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Results of Rotary Auger Trap Sampling, Lower Stuart River, British Columbia, in April and May 1992

G.C. Taylor and M.J. Bradford

Department of Fisheries and Oceans
West Vancouver Laboratory
4160 Marine Dr., West Vancouver B.C.
V7V 1N6

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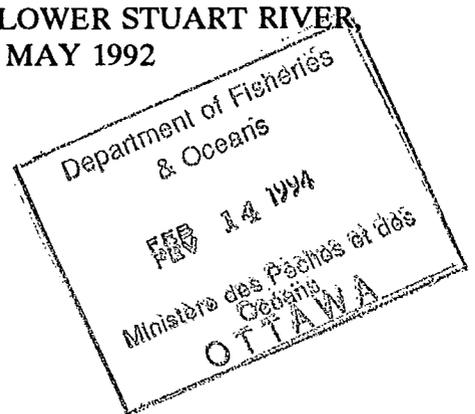
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RESULTS OF ROTARY AUGER TRAP SAMPLING, LOWER STUART RIVER,
BRITISH COLUMBIA, IN APRIL AND MAY 1992

by



G.C. Taylor and M.J. Bradford

Department of Fisheries and Oceans
Biological Sciences Branch
West Vancouver Laboratory
4160 Marine Dr.
West Vancouver, B.C.
V7V 1N6

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ABSTRACT

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Rotary auger traps were used in the lower Stuart River to sample migrating juvenile chinook salmon (Oncorhynchus tshawytscha) and sockeye salmon (Oncorhynchus nerka) between 18 April 1992 and 30 May 1992. Peaks in abundance were recorded on May 20 for chinook fry and on April 25 for sockeye smolts. Greater numbers of all salmonids were caught during the nighttime. Most chinook fry were captured migrating close to the shore while sockeye smolts were caught in similar numbers close to the shore and in the main flow of the river. Based on an estimated trapping efficiency of 2.18%, we estimated the population size of migrant chinook fry at 716,000 for the period sampled. Fork lengths for salmonids are also reported as are abundance data for non-salmonid species.

RÉSUMÉ

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Dans le cours inférieur du Fraser, on a utilisé, entre le 18 avril et le 30 mai 1992, des pièges à vis sans fin pour échantillonner les jeunes saumons quinnats (Oncorhynchus tshawytscha) et rouges (Oncorhynchus nerka) en migration. On a observé des pics d'abondance le 20 mai pour les alevins de quinnat et le 25 avril pour les smolts de saumon rouge. C'est pendant la nuit qu'on capturait le plus grand nombre de salmonidés. La plupart des alevins de quinnat étaient pris tandis qu'ils migraient près de la côte, alors que les smolts de saumon rouge étaient pris en nombres similaires près de la côte et dans le courant principal du fleuve. À partir d'une efficacité de capture estimée à 2,18 %, nous avons calculé que l'effectif de la population d'alevins de quinnat en migration serait de 716 000 pour le période d'échantillonnage. Nous notons les longueurs à la fourche des salmonidés ainsi que des données sur l'abondance pour les autres espèces.

INTRODUCTION

Both chinook salmon (*Oncorhynchus tshawytscha*) and sockeye salmon (*Oncorhynchus nerka*) are known to use the Stuart River for juvenile downstream migration (Williams 1969, Lister et al. 1981). While a portion of the chinook salmon population migrates as post-emergent fry in May and June (Lister et al. 1981), some remain to overwinter in the Stuart River and its tributaries (Emmett 1989, Emmett and Convey 1990, Duff et al. 1992). Juvenile sockeye salmon rearing in Stuart and Takla Lakes migrate down the Stuart River in the spring as one year old smolts (Williams 1969). The objective of this study was to obtain information on the timing of migration of juvenile chinook and sockeye salmon in the lower Stuart River during spring 1992, and to estimate the abundance of migrating chinook salmon. The migration of hatchery reared chinook juveniles as well as incidental catches of other species were also recorded. These data are baseline biological information that will assist in the development of habitat management plans for the Stuart-Takla watershed (Langer et al. 1992).

STUDY AREA AND MATERIALS AND METHODS

The study site was located on the Stuart River near the Chinohchey Creek confluence, approximately 70 km downstream from Stuart Lake and approximately 30 km upstream of the confluence of the Stuart and Nechako Rivers (Fig. 1). Sockeye spawning occurs above Stuart Lake while most chinook spawning takes place in the first 15 km below the lake. This study site was chosen because: 1) it was the first segment of river downstream of the chinook spawning area with adequate velocity to ensure continuous operation of two rotary auger traps, 2) the river was sufficiently narrow for installation of the traps and 3) previous studies on downstream migration of juvenile salmon on the Stuart River used this site (Lister et al. 1981, Duff et al. 1992). Upstream of the site, the river was generally too slow or too wide and shallow for the traps to function properly. The site was also accessible by boat from the end of Sturgeon Point Road (Davidson's Landing), 7 km upstream of the trap site. A private road leading directly to the site from Davidson's Landing was in poor condition and could not be used for this study.

Sampling commenced on 18 April 1992 and concluded on 30 May 1992. During trap installation, the river was approximately 50 m wide between banks. However, this distance increased substantially during the study as the river rose due to spring freshet.

Two rotary auger traps were used for sampling, both of which were suspended off a 16 mm steel cable that spanned the river. Each trap was attached to the cable with a 13 mm steel cable leader. The ends of the leader were clipped onto the front of each trap pontoon with 10.2 cm carabiners and the leader was looped through a 15.25 cm snatch-block on the main cable. The snatch-blocks permitted easy movement of the traps between the river current and the shore. Polypropylene rope between the snatch-blocks and the shore anchored the traps in the desired location in the river. The traps were positioned in the river so that one (Trap 1) was in an area of slow velocity near the left bank and the other (Trap 2) was closer to the right bank just outside the area of maximum flow. As the water level increased, Trap 1 was moved closer to the shore in an effort to continuously trap fry that were migrating along the margins of the river. From these locations in the current, catches were easily removed from the trap live box with the aid of an inflatable boat. Details of the trap design can be found in Duff et al. (1992).

Catches were processed approximately every twelve hours throughout the 44 days of sampling; once in the morning and once in the late evening. Fish from the live boxes were transferred to large plastic buckets and taken to shore for processing. All fish were enumerated to species and salmonid species were identified by size as fry or smolts. A subsample of salmonid fry and smolts from each trap was anaesthetized using a concentration of 1 ml 2-phenoxy ethanol in 4 l of water. These fish were measured (fork length) to the nearest millimetre after which they were revived and released into the river downstream of the trap site. Differences in average catch were tested using ANOVA to compare Trap 1 with Trap 2 and day catches with night catches. Daily mean fork lengths were analyzed for changes in fish size over time.

At the time of catch processing, water temperatures were recorded using a hand-held thermometer and the traps were inspected for damage and cleaned of any accumulated debris. Occasionally the traps became inoperable due to debris accumulation or a small log jamming the trap drum. As the river level rose, logs from upstream of the trap site became more numerous in the river and threatened the continuous operation of the traps.

To estimate the size of the migrant population of juvenile chinook, the efficiency of the traps was determined by mark and recapture. On selected days when large numbers of chinook fry were caught, fry were marked using a vital stain, Bismark brown. Approximately one gram of stain was added to 20 l of water and the fish were held in the staining mixture in a large plastic bucket for up to three hours. A battery-operated aquarium pump was used to maintain the dissolved oxygen levels in the water. After staining was complete, the fry were held until late in the evening before being released into the river approximately one kilometre upstream of the traps.

The number of recaptured fry was recorded and used to calculate trap efficiency. A migrant population estimate with 95% confidence limits was then determined from the trap efficiency using the adjusted Petersen estimate (Ricker 1975).

RESULTS

Eight species of fish were captured in this study (Table 2 & Appendix 1). Total catch of juvenile salmonids was: 15,859 chinook fry, 133 chinook of hatchery origin, 8 sockeye fry and 5,151 sockeye smolts.

Overall, 82% of juvenile salmon were caught at night (Table 3). The difference between mean day and night catches was significant for both chinook fry ($F_{1,113}=41.1$, $P=0.0001$) and sockeye smolts ($F_{1,113}=14.6$, $P=0.0002$) but not for hatchery chinook smolts.

The majority of juvenile salmonids (61%) was caught in Trap 1 (Table 3), the trap closest to shore. Significantly more ($F_{1,113}=7.42$, $P=0.008$) chinook fry were caught by Trap 1 (64%) however the difference in mean catch of sockeye smolts between traps was not significant ($F_{1,113}=0.35$, $P=0.56$). Greater numbers of chinook smolts were caught by Trap 2 although catches were too infrequent for statistical analysis.

Catches of migrating post-emergent chinook fry began to increase in early May and peaked on May 20 (Fig. 2a). Although the migration had not concluded, substantially fewer chinook fry were captured when sampling was terminated on May 30. The onset of the sockeye smolt migration preceded the chinook fry migration by approximately eight days. The run peaked on April 25 and finished about May 8 (Fig. 2b).

Approximately 90,000 adipose-clipped hatchery fish were released into Stuart Lake from net pens on May 3. Our catch data suggest most of these fish migrated down the Stuart River 2-4 days later (Fig. 3). Hatchery chinook caught in the traps prior to May 3 may have escaped from the net pens or were part of an earlier, small release made in February. The peak in the catch of hatchery chinook on May 18 was a group caught in a single trap and may have been a small school.

There was only a slight increase in mean length of wild chinook fry as the study progressed ($r=0.105$, $p=0.015$; Fig. 4a); similar results were obtained for hatchery chinook ($r=0.33$, $p=0.0007$). An increase in daily mean length was also observed for the sockeye smolts ($r=0.20$, $p<0.001$; Fig. 4b).

A total of 2664 chinook fry was stained and released as part of five different mark and recapture calibrations (Table 4). Only 60 marked fry were recaptured within 24 hours of their release resulting in an average trapping efficiency of 2.18%. Based on a total of 15,859 chinook fry trapped over the season, the total migrating chinook fry population was estimated at 716,000 with 95% confidence limits of 555,000 and 924,000.

The river temperature increased slowly over the first two weeks that measurements were taken, and then at a much faster rate after May 11 reaching a maximum of 11.5°C (Fig. 5).

DISCUSSION

Rotary auger traps have not been used previously on the Stuart River to monitor the spring outmigration of juvenile salmonids. The traps performed well in catching both salmonid fry and smolts and provided an effective means of monitoring the chinook and sockeye migrations simultaneously. The only problem encountered was maintaining continuous trap operation when debris was present.

Diel variation in trap catches has been described in many previous juvenile salmonid studies (Kerns 1961, Mains and Smith 1964, Groot 1965, Hartman et al. 1967, Lister et al. 1971). All have reported significantly larger catches in the night or late evening compared with the daytime. Comparison of intertrap variation in catches indicated that the chinook fry tended to migrate primarily along the outer margins of the river close to the shore while the sockeye smolts and hatchery chinook were dispersed more evenly across the river. Healey (1991) has suggested that chinook fry migrating downstream in larger rivers generally stay close to the shore, out of the main flow of the river.

The migration timings for juvenile salmon compare favourably with results obtained in previous studies on the Stuart River. In 1980, juvenile chinook fry in the Stuart River began to migrate about April 25 and peaked around May 15 (Lister et al 1981). The 1992 migration, while showing the same general pattern for abundance over time, started and peaked approximately five days later than the 1980 migration. This discrepancy might be explained by variations in water temperature. Lister et al.(1981) states that the 1980 fry migration coincided with a relatively rapid increase in water temperature. Because temperature data were not collected in the first eleven days of our study, it is difficult to conclude whether or not temperature might be a factor.

The spring migration of newly emerged fry in 1992 was substantially larger

than the migration of juveniles in the fall of 1991 (Duff et al. 1992). In this study average daily catch was 360 chinook fry over 44 days of sampling; in the fall migration study, only 10 chinook fry per day were caught over 36.5 days using similar traps at the same site.

The 1992 sockeye smolt migration began two weeks earlier than in 1967 (Williams 1969). Foerster (1968), in reference to Cultus Lake, noted the timing of sockeye smolt migration to be variable and he suggests that factors such as the timing of ice breakup, water temperature, wind action on the lake, and the size, age and physiological state of the smolts all play a role in determining migration timing.

Stuart River chinook are stream-type (i.e. spend 2 years in freshwater [NFCP 1989]), however, we did not capture any yearling chinook smolts in the Stuart River in 1992. We suggest two possible explanations for this result: 1) the wild chinook smolt migration took place immediately following ice break-up on the river and before our study began. Rosberg et al. (1981) found that yearling smolt migrations in four upper Fraser chinook streams occurred in April, before the beginning of the fry migration. 2) suitable over-wintering habitat does not exist in the upper part of the Stuart River and therefore a large proportion of juvenile chinook migrate downstream as fry to known overwintering habitat in the Lower Stuart, Nechako and Fraser Rivers (Emmett 1989, Levings and Lauzier 1991, Duff et al. 1992,). Though significant summer rearing habitat upstream of the trap site has been documented (Lister et al. 1981), to date insufficient evidence has been collected as to the quantity and quality of chinook overwintering habitat in the upper Stuart River. Some overwintering may occur in Stuart Lake, however, in the river the amount of overwintering habitat is likely to be limited as most of the substrate is either mud or sand.

Lister et al. (1981) also used mark and recapture on the Stuart River to estimate outmigration population size for chinook fry, and arrived at an estimate of 1,176,000 fry which is somewhat higher than our estimate of 716,000 fish. This difference may be the result of differences in the size of the spawning population, the egg-fry survival, or the proportion of fry using the river above the traps for rearing. It is also possible that we underestimated the numbers of unmarked fry on nights when the traps became jammed. Based on an estimate of 3000 female spawners in 1991 (Nechako Fisheries Conservation Program and Bradford unpubl. data), an average fecundity of 6000 eggs, and allowing for 20% of the fry population rearing above the traps (Lister et al. 1981), the egg-fry survival for the 1991 brood was estimated at 5%. This value is likely to be inaccurate given the low number of trap calibrations that were conducted, and the difficulties in estimating the spawning population in the Stuart River. Lister et al. (1981) estimated an egg-fry survival for the 1979 brood of 65% but this is likely a vast overestimate because it was based on an escapement of 825 spawners, derived from

aerial surveys. The Stuart River tends to be turbid, and visual counts are known to be low.

ACKNOWLEDGMENTS

Several people are owed our gratitude for making this study possible. Colin Levings of the West Vancouver Laboratory gave advice and helped with the installation of the traps. Financial support was provided by the Fraser River Action Plan and the Cooperative Fisheries Management Program. Terry Prince, Danny Cameron, Marvin Taylor, Terry Julian and Jako Prince, all of the Nak'azdli Indian Band, Fort St. James, helped to install and monitor the traps. Andrew Allan helped in preparation of the manuscript. A special thanks is owed to Charles Davidson for the use of his facilities for launching and docking the boats.

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Table 1. Description of the variables presented in catch data (Appendix 1).

VARIABLE	VARIABLE DESCRIPTION
DATE	Date sample was taken (YYMMDD)
TIME	Time of sample collection (PDT)
TRAP	Trap identification number

Table 2. Scientific and common names and species codes of fishes collected from the Stuart River.

FAMILY AND SCIENTIFIC NAME	COMMON NAME	SPECIES CODE
SALMONIDAE		
<u>Oncorhynchus mykiss</u>	rainbow trout	RBT
<u>O. nerka</u>	sockeye salmon (fry)	SOK 0+
	sockeye salmon (smolt)	SOK 1+
<u>O. tshawytscha</u>	chinook salmon (fry)	CHK 0+
	chinook salmon (smolt)	CHK 1+
<u>Prosopium williamsoni</u>	rocky mountain whitefish	WHT
CYPRINIDAE		
<u>Ptychocheilus oregonensis</u>	northern squawfish	SQA
<u>Richardsonius balteatus</u>	redside shiner	SHN
<u>Rhynchithys falcatus</u>	leopard dace	DAC
CATOSTOMIDAE	unidentified sucker	SUC

Table 3. Numbers of juvenile chinook and sockeye captured during the day and night and by Traps 1 and 2.

Species	Total	Day	Night	Trap 1	Trap 2
Chinook 0+	15859	3221	12638	10164	5695
Hatchery Chinook	133	10	123	37	96
Sockeye 1+	5151	545	4606	2773	2378

Table 4. Mark and recapture data for juvenile chinook salmon from the Stuart River.

Date of Marking	# of Fish Marked	# Recaptured
920505	488	6
920512	290	2
920513	280	0
920517	873	32
920519	733	20
TOTAL	2664	60

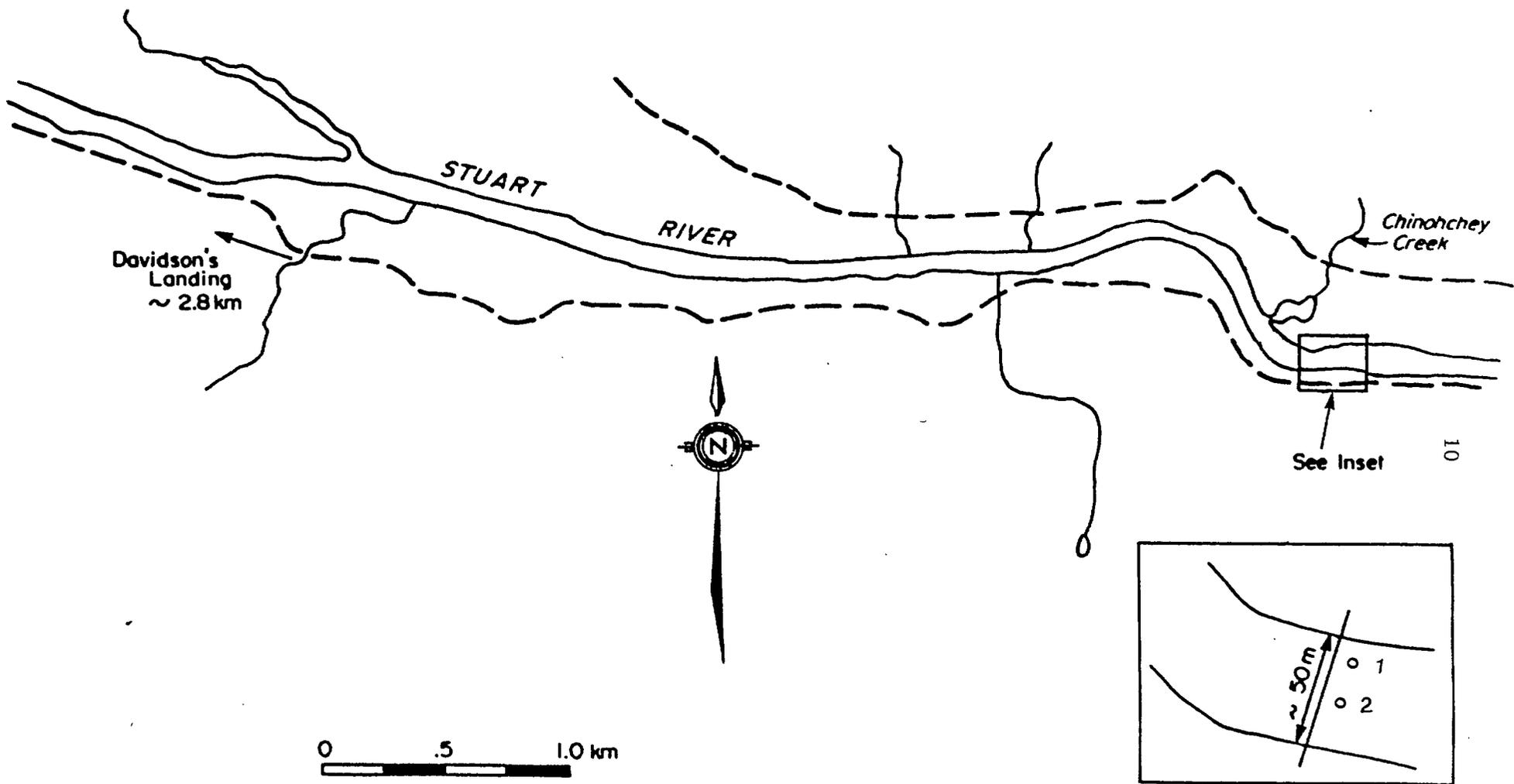


Figure 1. Map of Stuart River near Chinohchey Creek showing sampling site for auger traps.

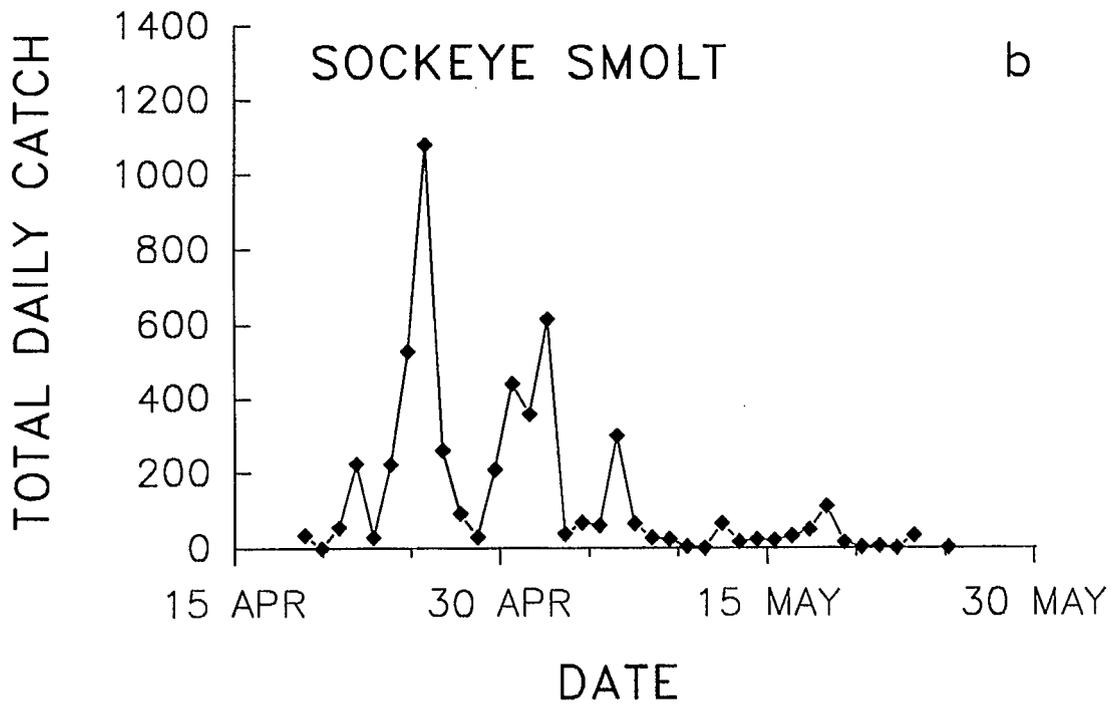
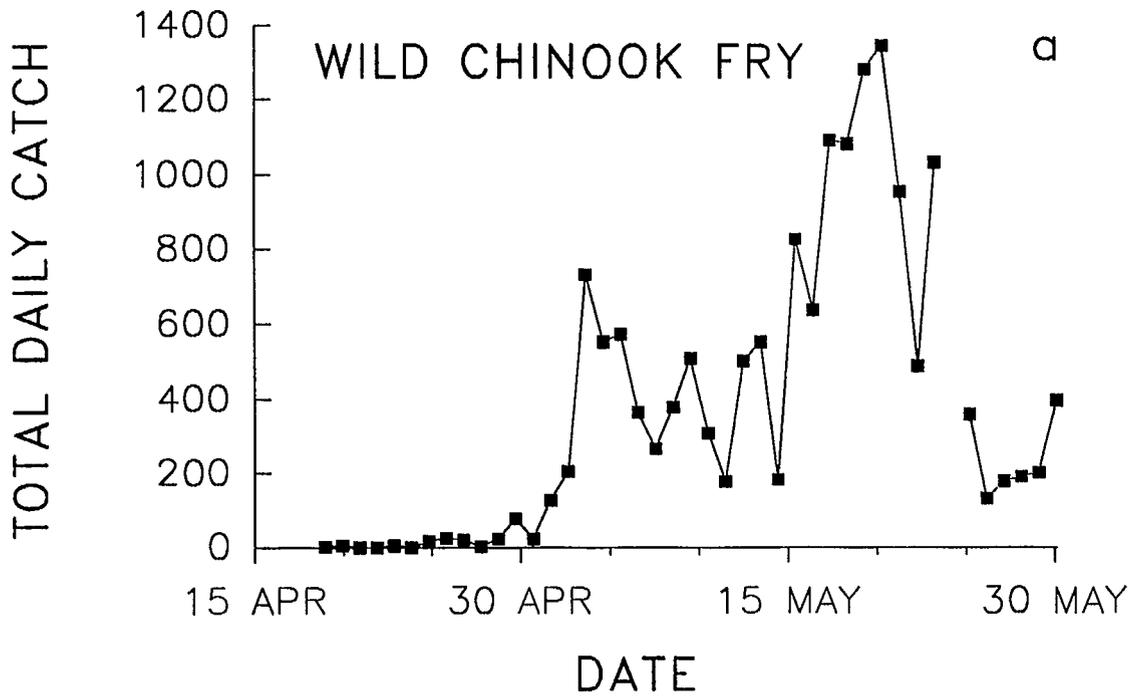


Fig. 2. a) Total daily catch of wild chinook salmon fry from the Stuart River.
b) Total daily catch of sockeye salmon smolts from the Stuart River.

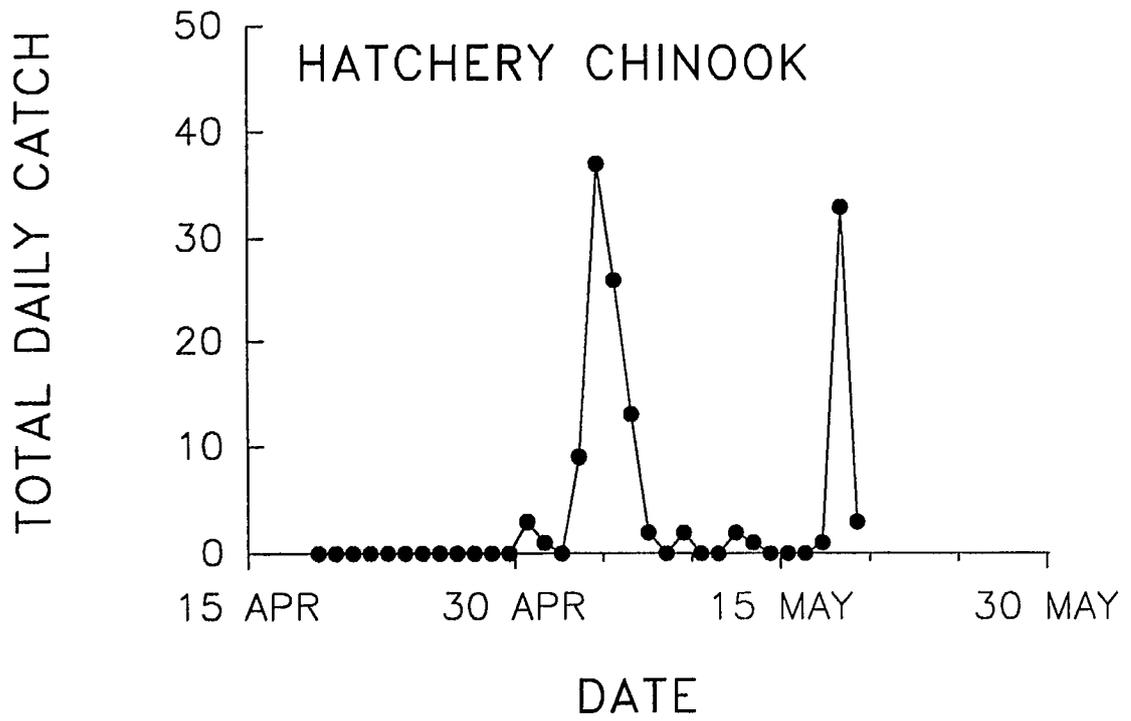


Fig. 3. Total daily catch of hatchery chinook salmon smolts.

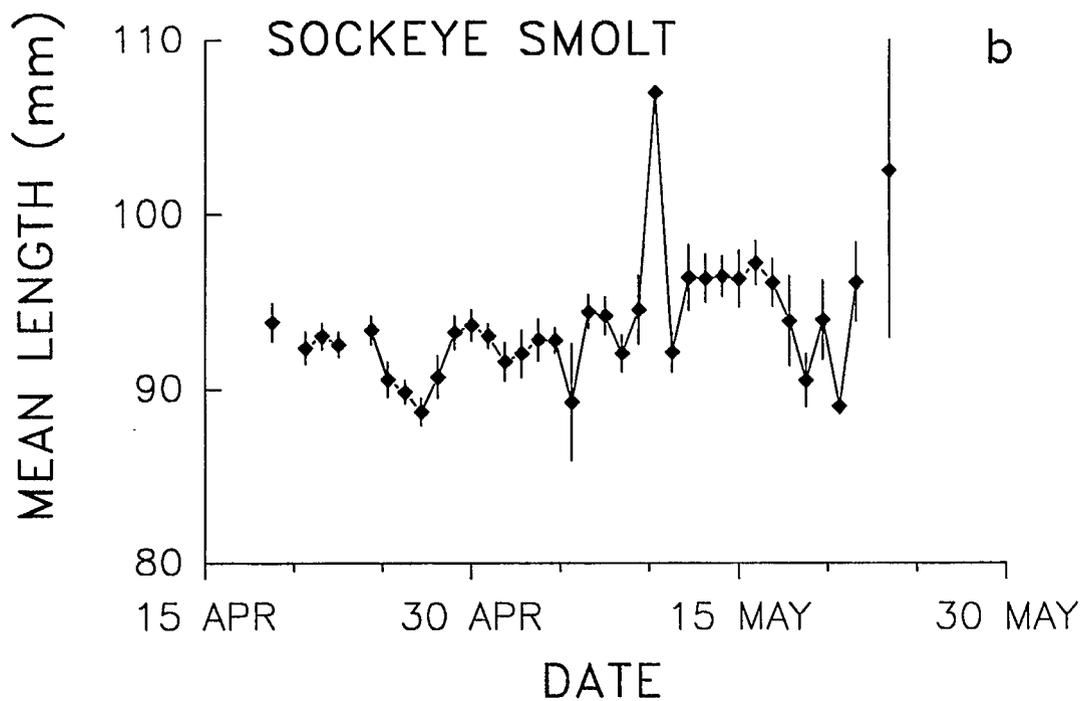
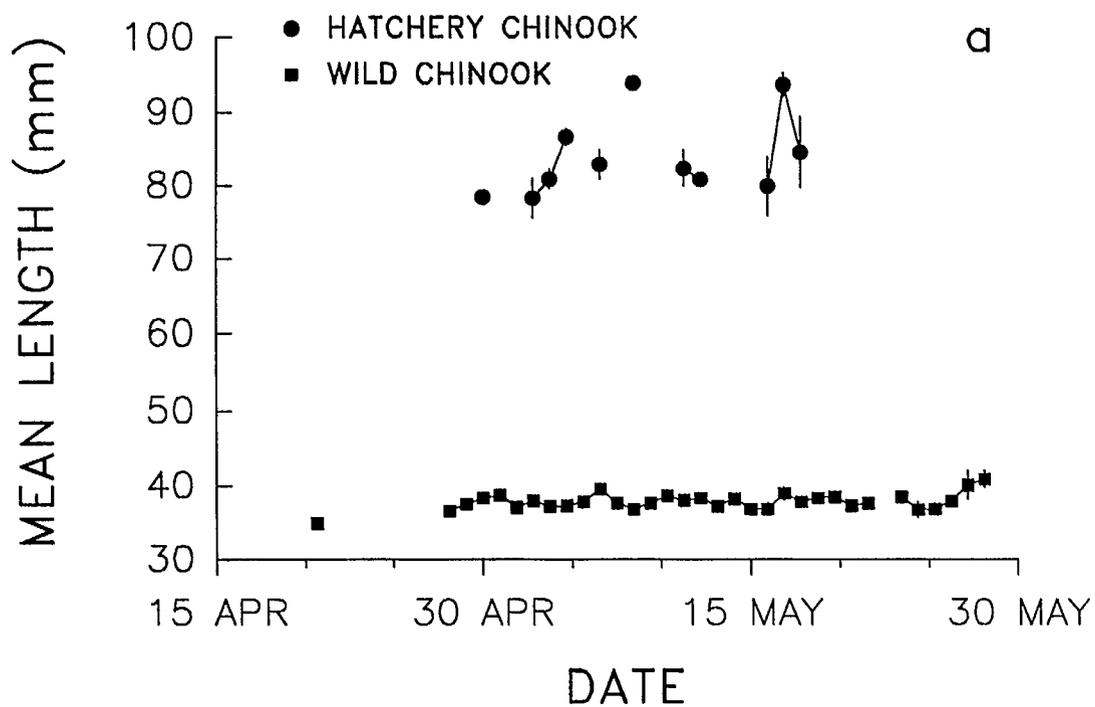


Fig. 4. a) Mean length and standard deviation of hatchery chinook and wild chinook salmon fry captured from the Stuart River.
b) Mean length and standard deviation of sockeye salmon smolts captured from the Stuart River.

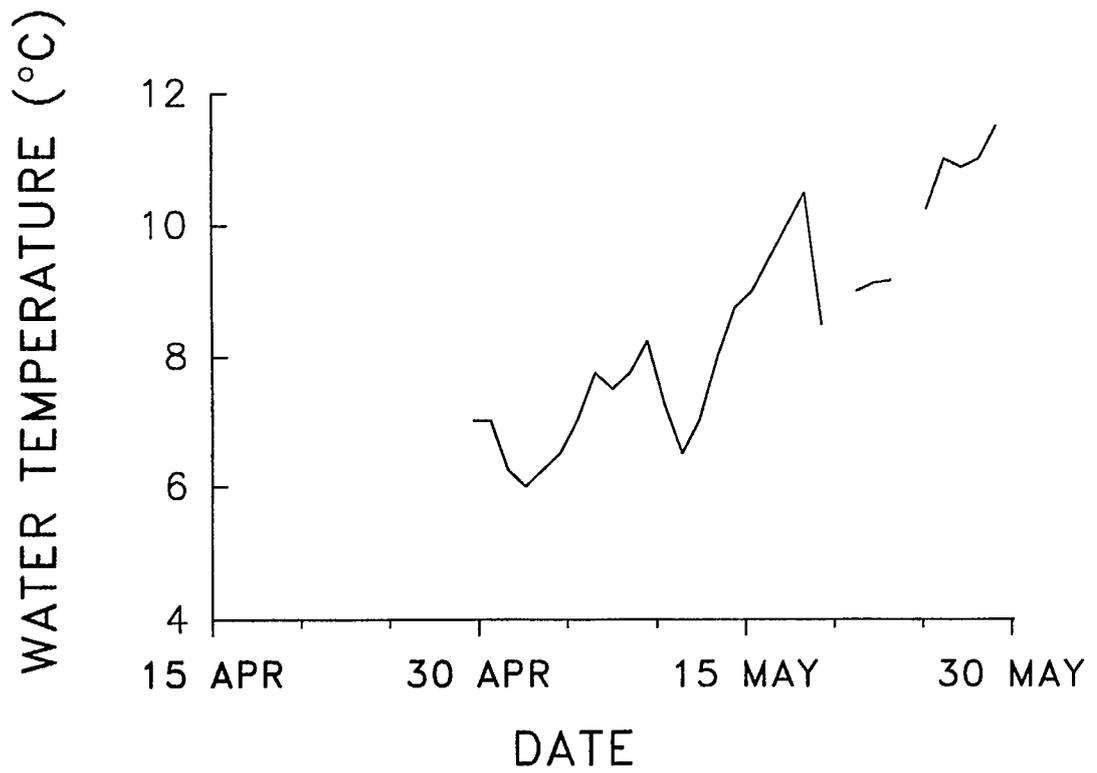


Fig. 5. Water temperature in the Stuart River.

Appendix 1. Catch Data from Rotary Auger Traps

DATE	TIME	TRAP	CHK 0+	CHK 1+	SOK 0+	SOK 1+	RBT	WHT	SUC	SQA	DAC	SHN	SCU
920418	800	1	0	0	2	0	0	1	0	0	0	30	
920418	800	2	2	0	0	36	0	0	0	0	0	3	0
920418	2145	1	0	0	0	0	0	0	0	0	0	3	0
920418	2145	2	0	0	6	0	0	0	0	0	0	3	0
920419	800	1	6	0	0	0	0	0	0	0	0	10	0
920419	800	2	0	0	0	0	0	0	1	0	0	2	0
920419	2000	1	0	0	0	0	0	0	0	0	0	0	0
920419	2000	2	0	0	0	0	0	0	0	0	0	0	0
920420	800	1	0	0	0	0	0	0	0	0	0	0	0
920420	800	2	0	0	0	55	0	0	4	0	0	2	0
920420	2000	1	0	0	0	0	0	0	0	0	0	0	0
920420	2000	2	0	0	0	0	0	0	0	0	0	0	0
920421	1120	1	0	0	0	0	0	0	0	0	0	0	0
920421	1120	2	0	0	0	224	0	0	0	0	0	0	0
920421	1830	1	0	0	0	0	0	0	0	0	0	0	0
920421	1830	2	0	0	0	0	0	0	0	0	0	0	0
920422	1055	1	2	0	0	22	0	0	0	0	0	2	0
920422	1108	2	3	0	0	7	0	0	0	0	0	3	0
920422	2200	1	0	0	0	0	0	0	0	0	0	0	0
920422	2200	2	0	0	0	0	0	0	0	0	0	0	0
920423	800	1	0	0	0	94	0	0	0	0	0	0	0
920423	800	2	0	0	0	124	0	0	0	0	1	0	0
920423	2005	1	0	0	0	5	0	0	0	0	0	0	0
920423	2005	2	0	0	0	0	0	0	0	0	0	0	0
920424	1005	1	0	0	0	333	0	0	0	0	1	0	0
920424	1030	2	17	0	0	197	0	0	1	3	0	0	0
920424	2330	1	0	0	0	0	0	0	0	0	0	0	0
920424	2330	2	0	0	0	0	0	0	0	0	0	0	0
920425	800	1	13	0	0	715	0	0	0	0	0	0	0
920425	800	2	12	0	0	364	0	0	1	0	0	0	0
920426	245	1	0	0	0	76	0	0	0	0	0	0	0
920426	230	2	0	0	0	32	0	0	0	1	0	0	0
920426	800	1	16	0	0	113	0	0	0	0	3	0	0
920426	830	2	5	0	0	39	0	0	0	0	0	0	0
920427	200	1	0	0	0	15	0	0	0	0	0	8	0
920427	200	2	0	0	0	36	0	0	0	0	0	0	0
920427	930	1	1	0	0	22	0	0	0	0	0	0	0
920427	930	2	1	0	0	18	0	0	0	0	0	0	0
920428	420	1	6	0	0	3	0	0	1	0	0	0	0
920428	430	2	18	0	0	27	0	0	0	0	0	0	0
920429	1300	1	25	0	0	3	0	0	0	0	0	0	0
920429	1300	2	22	0	0	11	0	0	0	0	0	0	0

Appendix 1. Catch Data from Rotary Auger Traps

DATE	TIME	TRAP	CHK 0+	CHK 1+	SOK 0+	SOK 1+	RBT	WHT	SUC	SQA	DAC	SHN	SCU
920429	0	1	6	0	0	89	0	0	0	1	1	1	0
920429	0	2	26	0	0	106	1	0	0	0	0	0	0
920430	1000	1	10	0	0	309	0	0	0	0	0	0	0
920430	1245	2	0	0	0	91	0	0	0	0	0	0	0
920430	2115	1	6	0	0	26	0	0	0	0	0	0	0
920430	2115	2	8	3	0	16	0	0	0	0	0	0	0
920501	930	1	34	0	0	31	0	0	0	0	0	0	0
920501	945	2	69	1	0	95	0	0	0	0	0	0	0
920501	2330	1	10	0	0	97	0	0	0	0	0	0	0
920501	2345	2	15	0	0	136	1	0	0	1	0	0	0
920502	930	1	125	0	0	366	0	0	0	0	0	0	0
920502	930	2	80	0	0	250	0	0	0	0	0	0	0
920503	930	1	346	3	0	13	0	0	0	1	0	0	0
920503	1006	2	290	5	0	22	0	0	0	1	0	0	0
920503	2100	1	41	1	0	2	0	0	0	0	0	0	0
920503	2105	2	55	0	0	1	0	0	0	0	0	0	0
920504	940	1	201	9	0	10	0	0	0	0	0	1	0
920504	930	2	312	25	0	57	0	0	0	0	0	0	0
920504	2100	1	21	2	0	1	0	0	0	0	0	0	0
920504	2100	2	20	1	0	0	0	0	0	0	0	0	0
920505	907	1	265	11	0	19	0	0	0	0	0	1	0
920505	907	2	223	14	0	9	0	0	0	0	0	0	0
920505	2215	1	27	0	0	8	0	0	0	0	0	0	0
920505	2225	2	59	1	0	24	0	0	0	0	0	0	0
920506	900	1	108	7	0	165	0	0	0	0	0	0	0
920506	930	2	220	6	0	132	0	0	0	0	0	0	0
920506	2100	1	10	0	0	1	0	0	0	0	0	0	0
920506	2100	2	27	0	0	2	0	0	0	0	0	0	0
920507	951	1	137	0	0	9	0	0	0	0	0	0	0
920507	951	2	72	2	0	56	0	0	0	1	0	0	0
920507	2130	1	11	0	0	0	0	0	0	0	0	0	0
920507	2135	2	46	0	0	0	0	0	0	0	0	0	0
920508	930	1	205	0	0	16	0	0	0	0	0	0	0
920508	945	2	142	0	0	10	0	0	0	0	0	0	0
920508	2100	1	8	0	0	0	1	0	0	0	0	0	0
920508	2105	2	24	0	0	1	0	0	0	0	0	0	0
920509	930	1	220	0	0	13	0	0	0	0	0	0	0
920509	945	2	161	2	0	2	0	0	0	0	0	0	0
920509	2130	1	15	0	0	8	0	0	0	0	0	0	0
920509	2145	2	114	0	0	1	0	0	0	0	0	0	0
920510	930	1	70	0	0	2	0	0	0	0	0	0	0
920510	940	2	197	0	0	2	0	0	0	0	0	1	0

Appendix 1. Catch Data from Rotary Auger Traps

DATE	TIME	TRAP	CHK 0+	CHK 1+	SOK 0+	SOK 1+	RBT	WHT	SUC	SQA	DAC	SHN	SCU
920510	2130	1	10	0	0	1	0	0	0	0	0	0	0
920510	2145	2	31	0	0	0	0	0	0	0	0	0	0
920511	915	1	43	0	0	1	0	0	0	0	0	0	0
920511	930	2	70	0	0	0	0	0	0	0	0	0	0
920511	2105	2	19	0	0	0	0	0	0	0	0	0	0
920511	2125	1	46	0	0	0	0	0	0	0	0	0	0
920512	1020	1	186	0	0	11	0	0	0	0	0	0	0
920512	1030	2	280	0	0	16	0	0	0	0	0	0	0
920512	2230	1	1	0	0	9	0	0	0	0	0	0	0
920512	2240	2	36	2	0	30	0	0	0	0	0	0	0
920513	1000	1	118	1	0	6	0	0	0	0	0	0	0
920513	1010	2	169	0	0	3	0	0	0	0	0	0	0
920513	2200	1	225	0	0	5	0	0	0	0	0	0	0
920513	2210	2	42	0	0	3	0	0	0	0	0	0	0
920514	900	1	43	0	0	13	0	0	0	0	0	0	0
920514	915	2	63	0	0	8	0	0	0	0	0	0	0
920514	2130	1	14	0	0	2	0	0	0	0	0	0	0
920514	2145	2	63	0	0	0	0	0	0	0	0	0	0
920515	915	1	609	0	0	10	0	0	0	0	0	0	0
920515	935	2	112	0	0	8	0	0	0	0	0	0	0
920515	2130	1	75	0	0	0	0	0	0	0	0	0	0
920515	2145	2	32	0	0	3	0	0	0	0	0	0	0
920516	920	1	452	0	0	13	0	0	0	0	0	0	0
920516	930	2	149	0	0	12	0	0	0	0	0	0	0
920516	2100	1	9	0	0	0	0	0	0	0	0	0	0
920516	2115	2	28	0	0	7	0	0	0	0	0	0	0
920517	900	2	108	0	0	10	0	0	0	0	0	0	0
920517	905	1	756	1	0	8	0	0	0	0	0	0	0
920517	2200	1	170	0	0	15	0	0	0	0	0	0	0
920517	2230	2	58	0	0	16	0	0	0	0	0	0	0
920518	930	1	573	0	0	46	0	0	0	0	0	0	0
920518	950	2	234	33	0	56	0	0	0	0	0	0	0
920518	2200	1	147	0	0	7	0	0	0	0	0	0	0
920518	2220	2	129	0	0	2	0	0	0	0	0	0	0
920519	930	1	775	2	0	5	0	0	0	0	0	0	0
920519	930	2	289	1	0	5	0	0	0	0	0	0	0
920519	2200	1	161	0	0	4	0	0	0	0	0	1	0
920519	2210	2	58	0	0	2	0	0	0	0	0	0	0
920520	900	1	944	0	0	2	0	0	0	0	0	0	0
920520	900	2	184	0	0	0	0	0	0	0	0	0	0
920520	2130	1	172	0	0	0	0	0	0	0	0	0	0
920520	2130	2	46	0	0	1	0	0	0	0	0	0	0

