30-Sep-98	SNR	PITTS	SUB	1998	77	F				
75	23	166	30-Sep-98	SNR	PITTS	YRLNG	1998	74	F	1	LSR	178.9	
76	10	48	30-Sep-98	SNR	PITTS	YRLNG	1998	73	F	1	USR	221.0	
77	10	43	30-Sep-98	SNR	PITTS	YRLNG	1998	69	F	1	USR	209.3	
78	10	45	30-Sep-98	SNR	PITTS	YRLNG	1998	74	F	1	USR	212.1	
79	10	148	04-Oct-98	SNR	PITTS	SUB	1998	70	F	1	USR	209.9	

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO TAG YEAR	LENGTH AT RETURN	SEX	ENTERED FREEFLOW YES=1	<u>LAST IN-RIVER OBS.</u>		KNOWN LOSS
											REACH	MOBILE	
80	10	150	04-Oct-98	SNR	BILLY C	SUB	1998	82	F	1	LSR	176.5	
81	10	154	07-Oct-98	SNR	BILLY C	SUB	1998	75	F	1	LSR		
82	10	157	10-Oct-98	SNR	PITTS	SUB	1998	74	F	1	LSR	175.8	
83	10	22	14-Oct-98	SNR	PITTS	YRLNG	1998	79	F	1	LSR	188.0	
84	10	25	16-Oct-98	SNR	PITTS	YRLNG	1998	73	F	1	USR	198.8	
85	10	26	19-Oct-98	SNR	PITTS	YRLNG	1998	76	F	1	USR	203.1	
86	10	28	22-Oct-98	SNR	BILLY C	SUB	1998	81	F	1	LSR	193.8	
87	19	84	02-Sep-99	SNR	PITTS	YRLNG	1999	85	F	1	USR	240.5	
88	19	116	02-Sep-99	CLW	BIG CAN	YRLNG	1999	74	F	1	CLW	44.2	
89	19	106	02-Sep-99	SNR	PITTS	YRLNG	1999	77	F	1	USR	245.8	
90	19	108	02-Sep-99	SNR	PITTS	YRLNG	1999	78	F	1	USR	219.3	
91	19	118	03-Sep-99	SNR	PITTS	YRLNG	1999	79	F	1	USR	238.6	
92	19	170	04-Sep-99	SNR	PITTS	YRLNG	1999	72	F	1	USR	216.1	
93	13	37	04-Sep-99	SNR	CAP JON	YRLNG	1999	57	M	1	CLW		
94	19	37	04-Sep-99	SNR	PITTS	YRLNG	1999	68	F	1	USR	212.4	
95	19	48	04-Sep-99	SNR	PITTS	YRLNG	1999	75	F	1	USR	246.0	
96	19	59	04-Sep-99	SNR	PITTS	YRLNG	1999	75	F	1	USR	217.8	
97	19	92	05-Sep-99	USR	WILD	SUB	1999	80	F				
98	19	41	06-Sep-99	SNR	PITTS	YRLNG	1999	76	F	1	USR	228.8	
99	19	22	06-Sep-99	CLW	BIG CAN	YRLNG	1999	78	F	1	CLW	20.3	
100	19	28	06-Sep-99	CLW	BIG CAN	YRLNG	1999	71	F	1	LSR	151.3	
101	19	169	06-Sep-99	SNR	PITTS	YRLNG	1999	78	F				
102	19	24	10-Sep-99	SNR	PITTS	YRLNG	1999	71	F	1	USR	213.0	
103	19	85	10-Sep-99	SNR	PITTS	YRLNG	1999	79	F				
104	19	23	11-Sep-99	SNR	PITTS	YRLNG	1999	92	F	1	USR	244.0	
105	19	72	11-Sep-99	CLW	BIG CAN	YRLNG	1999	66	F	1	CLW	28.2	
106	13	9	11-Sep-99	CLW	BIG CAN	YRLNG	1999	72	F	1	CLW	41.0	

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO TAG YEAR	LENGTH AT RETURN	SEX	ENTERED FREEFLOW YES=1	<u>LAST IN-RIVER OBS.</u>		KNOWN LOSS
											REACH	MOBILE	
107	19	142	11-Sep-99	SNR	PITTS	YRLNG	1999	79	F	1	USR	218.4	
108	13	63	11-Sep-99	SNR	CAP JON	YRLNG	1999	55	M	1	LSR	177.1	
109	19	111	11-Sep-99	CLW	BIG CAN	YRLNG	1999	79	F	1	CLW	19.1	
110	13	44	12-Sep-99	SNR	CAP JON	YRLNG	1999	52	M	1	USR	205.0	
111	13	24	12-Sep-99	SNR	CAP JON	YRLNG	1999	53	M	1	LSR	179.0	
112	13	28	12-Sep-99	SNR	CAP JON	YRLNG	1999	55	M	1	CLW	21.1	
113	13	170	13-Sep-99	SNR	PITTS	YRLNG	1999	67	M	1	LSR	196.0	
114	19	121	13-Sep-99	CLW	BIG CAN	SUB	1999	73	F	1	CLW	27.8	
115	19	27	13-Sep-99	CLW	BIG CAN	YRLNG	1999	75	F				1
116	19	80	13-Sep-99	SNR	PITTS	SUB	1999	58	F	1	USR	209.7	
117	19	88	13-Sep-99	SNR	PITTS	YRLNG	1999	73	F	1	USR	149.6	
118	19	36	13-Sep-99	CLW	BIG CAN	SUB	1999	76	F	1	CLW	28.8	
119	19	25	13-Sep-99	SNR	PITTS	SUB	1999	78	F	1	LSR	193.8	
120	19	95	13-Sep-99	CLW	BIG CAN	YRLNG	1999	87	F	1	CLW	28.2	
121	13	106	13-Sep-99	SNR	PITTS	YRLNG	1999	68	F	1	USR	237.0	
122	13	56	13-Sep-99	SNR	CAP JON	YRLNG	1999	54	M	1	LSR	177.5	
123	19	44	14-Sep-99	CLW	BIG CAN	YRLNG	1999	67	F	1	CLW	38.8	
124	13	47	14-Sep-99	SNR	CAP JON	YRLNG	1999	53	M	1	LSR	179.6	
125	13	35	14-Sep-99	SNR	CAP JON	YRLNG	1999	51	M	1	CLW	12.0	
126	19	34	14-Sep-99	SNR	PITTS	SUB	1999	65	F	1	USR	202.5	
127	13	48	14-Sep-99	SNR	CAP JON	YRLNG	1999	55	M	1	LSR	181.7	
128	13	52	14-Sep-99	SNR	CAP JON	YRLNG	1999	59	M	1	CLW	21.0	
129	13	4	15-Sep-99	SNR	PITTS	YRLNG	1999	74	F	1	USR	207.9	
130	13	160	15-Sep-99	SNR	CAP JON	YRLNG	1999	57	M	1	LSR	178.9	
131	13	36	15-Sep-99	SNR	CAP JON	YRLNG	1999	51	M	1	LSR	179.6	
132	19	35	15-Sep-99	SNR	PITTS	YRLNG	1999	71	F				
133	19	91	15-Sep-99	CLW	BIG CAN	YRLNG	1999	82	F	1	CLW	19.1	

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO TAG YEAR	LENGTH AT RETURN	SEX	ENTERED FREEFLOW YES=1	<u>LAST IN-RIVER OBS.</u> REACH MOBILE		KNOWN LOSS
134	13	39	16-Sep-99	SNR	CAP JON	YRLNG	1999	51	M	1	LSR	152.5	
135	13	2	16-Sep-99	CLW	BIG CAN	YRLNG	1999	68	F	1	CLW	33.8	
136	19	115	16-Sep-99	SNR	PITTS	SUB	1999	67	F	1	USR	219.3	
137	19	75	16-Sep-99	CLW	BIG CAN	YRLNG	1999	75	F	1	CLW	19.1	
138	19	57	16-Sep-99	CLW	BIG CAN	YRLNG	1999	81	F	1	CLW	14.4	
139	19	82	17-Sep-99	CLW	BIG CAN	YRLNG	1999	68	F				
140	19	97	17-Sep-99	USR	WILD	SUB	1999	102	M	1	USR	219.3	
141	19	152	17-Sep-99	CLW	BIG CAN	YRLNG	1999	68	F	1	LSR	179.6	
142	19	149	17-Sep-99	SNR	PITTS	SUB	1999	66	F	1	USR	206.4	
143	13	139	17-Sep-99	CLW	BIG CAN	YRLNG	1999	78	F	1	CLW		
144	19	70	17-Sep-99	SNR	PITTS	SUB	1999	61	F	1	USR	236.0	
145	13	46	17-Sep-99	SNR	CAP JON	YRLNG	1999	50	M	1	LSR	152.5	
146	19	93	18-Sep-99	CLW	BIG CAN	YRLNG	1999	66	F	1	USR	217.3	
147	19	167	18-Sep-99	CLW	BIG CAN	YRLNG	1999	75	F	1	CLW	39.5	
148	13	142	18-Sep-99	CLW	BIG CAN	YRLNG	1999	66	F				
149	13	157	18-Sep-99	CLW	BIG CAN	YRLNG	1999	76	F	1	LSR	166.5	
150	19	71	18-Sep-99	CLW	BIG CAN	YRLNG	1999	73	F				
151	13	128	19-Sep-99	CLW	BIG CAN	YRLNG	1999	76	F	1	CLW	39.0	1
152	13	119	20-Sep-99	CLW	BIG CAN	YRLNG	1999	73	F	1	LSR	172.5	
153	13	15	20-Sep-99	CLW	BIG CAN	YRLNG	1999	74	F	1	CLW		
154	19	73	21-Sep-99	CLW	BIG CAN	YRLNG	1999	76	F				
155	19	51	21-Sep-99	CLW	BIG CAN	YRLNG	1999	75	F				1
156	13	20	21-Sep-99	CLW	BIG CAN	YRLNG	1999	63	F	1	LSR		
157	13	107	22-Sep-99	CLW	BIG CAN	YRLNG	1999	72	F				
158	19	103	23-Sep-99	LSR	WILD	SUB	1999	72	M	1	USR	237.0	
159	18	140		CLW	BIG CAN	YRLNG	2000	61	M				1
160	19	153		CLW	BIG CAN	YRLNG	2000	74	F				1

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO TAG YEAR	LENGTH AT RETURN	SEX	ENTERED FREEFLOW YES=1	<u>LAST IN-RIVER OBS.</u> REACH MOBILE		KNOWN LOSS
161	18	44	09-Sep-2000	CLW	BIG CAN	SUB	2000	72	F				
162	19	87	18-Sep-2000	CLW	BIG CAN	SUB	2000	72	F	1	CLW	15.8	
163	18	106	20-Sep-2000	SNR	PITTS	YRLNG	2000	81	F	1	USR	227.0	
164	19	47	20-Sep-2000	SNR	CAP JON	YRLNG	2000	68	F				
165	19	145	20-Sep-2000	SNR	PITTS	YRLNG	2000	72	F	1	USR	243.4	
166	18	107	20-Sep-2000	CLW	BIG CAN	YRLNG	2000	81	F	1	CLW	38.5	
167	18	123	20-Sep-2000	CLW	BIG CAN	YRLNG	2000	84	F	1	CLW	31.6	
168	18	132	21-Sep-2000	SNR	PITTS	YRLNG	2000	73	F	1	USR	208.0	
169	18	52	21-Sep-2000	SNR	PITTS	YRLNG	2000	68	F	1	USR	219.0	
170	19	67	21-Sep-2000	SNR	PITTS	SUB	2000	77	F	1	LSR	194.5	
171	18	17	22-Sep-2000	SNR	PITTS	YRLNG	2000	71	F				
172	19	169	22-Sep-2000	SNR	PITTS	YRLNG	2000	74	F	1	LSR		
173	18	88	22-Sep-2000	CLW	BIG CAN	YRLNG	2000	79	F	1	CLW	9.1	
174	18	98	22-Sep-2000	CLW	BIG CAN	YRLNG	2000	86	F				
175	19	144	23-Sep-2000	SNR	BILLY C	SUB	2000	75	F				
176	18	91	23-Sep-2000	CLW	BIG CAN	YRLNG	2000	79	F				
177	19	76	23-Sep-2000	CLW	BIG CAN	YRLNG	2000	88	F	1	CLW	36.2	
178	18	111	24-Sep-2000	SNR	PITTS	YRLNG	2000	79	F	1	USR	211.9	
179	19	114	24-Sep-2000	SNR	PITTS	YRLNG	2000	73	F	1	LSR	177.0	
180	19	38	24-Sep-2000	SNR	PITTS	YRLNG	2000	79	F	1	USR	218.6	
181	19	96	24-Sep-2000	CLW	BIG CAN	SUB	2000		F				
182	19	125	25-Sep-2000	CLW	BIG CAN	YRLNG	2000	69	F				
183	19	5	25-Sep-2000	SNR	PITTS	YRLNG	2000	69	F	1	LSR	188.0	
184	18	147	25-Sep-2000	SNR	PITTS	YRLNG	2000	73	F				
185	18	10	25-Sep-2000	SNR	PITTS	YRLNG	2000	72	F	1	USR	235.1	
186	18	170	25-Sep-2000	SNR	PITTS	YRLNG	2000	83	F	1	USR	211.9	
187	19	117	25-Sep-2000	SNR	CAP JON	YRLNG	2000	74	F	1	LSR	151.7	
188	18	16	26-Sep-2000	SNR	CAP JON	YRLNG	2000	76	F	1	LSR	146.2	
189	19	69	26-Sep-2000	CLW	BIG CAN	YRLNG	2000	62	F	1	CLW	22.0	
190	18	136	26-Sep-2000	SNR	PITTS	YRLNG	2000	78	F				
191	18	12	26-Sep-2000	SNR	CAP JON	YRLNG	2000	69	F				
192	18	169	27-Sep-2000	SNR	PITTS	YRLNG	2000	76	F	1	USR	235.7	
193	19	59	27-Sep-2000	SNR	PITTS	YRLNG	2000	77	F				
194	18	3	28-Sep-2000	CLW	BIG CAN	SUB	2000	81	F	1	LSR	168.7	

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO	LENGTH	SEX	ENTERED	LAST IN-RIVER OBS.		KNOWN LOSS
							TAG YEAR	AT RETURN		FREEFLOW YES=1	REACH	MOBILE	
195	18	19	28-Sep-2000	SNR	CAP JON	YRLNG	2000	66	F				
196	19	94	28-Sep-2000	CLW	BIG CAN	YRLNG	2000	75	F	1	CLW	33.4	
197	18	84	28-Sep-2000	CLW	BIG CAN	YRLNG	2000	80	F				
198	19	159	29-Sep-2000	SNR	CAP JON	YRLNG	2000	64	F	1	LSR	146.0	
199	18	42	30-Sep-2000	SNR	CAP JON	YRLNG	2000	64	F				
200	19	151	30-Sep-2000	CLW	BIG CAN	YRLNG	2000	80	F	1	CLW	25.0	
201	19	160	01-Oct-2000	CLW	BIG CAN	YRLNG	2000	65	F				
202	19	158	01-Oct-2000	CLW	BIG CAN	YRLNG	2000	78	F	1	CLW	11.0	
203	19	45	02-Oct-2000	SNR	PITTS	YRLNG	2000	66	F	1	USR	211.9	
204	18	99	02-Oct-2000	CLW	BIG CAN	YRLNG	2000	75	F	1	CLW	40.7	
205	19	75	02-Oct-2000	SNR	CAP JON	YRLNG	2000	64	F				
206	18	49	03-Oct-2000	CLW	BIG CAN	YRLNG	2000	77	F	1	GRR		
207	19	86	04-Oct-2000	CLW	BIG CAN	YRLNG	2000	62	F	1	CLW	21.0	
208	18	102	04-Oct-2000	SNR	CAP JON	YRLNG	2000	75	F	1	LSR	147.0	
209	19	130	04-Oct-2000	SNR	PITTS	YRLNG	2000	62	M				
210	18	89	04-Oct-2000	CLW	BIG CAN	YRLNG	2000	61	M				
211	19	129	05-Oct-2000	SNR	CAP JON	YRLNG	2000	60	M				
212	18	114	05-Oct-2000	CLW	BIG CAN	YRLNG	2000	64	M	1	CLW	20.7	
213	19	133	05-Oct-2000	CLW	BIG CAN	YRLNG	2000	61	M	1	CLW	27.0	
214	19	33	05-Oct-2000	SNR	PITTS	YRLNG	2000	84	M	1	LSR	168.4	
215	18	27	05-Oct-2000	SNR	CAP JON	YRLNG	2000	76	F	1	LSR		
216	19	118	05-Oct-2000	SNR	CAP JON	YRLNG	2000	62	F	1	LSR	168.8	
217	18	157	05-Oct-2000	SNR	CAP JON	YRLNG	2000	64	M	1	LSR	179.6	
218	19	139	05-Oct-2000	CLW	BIG CAN	YRLNG	2000	74	F				
219	18	45	05-Oct-2000	SNR	PITTS	YRLNG	2000	62	M	1	CLW	16.0	
220	18	72	06-Oct-2000	CLW	BIG CAN	YRLNG	2000	65	M	1	CLW	25.5	
221	19	17	06-Oct-2000	SNR	PITTS	YRLNG	2000	62	M	1	LSR	190.1	
222	18	54	06-Oct-2000	SNR	PITTS	YRLNG	2000	60	M	1	LSR	152.3	
223	18	8	06-Oct-2000	SNR	CAP JON	YRLNG	2000	70	F				
224	18	78	07-Oct-2000	SNR	PITTS	YRLNG	2000	63	M	1	LSR	205.3	
225	19	163	07-Oct-2000	SNR	PITTS	YRLNG	2000	93	M	1	LSR	160.6	
226	18	94	07-Oct-2000	SNR	PITTS	YRLNG	2000	62	M	1	LSR	146.5	
227	19	97	07-Oct-2000	CLW	BIG CAN	YRLNG	2000	64	M	1	CLW	13.9	
228	19	122	07-Oct-2000	SNR	CAP JON	YRLNG	2000	63	M	1	LSR	153.3	

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO	LENGTH	SEX	ENTERED	LAST IN-RIVER OBS.		KNOWN LOSS
							TAG YEAR	AT RETURN		FREEFLOW YES=1	REACH	MOBILE	
229	18	137	07-Oct-2000	SNR	PITTS	YRLNG	2000	62	F	1	LSR	191.0	
230	18	79	07-Oct-2000	SNR	PITTS	YRLNG	2000	61	M				
231	19	42	08-Oct-2000	SNR	CAP JON	YRLNG	2000	68	M	1	LSR	179.6	
232	19	10	08-Oct-2000	CLW	BIG CAN	YRLNG	2000	63	M	1	CLW	18.4	
233	19	164	08-Oct-2000	SNR	PITTS	YRLNG	2000	80	F				
234	19	89	08-Oct-2000	CLW	BIG CAN	YRLNG	2000	83	M	1	LSR	151.2	
235	18	124	08-Oct-2000	SNR	CAP JON	YRLNG	2000	60	M	1	LSR		
236	19	100	08-Oct-2000	SNR	PITTS	SUB	2000	66	F	1	USR	235.7	
237	19	35	08-Oct-2000	SNR	CAP JON	YRLNG	2000	66	F	1	LSR		
238	19	57	08-Oct-2000	SNR	CAP JON	YRLNG	2000	63	M	1	LSR	179.6	
239	19	71	08-Oct-2000	SNR	CAP JON	YRLNG	2000	65	M				
240	19	32	09-Oct-2000	SNR	PITTS	YRLNG	2000	69	F	1	LSR	178.0	
241	19	72	09-Oct-2000	SNR	PITTS	YRLNG	2000	66	F	1	USR	208.0	
242	18	101	09-Oct-2000	SNR	PITTS	YRLNG	2000	67	F	1	LSR	149.6	
243	18	90	09-Oct-2000	SNR	PITTS	YRLNG	2000	65	F	1	USR	198.2	
244	18	156	09-Oct-2000	CLW	BIG CAN	YRLNG	2000	64	M	1	LSR	148.2	
245	18	29	11-Oct-2000	CLW	BIG CAN	YRLNG	2000	75	F	1	CLW	21.7	
246	18	39	11-Oct-2000	CLW	BIG CAN	YRLNG	2000	64	M	1	CLW	17.0	
247	18	25	11-Oct-2000	SNR	CAP JON	YRLNG	2000	63	M	1	LSR	179.6	
248	18	55	11-Oct-2000	CLW	BIG CAN	YRLNG	2000	69	F	1	CLW	8.0	
249	18	112	11-Oct-2000	CLW	BIG CAN	YRLNG	2000	71	F	1	LSR		
250	18	22	11-Oct-2000	SNR	CAP JON	YRLNG	2000	72	M				
251	18	153	11-Oct-2000	CLW	BIG CAN	YRLNG	2000	61	M	1	CLW	40.0	
252	18	81	12-Oct-2000	SNR	BILLY C	SUB	2000	62	M	1	CLW		
253	18	70	12-Oct-2000	SNR	CAP JON	YRLNG	2000	72	F	1	USR	208.0	
254	18	82	12-Oct-2000	SNR	CAP JON	YRLNG	2000	64	F	1	LSR	171.0	
255	18	86	13-Oct-2000	SNR	CAP JON	YRLNG	2000	69	M	1	LSR		
256	18	141	14-Oct-2000	CLW	BIG CAN	YRLNG	2000	62	M	1	CLW	7.0	
257	18	152	14-Oct-2000	SNR	CAP JON	YRLNG	2000	70	F	1	LSR	147.0	
258	18	166	14-Oct-2000	SNR	PITTS	YRLNG	2000	62	M	1	USR	207.0	
259	18	163	14-Oct-2000	CLW	BIG CAN	YRLNG	2000	61	M				
260	18	159	14-Oct-2000	SNR	PITTS	YRLNG	2000	74	M	1	LSR	186.0	
261	18	128	14-Oct-2000	CLW	BIG CAN	YRLNG	2000	62	M	1	CLW	19.0	
262	18	130	14-Oct-2000	SNR	PITTS	SUB	2000	64	M	1	USR		

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO	LENGTH	SEX	ENTERED	LAST IN-RIVER OBS.		KNOWN LOSS
							TAG YEAR	AT RETURN		FREEFLOW YES=1	REACH	MOBILE	
263	18	104	15-Oct-2000	CLW	BIG CAN	YRLNG	2000	64	M	1	CLW	40.7	
264	18	109	15-Oct-2000	CLW	BIG CAN	YRLNG	2000	65	M	1	CLW	5.0	
265	18	105	15-Oct-2000	CLW	BIG CAN	YRLNG	2000	64	F	1	CLW	35.4	
266	18	127	15-Oct-2000	SNR	PITTS	YRLNG	2000	62	M	1	LSR	160.0	
267	19	170	16-Oct-2000	SNR	CAP JON	YRLNG	2000	62	M	1	LSR	147.5	
268	19	155	16-Oct-2000	SNR	PITTS	YRLNG	2000	77	F	1	USR	198.8	
269	18	97	16-Oct-2000	SNR	CAP JON	YRLNG	2000	69	F	1	CLW	37.0	
270	18	93	16-Oct-2000	SNR	PITTS	YRLNG	2000	66	M	1	USR	214.9	
271	19	162	16-Oct-2000	SNR	PITTS	YRLNG	2000	67	F	1	LSR	190.1	
272	19	142	17-Oct-2000	SNR	CAP JON	YRLNG	2000	75	F	1	LSR	154.0	
273	19	99	18-Oct-2000	SNR	PITTS	YRLNG	2000	90	M	1	USR	238.5	
274	19	127	18-Oct-2000	SNR	CAP JON	YRLNG	2000	65	M	1	LSR		
275	19	14	19-Oct-2000	SNR	PITTS	YRLNG	2000	63	M	1	LSR		
276	19	112	19-Oct-2000	CLW	BIG CAN	YRLNG	2000	60	M	1	CLW		
277	19	106	19-Oct-2000	SNR	PITTS	YRLNG	2000	63	M	1	LSR	152.5	
278	19	55	20-Oct-2000	SNR	CAP JON	YRLNG	2000	79	F	1	LSR	162.3	
279	19	60	20-Oct-2000	CLW	BIG CAN	YRLNG	2000	71	F	1	CLW	31.5	
280	19	16	20-Oct-2000	CLW	BIG CAN	YRLNG	2000	65	M	1	CLW	18.1	
281	19	20	22-Oct-2000	SNR	PITTS	YRLNG	2000	65	M	1	LSR	166.1	
282	18	140	23-Oct-2000	CLW	BIG CAN	YRLNG	2000	84	M	1	LSR	152.3	
283	19	153	23-Oct-2000	SNR	CAP JON	YRLNG	2000	65	M	1	LSR	164.0	
284	19	54	23-Oct-2000	CLW	BIG CAN	YRLNG	2000	68	M	1	CLW	22.0	
285	19	25	28-Oct-2000	CLW	BIG CAN	YRLNG	2000	66	F	1	CLW	12.0	
286	19	149	28-Oct-2000	SNR	PITTS	YRLNG	2000	62	M	1	LSR	179.6	
287	19	34	29-Oct-2000	SNR	CAP JON	YRLNG	2000	71	F	1	LSR	160.5	
288	19	50	29-Oct-2000	CLW	BIG CAN	YRLNG	2000	64	F	1	CLW	35.5	
289	19	36	29-Oct-2000	CLW	BIG CAN	YRLNG	2000	62	M	1	LSR	190.1	
290	19	3	02-Nov-2000	SNR	CAP JON	YRLNG	2000	62	F	1	LSR	152.4	
291	18	160	05-Nov-2000	CLW	BIG CAN	YRLNG	2000	62	F				
292	18	48	06-Nov-2000	CLW	BIG CAN	YRLNG	2000	72	F	1	USR	198.0	
293	13	209	06-Sep-2001	SNR	CAP JON	YRLNG	2001	78	F				
294	13	208	07-Sep-2001	SNR	CAP JON	YRLNG	2001	89	F	1	LSR	188.4	
295	13	205	07-Sep-2001	SNR	CAP JON	YRLNG	2001	91	F	1	LSR	182.3	
296	13	203	07-Sep-2001	SNR	CAP JON	YRLNG	2001	74	F	1	LSR	152.4	

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO	LENGTH	SEX	ENTERED	LAST IN-RIVER OBS.		KNOWN LOSS
							TAG YEAR	AT RETURN		FREEFLOW YES=1	REACH	MOBILE	
297	13	195	07-Sep-2001	SNR	CAP JON	YRLNG	2001	79	F	1	LSR	190.3	
298	13	191	07-Sep-2001	SNR	CAP JON	YRLNG	2001	82	F				
299	13	183	08-Sep-2001	CLW	BIG CAN	YRLNG	2001	68	F	1	CLW	23.5	
300	13	199	08-Sep-2001	SNR	CAP JON	YRLNG	2001	72	F	1	LSR	152.0	
301	13	182	08-Sep-2001	SNR	CAP JON	YRLNG	2001	73	F	1	LSR	188.1	
302	13	181	08-Sep-2001	CLW	BIG CAN	YRLNG	2001	78	F	1	CLW	34.0	
303	13	173	08-Sep-2001	SNR	CAP JON	YRLNG	2001	75	F	1	LSR	163.3	
304	13	167	09-Sep-2001	CLW	BIG CAN	YRLNG	2001	86	F	1	CLW	44.0	
305	13	149	09-Sep-2001	SNR	CAP JON	YRLNG	2001	83	F	1	LSR	190.0	
306	13	155	09-Sep-2001	CLW	BIG CAN	YRLNG	2001	80	F	1	CLW	37.6	
307	13	157	09-Sep-2001	CLW	BIG CAN	YRLNG	2001	83	F	1	CLW	28.7	
308	13	154	09-Sep-2001	SNR	CAP JON	YRLNG	2001	77	F	1	LSR	183.1	
309	13	180	09-Sep-2001	SNR	CAP JON	YRLNG	2001	80	F	1	CLW	35.4	
310	13	156	09-Sep-2001	CLW	BIG CAN	YRLNG	2001	79	F	1	CLW	30.0	
311	13	151	09-Sep-2001	CLW	BIG CAN	YRLNG	2001	77	F	1	CLW	19.0	
312	13	176	09-Sep-2001	CLW	BIG CAN	YRLNG	2001	83	F	1	CLW	17.8	
313	13	142	10-Sep-2001	SNR	CAP JON	YRLNG	2001	80	F	1	LSR	18.0	
314	13	146	10-Sep-2001	CLW	BIG CAN	YRLNG	2001	74	F	1	CLW	32.0	
315	13	127	10-Sep-2001	SNR	CAP JON	YRLNG	2001	79	F	1	USR	219.0	
316	13	132	10-Sep-2001	CLW	BIG CAN	YRLNG	2001	78	F	1	CLW	50.8	
317	13	141	10-Sep-2001	CLW	BIG CAN	YRLNG	2001	80	F	1	CLW	35.0	
318	13	122	11-Sep-2001	CLW	BIG CAN	YRLNG	2001	81	F	1	CLW	36.2	
319	13	129	11-Sep-2001	CLW	BIG CAN	YRLNG	2001	78	F	1	CLW	34.7	
320	13	124	11-Sep-2001	SNR	CAP JON	YRLNG	2001	75	F	1	LSR	179.6	
321	13	112	12-Sep-2001	SNR	CAP JON	YRLNG	2001	79	F	1	LSR	193.8	
322	13	108	12-Sep-2001	CLW	BIG CAN	YRLNG	2001	81	F	1	CLW	22.0	
323	13	115	12-Sep-2001	CLW	BIG CAN	YRLNG	2001	78	F	1	CLW	40.4	
324	13	106	12-Sep-2001	SNR	CAP JON	YRLNG	2001	77	F	1	USR	215.4	
325	13	81	13-Sep-2001	SNR	CAP JON	YRLNG	2001	69	F	1	LSR	162.3	
326	13	102	13-Sep-2001	SNR	CAP JON	YRLNG	2001	76	F	1	CLW	15.5	
327	13	103	13-Sep-2001	CLW	BIG CAN	YRLNG	2001	83	F	1	CLW	32.7	
328	13	101	14-Sep-2001	SNR	CAP JON	YRLNG	2001	77	F	1	LSR	179.6	
329	13	96	14-Sep-2001	CLW	BIG CAN	YRLNG	2001	74	F	1	CLW	37.8	
330	13	72	14-Sep-2001	CLW	BIG CAN	YRLNG	2001	78	F	1	CLW	26.6	

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO	LENGTH	SEX	ENTERED	LAST IN-RIVER OBS.		KNOWN LOSS
							TAG YEAR	AT RETURN		FREEFLOW YES=1	REACH	MOBILE	
331	13	80	14-Sep-2001	SNR	CAP JON	YRLNG	2001	85	F	1	CLW		
332	13	63	14-Sep-2001	CLW	BIG CAN	YRLNG	2001	74	F	1	CLW	44.0	
333	13	59	14-Sep-2001	SNR	CAP JON	YRLNG	2001	73	F				
334	13	71	14-Sep-2001	SNR	CAP JON	YRLNG	2001	72	F	1	LSR	179.6	
335	13	54	15-Sep-2001	CLW	BIG CAN	YRLNG	2001	92	F				
336	13	51	15-Sep-2001	CLW	BIG CAN	YRLNG	2001	76	F	1	CLW		
337	13	39	15-Sep-2001	CLW	BIG CAN	YRLNG	2001	76	F	1	CLW		
338	13	37	15-Sep-2001	SNR	PITTS	SUB	2001	74	F	1	LSR	189.4	
339	13	50	15-Sep-2001	CLW	BIG CAN	YRLNG	2001	75	F	1	LSR	163.9	
340	13	69	15-Sep-2001	CLW	BIG CAN	YRLNG	2001	79	F	1	SFC		
341	13	56	15-Sep-2001	CLW	BIG CAN	YRLNG	2001	71	F	1	CLW	39.2	
342	13	49	15-Sep-2001	CLW	BIG CAN	YRLNG	2001	73	F	1	CLW	38.5	
343	12	205	16-Sep-2001	SNR	CAP JON	YRLNG	2001	86	F	1	LSR	173.9	
344	13	1	16-Sep-2001	CLW	BIG CAN	YRLNG	2001	74	F	1	LSR	149.6	
345	13	18	16-Sep-2001	SNR	PITTS	SUB	2001	74	F	1	USR	212.2	
346	13	11	16-Sep-2001	SNR	PITTS	SUB	2001	66	F	1	USR	236.9	
347	13	4	16-Sep-2001	CLW	BIG CAN	YRLNG	2001	76	F				
348	13	26	16-Sep-2001	CLW	BIG CAN	YRLNG	2001	65	F	1	CLW	37.0	
349	13	3	16-Sep-2001	SNR	CAP JON	YRLNG	2001	75	F	1	CLW	22.0	
350	12	206	16-Sep-2001	SNR	CAP JON	YRLNG	2001	80	F	1	USR	150.5	
351	13	5	16-Sep-2001	SNR	CAP JON	YRLNG	2001	78	F	1	CLW	40.0	
352	12	191	16-Sep-2001	SNR	CAP JON	YRLNG	2001	66	F	1	CLW	35.5	
353	13	43	16-Sep-2001	SNR	CAP JON	YRLNG	2001	67	F	1	LSR	166.6	
354	13	32	16-Sep-2001	SNR	CAP JON	YRLNG	2001	91	F	1	IMH	1.6	
355	13	15	16-Sep-2001	SNR	CAP JON	YRLNG	2001	77	F	1	CLW	39.7	
356	13	28	16-Sep-2001	SNR	CAP JON	YRLNG	2001	72	F	1	CLW	22.0	
357	12	194	17-Sep-2001	CLW	BIG CAN	YRLNG	2001	74	F	1	GRR	1.0	
358	12	150	17-Sep-2001	SNR	CAP JON	YRLNG	2001	67	F	1	USR	215.0	
359	12	202	17-Sep-2001	SNR	CAP JON	YRLNG	2001	80	F	1	LSR	162.0	
360	12	154	17-Sep-2001	SNR	CAP JON	YRLNG	2001	82	F	1	CLW	35.4	
361	12	159	17-Sep-2001	SNR	CAP JON	YRLNG	2001	91	F	1	CLW	32.0	
362	12	160	17-Sep-2001	SNR	CAP JON	YRLNG	2001	78	F	1	CLW	39.2	
363	12	155	17-Sep-2001	CLW	BIG CAN	YRLNG	2001	76	F	1	CLW	40.0	
364	12	189	17-Sep-2001	CLW	BIG CAN	YRLNG	2001	73	F	1	CLW	23.5	

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO	LENGTH	SEX	ENTERED	LAST IN-RIVER OBS.		KNOWN LOSS
							TAG YEAR	AT RETURN		FREEFLOW YES=1	REACH	MOBILE	
365	12	173	17-Sep-2001	CLW	BIG CAN	YRLNG	2001	79	F	1	CLW	15.3	
366	12	146	18-Sep-2001	USR	WILD	SUB	2001	72	F	1	USR	212.2	
367	12	129	18-Sep-2001	CLW	BIG CAN	YRLNG	2001	84	F	1	CLW	45.0	
368	12	144	18-Sep-2001	SNR	CAP JON	YRLNG	2001	94	F	1	GRR	34.3	
369	12	136	18-Sep-2001	CLW	BIG CAN	YRLNG	2001	75	F	1	CLW	30.5	
370	12	134	18-Sep-2001	SNR	CAP JON	YRLNG	2001	68	F	1	LSR	21.6	
371	12	87	19-Sep-2001	SNR	CAP JON	YRLNG	2001	76	F	1	CLW	40.0	
372	12	93	19-Sep-2001	SNR	CAP JON	YRLNG	2001	77	F	1	LSR	179.6	
373	12	151	19-Sep-2001	SNR	CAP JON	YRLNG	2001	81	F	1	CLW	35.0	
374	12	108	19-Sep-2001	SNR	PITTS	SUB	2001	85	F	1	USR	212.2	
375	12	153	19-Sep-2001	SNR	CAP JON	YRLNG	2001	79	F				
376	12	125	19-Sep-2001	SNR	CAP JON	YRLNG	2001	76	F	1	CLW	40.0	
377	12	130	19-Sep-2001	SNR	CAP JON	YRLNG	2001	87	F	1	USR	213.7	
378	12	97	19-Sep-2001	SNR	CAP JON	YRLNG	2001	85	F				
379	12	100	19-Sep-2001	SNR	CAP JON	YRLNG	2001	89	F				
380	12	115	19-Sep-2001	SNR	CAP JON	YRLNG	2001	72	F	1	USR	216.9	
381	12	105	19-Sep-2001	SNR	CAP JON	YRLNG	2001	79	F				
382	12	71	19-Sep-2001	SNR	CAP JON	YRLNG	2001	77	F	1	CLW	19.0	
383	12	118	19-Sep-2001	CLW	BIG CAN	YRLNG	2001	84	F	1	CLW	19.0	
384	12	84	19-Sep-2001	SNR	CAP JON	YRLNG	2001	74	F	1	LSR	190.8	
385	12	116	19-Sep-2001	CLW	BIG CAN	YRLNG	2001	78	F	1	CLW	37.3	
386	12	68	20-Sep-2001	SNR	CAP JON	YRLNG	2001	69	F	1	CLW	188.2	
387	12	47	20-Sep-2001	CLW	BIG CAN	YRLNG	2001	78	F				
388	12	67	20-Sep-2001	SNR	CAP JON	YRLNG	2001	80	F	1	CLW		
389	12	51	20-Sep-2001	SNR	CAP JON	YRLNG	2001	76	F	1	CLW	14.0	
390	12	72	20-Sep-2001	CLW	BIG CAN	YRLNG	2001	72	F	1	CLW	22.8	
391	12	75	20-Sep-2001	SNR	CAP JON	YRLNG	2001	74	F	1	USR	210.2	
392	12	46	20-Sep-2001	CLW	BIG CAN	YRLNG	2001	78	F	1	CLW	17.8	
393	12	49	20-Sep-2001	SNR	CAP JON	YRLNG	2001	80	F	1	LSR	148.8	
394	12	58	20-Sep-2001	SNR	PITTS	SUB	2001	92	M	1	CLW	5.0	
395	12	70	20-Sep-2001	SNR	CAP JON	YRLNG	2001	89	F	1	LSR	160.5	
396	12	63	20-Sep-2001	SNR	CAP JON	YRLNG	2001	84	F	1	CLW		
397	12	37	21-Sep-2001	SNR	CAP JON	YRLNG	2001	77	F	1	GRR	17.6	
398	12	34	21-Sep-2001	SNR	CAP JON	YRLNG	2001	77	F	1	LSR	155.4	

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO LENGTH		SEX	ENTERED FREEFLOW YES=1	LAST IN-RIVER OBS.		KNOWN LOSS
							TAG YEAR	AT RETURN			REACH	MOBILE	
399	12	25	21-Sep-2001	SNR	CAP JON	YRLNG	2001	74	F	1	LSR		
400	12	43	21-Sep-2001	CLW	BIG CAN	YRLNG	2001	69	F	1	CLW	21.5	
401	12	39	21-Sep-2001	CLW	BIG CAN	YRLNG	2001	74	F	1	CLW	39.7	
402	12	42	21-Sep-2001	LSR	WILD	SUB	2001	74	M				
403	12	45	21-Sep-2001	CLW	BIG CAN	YRLNG	2001	62	F	1	CLW	39.2	
404	12	21	21-Sep-2001	SNR	CAP JON	YRLNG	2001	77	F				
405	13	212	22-Sep-2001	CLW	BIG CAN	YRLNG	2001	75	F	1	CLW	31.6	
406	12	26	22-Sep-2001	SNR	CAP JON	YRLNG	2001	73	F	1	LSR	188.4	
407	12	15	22-Sep-2001	CLW	BIG CAN	YRLNG	2001	75	F	1	CLW	22.0	
408	12	17	22-Sep-2001	CLW	BIG CAN	YRLNG	2001	84	F				1
409	13	194	22-Sep-2001	SNR	CAP JON	YRLNG	2001	65	F				
410	12	6	22-Sep-2001	SNR	CAP JON	YRLNG	2001	68	F	1	LSR	194.0	
411	13	185	22-Sep-2001	CLW	BIG CAN	YRLNG	2001	70	F	1	CLW	30.5	
412	13	140	22-Sep-2001	CLW	BIG CAN	YRLNG	2001	70	F	1	CLW	35.5	
413	13	111	23-Sep-2001	CLW	BIG CAN	YRLNG	2001	86	F	1	CLW	32.0	
414	13	145	23-Sep-2001	SNR	CAP JON	YRLNG	2001	75	F	1	CLW	31.6	
415	13	107	24-Sep-2001	SNR	CAP JON	YRLNG	2001	73	F	1	LSR	166.7	
416	13	104	24-Sep-2001	SNR	PITTS	SUB	2001	88	F	1	LSR		
417	13	91	24-Sep-2001	LSR	WILD	SUB	2001	69	M	1	LSR	182.3	
418	13	123	24-Sep-2001	SNR	CAP JON	YRLNG	2001	82	F	1	CLW	35.0	
419	13	93	24-Sep-2001	SNR	CAP JON	YRLNG	2001	77	F	1	CLW	31.6	
420	13	152	24-Sep-2001	SNR	CAP JON	YRLNG	2001	79	F				
421	13	114	24-Sep-2001	SNR	CAP JON	YRLNG	2001	75	F	1	LSR	154.1	
422	13	99	24-Sep-2001	SNR	CAP JON	YRLNG	2001	78	F				
423	13	90	25-Sep-2001	SNR	CAP JON	YRLNG	2001	73	F	1	SAL		
424	13	7	25-Sep-2001	SNR	CAP JON	YRLNG	2001	76	F				
425	13	74	25-Sep-2001	CLW	BIG CAN	YRLNG	2001	73	F	1	CLW	21.2	
426	13	65	25-Sep-2001	CLW	BIG CAN	YRLNG	2001	69	F	1	CLW	21.2	
427	13	68	25-Sep-2001	SNR	PITTS	SUB	2001	58	M				
428	13	70	25-Sep-2001	CLW	BIG CAN	YRLNG	2001	72	F	1	CLW	30.5	
429	13	35	26-Sep-2001	USR	WILD	SUB	2001	74	M	1	USR	208.0	
430	12	50	26-Sep-2001	SNR	CAP JON	YRLNG	2001	71	F				
431	12	186	26-Sep-2001	SNR	CAP JON	YRLNG	2001	79	F				1
432	12	204	26-Sep-2001	SNR	PITTS	SUB	2001	74	F	1	USR	213.2	

Appendix 1 (Continued)

Appendix 1 (Continued)													
SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO	LENGTH	SEX	ENTERED	<u>LAST IN-RIVER OBS.</u>		KNOWN LOSS
							TAG YEAR	AT RETURN		FREEFLOW YES=1	REACH	MOBILE	
433	12	203	26-Sep-2001	SNR	CAP JON	YRLNG	2001	71	F				
434	12	185	26-Sep-2001	SNR	CAP JON	YRLNG	2001	72	F				
435	13	47	26-Sep-2001	CLW	BIG CAN	YRLNG	2001	77	F	1	CLW	32.0	
436	12	190	26-Sep-2001	CLW	BIG CAN	YRLNG	2001	69	F	1	CLW	39.2	
437	12	193	26-Sep-2001	SNR	CAP JON	YRLNG	2001	70	F	1	CLW	40.0	
438	12	181	26-Sep-2001	CLW	BIG CAN	YRLNG	2001	78	F	1	GRR	17.6	
439	12	167	27-Sep-2001	SNR	CAP JON	YRLNG	2001	77	F				
440	12	175	28-Sep-2001	USR	WILD	SUB	2001	71	M	1	USR	230.1	
441	13	45	28-Sep-2001	CLW	BIG CAN	YRLNG	2001	73	F	1	CLW	36.6	
442	12	135	28-Sep-2001	CLW	BIG CAN	YRLNG	2001	80	F	1	CLW	7.7	
443	12	174	28-Sep-2001	SNR	CAP JON	YRLNG	2001	82	F	1	LSR	190.8	
444	12	170	28-Sep-2001	SNR	CAP JON	YRLNG	2001	86	F	1	CLW	17.8	
445	12	138	28-Sep-2001	SNR	PITTS	SUB	2001	72	F	1	USR	211.8	
446	12	127	29-Sep-2001	SNR	CAP JON	YRLNG	2001	69	F	1	USR	237.0	
447	12	85	29-Sep-2001	SNR	CAP JON	YRLNG	2001	80	F	1	USR	198.8	
448	12	10	29-Sep-2001	SNR	CAP JON	YRLNG	2001	63	F				
449	12	98	29-Sep-2001	CLW	BIG CAN	YRLNG	2001	61	F				
450	12	76	29-Sep-2001	SNR	CAP JON	YRLNG	2001	84	F				
451	12	124	29-Sep-2001	SNR	CAP JON	YRLNG	2001	79	F	1	CLW	33.0	
452	12	101	29-Sep-2001	CLW	BIG CAN	YRLNG	2001	78	F	1	CLW	39.7	
453	12	165	29-Sep-2001	CLW	BIG CAN	YRLNG	2001	76	F	1	CLW	17.2	
454	12	141	29-Sep-2001	SNR	CAP JON	YRLNG	2001	78	F	1	LSR		
455	12	83	29-Sep-2001	CLW	BIG CAN	YRLNG	2001	89	F	1	CLW	4.7	
456	12	131	29-Sep-2001	CLW	BIG CAN	YRLNG	2001	71	F	1	CLW	8.6	
457	8	105	30-Sep-2001	CLW	BIG CAN	YRLNG	2001	83	F	1	CLW	26.8	
458	8	103	30-Sep-2001	SNR	CAP JON	YRLNG	2001	71	F				
459	12	19	30-Sep-2001	CLW	BIG CAN	YRLNG	2001	74	F	1	CLW	32.0	
460	8	108	30-Sep-2001	LSR	WILD	SUB	2001	71	M				
461	8	104	30-Sep-2001	SNR	PITTS	SUB	2001	65	F	1	LSR	149.0	
462	8	101	30-Sep-2001	CLW	BIG CAN	YRLNG	2001	77	F	1	CLW	39.7	
463	12	55	30-Sep-2001	SNR	PITTS	SUB	2001	68	F	1	USR	237.0	
464	12	11	30-Sep-2001	CLW	BIG CAN	YRLNG	2001	79	F				
465	8	102	30-Sep-2001	CLW	BIG CAN	YRLNG	2001	78	F	1	LSR	168.8	
466	8	106	30-Sep-2001	CLW	BIG CAN	YRLNG	2001	71	F				

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO LENGTH		SEX	ENTERED FREEFLOW YES=1	LAST IN-RIVER OBS.		KNOWN LOSS
							TAG YEAR	AT RETURN			REACH	MOBILE	
467	8	107	30-Sep-2001	CLW	BIG CAN	YRLNG	2001	73	F	1	CLW	31.0	
468	8	113	01-Oct-2001	SNR	CAP JON	YRLNG	2001	79	F	1	LSR		
469	8	109	01-Oct-2001	SNR	CAP JON	YRLNG	2001	75	F	1	CLW	19.4	
470	8	111	01-Oct-2001	SNR	CAP JON	YRLNG	2001	78	F				
471	8	110	01-Oct-2001	SNR	CAP JON	YRLNG	2001	73	F	1	LSR		
472	8	112	01-Oct-2001	SNR	CAP JON	YRLNG	2001	70	F	1	CLW	11.7	
473	8	114	02-Oct-2001	SNR	CAP JON	YRLNG	2001	70	F	1	LSR	167.7	
474	8	119	04-Oct-2001	SNR	CAP JON	YRLNG	2001	73	F	1	CLW	37.3	
475	8	123	05-Oct-2001	SNR	CAP JON	YRLNG	2001	74	F	1	CLW	22.0	
476	8	122	05-Oct-2001	SNR	CAP JON	YRLNG	2001	90	F	1	LSR	171.9	
477	8	121	05-Oct-2001	CLW	BIG CAN	YRLNG	2001	74	F	1	CLW	23.4	
478	8	120	05-Oct-2001	CLW	BIG CAN	YRLNG	2001	84	F	1	CLW	25.5	
479	8	126	06-Oct-2001	SNR	CAP JON	YRLNG	2001	80	F	1	CLW	40.0	
480	8	124	06-Oct-2001	CLW	BIG CAN	YRLNG	2001	68	F	1	LSR	148.3	
481	8	125	06-Oct-2001	SNR	PITTS	SUB	2001	68	F	1	USR	214.5	
482	8	127	07-Oct-2001	SNR	CAP JON	YRLNG	2001	70	M	1	LSR	178.4	
483	8	133	07-Oct-2001	SNR	CAP JON	YRLNG	2001	66	F	1	LSR	169.0	
484	8	130	07-Oct-2001	SNR	CAP JON	YRLNG	2001	64	F	1	LSR	166.7	
485	8	129	07-Oct-2001	SNR	CAP JON	YRLNG	2001	73	F				
486	8	132	08-Oct-2001	SNR	CAP JON	YRLNG	2001	62	F	1	LSR	156.1	
487	8	131	08-Oct-2001	CLW	BIG CAN	YRLNG	2001	72	F	1	CLW	33.0	
488	8	128	08-Oct-2001	CLW	BIG CAN	YRLNG	2001	64	F	1	CLW	23.5	
489	8	136	09-Oct-2001	SNR	CAP JON	YRLNG	2001	70	F	1	LSR	165.7	
490	8	135	09-Oct-2001	CLW	BIG CAN	YRLNG	2001	75	F	1	CLW	22.0	
491	8	134	09-Oct-2001	SNR	CAP JON	YRLNG	2001	67	F	1	USR	235.0	
492	8	138	10-Oct-2001	CLW	BIG CAN	YRLNG	2001	77	F				
493	8	137	10-Oct-2001	SNR	CAP JON	YRLNG	2001	80	F	1	CLW	13.7	
494	8	142	12-Oct-2001	CLW	BIG CAN	YRLNG	2001	73	F	1	CLW		
495	8	139	12-Oct-2001	CLW	BIG CAN	YRLNG	2001	72	F				
496	8	140	12-Oct-2001	CLW	BIG CAN	YRLNG	2001	74	F	1	CLW	31.5	
497	8	141	12-Oct-2001	SNR	CAP JON	YRLNG	2001	76	F	1	LSR	168.5	
498	8	145	14-Oct-2001	LSR	WILD	SUB	2001	77	F	1	LSR	150.2	
499	8	144	14-Oct-2001	SNR	CAP JON	YRLNG	2001	69	F	1	CLW	18.0	
500	8	143	14-Oct-2001	SNR	CAP JON	YRLNG	2001	75	F	1	CLW	39.7	

Appendix 1 (Continued)

SEQ. NO.	TAG CHAN	TAG CODE	TAGGING DATE	RELEASE RIVER	ORIGIN	AGE AT RELEASE	RADIO TAG YEAR	LENGTH AT RETURN	SEX	ENTERED FREEFLOW YES=1	<u>LAST IN-RIVER OBS.</u>		KNOWN LOSS
											REACH	MOBILE	
501	8	148	15-Oct-2001	SNR	CAP JON	YRLNG	2001	77	F				1
502	8	147	15-Oct-2001	CLW	BIG CAN	YRLNG	2001	86	F	1	CLW	35.0	
503	8	146	15-Oct-2001	SNR	CAP JON	YRLNG	2001	77	F	1	LSR	152.2	
504	8	149	16-Oct-2001	SNR	PITTS	SUB	2001	67	F	1	LSR	190.3	
505	8	150	17-Oct-2001	SNR	CAP JON	YRLNG	2001	66	F	1	LSR	163.9	
506	8	151	18-Oct-2001	SNR	CAP JON	YRLNG	2001	68	F	1	LSR	162.4	
507	8	153	20-Oct-2001	CLW	BIG CAN	YRLNG	2001	62	F	1	CLW	37.0	
508	8	152	20-Oct-2001	CLW	BIG CAN	YRLNG	2001	80	F	1	CLW	27.4	
509	8	157	21-Oct-2001	CLW	BIG CAN	YRLNG	2001	67	F	1	CLW	40.0	
510	8	154	21-Oct-2001	CLW	BIG CAN	YRLNG	2001	69	F	1	CLW	22.5	
511	8	156	22-Oct-2001	SNR	CAP JON	YRLNG	2001	72	F	1	USR		
512	8	155	23-Oct-2001	SNR	CAP JON	YRLNG	2001	66	F	1	CLW	39.2	
513	8	160	24-Oct-2001	SNR	PITTS	SUB	2001	61	F	1	CLW	214.5	
514	8	159	27-Oct-2001	SNR	CAP JON	YRLNG	2001	61	F	1	LSR	147.2	
515	8	158	27-Oct-2001	SNR	CAP JON	YRLNG	2001	79	F	1	LSR	174.4	

Appendix 2

Redd counts recorded from 1959 to 1978 in the Snake River between Lewiston, Idaho, and the Hells Canyon Dam site.

River section	Citation	Year											
		1959	1960	-	1967	-	1969	-	1974	1975	1976	-	1978
Hells Canyon Dam to Pleasant Valley Dam Site	Irving and Bjornn 1980	19	2	-	144	-	294	-				-	
Pleasant Valley Dam Site to Imnaha River	Irving and Bjornn 1980	7	2	-	11	-	94	-				-	
Imnaha River to Lewiston, ID	Irving and Bjornn 1980	<u>2</u>	<u>0</u>	-	<u>33</u>	-	<u>180</u>	-				-	
		28	4	-	188	-	568	-				-	
Hells Canyon Dam to Johnson Bar	Witty 1988			-		-	170	-	1	N.D.	8	-	
Johnson Bar to Pleasant Valley	Witty 1988			-		-	124	-	10	N.D.	1	-	
Pleasant Valley to Appaloosa	Witty 1988			-		-	61	-	3	N.D.	0	-	
Appaloosa to Mountain Sheep	Witty 1988			-		-	33	-	2	N.D.	4	-	
Mountain Sheep to State Line	Witty 1988			-		-	<u>0</u>	-	<u>0</u>	<u>N.D.</u>	<u>0</u>	-	
				-		-	388	-	16	10	13	-	
Hells Canyon Dam to Asotin, Washington	Groves and Chandler 1996			-		-		-				-	132
				-		-		-				-	
Maximum annual count		28	4	-	188	-	568	-	16	10	13	-	132

Appendix 3

Fall chinook salmon redds counted in the Snake River, 1986-2001, using aerial and underwater search techniques, by river mile (RM), river kilometer (RK), and year.

		Year																
RM	RK	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
148.3	238.6	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	
148.5	238.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	4	
148.8	239.4	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	
149.1	239.9	-	-	-	1	-	2	-	1	-	-	-	-	2	1	-	2	
149.2	240.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	
151.5	243.8	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	5	
151.9	244.4	-	-	1	-	-	-	-	-	-	3	4	8	-	1	-	-	
152.1	244.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
152.3	245.1	-	13	15	23	16	-	7	3	5	-	3	12	3	20	21	52	
156.8	252.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	
156.9	252.5	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	
157.2	252.9	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	
157.4	253.3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
157.6	253.6	-	-	-	-	-	-	-	-	-	-	-	1	3	-	-	-	
158.0	254.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
159.3	256.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
159.5	256.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
159.7	257.0	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	
160.5	258.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
160.8	258.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	
161.0	259.0	-	-	-	-	-	-	7	11	-	3	-	7	9	1	7	12	
161.8	260.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
162.4	261.3	-	-	2	1	2	20	11	1	-	-	2	-	-	1	4	56	
163.0	262.3	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
163.3	262.7	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	

Appendix 3 (Continued)

Fall chinook salmon redds counted in the Snake River, 1986-2001, using aerial and underwater search techniques, by river mile (RM), river kilometer (RK), and year.

164.4	264.5	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
164.7	265.0	-	-	-	2	1	-	-	-	1	-	-	1	-	-	-	19
165.2	265.8	-	-	5	-	-	-	-	2	3	-	-	-	-	-	-	5
165.3	266.0	-	-	-	-	-	-	-	2	-	-	-	-	1	-	-	-
165.5	266.3	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
165.7	266.6	-	-	-	-	-	-	-	28	-	-	-	-	-	-	-	38
165.9	266.9	-	2	14	-	-	1	3	9	-	-	3	-	2	5	-	-
166.2	267.4	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-
166.6	268.1	-	-	-	-	-	6	-	21	-	-	-	-	6	-	1	-
168.7	271.4	-	-	-	-	-	-	-	5	6	3	-	-	-	-	-	7
169.7	273.0	-	-	-	1	-	-	-	-	-	1	1	-	-	-	-	-
172.5	277.6	-	1	-	-	-	-	-	-	-	-	3	-	4	1	1	18
173.9	279.8	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1
175.2	281.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
176.5	284.0	-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	1
178.3	286.9	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	3
178.5	287.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
178.9	287.9	-	-	-	1	-	-	-	-	1	-	-	-	2	7	13	-
179.6	289.0	-	-	-	-	-	-	-	6	13	27	41	5	16	40	56	73
181.7	292.4	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1
183.1	294.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
187.5	301.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
187.7	302.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
188.2	302.8	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	7
190.0	305.7	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
190.1	305.9	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2
190.8	307.0	-	1	5	-	2	5	1	-	-	-	1	-	4	2	5	18

Appendix 3 (Continued)

Fall chinook salmon redds counted in the Snake River, 1986-2001, using aerial and underwater search techniques, by river mile (RM), river kilometer (RK), and year.

191.7	308.4	2	2	4	-	-	-	-	-	-	-	-	-	-	1	-	3
193.4	311.2	-	-	-	5	2	-	-	-	2	-	2	1	4	-	-	-
193.6	311.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
193.7	311.7	-	4	-	-	-	-	6	1	2	1	-	2	3	-	5	8
193.8	311.8	-	-	-	-	-	-	-	1	1	1	-	-	-	1	2	1
194.0	312.1	-	2	-	-	3	-	-	1	2	4	2	6	14	11	11	22
194.1	312.3	-	-	2	-	2	-	-	-	5	-	-	-	-	-	-	1
196.0	315.4	-	-	3	-	-	-	-	-	2	-	-	-	1	6	10	20
196.2	315.7	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
198.2	318.9	-	-	-	-	-	-	-	-	-	-	2	-	1	17	14	36
198.8	319.9	-	5	-	3	2	7	3	-	6	1	6	-	4	15	17	21
199.4	320.8	-	-	-	-	-	-	-	1	-	-	5	-	-	2	1	2
201.1	323.6	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
203.1	326.8	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-
204.1	328.4	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
205.3	330.3	-	-	-	-	-	3	-	-	-	1	-	-	3	6	2	-
205.4	330.5	-	1	-	-	-	-	-	-	-	-	2	-	-	-	4	-
206.4	332.1	-	1	4	-	-	1	2	1	-	2	-	-	2	4	-	2
206.6	332.4	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-
207.7	334.2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
207.8	334.4	-	-	1	-	-	-	-	-	-	-	3	2	-	5	-	-
207.9	334.5	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
208.0	334.7	-	-	-	1	-	-	-	-	-	2	9	5	13	36	17	26
208.3	335.2	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-
209.1	336.4	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
209.7	337.4	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
211.9	340.9	-	-	-	-	-	-	-	2	-	-	-	-	11	10	6	14

Appendix 3 (Continued)

Fall chinook salmon redds counted in the Snake River, 1986-2001, using aerial and underwater search techniques, by river mile (RM), river kilometer (RK), and year.

212.2	341.4	-	-	-	-	-	-	-	-	-	2	-	-	17	24	28	37
212.3	341.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	9
213.3	343.2	-	-	-	2	-	-	-	-	-	-	1	-	-	-	1	6
213.5	343.5	-	-	-	-	-	-	-	-	-	-	1	-	-	2	1	2
213.7	343.8	-	-	-	-	1	-	2	-	-	-	-	-	4	1	1	6
214.5	345.1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
214.7	345.5	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
215.4	346.6	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-
216.1	347.7	-	-	-	-	-	-	-	-	1	-	-	-	3	1	2	6
216.9	349.0	-	-	-	-	-	-	-	-	-	-	-	-	-	4	5	7
217.3	349.6	-	-	-	-	-	-	1	3	-	1	-	-	4	24	6	13
217.8	350.4	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
218.2	351.1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
218.5	351.6	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	-
218.6	351.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
218.7	351.9	-	-	-	-	-	-	-	-	-	4	7	-	4	12	5	15
219.0	352.4	-	-	-	-	-	-	-	-	-	3	2	-	4	5	6	3
219.3	352.9	-	-	2	-	-	-	1	-	3	-	2	3	6	8	5	7
221.5	356.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
222.7	358.3	-	-	-	1	-	-	-	-	-	-	-	-	-	6	-	1
222.8	358.5	2	3	-	-	-	-	-	-	-	-	-	-	-	-	5	-
222.9	358.6	-	-	-	3	-	-	-	3	1	-	-	-	-	9	-	4
223.2	359.1	-	-	-	-	-	-	-	-	3	3	-	-	-	3	-	-
223.7	359.9	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
224.7	361.5	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
225.0	362.0	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
225.1	362.2	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-

Appendix 3 (Continued)

Fall chinook salmon redds counted in the Snake River, 1986-2001, using aerial and underwater search techniques, by river mile (RM), river kilometer (RK), and year.

226.7	364.8	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
228.0	366.9	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
235.1	378.3	-	-	-	-	-	-	-	-	-	1	-	-	1	2	3	8
235.7	379.2	-	4	-	3	-	-	-	-	5	2	7	1	4	11	16	16
236.0	379.7	1	1	2	1	-	-	-	-	-	-	-	-	-	2	1	-
236.1	379.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
236.7	380.9	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
237.0	381.3	-	-	-	-	-	-	-	5	3	1	-	2	8	6	13	14
238.3	383.4	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
238.6	383.9	-	2	-	2	-	-	-	-	-	1	-	-	-	4	4	8
240.5	387.0	-	6	-	-	-	-	-	-	-	-	1	-	2	8	1	3
240.7	387.3	-	-	-	3	-	6	-	-	-	-	1	1	4	7	11	13
241.0	387.8	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	4
242.8	390.7	-	-	-	-	-	-	-	-	-	-	-	-	1	-	4	4
243.0	391.0	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
243.3	391.5	-	1	-	1	-	-	-	-	-	-	-	-	-	-	4	-
243.5	391.8	-	-	-	-	-	-	-	-	-	-	2	-	1	-	-	5
244.0	392.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
244.6	393.6	-	-	-	1	2	-	-	-	-	-	-	-	-	1	2	9
245.3	394.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
245.7	395.3	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
245.8	395.5	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1
246.5	396.6	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
		7	66	64	58	37	51	47	127	67	71	113	58	185	373	346	710