

**KOOCANUSA KOKANEE ENUMERATION
(2003)**

Prepared by:

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December, 2003

INTRODUCTION

During the fall of 2003, B.C. Hydro partnered with the Ministry of Water, Land and Air Protection (WLAP) to conduct the eighth year of an aerial enumeration of spawning kokanee in tributaries to the upper Kootenay River. The objectives of the survey were to determine the distribution and estimate total numbers of kokanee in eleven candidate streams. In addition, Montana Department of Fish, Wildlife and Parks (MDFWP) conducted their annual gill-netting of the Canadian portion of Lake Koocanusa on September 14 and 15, 2003.

BACKGROUND

Kokanee were inadvertently introduced into Lake Koocanusa between 1970 and 1974 from the Kootenay Trout Hatchery at Wardner (Brown 1993). They have since become well established in the reservoir and are now highly sought after by anglers during the summer months.

The first basin wide survey of spawning kokanee in the upper Kootenay River occurred in 1996 and involved twenty-eight streams (Westover 1997). Since 1999, portions of eleven index streams have been flown annually to provide trends in kokanee abundance.

METHODS

Aerial counts of kokanee occurred on September 25, 2003 from a Bell 206 Jet Ranger helicopter that travelled between 20 and 30 miles per hour, and at a height of approximately 50 m above ground level. Two observers were present during the flight.

RESULTS AND DISCUSSION

An estimated 148,330 spawning kokanee were enumerated in eleven tributary streams to the upper Kootenay River during the fall of 2003 (Appendix I). The estimated numbers of kokanee for the eleven streams flown in each of the last eight years (1996-2003) are shown in Table 1 and Figure 1. Based on data obtained during the basin wide survey in 1996, this represents approximately 90% of the total spawning run for these years, however this statement may no longer be accurate since many kokanee are now observed spawning in pockets of suitable gravel along the margins of the Kootenay River for a distance of 200+ km.

MDFWP reports that the mean fork length of kokanee from their gill net catches on the Canadian portion of Lake Koocanusa during the fall of 2003 was 269 mm ($n = 166$) (Benson 2003). Mean fork length of kokanee for the last eight years is shown in Figure 2. The density dependent relationship of kokanee verses length is readily apparent when you compare Figure 1 and Figure 2.

Table 1. Estimated number of spawning kokanee in selected tributary streams to the upper Kootenay River for the years 1996 – 2003.

STREAM	1996	1997	1998	1999	2000	2001	2002	2003
Bull River	54,850	10,852	1,782	26,090	43,500	25,325	19,400	19,370
Elk River	1,302	45	N/A	490	5,420	0	465	130
Findlay Creek	1,405	2,010	1,120	9,100	6,180	6,475	9,050	1,620
Kootenay River*	50,250	18,120	30,195	32,040	98,980	74,510	83,400	35,535
Little Sand Creek	7,250	3,000	488	9,402	13,050	2,450	37,000	2,400
Lussier River	171,000	49,450	98,217	145,445	43,150	213,460	177,650	32,220
Norbury Creek	11,800	11,050	9,340	7,902	47,500	23,300	19,800	21,550
Sand Creek	71,170	17,620	8	16,285	57,800	1,432	81,350	33,760
St Mary River	12,175	3,810	5,856	8,825	11,440	4,701	16,375	1,350
Wigwam River	11,900	260	0	1,768	1,450	0	2,750	395
Wild Horse River	4,595	100	20	1,470	277	0	5,500	0
Total**	397,697	116,317	147,026	258,817	328,747	351,653	452,740	148,330

* only includes side channels by city fields.

** based on the 1996 basin wide survey this represents approximately 90% of the total spawning run to the upper Kootenay River drainage (Westover 1997).

Koocanusa Kokanee Spawning Escapement

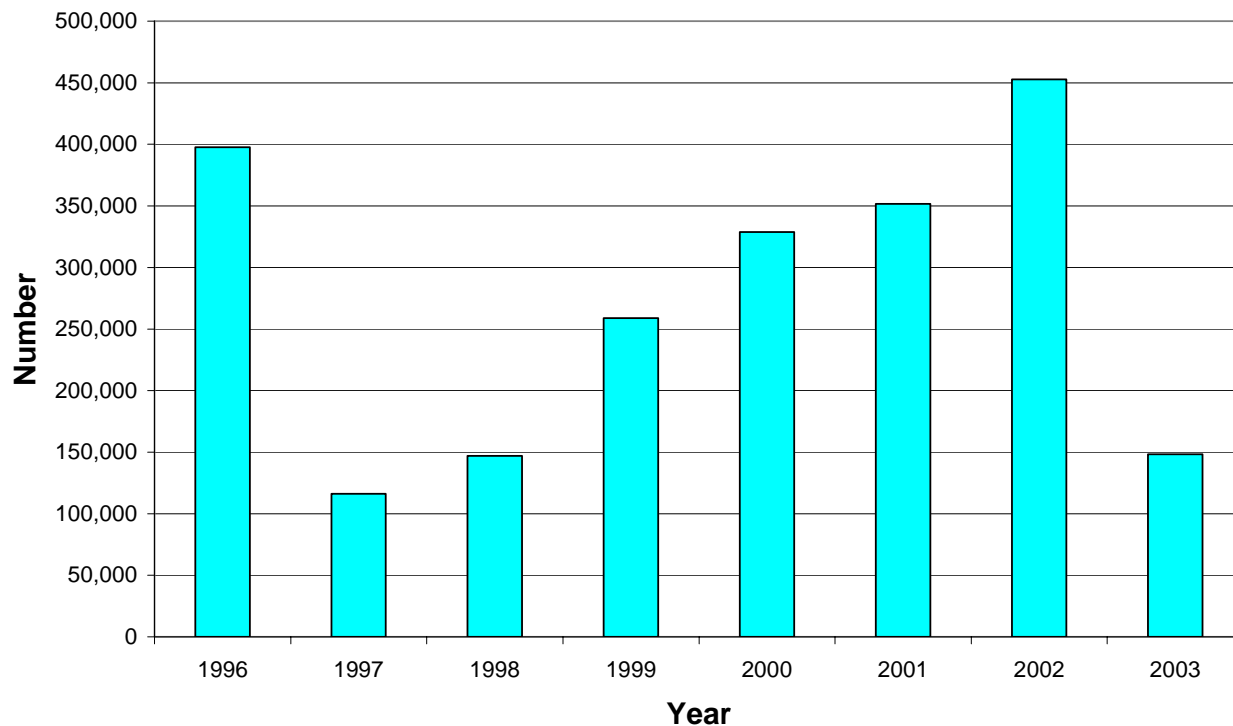


Figure 1. Kokanee spawning escapement into 11 selected tributaries of the upper Kootenay River

Mean Length of Kokanee in Fall Gill Net Catches from Lake Koocanusa (1996 - 2003)

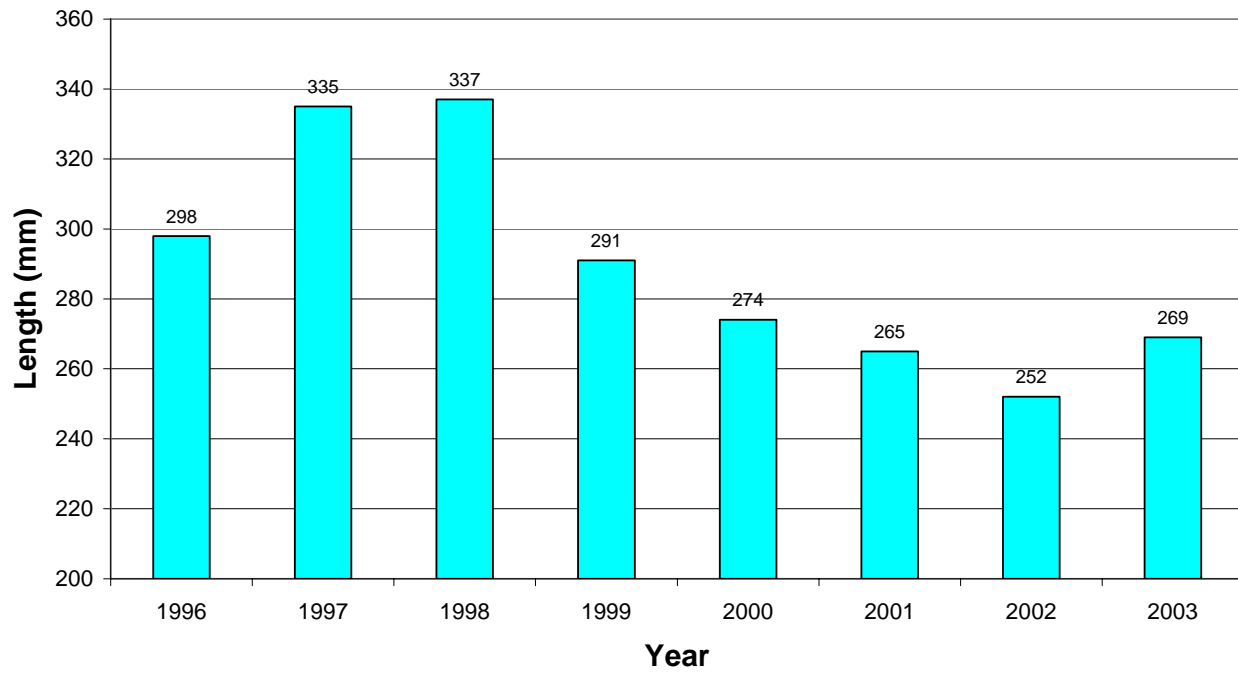


Figure 2. Mean length of kokanee in fall gill samples from Lake Koocanusa (1996 – 2003). Data from Montana Department of Fish, Wildlife and Parks.

REFERENCES

Brown, Peter 1993. Note to File: Koocanusa Kokanee Origins. Kootenay Trout Hatchery, B.C. Environment Fish Culture Section.

Personal Communication. Benson, Neil 2003. Montana Department of Fish, Wildlife and Parks.

Westover, W.T. 1997. Koocanusa Kokanee Enumeration (1996) Ministry of Environment, Fisheries Branch, for Columbia Basin Fish and Wildlife Compensation Program, Nelson B.C.

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STREAM	SECTION	SECTION	SECTION	TOTAL
Elk River	Reservoir to Wigwam River 130	Wigwam River to Elko Canyon -- 0		130
Wigwam River	Lower Wigwam River through Canyon to Wigwam Flats Bridge – 395	Wigwam Flats Bridge to Lodgepole Junction – 0		395
Sand Creek	Reservoir to Baynes Lake Road – 23,910	Baynes Lake Road to Hwy #3 – 9,850		33,760
Little Sand Creek	Sand Creek to Hwy #3 2,400			2,400
Bull River	Kootenay River to Tie Mill Dam – 15,300	Tie Mill Dam to Aberfeldie – 4,070		19,370
Norbury Creek	Kootenay River to Railway Culvert – 21,000	Railway Bridge to Hatchery Dam – 550		21,550
Wildhorse River	Kootenay River to Ft. Steele Road -- 0			0
St. Mary River	Wycliffe to Mark Creek – 0	Mark Creek to St. Mary Lake – 1,350		1,350
Lussier Creek	Kootenay River to Premier Bridge – 16,570	Premier Bridge to Ram Creek Hot Spring Bridge – 2,100	Ram Creek Hot Spring Bridge to 10-mile Bridge 13,550	32,220
Findlay Creek	Kootenay River to falls – 1,620			1,620
Kootenay River	Side channel by city fields – 35,535			35,535
			Grand Total	148,330

