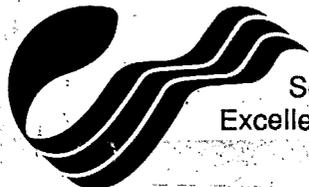


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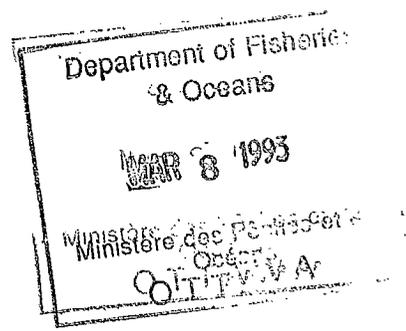


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# Results of Rotary Auger Trap Sampling, Lower Stuart River, British Columbia, in September and October 1991

D.J.A. Duff, C.D. Levings and T. Prince



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RESULTS OF ROTARY AUGER TRAP SAMPLING, LOWER STUART RIVER,  
BRITISH COLUMBIA, IN SEPTEMBER AND OCTOBER 1991

by

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## ABSTRACT

Duff, D.J.A., C.D. Levings, and T. Prince. 1992. Results of rotary auger trap sampling, lower Stuart River, British Columbia, in September and October 1991. Can. Manusc. Rep. Fish. Aquat. Sci. 2158.: 47p.

Rotary auger traps were used in the lower Stuart River, British Columbia, to sample migrating juvenile chinook salmon (Oncorhynchus tshawytscha). The trapping program extended from September 21 to October 27, 1991. Peaks in abundance of juvenile chinook salmon were noted in late September and October. Eleven species of fish were captured by the auger traps and by beach seining. Marked chinook salmon were shown to reside in the study area for up to 11 days.

## RÉSUMÉ

Duff, D.J.A., C.D. Levings, and T. Prince. 1992. Results of rotary auger trap sampling, lower Stuart River, British Columbia, in September and October 1991. Can. Manusc. Rep. Fish. Aquat. Sci. 2158.: 47p.

On s'est servi d'échantillonneurs à vis sans fin dans la partie inférieure de la rivière Stuart, en Colombie-Britannique, pour prélever des saumons quinnats (Oncorhynchus tshawytscha) juvéniles. Le programme d'échantillonnage s'est échelonné du 21 septembre au 27 octobre 1991. Des pointes d'abondance de saumons quinnats juvéniles ont été observées à la fin de septembre et en octobre. On a capturé 11 espèces de poissons au moyen des échantillonneurs à vis sans fin et de sennes manoeuvrées du rivage. Des saumons quinnats marqués sont demeurés dans la zone à l'étude pendant une période pouvant atteindre jusqu'à 11 jours.

## INTRODUCTION

Chinook salmon (*Oncorhynchus tshawytscha*) are known to over-winter in the Stuart, Nechako, and Fraser Rivers (Levings and Lauzier 1991). A portion of the chinook salmon population in the Stuart River migrates downstream into the Nechako and Fraser Rivers as post-emergent fry during May and June (Lister et al. 1981). However, some chinook salmon remain to rear in the Stuart and its tributaries over the fall and winter (Emmett 1989, Emmett and Convey 1990). The objective of this study was to obtain some preliminary information on the timing of migration and relative abundance of juvenile chinook salmon in the lower Stuart River in autumn 1991. Migration and relative abundance of other species of fish was also recorded, and a mark and recapture program was conducted to determine local residence time and migration of juvenile chinook salmon.

## STUDY AREA AND MATERIALS AND METHODS

The study area (Fig. 1) was located near the mouth of Chinohchey Creek, approximately 70 km downstream from Stuart Lake and approximately 30 km upstream from the confluence with the Nechako River. This site was occupied in 1981 by Lister et al. (1981) for chinook fry trapping. At the trapping site the river was approximately 50 m wide at the time of the study but can increase to 80 m during peak periods of flow. The river depth was approximately 3 m in the centre of the channel. Beach substrate at the trapping site was a mixture of mud and gravel. This site was chosen for three reasons: a) location was below the main spawning grounds (most spawning takes place in the upper 30 km of the Stuart River with the maximum concentration near Dog Creek); b) the water velocity was fast enough for the operation of traps and; c) the accessibility to the river by road. Above the study area, to Stuart Lake, the Stuart River is relatively slow-moving and canal like. Our sampling site was the first section below the Lake that the water velocity increased to 'river like' conditions and the substrates were predominantly cobble as compared to the fine sediments and slow moving reaches above the trap site. Downstream of our study site, based on preliminary observations, substrates and velocities appeared suitable winter habitat for juvenile chinook salmon (Hillman et al. 1987). Beach seining was conducted at several gravel beaches (Fig. 1 C - L) upstream of the trapping location. The study site was reached by boat from Davidson's landing near Sturgeon Point Road 7 km upstream from the trap site. A private road enabled access to the south side of the river at the study area.

Sampling was conducted from September 21 to October 31, 1991. The traps were operated for 38 days from the start date until freeze up on October 28. Initially one auger trap and one inclined plane trap (IPT); (2 x 3 ft (61 cm x 91 cm) mouth opening) were employed side-by-side on the same cross-current cable. The IPT was used at Site B, while

the initial auger trap was used at Site A (Fig. 1). A beach seining program was initiated to assess onshore abundance and movements of juvenile salmonids, commencing on October 5 and ending on October 31. In addition, juvenile chinook salmon captured by beach seining were fin clipped for the purpose of assessing movement within the sample area. Seining took place on seven separate days with a total of forty six individual sets.

The traps were checked for fish twice daily; once in the morning and once in the late evening. After early October, woody debris introduced into the river by beavers jammed the auger traps so it was necessary to monitor the traps on a continuous basis and remove any debris causing problems. Occasionally traps jammed while personnel were absent.

When the traps were checked for fish, water temperature and velocity were measured. Water temperature was measured using a hand-held thermometer that was attached to the back of one of the auger traps. Temperature was recorded to the nearest 0.5 degrees celsius at different times throughout the day. Water velocity was measured with a Marsh-McBirney Model 210D flow meter. The velocity was measured at the mouth of each trap at six positions to account for any small-scale variations due to turbulence. The velocities, left side, centre, and right side of the cage at depths of zero and one meter were measured.

The traps were suspended from a 16 mm wire rope that spanned the river at a height of approximately 8 m. 13 mm wire rope leaders were used to suspend the traps from the cross-current cable and were attached with 15.25 cm diameter snatch blocks on the main cable and 10.2 cm carabineers to the trap pontoons. The snatch blocks permitted easy movement of the traps between the main current and the shore. Polypropylene rope attached between the blocks and the shore anchored the traps in the desired location of the river. The traps were positioned in the river where the current velocity was fastest.

The auger traps (Fig. 2) consisted of a current driven conical cage with an auger inside that guided fish into a holding box, with a debris wheel, in the rear. Both the cage and holding box were mounted between pontoons for buoyancy. The overall length of the cage was 141.6 cm. The front 50.8 cm had a diameter of 121.9 cm and the remaining 90.8 cm tapered to 30.5 cm. The auger completed one full twist (three hundred and sixty degrees) over the length of the cage. The cage was covered with 0.635 cm mesh hardware cloth. Overall dimensions of the holding box were: 87.0 cm wide, 104.8 cm long, and 55.9 cm in depth. A gear-driven debris wheel was located at the rear of the holding box. The debris wheel spanned the width of the holding box with a radius of 16.2 cm. The effectiveness of the debris wheel was limited to leaf material and other small floating debris, but was ineffective for aquatic weeds (predominantly milfoil (*Myriophyllum sibiricum*)) and small twigs. The pontoons were 487.7 cm long, 52.7 cm wide, and 26.7 cm deep. The cage was raised and lowered using a hand winch located on the starboard pontoon with the cable suspended from an A-frame located in front of the cage.

The beach seine employed measured 15 m by 2 m and was deployed by boat, except at a few shallow locations. The net was constructed of knotless nylon mesh measuring 1.27 cm in the wings and 0.635 cm in the bunt.

All fish captured (beach seine and auger trap) were anaesthetized for enumeration and measuring. The fish were anaesthetized by immersion in a mixture of 5 ml of 2-phenoxy methanol in 20 l of river water. The fish were then enumerated by species and all salmonids measured (fork length) to the nearest mm. Chinook salmon were marked, starting on October 5, by clipping the upper or lower caudal fin tips or left or right pelvic fin tips. The fish were then revived in a bucket filled with river water and released upstream of the trap site (mostly at site E) or at the beach seine location at which they were caught to determine if fish were migrating or residing in the immediate area.

## RESULTS AND DISCUSSION

Table 1 gives the variables and codes used in the tables of data below. The species of fish captured during the study and their respective codes are listed in Table 2. Eleven species were captured by the auger traps and beach seining.

Length data for chinook salmon, rainbow trout, and mountain whitefish caught in the surveys are given in Table 3. The mean lengths of all chinook salmon caught were calculated over three day periods (due to low catch numbers) and plotted over time in Fig. 3. Although the range of sizes during each three day period was quite large there was a general trend toward an increase in fish size during the study period. Little difference was observed between the lengths of fish caught in the auger traps and by beach seining.

Between September 21 to October 4 178 chinook salmon were captured using the auger trap but none were caught in the inclined plane trap. On October 4 a second auger trap was installed to replace the inclined plane trap and was set to sample the centre of the river (Site B, Fig. 1). Table 4 gives the catch data for the auger traps. The time periods given were based on the two twelve hour periods that best approximate the actual time that the traps were fishing as some variation in the hours of trap operation occurred. The comments in Table 4 concerning trap jamming show the time intervals from the last time the trap was seen operating to the time the trap was cleared of debris giving the maximum possible time the trap was not operating. Figures 4-8 show the number of the more abundant fish species caught in the auger traps during 24 h periods. The catch numbers are plotted for the individual traps to show any differences in numbers due to the location of the trap in the river. After installation, trap B (Fig. 1 inset), which was located near the centre of the river and in water characterized by higher velocity, captured more fish per sampling period of all

species than trap A, which was closer to shore. Chinook salmon catches were highest (peaking at 51 on September 25) between September 21 and September 29. Although some fluctuations occurred chinook salmon catches remained relatively low until October 22 when numbers increased until freeze up (October 28) at the end of the study period.

Beach seine data (Table 5) show that chinook salmon were present in shoreline habitat within the study area. Most of the marked fish (14/20) were recovered in beach seine samples. All the marked fish recovered in traps were from trap B, in mid stream. The maximum residency time for chinook salmon in the study area was 11 days (October 5-17), based on the first date a particular mark (upper caudal) was made and the last date a marked fish with this clip was recovered (Table 6). The last date a marked fish was recaptured was October 20, in an auger trap. No beach seining was conducted between October 17 and October 30 due to mechanical problems with the boat used for seining. On October 31 no chinook salmon were caught in beach seining, indicating that chinook salmon had moved out of shoreline areas or had assumed winter behaviour when they are typically not available to netting. Water temperature had dropped to 1-2°C by late October (Fig. 9). An increase in the number of rainbow trout (*O. mykiss*) captured in the traps coincided with the second peak in chinook salmon catches.

All of the abundant species of non-salmonids caught in the auger trap showed a peak in catches between September 21 and September 29 with the exception of northern squawfish (*Ptychocheilus oregonensis*) which showed no obvious pattern. Catches of suckers (Catostomidae) showed a second peak in numbers captured beginning on October 7 and catches were sustained until the end of the study period. Leopard dace (*Rhynchichthys falcatus*) catches showed a second peak in abundance between October 3 and October 18 and a third peak beginning October 23 which was sustained until the end of the study period. After an initial peak ending September 29, catches of red sided shiners (*Richardsonius balteatus*) remained at a constant relatively low level until the end of the study period.

## ACKNOWLEDGMENTS

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Table 1. Description of the variables and codes presented in catch data (Tables 4 and 5).

VARIABLE	VARIABLE DESCRIPTION	CODE
DATE	Date sample taken (YYMMDD)	DATE
TIME	Time sample taken (PDT)	TIME
TEMPERATURE	Water temperature (degrees celsius)	TEMP
FLOW	Current at left side of trap, depth 0 m ( $\text{cm s}^{-1}$ )	LOM
	Current at left side of trap, depth 1 m ( $\text{cm s}^{-1}$ )	LIM
	Current at centre of trap, depth 0 m ( $\text{cm s}^{-1}$ )	COM
	Current at centre of trap, depth 1 m ( $\text{cm s}^{-1}$ )	CIM
	Current at right side of trap, depth 0 m ( $\text{cm s}^{-1}$ )	ROM
	Current at right side of trap, depth 1 m ( $\text{cm s}^{-1}$ )	RIM
	SPECIES	Species of fish (Defined in Table 2.)
COMMENTS	Comments on the daily operation of the traps	COMMENTS
LOCATION	Location of trap or seine site (shown in fig. 1)	LOC
CATCH METHOD	Method used to capture fish	CMETH
	Auger fish trap	T
	Beach seine	S
LENGTH	Fork length of fish (mm)	LENGTH
MARK TYPE	Type of fin clip used to mark fish	
	Upper lobe of caudal fin	UC
	Lower lobe of caudal fin	LC
	Left pelvic fin	LP
	Right pelvic fin	RP
	Fish marked when captured	MGIVEN
	Marked fish recovered	MRECOV
SET NUMBER	Beach seine set number	SET
MISSING DATA	Missing data, or no observation	-

Table 2. Scientific and common names and species codes of fishes collected from the Stuart River, by auger trap and beach seine in fall 1991.

FAMILY and Scientific Name	Common Name	Species Code
<b>SALMONIDAE</b>		
<u>Oncorhynchus mykiss</u>	rainbow trout	RBT
<u>O. nerka</u>	sockeye salmon	SOK
<u>O. tshawytscha</u>	chinook salmon	CHK
<u>Salvelinus confluentes</u>	bull trout	BT
<u>Prosopium williamsoni</u>	rocky mountain whitefish	WHT
<b>CYPRINIDAE</b>		
<u>Ptychocheilus oregonensis</u>	unidentified cyprinid	CYP
<u>Richardsonius balteatus</u>	northern squawfish	SQA
<u>Rhynchithys falcatus</u>	reidside shiner	SHN
	leopard dace	DAC
<b>CATOSTOMIDAE</b>		
	unidentified sucker	SUC
<b>COTTIDAE</b>		
	unidentified sculpin	SCU

Table 3. Length data (fork length mm) for salmonids captured by auger trap and beach seine from the Stuart River.

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 LENGTH DATA  
 STUART RIVER, 1991

DATE	LOC	SPEC	LENGTH	CMETH	DATE	LOC	SPEC	LENGTH	CMETH
910921	A	CHK	69	T	910925	A	CHK	80	T
910921	A	CHK	76	T	910925	A	CHK	94	T
910921	A	CHK	95	T	910925	A	CHK	68	T
910921	A	CHK	83	T	910925	A	CHK	70	T
910921	A	CHK	69	T	910925	A	CHK	74	T
910921	A	CHK	74	T	910925	A	CHK	69	T
910921	A	CHK	68	T	910925	A	CHK	68	T
910921	A	CHK	74	T	910925	A	CHK	75	T
910921	A	CHK	73	T	910925	A	CHK	61	T
910922	A	CHK	81	T	910925	A	CHK	62	T
910922	A	CHK	74	T	910925	A	CHK	79	T
910922	A	CHK	83	T	910925	A	CHK	72	T
910922	A	CHK	75	T	910925	A	CHK	75	T
910922	A	CHK	69	T	910925	A	CHK	77	T
910922	A	CHK	80	T	910925	A	CHK	74	T
910922	A	CHK	77	T	910925	A	CHK	71	T
910922	A	CHK	71	T	910925	A	CHK	64	T
910922	A	CHK	80	T	910925	A	CHK	67	T
910922	A	CHK	76	T	910925	A	CHK	65	T
910923	A	CHK	86	T	910925	A	CHK	58	T
910923	A	CHK	81	T	910925	A	CHK	62	T
910923	A	CHK	64	T	910925	A	CHK	69	T
910924	A	CHK	99	T	910925	A	CHK	57	T
910924	A	CHK	81	T	910925	A	CHK	70	T
910924	A	CHK	73	T	910925	A	CHK	68	T
910924	A	CHK	70	T	910925	A	CHK	66	T
910924	A	CHK	69	T	910925	A	CHK	63	T
910924	A	CHK	72	T	910925	A	CHK	69	T
910924	A	CHK	72	T	910925	A	CHK	74	T
910924	A	CHK	73	T	910925	A	CHK	64	T
910924	A	CHK	70	T	910925	A	CHK	65	T
910924	A	CHK	71	T	910925	A	CHK	68	T
910924	A	CHK	76	T	910925	A	CHK	81	T
910924	A	CHK	79	T	910926	A	CHK	64	T
910924	A	CHK	73	T	910926	A	CHK	67	T
910924	A	CHK	84	T	910926	A	CHK	85	T
910925	A	CHK	68	T	910926	A	CHK	74	T
910925	A	CHK	68	T	910926	A	CHK	73	T
910925	A	CHK	69	T	910926	A	CHK	69	T
910925	A	CHK	74	T	910926	A	CHK	68	T
910925	A	CHK	74	T	910926	A	CHK	74	T
910925	A	CHK	74	T	910926	A	CHK	72	T
910925	A	CHK	81	T	910926	A	CHK	69	T
910925	A	CHK	74	T	910926	A	CHK	70	T
910925	A	CHK	72	T	910926	A	CHK	78	T
910925	A	CHK	79	T	910926	A	CHK	67	T
910925	A	CHK	73	T	910926	A	CHK	75	T

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 LENGTH DATA  
 STUART RIVER, 1991

DATE	LOC	SPEC	LENGTH	CMETH	DATE	LOC	SPEC	LENGTH	CMETH
910926	A	CHK	78	T	910927	A	CHK	65	T
910926	A	CHK	79	T	910927	A	CHK	73	T
910926	A	CHK	80	T	910927	A	CHK	70	T
910926	A	CHK	89	T	910927	A	CHK	70	T
910926	A	CHK	82	T	910928	A	CHK	60	T
910926	A	CHK	68	T	910928	A	CHK	81	T
910926	A	CHK	81	T	910928	A	CHK	81	T
910926	A	CHK	80	T	910928	A	CHK	71	T
910926	A	CHK	67	T	910928	A	CHK	68	T
910926	A	CHK	80	T	910928	A	CHK	62	T
910926	A	CHK	72	T	910928	A	CHK	61	T
910926	A	CHK	76	T	910928	A	CHK	70	T
910926	A	CHK	85	T	910929	A	CHK	86	T
910926	A	CHK	75	T	910929	A	CHK	69	T
910926	A	CHK	62	T	910929	A	CHK	75	T
910926	A	CHK	75	T	910929	A	CHK	69	T
910926	A	CHK	81	T	910929	A	CHK	75	T
910926	A	CHK	79	T	910929	A	CHK	77	T
910926	A	CHK	73	T	910929	A	CHK	76	T
910926	A	CHK	71	T	910929	A	CHK	80	T
910926	A	CHK	73	T	910929	A	CHK	78	T
910926	A	CHK	72	T	910929	A	CHK	73	T
910926	A	CHK	70	T	910930	A	CHK	83	T
910926	A	CHK	75	T	910930	A	CHK	75	T
910926	A	CHK	77	T	910930	A	CHK	66	T
910926	A	CHK	62	T	910930	A	CHK	86	T
910926	A	CHK	83	T	910930	A	CHK	79	T
910926	A	CHK	68	T	911001	A	CHK	74	T
910926	A	CHK	66	T	911001	A	CHK	80	T
910926	A	CHK	77	T	911002	A	CHK	80	T
910926	A	CHK	69	T	911002	A	CHK	73	T
910926	A	CHK	69	T	911003	A	CHK	75	T
910926	A	CHK	79	T	911003	A	CHK	78	T
910926	A	CHK	75	T	911003	A	CHK	75	T
910926	A	CHK	73	T	911004	A	CHK	74	T
910926	A	CHK	86	T	911004	A	CHK	64	T
910927	A	CHK	66	T	911004	A	CHK	71	T
910927	A	CHK	71	T	911005	C	WHT	81	S
910927	A	CHK	66	T	911005	C	WHT	65	S
910927	A	CHK	80	T	911005	C	WHT	59	S
910927	A	CHK	74	T	911005	C	WHT	84	S
910927	A	CHK	70	T	911005	C	WHT	78	S
910927	A	CHK	80	T	911005	C	WHT	100	S
910927	A	CHK	78	T	911005	C	CHK	83	S
910927	A	CHK	75	T	911005	C	CHK	79	S
910927	A	CHK	68	T	911005	C	CHK	83	S
910927	A	CHK	75	T	911005	C	CHK	82	S

12  
 LENGTH DATA  
 STUART RIVER, 1991

DATE	LOC	SPEC	LENGTH	CMETH	DATE	LOC	SPEC	LENGTH	CMETH
911005	C	CHK	80	S	911005	H	CHK	76	S
911005	C	CHK	89	S	911005	H	CHK	81	S
911005	C	CHK	70	S	911005	H	CHK	63	S
911005	C	CHK	65	S	911005	I	CHK	81	S
911005	E	CHK	74	S	911005	I	CHK	76	S
911005	E	CHK	76	S	911005	I	CHK	87	S
911005	E	CHK	70	S	911005	I	CHK	75	S
911005	E	CHK	81	S	911005	I	CHK	79	S
911005	E	CHK	67	S	911005	I	CHK	79	S
911005	E	CHK	86	S	911005	I	CHK	67	S
911005	E	CHK	84	S	911005	I	CHK	76	S
911005	E	CHK	77	S	911005	I	CHK	58	S
911005	E	CHK	74	S	911005	I	CHK	58	S
911005	E	CHK	82	S	911005	I	CHK	63	S
911005	E	CHK	68	S	911006	A	CHK	73	T
911005	E	CHK	83	S	911006	A	CHK	73	T
911005	E	CHK	85	S	911006	A	CHK	64	T
911005	E	CHK	75	S	911006	A	CHK	72	T
911005	E	CHK	85	S	911006	B	CHK	72	T
911005	E	WHT	85	S	911006	B	CHK	74	T
911005	E	WHT	74	S	911006	D	CHK	78	S
911005	E	WHT	75	S	911006	D	CHK	62	S
911005	E	WHT	79	S	911006	D	CHK	71	S
911005	E	RBT	255	S	911006	C	CHK	72	S
911005	E	CHK	65	S	911006	C	CHK	78	S
911005	E	CHK	71	S	911006	C	CHK	72	S
911005	E	WHT	70	S	911006	C	CHK	72	S
911005	E	WHT	68	S	911006	C	CHK	82	S
911005	E	WHT	73	S	911006	C	CHK	78	S
911005	E	WHT	75	S	911006	C	CHK	90	S
911005	F	CHK	64	S	911006	C	CHK	76	S
911005	F	CHK	74	S	911006	C	CHK	68	S
911005	F	CHK	75	S	911006	C	CHK	75	S
911005	F	CHK	68	S	911006	C	RBT	310	S
911005	F	CHK	69	S	911006	C	WHT	229	S
911005	F	CHK	72	S	911006	C	WHT	75	S
911005	F	CHK	65	S	911006	C	WHT	75	S
911005	F	CHK	78	S	911006	C	WHT	74	S
911005	F	CHK	60	S	911006	C	WHT	71	S
911005	F	WHT	82	S	911006	C	WHT	72	S
911005	F	CHK	74	S	911006	C	WHT	83	S
911005	F	CHK	65	S	911006	C	WHT	67	S
911005	F	CHK	69	S	911006	C	WHT	78	S
911005	F	CYP	81	S	911006	C	WHT	68	S
911005	F	WHT	72	S	911006	C	WHT	74	S
911005	H	CHK	82	S	911006	C	WHT	78	S
911005	H	CHK	81	S	911006	C	WHT	77	S

13  
 LENGTH DATA  
 STUART RIVER, 1991

DATE	LOC	SPEC	LENGTH	CMETH	DATE	LOC	SPEC	LENGTH	CMETH
911006	J	CHK	78	S	911010	C	WHT	77	S
911006	J	CHK	78	S	911010	C	WHT	78	S
911006	J	CHK	78	S	911010	C	CHK	82	S
911006	J	CHK	67	S	911010	C	CHK	82	S
911006	J	CHK	69	S	911010	C	CHK	78	S
911006	J	WHT	91	S	911010	C	CHK	91	S
911006	J	WHT	82	S	911010	C	CHK	74	S
911006	J	WHT	87	S	911010	C	CHK	97	S
911006	J	WHT	77	S	911010	C	CHK	83	S
911006	J	WHT	75	S	911010	C	CHK	82	S
911006	J	CHK	75	S	911010	C	CHK	77	S
911006	K	CHK	62	S	911010	C	CHK	70	S
911006	K	CHK	76	S	911010	C	CHK	77	S
911006	K	CHK	87	S	911010	C	CHK	91	S
911006	K	WHT	72	S	911010	C	CHK	78	S
911006	K	CHK	80	S	911010	C	CHK	88	S
911006	K	CHK	79	S	911010	C	CHK	89	S
911006	K	CHK	72	S	911010	C	CHK	86	S
911006	K	CHK	86	S	911010	C	CHK	82	S
911006	K	WHT	69	S	911010	C	CHK	91	S
911006	K	WHT	98	S	911010	C	CHK	80	S
911006	K	RBT	285	S	911010	C	WHT	70	S
911006	K	CHK	66	S	911010	C	WHT	211	S
911006	L	CHK	69	S	911010	C	WHT	277	S
911006	L	CHK	61	S	911010	C	CHK	78	S
911006	L	CHK	65	S	911010	C	CHK	65	S
911006	L	CHK	68	S	911010	C	CHK	60	S
911006	L	WHT	85	S	911010	C	WHT	69	S
911006	L	WHT	82	S	911010	E	CHK	82	S
911007	A	CHK	81	T	911010	E	CHK	90	S
911007	B	CHK	76	T	911010	E	CHK	80	S
911008	B	CHK	79	T	911010	E	CHK	87	S
911008	B	CHK	79	T	911010	E	CHK	80	S
911008	B	CHK	84	T	911010	E	CHK	77	S
911008	B	CHK	75	T	911010	E	CHK	79	S
911009	B	CHK	78	T	911010	E	WHT	80	S
911009	B	CHK	69	T	911010	E	WHT	73	S
911009	B	CHK	90	T	911010	E	CHK	71	S
911009	B	CHK	78	T	911010	E	CHK	70	S
911009	B	CHK	74	T	911010	E	CHK	74	S
911009	B	CHK	93	T	911010	E	CHK	75	S
911009	B	CHK	69	T	911010	E	CHK	65	S
911009	B	CHK	80	T	911010	E	CHK	93	S
911009	B	CHK	72	T	911010	E	CHK	88	S
911009	A	CHK	89	T	911010	E	CHK	71	S
911009	A	RBT	134	T	911010	E	CHK	68	S
911009	B	CHK	82	T	911010	E	CHK	68	S

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 LENGTH DATA  
 STUART RIVER, 1991

DATE	LOC	SPEC	LENGTH	CMETH	DATE	LOC	SPEC	LENGTH	CMETH
911010	E	CHK	76	S	911014	B	CHK	74	T
911010	E	CHK	76	S	911014	B	CHK	75	T
911010	E	CHK	72	S	911015	A	CHK	75	T
911010	E	CHK	67	S	911015	B	CHK	92	T
911010	E	CHK	75	S	911015	C	CHK	97	S
911010	E	CHK	75	S	911015	C	CHK	92	S
911010	E	CHK	77	S	911015	C	CHK	85	S
911010	E	CHK	78	S	911015	C	CHK	76	S
911010	E	WHT	126	S	911015	C	CHK	74	S
911010	E	WHT	79	S	911015	C	CHK	82	S
911010	E	WHT	71	S	911015	F	CHK	76	S
911010	E	WHT	75	S	911015	F	CHK	74	S
911010	E	WHT	73	S	911015	F	CHK	76	S
911010	E	WHT	67	S	911015	F	CHK	77	S
911010	E	WHT	88	S	911015	F	CHK	65	S
911010	E	WHT	67	S	911015	F	CHK	68	S
911010	E	WHT	78	S	911015	F	CHK	78	S
911010	E	WHT	78	S	911016	A	CHK	73	T
911010	E	WHT	73	S	911016	A	CHK	65	T
911010	E	WHT	77	S	911016	B	CHK	74	T
911010	E	WHT	79	S	911016	B	CHK	62	T
911010	E	WHT	78	S	911016	B	CHK	84	T
911010	E	WHT	68	S	911016	B	CHK	81	T
911010	E	WHT	67	S	911017	B	CHK	74	T
911010	E	WHT	79	S	911017	B	CHK	83	T
911010	E	WHT	67	S	911017	B	CHK	79	T
911010	E	WHT	77	S	911017	C	WHT	68	S
911010	E	WHT	63	S	911017	C	WHT	63	S
911010	E	WHT	82	S	911017	C	WHT	69	S
911010	E	WHT	70	S	911017	C	BT	520	S
911010	E	WHT	74	S	911017	E	CHK	86	S
911010	E	WHT	80	S	911017	E	CHK	79	S
911010	E	WHT	74	S	911017	E	CHK	71	S
911010	E	WHT	61	S	911017	E	CHK	87	S
911010	E	WHT	67	S	911017	E	CHK	78	S
911011	B	CHK	72	T	911017	E	CHK	74	S
911011	B	CHK	48	T	911017	E	CHK	75	S
911011	B	CHK	74	T	911017	E	CHK	78	S
911011	B	CHK	64	T	911017	E	CHK	77	S
911012	A	CHK	90	T	911017	E	CHK	73	S
911012	B	CHK	91	T	911017	E	WHT	83	S
911012	B	CHK	81	T	911017	E	WHT	87	S
911012	B	CHK	65	T	911017	E	WHT	74	S
911012	B	CHK	80	T	911017	E	WHT	76	S
911014	B	CHK	90	T	911017	E	WHT	86	S
911014	B	CHK	75	T	911017	E	WHT	77	S
911014	A	CHK	68	T	911017	A	CHK	74	T

15  
 LENGTH DATA  
 STUART RIVER, 1991

DATE	LOC	SPEC	LENGTH	CMETH	DATE	LOC	SPEC	LENGTH	CMETH
911017	B	CHK	70	T	911025	A	CHK	80	T
911017	B	CHK	67	T	911025	A	CHK	77	T
911018	B	CHK	78	T	911025	A	CHK	98	T
911018	A	CHK	85	T	911025	A	CHK	89	T
911018	B	CHK	86	T	911025	A	CHK	85	T
911018	B	CHK	74	T	911025	B	CHK	77	T
911018	B	CHK	83	T	911025	B	CHK	88	T
911019	B	RBT	89	T	911025	B	CHK	91	T
911019	A	CHK	99	T	911025	B	CHK	83	T
911019	B	CHK	98	T	911025	B	CHK	101	T
911019	B	CHK	88	T	911025	B	CHK	90	T
911020	B	CHK	86	T	911025	B	CHK	85	T
911020	B	CHK	81	T	911025	B	CHK	75	T
911020	B	CHK	106	T	911025	B	CHK	119	T
911020	B	CHK	100	T	911025	B	CHK	87	T
911020	B	CHK	74	T	911025	B	CHK	88	T
911020	B	CHK	75	T	911025	B	CHK	67	T
911022	B	CHK	109	T	911025	A	CHK	79	T
911022	B	CHK	83	T	911025	A	CHK	82	T
911022	B	CHK	89	T	911025	B	CHK	71	T
911022	B	CHK	89	T	911025	B	CHK	84	T
911022	B	CHK	106	T	911025	B	CHK	67	T
911022	B	CHK	98	T	911025	B	CHK	82	T
911022	B	CHK	70	T	911025	B	CHK	91	T
911022	B	CHK	85	T	911025	B	CHK	76	T
911022	B	CHK	88	T	911025	B	CHK	76	T
911022	B	CHK	85	T	911025	B	RBT	127	T
911022	B	CHK	80	T	911025	B	RBT	158	T
911022	B	CHK	98	T	911025	B	RBT	179	T
911023	A	CHK	92	T	911026	A	CHK	90	T
911023	B	CHK	98	T	911026	A	CHK	86	T
911023	B	CHK	101	T	911026	A	CHK	104	T
911023	B	CHK	78	T	911026	A	CHK	82	T
911023	B	CHK	98	T	911026	A	CHK	92	T
911023	B	CHK	82	T	911026	A	CHK	78	T
911023	B	CHK	99	T	911026	B	CHK	80	T
911023	B	RBT	67	T	911026	B	CHK	87	T
911023	A	CHK	82	T	911026	B	CHK	98	T
911023	B	CHK	96	T	911027	A	CHK	72	T
911023	B	CHK	74	T	911027	A	CHK	84	T
911024	B	CHK	86	T	911027	A	CHK	77	T
911024	B	CHK	84	T	911027	B	CHK	74	T
911024	B	CHK	98	T	911027	B	CHK	88	T
911024	B	CHK	98	T	911027	B	CHK	92	T
911024	B	CHK	107	T	911027	B	CHK	90	T
911024	B	CHK	79	T	911027	B	CHK	78	T
911024	B	RBT	179	T	911027	B	CHK	82	T

16  
 LENGTH DATA  
 STUART RIVER, 1991

DATE	LOC	SPEC	LENGTH	CMETH	DATE	LOC	SPEC	LENGTH	CMETH
911028	A	CHK	89	T	911028	B	CHK	103	T
911028	A	CHK	86	T	911028	B	CHK	80	T
911028	A	CHK	79	T	911028	B	CHK	69	T
911028	A	CHK	89	T	911028	B	CHK	68	T
911028	A	CHK	97	T	911028	B	CHK	101	T
911028	A	CHK	100	T	911028	B	CHK	89	T
911028	A	CHK	71	T	911028	B	CHK	93	T
911028	A	CHK	63	T	911028	B	CHK	94	T
911028	A	CHK	106	T	911028	B	CHK	80	T
911028	A	CHK	81	T	911028	B	CHK	99	T
911028	A	CHK	118	T	911028	B	CHK	79	T
911028	A	CHK	93	T	911028	B	CHK	90	T
911028	A	CHK	90	T	911028	B	RBT	242	T
911028	B	CHK	72	T	911028	B	RBT	204	T
911028	B	CHK	94	T					

Table 4. Catch data from auger traps in the Stuart River.

AUGER TRAP CATCH DATA  
STUART RIVER, 1991

DATE	TIME	TEMP	TRAP	LOM	L1M	COM	C1M	ROM	R1M	CHK	SOK	RBT	SUC	SQA	DAC	SHN	SCU	COMMENTS
910921	2100-0900	-	A	-	-	-	-	-	-	9	0	0	0	2	4	17	0	JAMMED BETWEEN 1700 AND 0945
910922	0900-2100	-	A	-	-	-	-	-	-	10	0	0	1	1	0	5	1	
910922	2100-0900	-	A	-	-	-	-	-	-	3	0	0	3	0	4	5	0	
910923	0900-2100	-	A	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
910923	2100-0900	-	A	70	70	110	104	110	106	14	0	0	2	1	5	31	0	
910924	0900-2100	13.5	A	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
910924	2100-0900	13.5	A	76	88	110	114	110	116	43	0	0	10	0	10	44	1	
910925	0900-2100	-	A	-	-	-	-	-	-	1	0	0	1	0	0	0	0	
910925	2100-0900	13.5	A	62	74	105	112	120	122	50	0	0	1	2	0	56	0	
910926	0900-2100	-	A	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
910926	2100-0900	14.0	A	60	70	105	98	116	114	15	0	0	1	0	5	97	0	
910927	0900-2100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TRAP NOT CHECKED
910927	2100-0900	13.0	A	50	71	101	100	120	110	8	0	0	0	0	0	44	0	TIME PERIOD WAS 24 HRS
910928	0900-2100	-	A	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
910928	2100-0900	11.0	A	62	60	100	89	110	121	9	0	0	2	0	3	17	0	JAMMED BETWEEN 1830 AND 0900
910929	0900-2100	-	A	-	-	-	-	-	-	1	0	0	0	0	0	3	0	
910929	2100-0900	10.5	A	65	63	106	99	109	111	5	0	1	1	1	1	4	0	
910930	0900-2100	-	A	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
910930	2100-0900	10.5	A	58	62	104	80	100	88	2	0	0	0	3	1	5	0	
911001	0900-2100	-	A	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
911001	2100-0900	11.0	A	65	60	60	58	105	80	2	0	0	0	1	0	9	0	
911002	0900-2100	-	A	-	-	-	-	-	-	0	0	0	0	0	1	4	0	
911002	2100-0900	-	A	52	60	100	122	88	92	3	0	0	0	0	0	11	0	
911003	0900-2100	-	A	-	-	-	-	-	-	0	0	0	1	0	0	9	0	
911003	2100-0900	8.5	A	42	32	86	88	100	118	3	1	0	0	1	2	1	0	
911004	0900-2100	-	A	84	86	84	76	74	80	-	-	-	-	-	-	-	-	TRAP OUT OF WATER, NEW LOCATION
911004	2100-0900	-	B	50	58	76	78	94	72	-	-	-	-	-	-	-	-	NEW TRAP
911004	0900-2100	8.0	A	90	82	82	90	68	74	0	0	0	0	0	0	4	0	JAMMED BETWEEN 1700 AND 1030
911004	2100-0900	8.0	B	35	40	55	58	60	75	0	0	0	1	1	5	1	0	JAMMED BETWEEN 1700 AND 1030
911005	0900-2100	-	A	60	78	70	80	60	58	0	0	0	0	0	0	1	0	
911005	2100-0900	8.5	A	52	45	58	58	70	72	0	0	0	0	0	0	0	0	
911005	0900-2100	8.5	A	65	72	78	82	70	54	4	0	0	0	0	1	0	0	JAMMED BETWEEN 1600 AND 0015
911005	2100-0900	8.5	B	45	54	58	70	78	75	2	0	0	0	0	6	11	0	
911006	2100-0900	-	A	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
911006	0900-2100	-	B	-	-	-	-	-	-	0	0	0	0	0	0	2	0	
911007	0900-2100	6.0	A	-	-	-	-	-	-	2	0	0	0	0	1	1	0	
911007	2100-0900	6.0	B	-	-	-	-	-	-	1	0	0	2	3	3	0	0	
911007	0900-2100	7.0	A	84	78	66	68	68	80	0	0	0	0	1	0	2	0	JAMMED BETWEEN 1849 AND 0035,0035 AND 0110
911007	2100-0900	7.0	B	84	76	76	78	70	94	5	0	0	1	0	12	7	0	JAMMED BETWEEN 1849 AND 0035
911008	0900-2100	-	A	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
911008	2100-0900	-	B	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
911008	0900-2100	-	A	74	76	60	76	60	64	0	0	0	1	0	2	2	0	
911008	2100-0900	-	B	60	66	50	40	88	56	9	0	0	4	0	20	9	0	
911009	0900-2100	7.0	A	62	88	72	78	80	86	0	0	0	0	0	0	0	0	
911009	2100-0900	7.0	B	-	-	-	-	-	-	1	0	1	0	0	5	1	0	
911009	0900-2100	8.0	A	66	66	58	68	54	78	0	0	0	0	0	0	0	0	
911009	2100-0900	8.0	B	44	60	60	82	75	80	1	0	0	5	0	19	4	0	
911010	0900-2100	9.0	A	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
911010	2100-0900	9.0	B	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
911010	0900-2100	9.5	A	62	80	70	80	60	72	0	0	0	0	0	1	2	0	
911010	2100-0900	9.5	B	49	82	75	75	62	78	0	0	0	4	0	11	10	0	
911011	0900-2100	-	A	63	74	72	82	58	76	0	0	0	0	0	0	0	0	
911011	2100-0900	-	B	43	75	72	71	74	71	2	0	0	0	0	7	2	0	

AUGER TRAP CATCH DATA  
STUART RIVER, 1991

DATE	TIME	TEMP	TRAP	L0M	L1M	COM	C1M	ROM	R1M	CHK	SOK	RBT	SUC	SQA	DAC	SHN	SCU	COMMENTS
911011	2100-0900	7.0	A	44	58	42	62	70	64	0	0	0	2	4	6	5	0	
911011	2100-0900	7.0	B	45	62	70	78	72	82	2	0	0	1	0	7	3	0	
911012	0900-2100	9.0	A	64	84	65	82	62	74	1	0	0	0	0	2	0	0	
911012	0900-2100	9.0	B	56	50	64	90	72	94	4	0	0	0	3	7	6	0	
911012	2100-0900	8.0	A	80	76	82	98	34	72	0	0	0	0	0	0	0	0	JAMMED BETWEEN 2145 AND 1030
911012	2100-0900	8.0	B	42	75	62	82	42	96	0	0	0	6	0	11	3	0	
911013	0900-2100	-	A	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
911013	0900-2100	-	B	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
911013	2100-0900	7.5	A	60	80	62	70	32	76	0	0	0	0	0	2	0	0	
911013	2100-0900	7.5	B	52	50	58	86	58	90	2	0	0	2	0	9	6	0	
911014	0900-2100	-	A	68	76	74	80	54	66	1	0	0	0	0	0	1	0	
911014	0900-2100	-	B	46	48	72	65	72	78	1	0	0	0	0	3	0	0	
911014	2100-0900	8.0	A	-	-	-	-	-	-	1	0	0	0	0	4	1	0	
911014	2100-0900	8.0	B	48	68	70	52	72	88	2	0	0	0	1	9	8	0	
911015	0900-2100	-	A	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
911015	0900-2100	-	B	-	-	-	-	-	-	0	0	0	0	0	2	0	0	
911015	2100-0900	6.5	A	60	82	68	74	48	64	0	0	0	0	0	2	0	0	
911015	2100-0900	6.5	B	42	50	68	75	82	95	0	0	0	9	0	9	4	0	
911016	0900-2100	-	A	64	78	60	70	52	64	2	0	0	0	0	3	0	0	
911016	0900-2100	-	B	37	62	73	78	62	82	4	0	0	3	0	8	6	0	
911016	2100-0900	5.5	A	55	80	68	78	68	63	0	0	0	0	0	1	2	0	
911016	2100-0900	5.5	B	35	60	68	78	78	88	3	0	0	0	0	7	0	0	JAMMED BETWEEN 0153 AND 1015
911017	0900-2100	-	A	-	-	-	-	-	-	1	0	0	0	0	2	0	0	
911017	0900-2100	-	B	-	-	-	-	-	-	2	0	0	0	0	6	0	0	
911017	2100-0900	4.5	A	68	75	72	62	68	60	1	0	0	1	0	2	0	1	
911017	2100-0900	4.5	B	56	58	70	76	92	98	4	0	0	0	0	6	2	0	JAMMED BETWEEN 0225 AND 1620
911018	0900-2100	-	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
911018	0900-2100	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
911018	2100-0900	-	A	68	74	66	78	58	70	0	0	0	0	0	1	0	0	JAMMED BETWEEN 1620 AND 0545, TIME 24 HRS
911018	2100-0900	-	B	42	50	80	76	82	76	0	0	1	0	0	2	0	0	TIME 24 HRS
911019	0900-2100	4.5	A	60	78	66	54	54	70	1	0	0	0	0	0	0	0	
911019	0900-2100	4.5	B	42	38	72	50	72	90	2	0	0	1	0	0	0	0	
911019	2100-0900	-	A	35	50	58	64	60	72	0	0	0	0	0	1	0	0	
911019	2100-0900	-	B	30	42	64	54	62	70	4	0	0	0	0	0	0	0	
911020	0900-2100	5.5	A	58	78	76	66	78	72	0	0	0	0	0	1	0	0	
911020	0900-2100	5.5	B	68	72	50	64	42	44	0	0	0	0	0	0	0	0	JAMMED BETWEEN 0340 AND 1635
911020	2100-0900	5.0	A	70	58	72	50	55	70	0	0	0	0	0	0	0	0	
911020	2100-0900	5.0	B	42	48	64	56	72	68	2	0	0	0	0	0	0	0	
911022	0900-2100	3.0	A	64	69	62	76	58	70	0	0	0	0	0	0	0	0	TIME PERIOD WAS 36 HRS (BOAT PROBLEM)
911022	0900-2100	3.0	B	36	60	60	85	85	95	12	0	0	12	3	0	3	0	TIME PERIOD WAS 36 HRS (BOAT PROBLEM)
911022	2100-0900	2.0	A	66	70	62	71	60	69	1	0	0	0	0	0	1	0	
911022	2100-0900	2.0	B	46	66	70	86	75	86	6	0	1	2	0	1	1	0	
911023	0900-2100	2.0	A	60	62	68	80	54	60	1	0	0	0	0	0	0	0	
911023	0900-2100	2.0	B	26	60	65	70	72	92	2	0	0	0	0	0	0	0	
911023	2100-0900	1.5	A	80	74	64	70	58	80	0	0	0	0	0	1	0	0	
911023	2100-0900	1.5	B	54	46	58	68	76	86	2	0	2	0	0	3	0	0	
911024	0900-2100	2.0	A	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
911024	0900-2100	2.0	B	-	-	-	-	-	-	4	0	1	2	0	0	1	0	
911024	2100-0900	2.0	A	82	82	62	76	60	75	5	0	0	0	0	1	0	0	
911024	2100-0900	2.0	B	56	52	75	72	74	96	12	0	0	3	1	2	0	0	
911025	0900-2100	1.5	A	82	87	58	80	64	82	2	0	0	0	0	2	0	0	
911025	0900-2100	1.5	B	36	60	64	75	74	91	7	0	3	0	0	0	0	0	
911025	2100-0900	1.0	A	62	82	72	76	54	64	6	0	0	1	1	0	0	0	

AUGER TRAP CATCH DATA  
STUART RIVER, 1991

DATE	TIME	TEMP	TRAP	LOM	LIM	COM	CIM	ROM	RIM	CHK	SOK	RBT	SUC	SQA	DAC	SHN	SCU	COMMENTS
911025	2100-0900	1.0	B	55	55	70	72	72	90	3	0	0	1	0	3	0	0	
911026	0900-2100	-	A	69	90	75	83	62	73	4	0	0	1	0	0	1	0	
911026	0900-2100	-	B	64	43	70	78	82	86	5	0	0	0	0	5	3	0	
911026	2100-0900	-	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TRAP NOT CHECKED
911026	2100-0900	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TRAP NOT CHECKED
911027	0900-2100	2.0	A	74	82	70	73	60	70	3	0	0	3	0	1	0	0	JAMMED BETWEEN 0000 AND 1930, TIME 24 HRS
911027	0900-2100	2.0	B	78	52	84	72	80	82	6	0	0	2	0	0	0	0	JAMMED BETWEEN 0000 AND 1930, TIME 24 HRS
911027	2100-0900	-	A	65	72	65	52	52	60	13	0	0	0	2	1	0	0	JAMMED BETWEEN 0330 AND 1430, END TRAPPING
911027	2100-0900	-	B	54	75	64	68	90	90	14	0	2	11	0	4	1	0	JAMMED BETWEEN 0330 AND 1430, END TRAPPING

Table 5. Catch data from beach seining in the lower Stuart River.

22  
 BEACH SEINE DATA  
 STUART RIVER, 1991

SET	DATE	TIME	LOC	CHK	WHT	RBT	BT
1	911005	1200	C	8	5	0	0
2	911005	1200	C	0	1	0	0
3	911005	1200	C	0	0	0	0
4	911005	1200	C	0	0	0	0
5	911005	1200	E	15	4	0	0
6	911005	1200	E	0	0	1	0
7	911005	1200	E	2	4	0	0
8	911005	1200	F	0	0	0	0
9	911005	1200	F	5	0	0	0
10	911005	1200	F	4	1	0	0
11	911005	1200	F	3	1	0	0
12	911005	1400	G	0	0	0	0
13	911005	1400	H	5	0	0	0
14	911005	1400	I	8	0	0	0
15	911005	1400	I	3	0	0	0
16	911006	1030	D	3	0	0	0
17	911006	1030	C	10	13	1	0
18	911006	1030	J	5	5	0	0
19	911006	1030	J	1	0	0	0
20	911006	1030	K	3	1	0	0
21	911006	1030	K	4	2	1	0
22	911006	1030	K	1	0	0	0
23	911006	1030	L	2	0	0	0
24	911006	1030	L	2	2	0	0
25	911010	1000	C	0	2	0	0
26	911010	1000	C	19	3	0	0
27	911010	1000	C	3	1	0	0
28	911010	1000	E	0	0	0	0
29	911010	1000	E	7	2	0	0
30	911010	1000	E	18	27	0	0
31	911015	0930	C	5	0	0	0
32	911015	0930	C	1	5	0	0
33	911015	0930	C	0	0	0	0
34	911015	0930	F	7	0	0	0
35	911017	1015	C	0	3	0	0
36	911017	1015	C	0	0	0	1
37	911017	1015	E	10	4	0	0
38	911017	1015	E	0	2	0	0
39	911031	1230	C	0	0	0	0
40	911031	1230	C	0	0	0	0
41	911031	1230	C	0	0	0	0
42	911031	1230	C	0	0	0	0
43	911031	1300	E	0	0	0	0
44	911031	1300	E	0	0	0	0
45	911031	1300	E	0	0	0	0
46	911031	1300	E	0	0	0	0

Table 6. Mark and recapture data for juvenile chinook salmon from the Stuart River.

24  
 MARK AND RECAPTURE DATA  
 STUART RIVER, 1991

DATE	TIME	LOC	LENGTH	MGIVEN	MRECOV	CMETH
911005	1200	C	83	UC	-	S
911005	1200	C	79	UC	-	S
911005	1200	C	83	UC	-	S
911005	1200	C	82	UC	-	S
911005	1200	C	80	UC	-	S
911005	1200	C	89	UC	-	S
911005	1200	C	70	UC	-	S
911005	1200	C	65	UC	-	S
911005	1200	E	74	UC	-	S
911005	1200	E	76	UC	-	S
911005	1200	E	70	UC	-	S
911005	1200	E	81	UC	-	S
911005	1200	E	67	UC	-	S
911005	1200	E	86	UC	-	S
911005	1200	E	84	UC	-	S
911005	1200	E	77	UC	-	S
911005	1200	E	74	UC	-	S
911005	1200	E	82	UC	-	S
911005	1200	E	68	UC	-	S
911005	1200	E	83	UC	-	S
911005	1200	E	85	UC	-	S
911005	1200	E	75	UC	-	S
911005	1200	E	85	UC	-	S
911005	1200	E	65	UC	-	S
911005	1200	E	71	UC	-	S
911005	1200	F	64	UC	-	S
911005	1200	F	74	UC	-	S
911005	1200	F	75	UC	-	S
911005	1200	F	68	UC	-	S
911005	1200	F	69	UC	-	S
911005	1200	F	72	UC	-	S
911005	1200	F	65	UC	-	S
911005	1200	F	78	UC	-	S
911005	1200	F	60	UC	-	S
911005	1200	F	74	UC	-	S
911005	1200	F	65	UC	-	S
911005	1200	F	69	UC	-	S
911005	1400	H	82	UC	-	S
911005	1400	H	81	UC	-	S
911005	1400	H	76	UC	-	S
911005	1400	H	81	UC	-	S
911005	1400	H	63	UC	-	S
911005	1400	I	81	UC	-	S
911005	1400	I	76	UC	-	S
911005	1400	I	87	UC	-	S
911005	1400	I	75	UC	-	S
911005	1400	I	79	UC	-	S
911005	1400	I	79	UC	-	S

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 MARK AND RECAPTURE DATA  
 STUART RIVER, 1991

DATE	TIME	LOC	LENGTH	MGIVEN	MRECOV	CMETH
911005	1400	I	67	UC	-	S
911005	1400	I	76	UC	-	S
911006	1030	A	73	UC	-	T
911006	1030	A	73	UC	-	T
911006	1030	A	64	UC	-	T
911006	1030	A	72	UC	-	T
911006	1030	B	72	UC	-	T
911006	1030	B	74	UC	-	T
911006	1030	D	78	UC	-	S
911006	1030	D	62	UC	-	S
911006	1030	D	71	UC	-	S
911006	1030	C	72	UC	-	S
911006	1030	C	78	UC	-	S
911006	1030	C	72	UC	-	S
911006	1030	C	72	UC	-	S
911006	1030	C	82	UC	-	S
911006	1030	C	78	UC	-	S
911006	1030	C	90	UC	-	S
911006	1030	C	76	UC	-	S
911006	1030	C	68	UC	-	S
911006	1030	C	75	UC	-	S
911006	1030	J	78	UC	-	S
911006	1030	J	78	UC	-	S
911006	1030	J	69	UC	-	S
911006	1030	J	78	UC	-	S
911006	1030	J	67	UC	-	S
911006	1030	J	75	UC	-	S
911006	1030	K	62	UC	-	S
911006	1030	K	76	UC	-	S
911006	1030	K	87	UC	-	S
911006	1030	K	80	UC	-	S
911006	1030	K	79	UC	-	S
911006	1030	K	72	UC	-	S
911006	1030	K	86	UC	-	S
911006	1030	K	66	UC	-	S
911006	1030	L	69	UC	-	S
911006	1030	L	61	UC	-	S
911006	1030	L	65	UC	-	S
911006	1030	L	68	UC	-	S
911008	1310	B	84	LC	-	T
911008	1310	B	75	LC	-	T
911009	0100	B	78	-	UC	T
911009	1237	B	69	LC	-	T
911009	1237	B	90	LC	-	T
911009	1237	B	78	LC	-	T
911009	1237	B	74	LC	-	T
911009	1237	B	93	LC	-	T
911009	1237	B	69	LC	-	T

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 MARK AND RECAPTURE DATA  
 STUART RIVER, 1991

DATE	TIME	LOC	LENGTH	MGIVEN	MRECOV	CMETH
911009	1237	B	80	LC	-	T
911009	1237	B	72	LC	-	T
911009	2320	A	89	LC	-	T
911009	2335	B	82	LC	-	T
911010	1000	C	82	LC	-	S
911010	1000	C	82	LC	UC	S
911010	1000	C	78	LC	UC	S
911010	1000	C	91	LC	-	S
911010	1000	C	74	LC	-	S
911010	1000	C	97	LC	-	S
911010	1000	C	83	LC	-	S
911010	1000	C	82	LC	-	S
911010	1000	C	77	LC	-	S
911010	1000	C	70	LC	-	S
911010	1000	C	77	LC	-	S
911010	1000	C	91	LC	-	S
911010	1000	C	78	LC	-	S
911010	1000	C	88	LC	-	S
911010	1000	C	89	LC	-	S
911010	1000	C	86	LC	-	S
911010	1000	C	82	LC	-	S
911010	1000	C	91	LC	-	S
911010	1000	C	80	LC	UC	S
911010	1000	C	78	LC	-	S
911010	1000	C	65	LC	-	S
911010	1000	C	60	LC	-	S
911010	1000	E	82	LC	-	S
911010	1000	E	90	LC	-	S
911010	1000	E	80	LC	-	S
911010	1000	E	87	LC	UC	S
911010	1000	E	80	LC	-	S
911010	1000	E	77	LC	UC	S
911010	1000	E	79	LC	-	S
911010	1000	E	71	LC	UC	S
911010	1000	E	70	LC	-	S
911010	1000	E	74	LC	-	S
911010	1000	E	75	LC	UC	S
911010	1000	E	65	LC	-	S
911010	1000	E	93	LC	-	S
911010	1000	E	88	LC	-	S
911010	1000	E	71	LC	-	S
911010	1000	E	68	LC	UC	S
911010	1000	E	68	LC	-	S
911010	1000	E	76	LC	-	S
911010	1000	E	76	LC	-	S
911010	1000	E	72	LC	-	S
911010	1000	E	67	LC	-	S
911010	1000	E	75	LC	UC	S

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 MARK AND RECAPTURE DATA  
 STUART RIVER, 1991

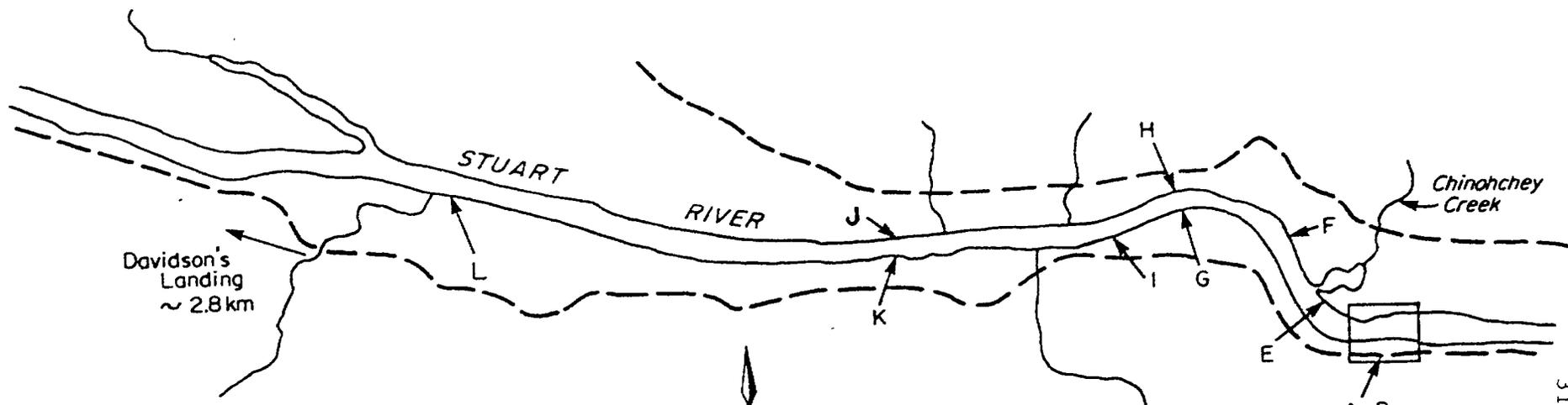
DATE	TIME	LOC	LENGTH	MGIVEN	MRECOV	CMETH
911010	1000	E	75	LC	-	S
911010	1000	E	77	LC	-	S
911010	1000	E	78	LC	-	S
911012	0945	A	90	LP	-	T
911012	0950	B	91	LP	-	T
911012	0950	B	81	LP	-	T
911012	0950	B	65	LP	-	T
911012	0950	B	80	LP	-	T
911014	1030	B	90	RP	-	T
911014	1030	B	75	RP	-	T
911014	2130	B	74	RP	-	T
911014	2315	B	75	-	RP	T
911015	0930	C	82	-	UC	S
911015	0930	F	76	-	UC	S
911015	0930	F	74	LC	-	S
911015	0930	F	76	LC	-	S
911015	0930	F	77	LC	-	S
911015	0930	F	65	LC	-	S
911015	0930	F	68	LC	-	S
911015	0930	F	78	LC	-	S
911016	0825	A	73	LP	-	T
911016	0825	A	65	LP	-	T
911016	2036	B	74	LP	-	T
911016	2036	B	62	LP	-	T
911016	2036	B	84	LP	-	T
911016	2036	B	81	-	LP	T
911017	0153	A	74	LP	-	T
911017	1015	B	83	RP	-	T
911017	1015	B	79	RP	-	T
911017	1015	E	86	RP	UC,LC	S
911017	1015	E	79	RP	-	S
911017	1015	E	71	RP	-	S
911017	1015	E	87	RP	-	S
911017	1015	E	78	RP	-	S
911017	1015	E	74	RP	-	S
911017	1015	E	75	RP	LC	S
911017	1015	E	78	RP	-	S
911017	1015	E	77	RP	-	S
911017	1015	E	73	RP	LC	S
911017	-	A	74	RP	-	T
911017	-	B	70	RP	-	T
911017	-	B	67	RP	-	T
911018	0225	B	78	-	LC	T
911018	1612	A	85	RP	-	T
911018	1620	B	86	RP	-	T
911018	1620	B	74	RP	-	T
911018	1620	B	83	RP	-	T
911019	1300	A	99	RP	-	T

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 MARK AND RECAPTURE DATA  
 STUART RIVER, 1991

DATE	TIME	LOC	LENGTH	MGIVEN	MRECOV	CMETH
911019	1300	B	98	RP	-	T
911019	1300	B	88	RP	-	T
911020	-	B	74	LP	RP	T
911020	-	B	75	LP	-	T
911022	2315	B	109	LP	-	T
911022	2315	B	83	LP	-	T
911022	2315	B	89	LP	-	T
911022	2315	B	89	LP	-	T
911022	2315	B	106	LP	-	T
911022	2315	B	98	LP	-	T
911022	2315	B	70	LP	-	T
911022	2315	B	85	LP	-	T
911022	2315	B	88	LP	-	T
911022	2315	B	85	LP	-	T
911022	2315	B	80	LP	-	T
911022	2315	B	98	LP	-	T
911023	1230	A	92	LP	-	T
911023	1230	B	98	LP	-	T
911023	1230	B	101	LP	-	T
911023	1230	B	78	LP	-	T
911023	1230	B	98	LP	-	T
911023	1230	B	82	LP	-	T
911023	1230	B	99	LP	-	T
911023	1837	A	82	LP	-	T
911023	1837	B	96	LP	-	T
911023	1837	B	74	LP	-	T
911024	0930	B	86	LP	-	T
911024	0930	B	84	LP	-	T
911025	1445	A	79	LP	-	T
911025	1445	A	82	LP	-	T
911025	1445	B	71	LP	-	T
911025	1445	B	84	LP	-	T
911025	1445	B	67	LP	-	T
911025	1445	B	82	LP	-	T
911025	1445	B	91	LP	-	T
911025	1445	B	76	LP	-	T
911025	1445	B	76	LP	-	T

Figures

Figure 1. Map of the Stuart River near Chinohchey Creek showing sampling stations for auger traps and beach seining.



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A-D  
See Inset

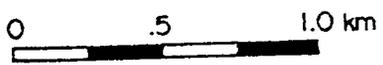
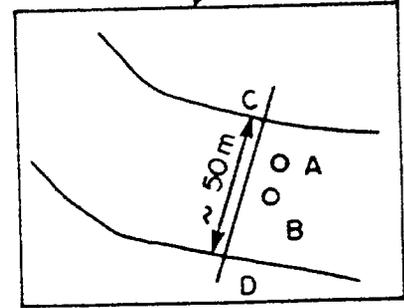


Figure 2. Auger traps used for capture of fish. Upper photograph shows the trap with the cage in the fishing position. Lower photograph shows the cage in the raised position.

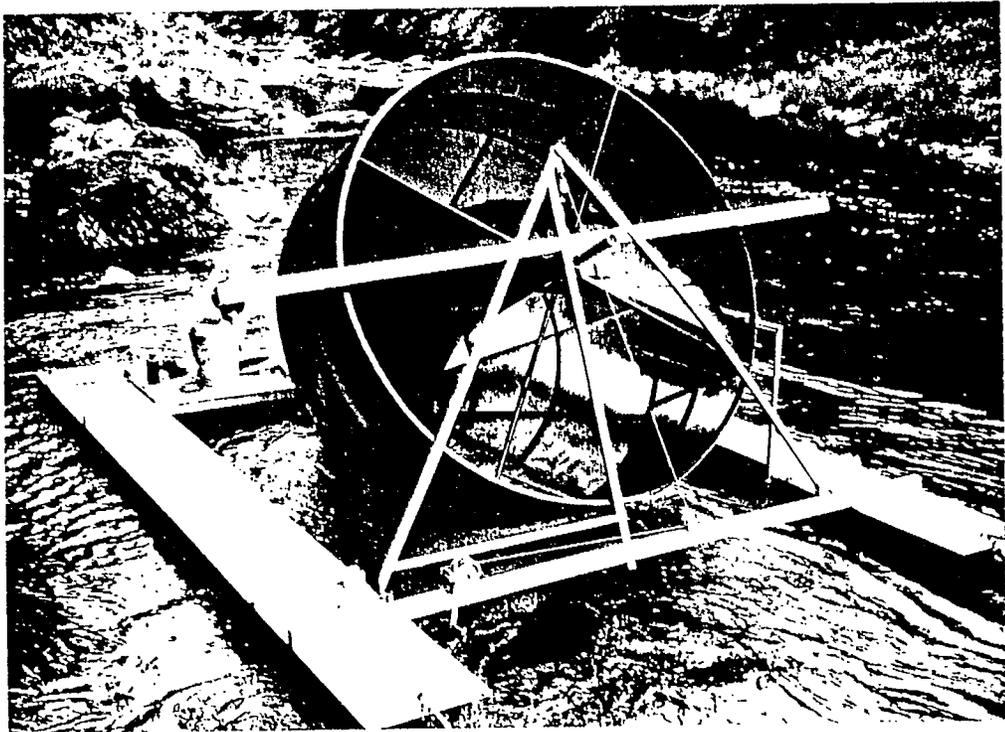
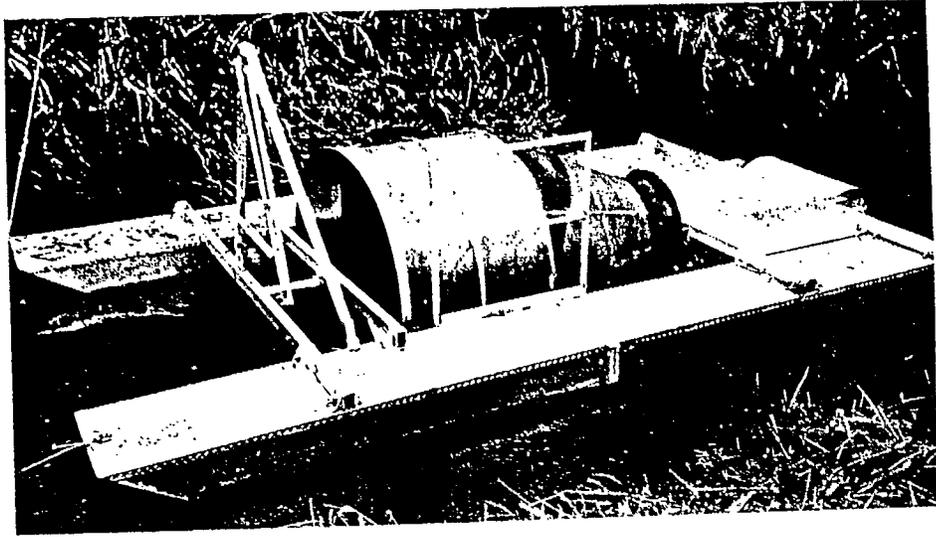


Figure 3. Mean length and standard deviation (calculated over 3 days) of chinook salmon captured by auger traps and beach seining from the Stuart River.

MEAN LENGTH OF CHINOOK BY CATCH METHOD  
STUART RIVER, 1991

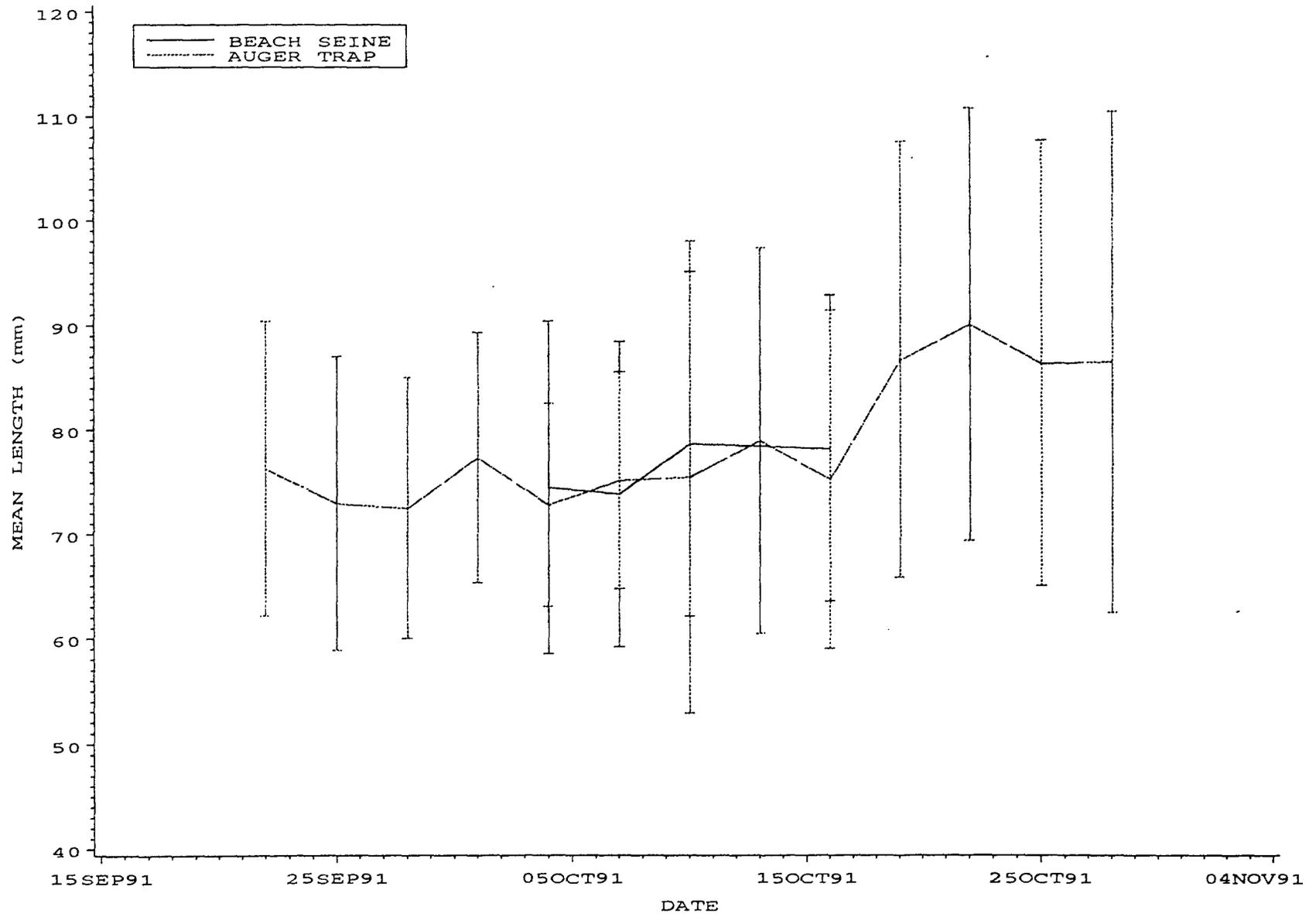


Figure 4. Numbers of chinook salmon captured by auger traps in the Stuart River. Note: actual number of hours sampled per day varied; see Table 4.

# NUMBERS OF CHINOOK FROM TRAPS STUART RIVER, 1991

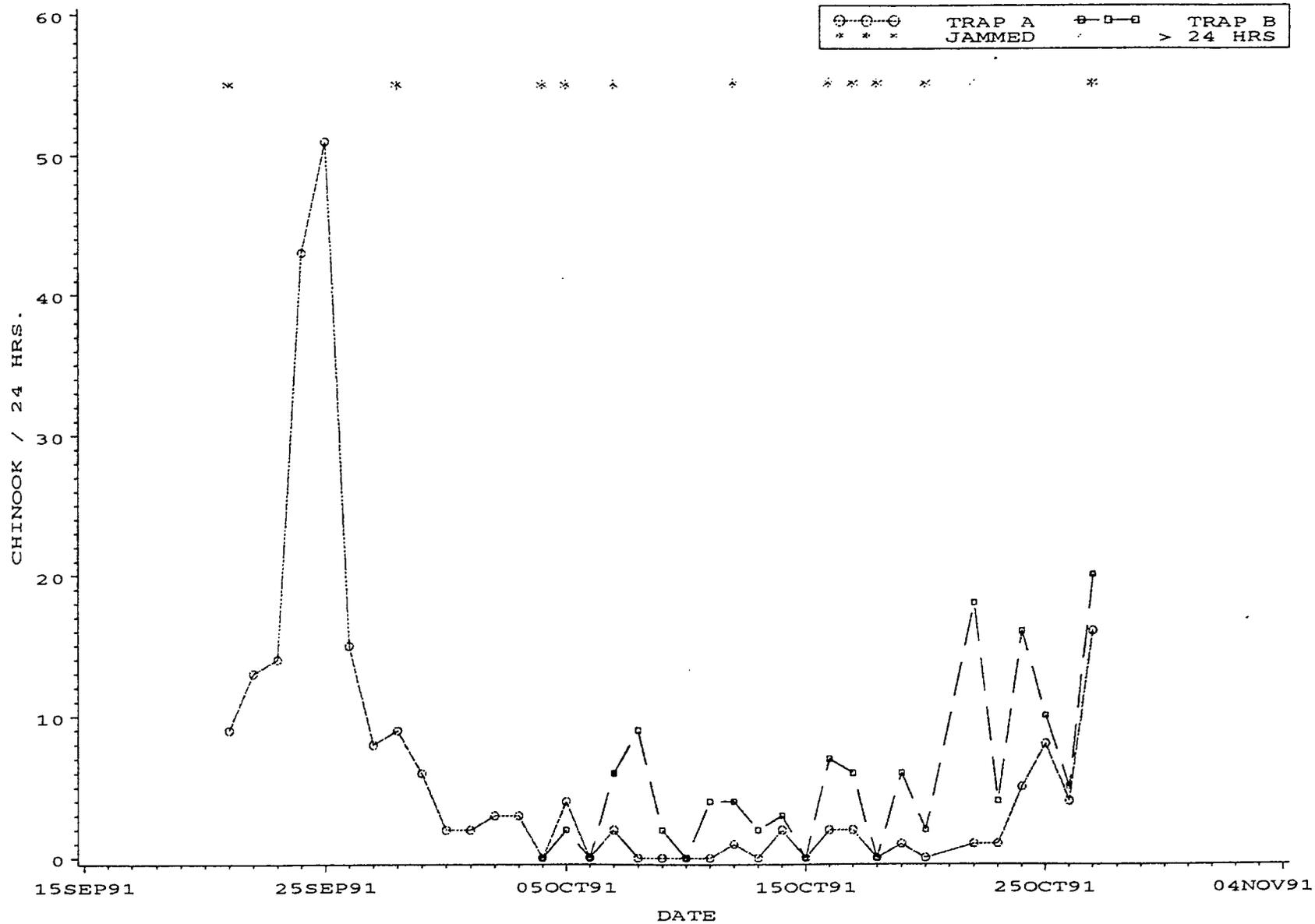


Figure 5. Numbers of northern squawfish captured by auger traps in the Stuart River.  
Note: actual number of hours sampled per day varied; see Table 4.

# NUMBERS OF NORTHERN SQUAWFISH FROM TRAPS STUART RIVER, 1991

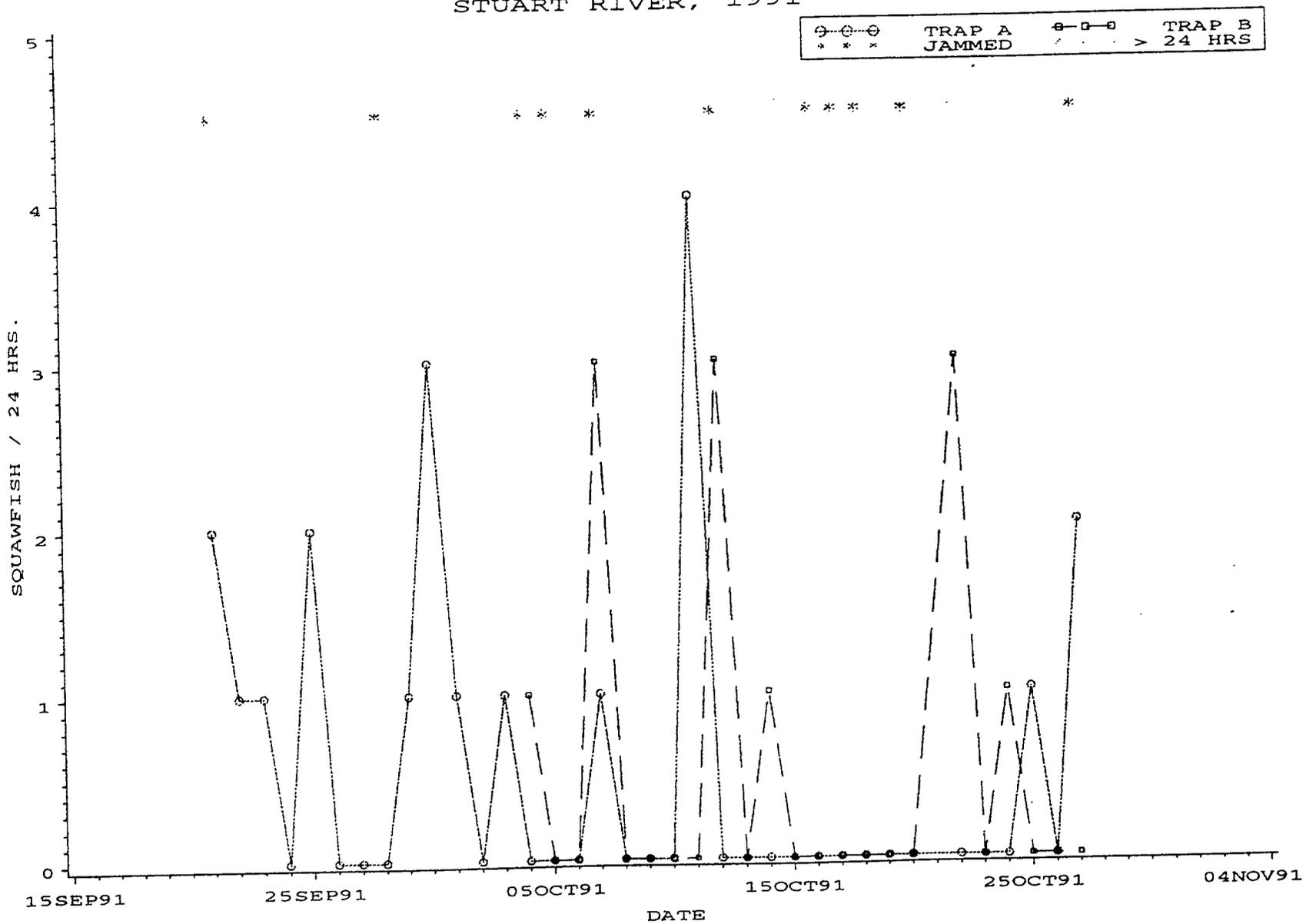


Figure 6. Numbers of suckers captured by auger traps in the Stuart River. Note: actual number of hours sampled per day varied; see Table 4.



Figure 7. Numbers of dace captured by auger traps in the Stuart River. Note: actual number of hours sampled per day varied; see Table 4.

# NUMBERS OF DACE FROM TRAPS STUART RIVER, 1991

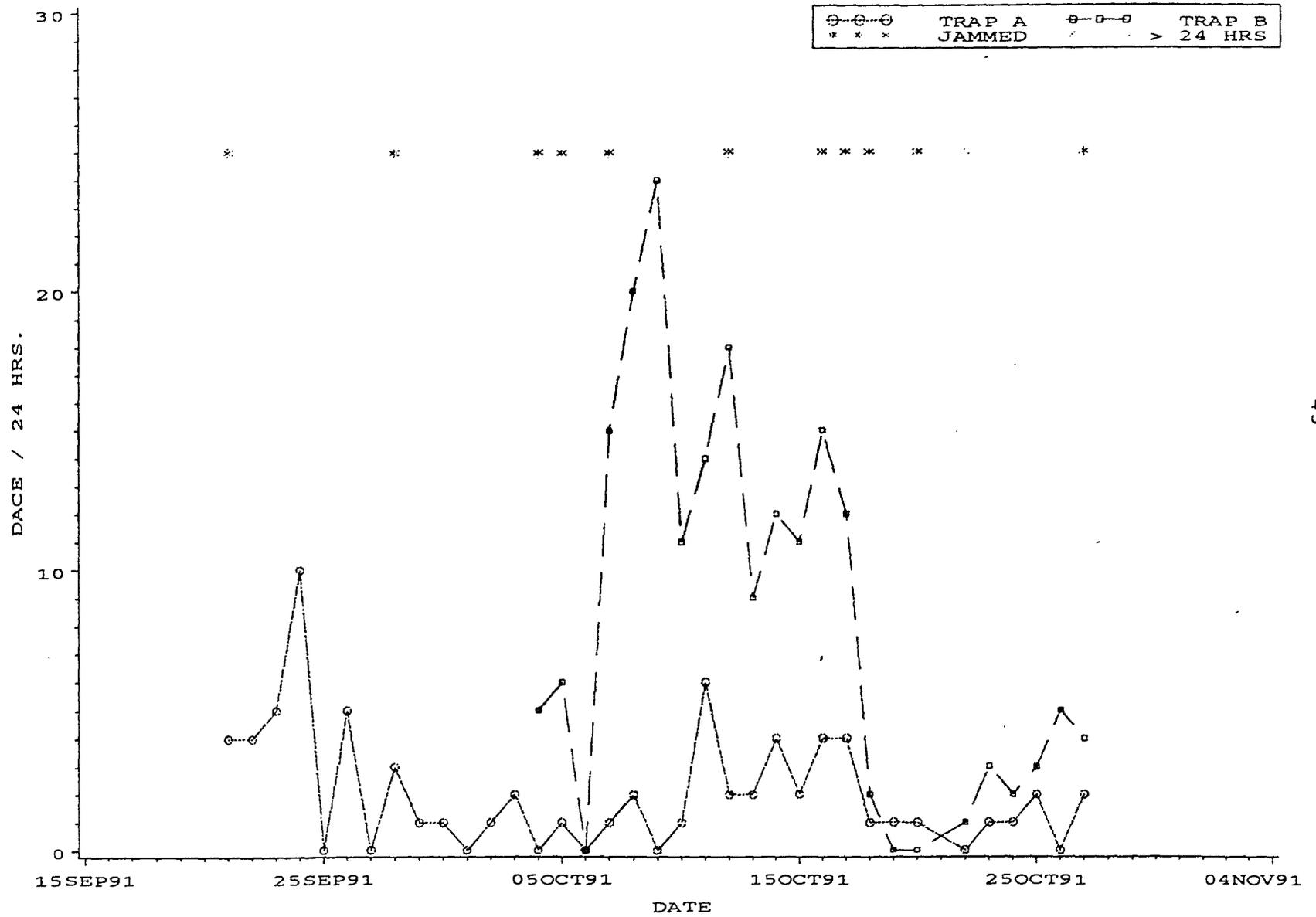


Figure 8. Numbers of redbreasted sunfish captured by auger traps in the Stuart River. Note: actual number of hours sampled per day varied; see Table 4.

# NUMBERS OF REDSIDE SHINERS FROM TRAPS STUART RIVER, 1991

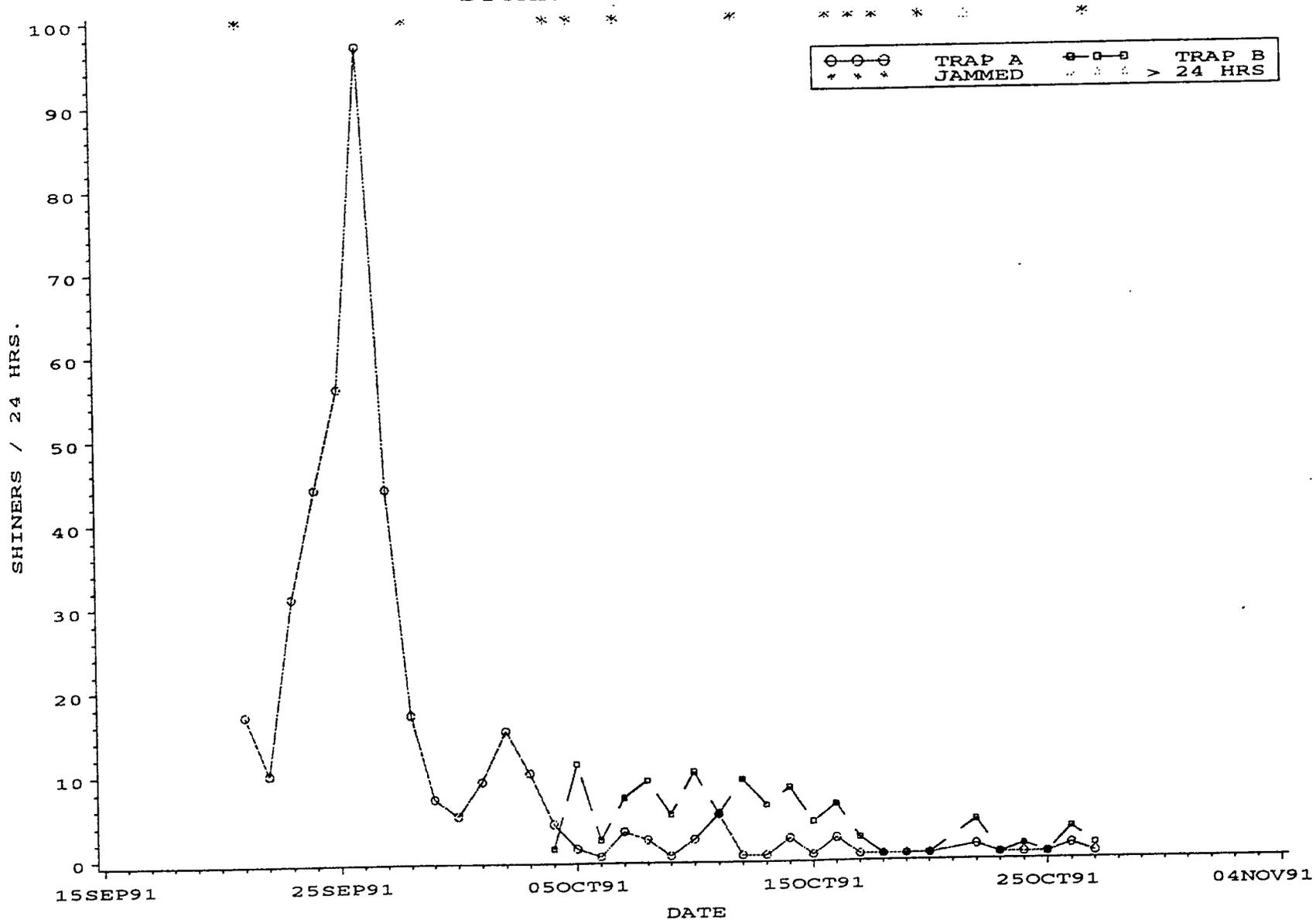


Figure 9. Mean water temperature (calculated over two day periods) in the Stuart River.

MEAN WATER TEMPERATURE  
STUART RIVER, 1991

