

A Creel-Based Assessment of the Upper Bow and Elbow River Sport Fisheries



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EXECUTIVE SUMMARY

We estimated angler effort, trip length and fish catch by conducting angler interviews and instantaneous angler counts on the upper Bow River from Banff National Park to Bearspaw Reservoir. We also conducted instantaneous angler counts on the Elbow River from Canyon Creek to Glenmore Reservoir to estimate angler effort. Between May 1 and October 31, 2016, we interviewed 369 anglers and estimated anglers fished for 20,904 hours (17,389 – 24,615) and made 10,055 trips (8,025 – 12,331) on the upper Bow River. Between June 16 and October 31, 2016, we estimated anglers fished for 9,699 hours (7,031 – 12,503) on the Elbow River. We estimated total release of all fish in the upper Bow River was 10,291 (8,201 – 12,536). Over all seasons and reaches, brown trout were estimated to be the most abundantly released fish species at 5,343 (4,023 – 6,950), followed by mountain whitefish at 3,900 (2,847 – 5,000) and rainbow trout at 874 (615 – 1,140). Releases of lake trout and cutthroat trout were estimated to be fairly small.

Key words: Angler survey, angler effort, angler interviews, Bow River, Elbow River, instantaneous counts, sport fishery.

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1.0 INTRODUCTION

Attracting both resident and non-resident anglers, the Bow River and its major tributaries are considered destination trout fishing streams in Alberta (Ripley and Council 2006). One tool to effectively manage sport fisheries is an angler survey. From these surveys, metrics such as angling effort and trip length (hours), angler trip numbers, and fish harvest and release by anglers can be derived. Previous angler surveys have been completed on the lower Bow River in 1977 (Thompson 1977), 1986 (Sosiak 1987) and 2006 (Ripley and Council 2006), and on the upper Bow River in 1977 (Thompson 1977) and 1991/92 (R.L. & L. Environmental Services 1995). The most recent angler survey on the Bow River by R.L. & L. Environmental Services (1995) focused on the river from Banff National Park downstream to Seebe, making this dated information spatially incomplete on the river downstream to Bearspaw Reservoir. Additionally, formal angler surveys have never been completed on the major tributaries to the Bow River (Elbow, Sheep and Highwood rivers) despite them being popular fishing destinations. The main objective of this angler survey was to provide current information from the sport fisheries in the upper Bow and Elbow rivers to aid Alberta Environment and Parks in managing these important sport fisheries.

2.0 STUDY AREA

The upper Bow River study area is a 94.6 km section of the Bow River (exclusive of Ghost Reservoir) extending from the eastern boundary of Banff National Park downstream to Bearspaw Reservoir (Figure 1). Based on hydroelectric impoundments and current sport fishing regulations (Appendix 1), we divided the study area into three sub-reaches (Figure 1). Reach 1 is a 34.6 km section of river extending from Ghost Dam downstream to Bearspaw Reservoir. This section of river flows through a mix of private land, the Stoney Nation upstream of Cochrane, and Glenbow Ranch Provincial Park downstream of Cochrane. Reach 2 is a 21.3 km section of river extending from the Seebe access site to the upstream end of Ghost Reservoir and is bordered entirely by Stoney Nation lands. Reach 3 is a 38.9 km section of river extending from the eastern boundary of Banff National Park to the Horseshoe Dam face. Public access to the river in Reach 3 is nearly uninterrupted because the river flows through the town of Canmore and Bow Valley Provincial Park.

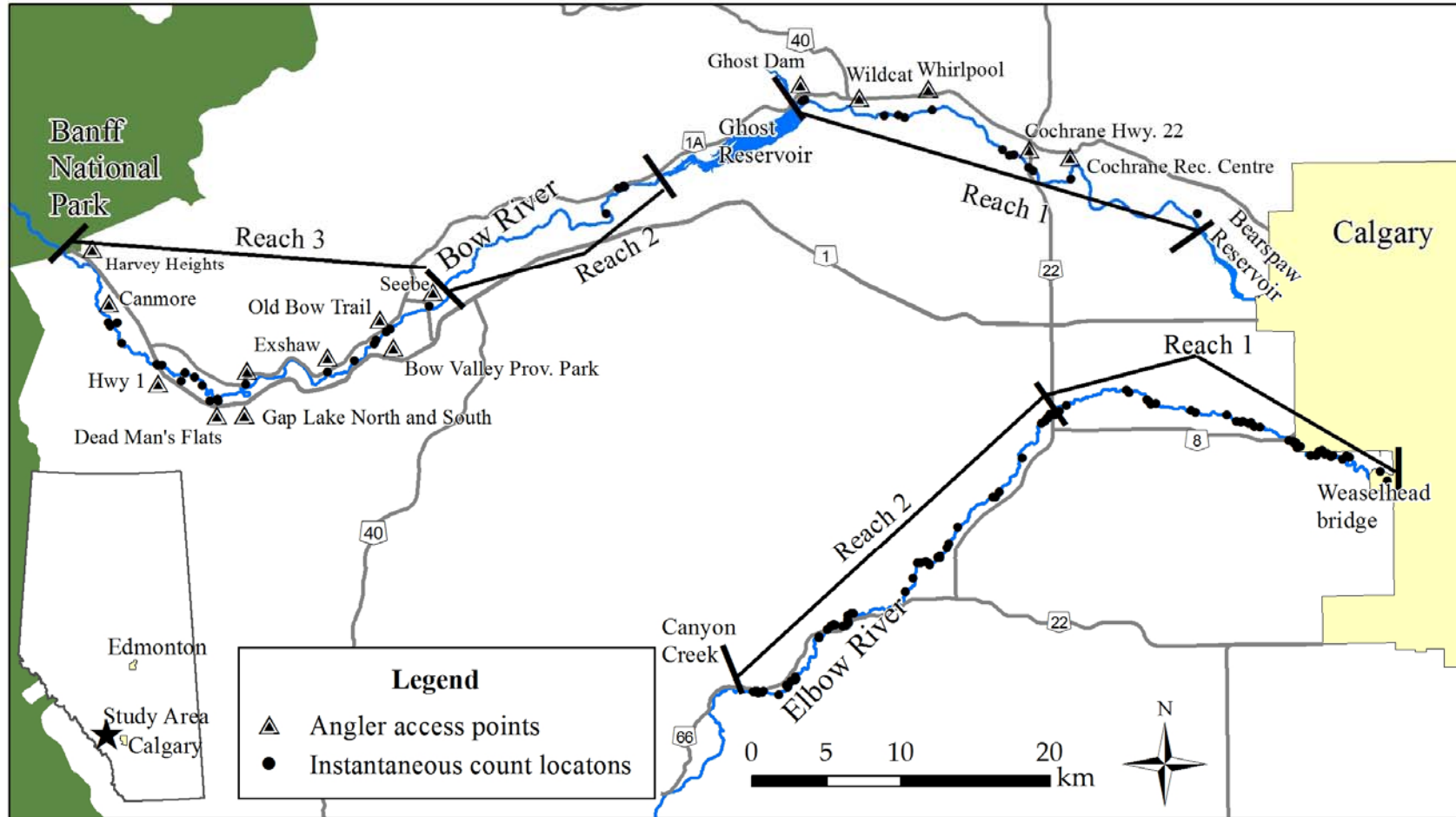


Figure 1. Location of the upper Bow and Elbow river study reaches, angler access points and instantaneous counts (2016).

The Elbow River study area (Figure 1) is a 66.4 km section of the Elbow River extending from Canyon Creek downstream to the Weaselhead pedestrian bridge. We split the Elbow River study area into two sub-reaches based on current sport fishing regulations (Appendix 1). Reach 1 is a 32.6 km section of the river extending from the Highway 22 bridge to Weaselhead pedestrian bridge and is surrounded by private land and urban development. Reach 2 is a 33.8 km section of the river extending from Canyon Creek to the Highway 22 bridge and is surrounded by public land in its upper half and private land in its lower half.

3.0 MATERIALS AND METHODS

3.1 Survey design

From May 9 to October 31, 2016, we conducted an aerial-access-type angler survey on the upper Bow and Elbow rivers following Malvestuto (1983) and Pollock et al. (1994). Angler-specific data, such as angler trip length, fish catch and demographics, were collected from the upper Bow River (but not the Elbow River) by creel technicians who roved between access points interviewing anglers. This design was chosen because there are numerous access points to the river, each with varying levels of angler use (R.L. & L. Environmental Services 1995). Allowing technicians to rove between all access points increased the total number of anglers interviewed over the course of the survey. Fishing effort was estimated from instantaneous angler counts obtained from aerial overflights of the upper Bow and Elbow rivers.

3.2 Angler interviews on upper Bow River

Our access-point angler surveys followed a ten-day cycle of seven days on shift and three days off. This schedule allowed for 33% of interview effort on Saturday, Sunday and holidays, placing closer to proportional effort on weekdays and weekends/holidays. Survey days were randomly assigned a temporal shift of day (0800 – 1500 hours; “a.m.”) or evening (1500 – 2200 hours; “p.m.”) and a spatial designation of Reach 1 or Reach 3. Of the 352 possible survey units in each reach, we scheduled 62 surveys in Reach 1 and 63 surveys in Reach 3 (Table 1). Specific sampling sites (Figure 1) were identified using previous creel reports and local knowledge about site use by anglers.

Table 1. Number of available survey units and the number of scheduled units surveyed during the angler surveys at Reach 1 and Reach 3 of the upper Bow River (2016).

Reach	Strata		Number available	Number scheduled	Per cent coverage
Reach 1	Weekday	a.m.	121	22	18.1
		p.m.	121	17	14.1
	Weekend	a.m.	55	15	27.3
		p.m.	55	8	14.5
Reach 3	Weekday	a.m.	121	18	14.9
		p.m.	121	28	23.1
	Weekend	a.m.	55	8	14.5
		p.m.	55	9	16.4

We interviewed anglers upon completion of their angling trips. We asked anglers a series of questions including number of hours fished; number of fish of each species caught, harvested and released; their river access site; shore or boat access type; fishing gear used; their use of bait; and their permanent residence. Angler interviews were not conducted in Reach 2 because this reach has no public access for anglers or creel technicians. If anglers harvested fish, technicians asked to sample these fish to record fork length, total length, weight, sex, and maturity, and to collect aging structures.

3.3 Instantaneous angler counts

We conducted instantaneous angler counts via aerial surveys using a Robinson R44 helicopter based out of Springbank Airport. Previous angler counts from R.L. & L. Environmental Services (1995) were used to select a total of 40 counts scheduled for this survey. This number was based on 40 flights being adequate to estimate the mean number of anglers, within 95% confidence limits, on weekdays and weekends/holidays, even if angler numbers were reduced by half of that counted in the 1995 weekday strata. Days for aerial overflights were selected at random from all available survey days, with the probability of selecting weekday and weekend/holiday flights adjusted so the final draw had equal numbers of flights on weekdays and weekends/holidays. Overflights were assigned to time blocks roughly equivalent to the time to complete the count (Pollock et al. 1994). Start times for surveys were either 0800, 1030 or 1300 hours for daytime shifts and 1400, 1630 or 1900 hours for evening shifts. When weather

conditions prevented safe flight (low visibility, high wind, or thunderstorm activity) surveys were rescheduled by selecting a new date from the available pool. Of the 352 possible survey units in the upper Bow River study, we scheduled 40 surveys (11.4%; Table 2). Of the 278 possible survey units in the Elbow River study, we scheduled 29 surveys (10.4%; Table 2). Angler counts were conducted with two observers on each flight. Both observers were on the left side of the aircraft, with the front observer counting anglers and marking their position on a handheld global positioning system (GPS) unit while the back observer verified angler counts and recorded waypoint names, angler numbers, and whether the anglers were in a boat or on shore. Flights were flown at an airspeed of 90 – 110 km/h and 150 m above ground level; flight altitude was increase to a minimum of 305 m over Cochrane and Canmore, following Canadian Aviation Regulations. The aircraft was maneuvered so that the two observers on the left side had unobstructed views of the entire river channel. When observers were uncertain about angler counts, or river braids prevented adequate observations of the entire river, the pilot circled the area until observers confirmed angler counts.

Table 2. Number of available survey units and the number of units surveyed during the aerial angler count surveys on the upper Bow and Elbow rivers (2016).

River	Strata		Number available	Number scheduled	Per cent coverage
Upper Bow River	Weekday	a.m.	121	8	14.8
		p.m.	121	13	10.7
	Weekend	a.m.	55	12	21.8
		p.m.	55	7	12.7
Elbow River	Weekday	a.m.	95	6	6.3
		p.m.	95	8	6.3
	Weekend	a.m.	44	9	20.5
		p.m.	44	6	13.6

3.4 Estimation of creel parameters

We used bootstrapping (50,000 replicates) to derive estimates and associated 95% confidence intervals for angler effort; number of angler trips; and fish catch, harvest and release (Sullivan 2004). Angler catch rates were calculated as total ratio estimators following Malvestuto (1983). Bootstrapped angler counts produced a distribution of mean angler counts used as the basis for calculating survey metrics. This was completed independently for each survey reach by season: spring (May and June), summer (July and August) and fall (September

and October) for the Bow River, and spring/summer (June, July and August) and fall (September and October) for the Elbow River; no spring data were provided for the Elbow River because it was not open to angling until June 15. Before bootstrapping, a two sample *t*-test was conducted to assess differences between weekday and weekend/holiday angler counts. Significant results dictated separate bootstrapping of weekday and weekend/holiday data, then combining these, whereas non-significant results dictated bootstrapping of the combined weekday and weekend counts. Similarly, ANOVA was used to assess differences in trip length by season. Significant results dictated separate bootstrap estimates of trip length by season, whereas non-significant results dictated bootstrapping of the combined trip length dataset. Estimates of creel survey parameters were calculated using the R software package (R Core Team 2016).

4.0 RESULTS

4.1 Angler survey

From May 14 to October 22, 2016, we completed 57 survey shifts in Reach 1 (21 weekend/holiday, 36 weekday) and 48 in Reach 3 (12 weekend/holiday, 36 weekday) of the upper Bow River. We interviewed a total of 369 anglers: 155 in Reach 1 and 214 in Reach 3 (Table 3, Appendix 2). In Reach 1 and Reach 3, 79% and 54% of anglers respectively were from Cochrane or Calgary, suggesting that both sections support more local fishing than destination fishing (Table 3). The mean completed angling trip length was relatively short (mean = 2.0 hours) but varied considerably (SD = 1.7). Anglers did not report harvesting of any sport fish during the survey.

Anglers captured more sport fish species in Reach 1 (six species) than Reach 3 (three species) (Table 3). Brown trout (*Salmo trutta*), mountain whitefish (*Prosopium williamsoni*) and rainbow trout (*Oncorhynchus mykiss*) were the most commonly caught species, with lake trout (*Salvelinus namaycush*), brook trout (*Salvelinus fontinalis*) and cutthroat trout (*Oncorhynchus clarki*) captured infrequently (Table 3).

Spin casting was used more commonly than fly fishing in Reach 1, whereas the reverse was observed in Reach 3 (Table 3). Angler use of access sites varied substantially among the 11 identified sites; however, the most popular sites were in the urban areas of Canmore and Cochrane (Figure 2).

Table 3. Summary of reported parameters from angler interviews completed on the Bow River (2016).

Interview item	Reach 1	Reach 3
Anglers interviewed	155	214
Angling hours reported	227.75	367.25
Alberta residents	147	160
Canadian residents (outside of Alberta)	1	25
Non-residents (outside of Canada)	5	27
Unknown residence	2	2
Number of cutthroat trout released	1	0
Number of lake trout released	7	0
Number of brook trout released	1	0
Number of brown trout released	14	155
Number of mountain whitefish released	50	53
Number of rainbow trout released	40	3
Spin casting	89	98
Fly fishing	65	110
Bait used?		
Yes	10	11
No	145	203

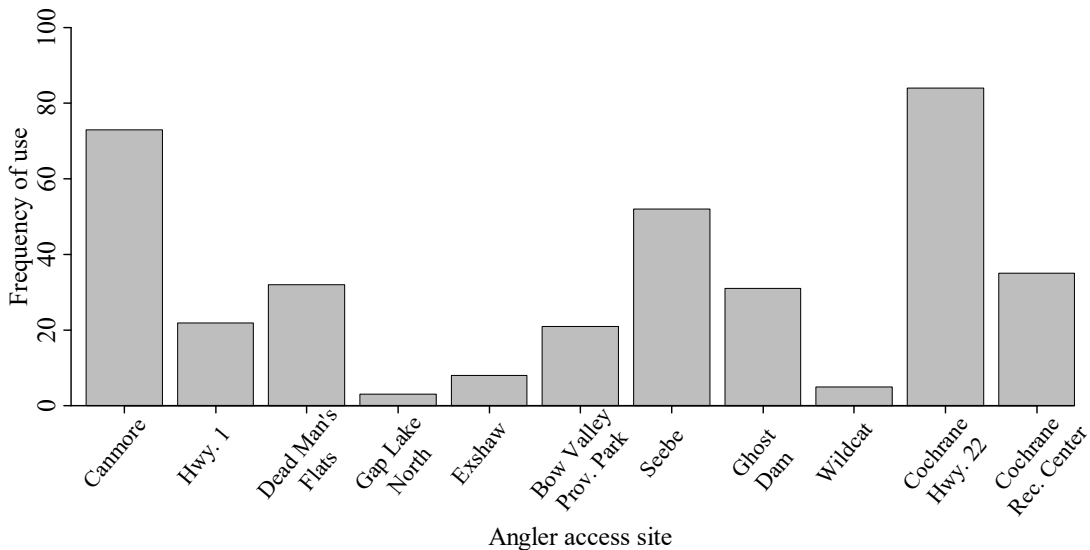


Figure 2. Access-point use by anglers in Reach 1 and Reach 3 of the upper Bow River (2016). Sites are arranged from upstream to downstream.

4.2 Estimated angler effort and sport fish released

Upper Bow River

From May 11 to October 31, 2016, we conducted 38 instantaneous angler counts in the upper Bow River (25 weekday and 13 weekend, Appendix 3). Shore access accounted for 66% of anglers (n = 156), while 34% (n = 80) were boat-based anglers. Reach 3 had the highest total angler counts at 166, followed by Reach 1 at 53 and Reach 2 at 17. Angling tended to occur more frequently closer to access points (Figure 1). Seasonally, summer had the highest angler counts at 112, followed by fall at 93 and then spring at 31.

Angler effort was estimated to be highest in Reach 3, followed by Reach 1 and then Reach 2 (Table 4). Seasonally, angling effort was estimated highest in the summer, followed by fall and then spring (Table 4). Estimated angler trips (Table 5) were highest in Reach 3, followed by Reach 1 and then Reach 2. Seasonally, angler trips were greater in the summer, followed by fall and then spring (Table 5).

Total catch rates for fish species varied among reach and season (Table 6). In both reaches, catch rates of mountain whitefish increased from spring to fall, reaching a peak in Reach 1 (Table 6). A similar trend occurred for brown trout in Reach 1; there were no clear trends for other species. Estimated total release of all fish (Table 7) was 10,291 (95% CI = 8,201 – 12,536). Over all seasons and reaches, brown trout was the most abundantly released fish at 5,343 (95% CI = 4,023 – 6,950), followed by mountain whitefish at 3,900 (95% CI = 2,847 – 5,000) and rainbow trout at 874 (95% CI = 615 – 1,140) (Table 7). Releases of lake trout and cutthroat trout were fairly small (Table 7). Estimated release of fish was higher in Reach 3 than Reach 1 (Table 7) because of higher estimated angler hours and higher catch in Reach 3 than Reach 1.

Elbow River

From June 20 to October 31, 2016, we conducted 31 instantaneous counts in the Elbow River study area (22 weekday and 9 weekend, Appendix 4). Most (99%, n = 147) anglers accessed the river from shore rather than boat (1%, n = 2). Angler counts were similar, with 75 in Reach 1 and 74 in Reach 2. Angling tended to occur more frequently close to access points (Figure 1). However, ease of access to the Elbow River distributed anglers more uniformly throughout the length of the study area compared to the Bow River. Seasonally, fall had the highest angler counts at 97, followed by spring/summer at 52. We estimated angler effort to be relatively similar between Reach 1 and Reach 2 (Table 4).

Table 4. Estimated angler effort (hours) for the upper Bow River and Elbow River (2016) by season.

Season	Reach 1 effort		Reach 2 effort		Reach 3 effort		Seasonal total effort	
	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
Upper Bow River								
Spring	1,633	743 – 2,526	898	149 – 1,783	2,083	743 – 4,011	4,614	2,674 – 6,834
Summer	1,364	586 – 2,194	616	234 – 1,081	7,630	5,729 – 9,653	9,610	7,505 – 11,837
Fall	1,041	452 – 1,676	468	181 – 817	5,171	3,406 – 7,065	6,680	4,779 – 8,671
Survey total	4,038	2,695 – 5,400	1,981	1,037 – 3,051	14,884	11,794 – 18,160	20,904	17,389 – 24,615
Elbow River								
Spring/Summer	3,011	1,501 – 4,734	3,014	1,501 – 4,618	–	–	6,025	3,810 – 8,313
Fall	1,856	719 – 3,217	1,818	946 – 2,839	–	–	3,674	2,195 – 5,337
Survey total	4,866	3,056 – 6,732	4,832	3,056 – 6,762	–	–	9,699	7,031 – 12,503

Table 5. Estimated number of trips made by angler during the fishing season at the upper Bow River (2016).

Season	Reach 1 number of trips		Reach 2 number of trips		Reach 3 number of trips		Seasonal total number of trips	
	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
Spring	978	423 – 1,563	537	81 – 1,118	1,247	431 – 2,446	2,762	1,564 – 4,271
Summer	654	278 – 1,087	295	116 – 533	3,656	2,604 – 4,919	4,605	3,391 – 6,050
Fall	419	177 – 715	188	73 – 344	2,081	1,275 – 3,087	2,688	1,769 – 3,845
Survey total	2,051	1,324 – 2,816	1,021	485 – 1,652	6,985	5,301 – 8,896	10,055	8,025 – 12,331

Table 6. Total catch rates in fish per hour for Reach 1 and Reach 3 of the Bow River study area (2016).

	Catch rate (fish/h)			
	Spring	Summer	Fall	Total
<i>Reach 1</i>				
Brook trout	–	0.011	–	0.004
Brown trout	0.038	0.057	0.133	0.070
Cutthroat trout	–	–	0.017	0.004
Lake trout	0.075	–	0.017	0.031
Mountain whitefish	0.0376	0.134	0.619	0.228
Rainbow trout	0.163	0.249	0.084	0.176
<i>Reach 3</i>				
Brown trout	0.751	0.309	0.221	0.417
Mountain whitefish	–	0.022	0.548	0.139
Rainbow trout	–	–	0.035	0.008

Table 7. Estimated angler released of fish in Reach 1 and Reach 3 of the Bow River study area (2016).

	Number of fish released							
	Spring		Summer		Fall		Total	
	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
<i>Reach 1</i>								
Brook trout	–	–	16	7 – 25	–	–	16	7 – 25
Brown trout	61	28 – 95	77	33 – 124	139	45 – 168	278	181 – 380
Cutthroat trout	–	–	–	–	17	8 – 28	17	8 – 28
Lake trout	123	56 – 190	–	–	17	8 – 28	140	71 – 207
Mountain whitefish	61	27 – 95	186	80 – 298	645	279 – 1,036	891	512 – 1,297
Rainbow trout	266	121 – 412	340	146 – 547	87	38 – 140	693	443 – 951
<i>Reach 3</i>								
Brown trout	1,566	588 – 3,013	2,354	1,768 – 2,979	1,145	834 – 1,730	5,065	3,746 – 6,672
Mountain whitefish	–	–	174	131 – 221	2,834	1,867 – 3,872	3,008	2,030 – 4,033
Rainbow trout	–	–	–	–	181	119 – 247	181	119 – 247

5.0 SUMMARY

Within comparable seasonal and spatial contexts, our estimates of angler effort in Reach 3 were approximately 10,000 hours less than those of the 1991/92 upper Bow River angler survey, suggesting a drop in angler use since the last angler survey. Comparing catch rates in Reach 3 to those reported in the 1991/92 creel survey, we observed a drop in the two major sport species. Mountain whitefish and brown trout catch rates in 1991/92 were 0.37 and 0.96 fish/h, respectively, which was more than twice what we reported. During our survey, no harvest of fish was reported to creel technicians. In contrast, the 1991/92 upper Bow River creel survey estimated that 57% of the total angler catch was harvested. This result represents a significant change in angler behaviour over the 25 years between surveys. Our estimates of angler effort varied greatly between reaches, with the greatest effort in the upper reach having the greatest level of angler access and amenities (e.g., day-use areas, campgrounds, boat launches).

6.0 LITERATURE CITED

- Malvestuto, S.P. 1983. Sampling the recreational creel. Chapter 20. *In*: B.R. Murphy and S.W. Willis (ed.). Fisheries techniques. 2nd Edition. American Fisheries Society, Bethesda, Maryland, U.S.A.
- Pollock, K.H., C.M. Jones, and T.L. Brown. 1994. Angler survey methods and their applications in fisheries management. American Fisheries Society, Bethesda, Maryland, USA. 371 pp.
- R Core Team. 2016. R: a language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. Available online at <http://www.R-project.org/> [Accessed 8 September 2016].
- R.L. & L. Environmental Services Ltd. 1995. A creel survey of the upper Bow River, 1991 – 1992. R.L. & L. No. 299F, report prepared for Fisheries Management Division, Alberta Environmental Protection, Edmonton, Alberta, Canada. 77 pp. + App.
- Ripley, T.D., and T. Council. 2006. Bow River sport fish angler survey, 2006. Data Report, D-2007-003, produced by the Alberta Conservation Association, Lethbridge, Alberta, Canada and Alberta Fish and Wildlife, Calgary, Alberta, Canada. 28 pp. + App.
- Sosiak, A.J. 1987. A fisheries survey on the Bow River from Bearspaw Dam to Carseland, Alberta, in 1985. Fish and Wildlife Division, Alberta Forestry, Lands and Wildlife, Calgary, Alberta. 51 pp. + App.
- Sullivan, M.G. 2004. Computer simulation of sport fishery parameters. Produced by Alberta Fish and Wildlife Division, Edmonton, Alberta, Canada. 16 pp.
- Thompson, G.E. 1977. Bow River creel census. Alberta Fish and Wildlife Division, Unpublished report. 56 pp. + App.

7.0 APPENDICES

Appendix 1. Sport fishing regulations for the upper Bow and Elbow river study areas in the 2016 sport fishing year.

Sport Fishing Regulations	
Bow River	
Reach 1 and 2	Reach 3
<p>April 1 to June 15: trout limit 0; mountain whitefish limit 5 over 30 cm; bait ban</p> <p>June 16 to October 31: trout limit 1 under 35 cm; mountain whitefish limit 5 over 30 cm; maggots are the only bait allowed and only in the river from August 16 to October 31.</p> <p>November 1 to March 31: closed to angling</p>	<p>From Banff National Park downstream to Highway 1 bridge near Canmore: open all year</p> <p>April 1 to March 31: brook trout limit 2; other trout limit 0; mountain whitefish limit 5 over 30 cm; maggots are the only bait allowed and only in the river from August 16 to October 31.</p> <p>From Highway 1 bridge downstream to Pigeon Creek</p> <p>April 1 to September 30: brook trout limit 2; other trout limit 0; mountain whitefish limit 5 over 30 cm; maggots are the only bait allowed and only in the river from August 16 to September 30.</p> <p>October 1 to March 31: closed to angling</p> <p>From Pigeon Creek downstream to the first dam below Highway 1X bridge (near Seebe): open all year</p> <p>April 1 to March 31: brook trout limit 2; other trout limit 0; mountain whitefish limit 5 over 30 cm; maggots are the only bait allowed and only in the river from August 16 to October 31.</p>
Elbow River	
Reach 1	Reach 2
<p>June 16 to October 31: trout limit 2; cutthroat and rainbow trout over 35 cm; mountain whitefish limit 5 over 30 cm; maggots are the only bait allowed and only in the river from August 16 to October 31.</p> <p>November 1 to June 15: closed to angling</p>	<p>June 16 to October 31: trout and mountain whitefish limit 0; bait ban</p> <p>November 1 to June 15: closed to angling</p>

Appendix 2. Data from angler interviews on the upper Bow River (2016). Species codes: BKTR = brook trout, BNTR = brown trout, CTTR = cutthroat trout, LKTR = lake trout, MNWH = mountain whitefish, RNTR = rainbow trout. Other codes: SAA = same angler as above, PP = provincial park, RC = recreation centre, Hgts. = Heights; Hwy. = highway; NA = not applicable.

Date d/m/y	Angler count	Location	Time fished (h)	Complete trip	Angler residence	Species	Total released
14/05/16	1	Dead Man's Flats	3.5	Y	Winnipeg	BNTR	4
14/05/16	SAA	NA	NA	NA	NA	MNWH	1
14/05/16	1	Dead Man's Flats	3.5	Y	Winnipeg	BNTR	3
14/05/16	1	Dead Man's Flats	3.5	Y	Winnipeg	BNTR	2
14/05/16	1	Dead Man's Flats	3.5	Y	Winnipeg	BNTR	6
14/05/16	1	Dead Man's Flats	3	N	Calgary	NA	0
14/05/16	1	Dead Man's Flats	1	Y	Canmore	NA	0
14/05/16	1	Dead Man's Flats	0.25	Y	Red Deer	NA	0
14/05/16	1	Dead Man's Flats	1	Y	Canmore	NA	0
14/05/16	1	Seebe	3	Y	Calgary	NA	0
14/05/16	1	Seebe	3	Y	Calgary	NA	0
15/05/16	1	Dead Man's Flats	1.75	N	Calgary	NA	0
15/05/16	1	Dead Man's Flats	1.75	N	Calgary	NA	0
15/05/16	1	Bow Valley PP	3.5	Y	Calgary	NA	0
15/05/16	1	Bow Valley PP	3.5	Y	Calgary	NA	0
15/05/16	1	Dead Man's Flats	4.5	Y	Calgary	NA	0
19/05/16	1	Cochrane Hwy. 22	1	Y	Edmonton	NA	0
20/05/16	1	Bow Valley PP	1	Y	Calgary	NA	0
20/05/16	1	Bow Valley PP	1	Y	Calgary	NA	0
20/05/16	1	Hwy. 1	3	N	Calgary	NA	0
20/05/16	1	Hwy. 1	3	N	Calgary	NA	0
20/05/16	1	Dead Man's Flats	2.5	Y	Water Valley	NA	0
20/05/16	1	Exshaw	0.5	N	Canmore	NA	0
20/05/16	1	Exshaw	0.5	N	Canmore	NA	0
20/05/16	1	Exshaw	0.5	N	Canmore	NA	0
21/05/16	1	Cochrane RC	1.5	Y	Cochrane	RNTR	1
21/05/16	1	Cochrane RC	0.75	Y	Cochrane	NA	0
21/05/16	1	Cochrane Hwy. 22	2	Y	Cochrane	NA	0
21/05/16	1	Cochran RC	1	N	Airdrie	NA	0
21/05/16	1	Cochran RC	1	N	Crossfield	NA	0
22/05/16	1	Seebe	1	Y	Canmore	NA	0
22/05/16	1	Bow Valley PP	2.5	Y	Calgary	NA	0

Appendix 2. Continued.

Date d/m/y	Angler count	Location	Time fished (h)	Complete trip	Angler residence	Species	Total released
22/05/16	1	Bow Valley PP	2.5	Y	Calgary	NA	0
23/05/16	0	NA	NA	NA	NA	NA	NA
24/05/16	1	Seebe	0.5	Y	Exshaw	NA	0
24/05/16	1	Seebe	0.5	Y	Ontario	NA	0
24/05/16	1	Seebe	0.5	Y	Red Deer	NA	0
24/05/16	1	Seebe	0.5	Y	Red Deer	NA	0
24/05/16	1	Seebe	0.5	N	Calgary	NA	0
24/05/16	1	Exshaw	0.5	Y	Canmore	NA	0
24/05/16	1	Exshaw	0.5	N	Canmore	NA	0
25/05/16	0	NA	NA	NA	NA	NA	NA
29/05/16	1	Ghost Dam	2	Y	Calgary	LKTR	1
29/05/16	1	Ghost Dam	2	Y	Calgary	NA	0
29/05/16	1	Cochrane RC	2	N	Calgary	NA	0
29/05/16	1	Cochrane RC	2	N	Calgary	NA	0
29/05/16	1	Cochrane RC	0.5	Y	Cochrane	NA	0
29/05/16	1	Ghost Dam	5	Y	Cochrane	LKTR	3
29/05/16	1	Ghost Dam	5	Y	Cochrane	LKTR	2
29/05/16	1	Wildcat	1	N	Cochrane	NA	0
29/05/16	1	Wildcat	1	N	Cochrane	RNTR	6
30/05/16	1	Cochrane Hwy. 22	1	N	Edmonton	NA	0
30/05/16	1	Ghost Dam	2	Y	Calgary	NA	1
30/05/16	1	Ghost Dam	2	Y	Calgary	NA	0
30/05/16	1	Ghost Dam	0.5	Y	Calgary	NA	2
30/05/16	1	Cochrane Hwy. 22	2	N	Cochrane	NA	0
30/05/16	1	Cochrane Hwy. 22	0.5	N	Edmonton	NA	0
30/05/16	1	Cochrane Hwy. 22	3	Y	Calgary	BNTR	1
30/05/16	1	Cochrane Hwy. 22	1	N	Unknown	NA	0
30/05/16	1	Cochrane Hwy. 22	1	N	Canmore	NA	0
30/05/16	1	Cochrane Hwy. 22	0.5	Y	Calgary	NA	0
30/05/16	1	Cochrane Hwy. 22	0.5	Y	Calgary	NA	0
01/06/16	1	Cochrane Hwy. 22	0.25	Y	Cochrane	NA	0
01/06/16	1	Cochrane Hwy. 22	1	N	Cochrane	NA	1
01/06/16	1	Cochrane Hwy. 22	0.5	N	Cochrane	NA	0
02/06/16	1	Seebe	0.25	Y	Ontario	NA	0
02/06/16	1	Seebe	0.25	Y	Ontario	NA	0

Appendix 2. Continued.

Date d/m/y	Angler count	Location	Time fished (h)	Complete trip	Angler residence	Species	Total released
02/06/16	1	Hwy. 1	0.5	N	Canmore	NA	0
02/06/16	1	Hwy. 1	0.75	Y	Calgary	NA	0
02/06/16	1	Hwy. 1	0.75	Y	Calgary	NA	0
02/06/16	1	Hwy. 1	0.5	N	Calgary	NA	0
03/06/16	1	Dead Man's Flats	4	Y	Out of Province	BNTR	4
03/06/16	1	Cochrane Hwy. 22	1.5	N	Non-Canadian	NA	0
03/06/16	1	Seebe	0.75	Y	Canmore	NA	0
03/06/16	1	Seebe	0.75	Y	Canmore	NA	0
04/06/16	1	Bow Valley PP	0.5	Y	Calgary	NA	0
04/06/16	1	Bow Valley PP	0.5	Y	Calgary	NA	0
04/06/16	1	Canmore	0.5	N	Calgary	NA	0
04/06/16	1	Canmore	2	Y	Canmore	NA	0
04/06/16	1	Canmore	2	Y	Canmore	NA	0
08/06/16	0	NA	NA	NA	NA	NA	NA
09/06/16	1	Cochrane Hwy. 22	0.5	Y	Cochrane	NA	1
11/06/16	1	Cochrane Hwy. 22	2	N	Calgary	WHSC	0
12/06/16	1	Ghost Dam	2	Y	Calgary	NA	0
12/06/16	1	Ghost Dam	2	Y	Calgary	NA	0
12/06/16	1	Cochrane RC	0.25	Y	Cochrane	NA	0
12/06/16	1	Cochrane Hwy. 22	0.25	N	Calgary	NA	0
12/06/16	1	Cochrane Hwy. 22	0.25	N	Calgary	NA	0
13/06/16	1	Cochrane Hwy. 22	0.75	Y	Cochrane	RNTR	2
14/06/16	1	Canmore	1.5	N	United Kingdom	BNTR	1
18/06/16	1	Cochrane Hwy. 22	1	N	Calgary	MNWH	1
18/06/16	1	Cochrane Hwy. 22	0.5	Y	Calgary	NA	0
18/06/16	1	Cochrane Hwy. 22	0.5	N	Cochrane	NA	0
19/06/16	1	Cochrane RC	0.75	Y	Cochrane	NA	0
19/06/16	1	Cochrane RC	0.75	Y	Cochrane	NA	0
19/06/16	1	Cochrane RC	0.75	Y	Cochrane	NA	0
19/06/16	1	Cochrane RC	0.75	Y	Cochrane	NA	0
19/06/16	1	Ghost Dam	4	Y	Calgary	NA	0
19/06/16	1	Ghost Dam	4	Y	Calgary	NA	0
19/06/16	1	Ghost Dam	1.5	N	Edmonton	NA	0
19/06/16	1	Ghost Dam	1.5	N	Calgary	BNTR	1
19/06/16	1	Ghost Dam	1.5	N	Calgary	BNTR	1

Appendix 2. Continued.

Date d/m/y	Angler count	Location	Time fished (h)	Complete trip	Angler residence	Species	Total released
19/06/16	SAA	NA	NA	NA	NA	RNTR	2
20/06/16	1	Seebe	2.5	Y	Calgary	BNTR	1
20/06/16	1	Seebe	2.5	Y	Edmonton	BNTR	3
20/06/16	1	Seebe	2.5	Y	Penticton	NA	0
20/06/16	1	Exshaw	0.25	N	Unknown	NA	0
21/06/16	1	Canmore	2	N	Nova Scotia	BNTR	1
21/06/16	SAA	NA	NA	NA	NA	MNWH	1
21/06/16	1	Seebe	4	Y	Texas	BNTR	25
21/06/16	1	Seebe	4	Y	Texas	BNTR	25
22/06/16	1	Cochrane Hwy. 22	0.25	Y	Out of Province	NA	0
22/06/16	1	Cochrane RC	1.75	Y	Cochrane	RNTR	1
22/06/16	1	Cochrane RC	1.75	Y	Cochrane	RNTR	1
23/06/16	0	NA	NA	NA	NA	NA	NA
24/06/16	1	Cochrane RC	1	Y	Cochrane	NA	0
24/06/16	1	Cochrane RC	1	Y	Cochrane	NA	0
24/06/16	1	Cochrane RC	1	Y	Cochrane	NA	0
24/06/16	1	Cochrane RC	1	Y	Cochrane	NA	0
28/06/16	1	Cochrane Hwy. 22	1	Y	Cochrane	NA	0
28/06/16	1	Cochrane Hwy. 22	0.5	Y	Cochrane	NA	0
29/06/16	1	Bow Valley PP	1	Y	Cochrane	NA	0
30/06/16	1	Seebe	0.5	Y	Calgary	NA	0
30/06/16	1	Bow Valley PP	3	N	Canmore	NA	0
30/06/16	1	Seebe	1	Y	Canmore	NA	0
30/06/16	1	Seebe	1	Y	Canmore	NA	0
30/06/16	1	Bow Valley PP	1	Y	Canmore	BNTR	4
30/06/16	1	Bow Valley PP	4	Y	Calgary	BNTR	1
01/07/16	1	Seebe	1.5	N	Calgary	BNTR	1
01/07/16	1	Seebe	1.5	N	Calgary	NA	0
01/07/16	1	Seebe	0.5	Y	Calgary	NA	0
01/07/16	1	Seebe	2	Y	Canmore	NA	0
01/07/16	1	Seebe	2	Y	Canmore	NA	0
01/07/16	1	Seebe	2	Y	Canmore	NA	0
01/07/16	1	Seebe	2	Y	Canmore	NA	0
01/07/16	1	Seebe	4	N	Edmonton	NA	0
01/07/16	1	Hwy. 1	2	N	Calgary	NA	0
01/07/16	1	Hwy. 1	1.5	N	Calgary	NA	0

Appendix 2. Continued

Date d/m/y	Angler count	Location	Time fished (h)	Complete trip	Angler residence	Species	Total released
01/07/16	1	Hwy. 1	0.5	Y	Calgary	NA	0
01/07/16	1	Canmore	0.5	N	Edmonton	NA	0
01/07/16	1	Canmore	0.5	N	Calgary	NA	0
02/07/16	1	Cochrane Hwy. 22	4	Y	Airdrie	NA	0
02/07/16	1	Cochrane Hwy. 22	4	Y	Airdrie	NA	0
02/07/16	1	Cochrane Hwy. 22	4	Y	Airdrie	NA	0
02/07/16	1	Cochrane Hwy. 22	4	Y	Airdrie	NA	0
02/07/16	1	Cochrane Hwy. 22	0.5	Y	Calgary	NA	0
02/07/16	1	Cochrane Hwy. 22	0.5	Y	Calgary	NA	0
02/07/16	1	Cochrane Hwy. 22	0.5	Y	Calgary	NA	0
02/07/16	1	Cochrane Hwy. 22	3	Y	Cochrane	NA	0
02/07/16	1	Cochrane Hwy. 22	1	Y	Cochrane	NA	0
02/07/16	1	Cochrane Hwy. 22	1	Y	St. Albert	NA	0
03/07/16	1	Seebe	1	Y	Calgary	BNTR	1
03/07/16	1	Seebe	1	Y	Calgary	NA	0
03/07/16	1	Seebe	1	Y	Calgary	NA	0
03/07/16	1	Dead Man's Flats	0.5	N	Calgary	NA	0
03/07/16	1	Dead Man's Flats	0.5	N	Calgary	NA	0
03/07/16	1	Canmore	1	Y	Canmore	NA	0
03/07/16	1	Canmore	1	Y	Canmore	NA	0
03/07/16	1	Canmore	1	Y	Canmore	NA	0
03/07/16	1	Canmore	1	Y	Canmore	BNTR	4
03/07/16	1	Canmore	0.75	N	Canmore	BNTR	5
08/07/16	1	Ghost Dam	2	Y	Cochrane	NA	0
08/07/16	1	Ghost Dam	2	Y	Cochrane	NA	0
08/07/16	1	Cochrane RC	1.5	N	Cochrane	NA	0
08/07/16	1	Cochrane RC	1.5	Y	Cochrane	BKTR	1
08/07/16	1	Cochrane RC	1.5	Y	Cochrane	NA	0
09/07/16	1	Hwy. 1	4	Y	Indiana	MNWH	3
09/07/16	1	Hwy. 1	4	Y	Indiana	MNWH	1
09/07/16	1	Hwy. 1	4	Y	Indiana	NA	0
09/07/16	1	Hwy. 1	4	Y	Indiana	NA	0
09/07/16	1	Seebe	1.5	Y	Calgary	NA	0
09/07/16	1	Seebe	1.5	Y	Canmore	NA	0
09/07/16	1	Seebe	1.5	Y	Calgary	NA	0
09/07/16	1	Gap Lake North	0.75	Y	Canmore	BNTR	0

Appendix 2. Continued.

Date d/m/y	Angler count	Location	Time fished (h)	Complete trip	Angler residence	Species	Total released
09/07/16	1	Gap Lake North	0.75	Y	Canmore	NA	1
09/07/16	1	Dead Man's Flats	0.25	N	Calgary	NA	0
10/07/16	1	Seebe	0.5	N	Calgary	NA	0
12/07/16	1	Seebe	4	Y	New York	BNTR	2
12/07/16	1	Seebe	4	Y	New York	BNTR	2
13/07/16	1	Seebe	6	Y	Ontario	BNTR	3
13/07/16	1	Seebe	6	Y	Ontario	BNTR	3
13/07/16	1	Canmore	5.5	N	Ontario	BNTR	6
13/07/16	1	Canmore	0.75	N	Canmore	BNTR	5
13/07/16	1	Canmore	0.5	N	Canmore	BNTR	1
16/07/16	0	NA	NA	NA	NA	NA	NA
18/07/16	1	Canmore	1.5	Y	Claresholm	NA	0
18/07/16	1	Canmore	1.5	Y	High River	NA	1
18/07/16	1	Canmore	0.75	N	Edmonton	BNTR	0
18/07/16	1	Canmore	0.75	N	Calgary	NA	0
18/07/16	1	Canmore	2	Y	Claresholm	NA	0
18/07/16	1	Canmore	2	Y	High River	NA	0
19/07/16	1	Cochrane RC	0.5	N	Montana	NA	0
19/07/16	1	Cochrane RC	0.5	N	Montana	NA	0
19/07/16	1	Cochrane RC	0.5	N	Montana	NA	0
19/07/16	1	Cochrane RC	0.5	N	Cochrane	NA	0
20/07/16	1	Canmore	0.5	N	Edmonton	BNTR	2
21/07/16	1	Exshaw	3	Y	Exshaw	NA	0
21/07/16	1	Canmore	0.25	Y	Edmonton	NA	0
21/07/16	1	Canmore	0.25	Y	Edmonton	NA	0
21/07/16	1	Canmore	0.75	Y	Unknown	BNTR	2
22/07/16	1	Cochrane Hwy. 22	1.75	N	Edmonton	RNTR	2
22/07/16	SAA	NA	NA	NA	NA	BNTR	1
22/07/16	1	Cochrane Hwy. 22	1	Y	Cochrane	NA	0
22/07/16	1	Cochrane Hwy. 22	1	Y	Cochrane	NA	0
22/07/16	1	Cochrane Hwy. 22	0.5	N	Cochrane	NA	0
22/07/16	1	Cochrane Hwy. 22	0.5	N	Cochrane	NA	0
23/07/16	0	NA	NA	NA	NA	NA	NA
29/07/16	1	Dead Man's Flats	1	Y	Canmore	NA	0
29/07/16	1	Canmore	0.5	N	Dallas	NA	0
29/07/16	1	Canmore	0.5	N	Dallas	NA	0

Appendix 2. Continued.

Date d/m/y	Angler count	Location	Time fished (h)	Complete trip	Angler residence	Species	Total released
29/07/16	1	Canmore	0.5	N	Arkansas	NA	0
29/07/16	1	Canmore	0.25	N	Edmonton	NA	0
31/07/16	1	Wildcat	0.5	Y	Cochrane	NA	0
31/07/16	1	Cochrane RC	1.75	N	Cochrane	NA	0
31/07/16	1	Cochrane RC	1.75	N	Cochrane	NA	0
31/07/16	1	Cochrane Hwy. 22	0.25	N	Innisfail	NA	0
31/07/16	1	Cochrane Hwy. 22	0.25	N	Cochrane	NA	0
31/07/16	1	Cochrane RC	0.25	N	Calgary	NA	0
31/07/16	1	Cochrane Hwy. 22	1.5	N	Cochrane	RNTR	1
01/08/16	1	Bow Valley PP	1.75	Y	Calgary	NA	0
01/08/16	1	Bow Valley PP	1.5	N	Quebec	NA	0
01/08/16	1	Canmore	1	Y	Penn.	NA	0
01/08/16	1	Seebe	0.25	N	Canmore	NA	0
01/08/16	1	Dead Man's Flats	8	Y	Canmore	BNTR	2
01/08/16	1	Dead Man's Flats	8	Y	Canmore	BNTR	1
01/08/16	1	Dead Man's Flats	8	Y	Canmore	NA	0
01/08/16	1	Canmore	3	Y	Quebec City	NA	0
01/08/16	1	Canmore	3	Y	Quebec City	NA	0
01/08/16	1	Canmore	3	Y	Quebec City	NA	0
01/08/16	1	Canmore	0.75	N	Ottawa	NA	0
01/08/16	1	Canmore	0.5	N	Canmore	BNTR	1
01/08/16	1	Canmore	1	N	Canmore	BNTR	1
02/08/16	1	Cochrane Hwy. 22	0.25	N	Calgary	NA	0
02/08/16	1	Cochrane Hwy. 22	2	N	Calgary	RNTR	2
02/08/16	1	Cochrane Hwy. 22	6.5	Y	Cochrane	RNTR	4
02/08/16	SAA	NA	NA	NA	NA	BNTR	4
03/08/16	1	Hwy. 1	1.5	N	Florida	NA	0
03/08/16	1	Hwy. 1	1.5	N	Florida	NA	0
03/08/16	1	Hwy. 1	0.5	N	Calgary	NA	0
07/08/16	1	Ghost Dam	3.25	Y	Edmonton	NA	0
07/08/16	1	Cochrane Hwy. 22	1	Y	Cochrane	NA	0
07/08/16	1	Cochrane Hwy. 22	1	Y	Cochrane	NA	0
07/08/16	1	Ghost Dam	1	Y	Calgary	NA	0
07/08/16	1	Ghost Dam	1	Y	Calgary	NA	0
08/08/16	1	Canmore	2.5	N	Quebec	NA	0

Appendix 2. Continued.

Date d/m/y	Angler count	Location	Time fished (h)	Complete trip	Angler residence	Species	Total released
08/08/16	1	Canmore	3	Y	Calgary	BNTR	6
08/08/16	1	Dead Man's Flats	1.25	Y	Cochrane	NA	0
08/08/16	1	Hwy. 1	2	N	Quebec	NA	0
08/08/16	1	Canmore	0.5	Y	Canmore	NA	0
08/08/16	1	Canmore	0.5	Y	Canmore	NA	0
09/08/16	1	Dead Man's Flats	1.5	N	Japan	BNTR	1
09/08/16	1	Dead Man's Flats	1.5	N	Japan	NA	0
09/08/16	1	Dead Man's Flats	1.5	N	Japan	NA	0
09/08/16	1	Gap Lake North	1.25	Y	Canmore	BNTR	1
09/08/16	1	Seebe	0.5	N	Canmore	RNTR	0
09/08/16	1	Seebe	0.5	N	Canmore	NA	0
11/08/16	1	Seebe	0.5	Y	Regina	NA	0
11/08/16	1	Dead Man's Flats	0.5	Y	Canmore	NA	0
11/08/16	1	Bow Valley PP	0.5	N	Calgary	NA	0
12/08/16	1	Cochrane Hwy. 22	2	Y	Calgary	NA	0
12/08/16	1	Cochrane Hwy. 22	2	Y	Calgary	NA	0
13/08/16	1	Cochrane Hwy. 22	4	Y	Calgary	WHSC	0
13/08/16	1	Cochrane Hwy. 22	2.25	Y	Calgary	NA	0
13/08/16	1	Cochrane Hwy. 22	1	Y	Cochrane	NA	0
13/08/16	1	Cochrane Hwy. 22	1	Y	Cochrane	NA	0
17/08/16	1	Canmore	0.25	Y	Calgary	NA	0
17/08/16	1	Canmore	1	N	Japan	NA	0
17/08/16	1	Canmore	1.5	N	American	NA	0
17/08/16	1	Canmore	1.5	N	American	NA	0
19/08/16	0	NA	NA	NA	NA	NA	NA
20/08/16	1	Bow Valley PP	1.5	N	Edmonton	NA	0
20/08/16	1	Canmore	1	Y	Okotoks	BNTR	1
20/08/16	1	Canmore	0.75	Y	Winnipeg	NA	0
20/08/16	1	Canmore	1.5	N	Canmore	NA	0
20/08/16	1	Canmore	3	Y	Japan	BNTR	1
21/08/16	1	Cochrane Hwy. 22	1	Y	Cochrane	RNTR	6
21/08/16	1	Cochrane Hwy. 22	1	N	Edmonton	NA	0
21/08/16	1	Cochrane Hwy. 22	1	N	Edmonton	NA	0
21/08/16	1	Cochrane Hwy. 22	1	N	Cochrane	NA	0
23/08/16	1	Hwy. 1	0.5	N	Banff	NA	0
23/08/16	1	Canmore	0.5	N	Cochrane	NA	0

Appendix 2. Continued.

Date d/m/y	Angler count	Location	Time fished (h)	Complete trip	Angler residence	Species	Total released
23/08/16	1	Canmore	0.5	N	Toronto	NA	0
23/08/16	1	Canmore	3	Y	Switzerlnd	NA	0
27/08/16	1	Canmore	1	N	Salem, Oregon	BNTR	2
27/08/16	1	Canmore	1	N	Salem, Oregon	NA	0
27/08/16	1	Canmore	0.5	Y	Calgary	NA	0
29/08/16	1	Cochrane Hwy. 22	1	N	Scotland	NA	0
30/08/16	1	Cochrane RC	1.5	N	Cochrane	NA	0
30/08/16	1	Cochrane Hwy. 22	1.5	N	Cochrane	MNWH	12
30/08/16	1	Cochrane Hwy. 22	0.5	N	Cochrane	RNTR	2
30/08/16	1	Cochrane Hwy. 22	0.5	N	Cochrane	NA	0
30/08/16	1	Cochrane Hwy. 22	0.25	N	Edmonton	NA	0
30/08/16	1	Cochrane Hwy. 22	0.25	N	Edmonton	NA	0
31/08/16	1	Cochrane RC	4	N	Cochrane	RNTR	4
31/08/16	1	Cochrane RC	2	N	Calgary	NA	0
31/08/16	1	Cochrane Hwy. 22	0.25	N	Cochrane	RNTR	1
31/08/16	1	Cochrane Hwy. 22	0.25	N	Cochrane	NA	0
01/09/16	1	Seebe	0.25	N	Red Deer	NA	0
01/09/16	1	Seebe	0.25	N	Red Deer	NA	0
01/09/16	1	Bow Valley PP	0.25	N	Canmore	NA	0
01/09/16	1	Bow Valley PP	0.25	N	Canmore	NA	0
06/09/16	0	NA	NA	NA	NA	NA	NA
07/09/16	1	Wildcat	2	Y	Cochrane	NA	0
08/09/16	1	Seebe	1	N	Calgary	NA	0
08/09/16	1	Seebe	0.25	N	Vimy	NA	0
08/09/16	1	Seebe	0.25	N	Out of Province	NA	0
09/09/16	1	Canmore	2	Y	England	NA	0
09/09/16	1	Canmore	1.5	Y	Edmonton	BNTR	2
09/09/16	1	Hwy. 1	6.5	Y	Canmore	BNTR	3
09/09/16	1	Hwy. 1	6.5	Y	Canmore	BNTR	4
09/09/16	1	Hwy. 1	6.5	Y	Banff	NA	0
09/09/16	1	Exshaw	2	Y	Airdrie	MNWH	2
09/09/16	1	Canmore	8	Y	Canmore	RNTR	1
09/09/16	1	Hwy. 1	0.5	N	Calgary	NA	0
10/09/16	1	Cochrane Hwy. 22	0.25	N	Cochrane	NA	0
10/09/16	1	Cochrane Hwy. 22	0.75	N	Calgary	MNWH	1
11/09/16	1	Canmore	0.5	Y	Canmore	NA	0

Appendix 2. Continued.

Date d/m/y	Angler count	Location	Time fished (h)	Complete trip	Angler residence	Species	Total released
12/09/16	0	NA	NA	NA	NA	NA	NA
16/09/16	1	Canmore	0.5	N	Edmonton	NA	0
17/09/16	1	Cochrane Hwy. 22	2	N	Cochrane	NA	0
17/09/16	1	Cochrane Hwy. 22	2	N	Cochrane	NA	0
17/09/16	1	Cochrane Hwy. 22	0.5	N	Cochrane	NA	0
18/09/16	1	Cochrane RC	1	N	Cochrane	NA	0
18/09/16	1	Cochrane RC	0.5	N	Cochrane	NA	0
18/09/16	1	Ghost Dam	2	N	Calgary	NA	0
19/09/16	1	Canmore	2	N	Canmore	MNWH	16
19/09/16	1	Canmore	1	N	Banff	NA	0
19/09/16	1	Dead Man's Flats	4	Y	Calgary	BNTR	2
19/09/16	1	Dead Man's Flats	4	Y	Calgary	BNTR	3
19/09/16	1	Canmore	1.5	Y	Cochrane	BNTR	3
26/09/16	1	Canmore	2	Y	Olds	MNWH	4
26/09/16	1	Dead Man's Flats	0.5	N	Red Deer	NA	0
26/09/16	1	Dead Man's Flats	0.5	N	Cochrane	NA	0
27/09/16	1	Cochrane Hwy. 22	1	Y	Cochrane	NA	0
27/09/16	1	Ghost Dam	4.5	Y	Airdrie	NA	0
29/09/16	0	NA	NA	NA	NA	NA	NA
30/09/16	1	Dead Man's Flats	2.5	Y	Calgary	NA	0
30/09/16	1	Dead Man's Flats	2.5	Y	Canmore	BNTR	2
30/09/16	1	Dead Man's Flats	1	Y	Cochrane	MNWH	2
30/09/16	1	Seebe	0.25	N	Calgary	RNTR	1
30/09/16	1	Seebe	0.5	N	Calgary	NA	0
01/10/16	1	Bow Valley PP	1.5	Y	Chestermere	MNWH	2
01/10/16	1	Bow Valley PP	1.5	Y	Chestermere	NA	0
01/10/16	1	Bow Valley PP	1.5	Y	Airdrie	NA	0
01/10/16	1	Seebe	1	Y	Calgary	NA	0
02/10/16	1	Cochrane Hwy. 22	1	Y	Red Deer	NA	0
02/10/16	1	Cochrane Hwy. 22	1	N	Cochrane	NA	0
02/10/16	1	Cochrane Hwy. 22	1.5	N	Cochrane	RNTR	1
02/10/16	SAA	NA	NA	NA	NA	MNWH	6
02/10/16	1	Ghost Dam	1	Y	Calgary	NA	0
02/10/16	1	Ghost Dam	1	Y	Calgary	NA	0
02/10/16	1	Ghost Dam	2	N	Calgary	BNTR	1
02/10/16	1	Ghost Dam	2	N	Calgary	NA	0

Appendix 2. Continued.

Date d/m/y	Angler count	Location	Time fished (h)	Complete trip	Angler residence	Species	Total released
02/10/16	1	Ghost Dam	2	N	Airdrie	NA	0
02/10/16	1	Cochrane Hwy. 22	6.5	Y	Cochrane	RNTR	4
02/10/16	SAA	NA	NA	NA	NA	BNTR	4
02/10/16	SAA	NA	NA	NA	NA	BKTR	0
08/10/16	1	Canmore	2	N	Calgary	NA	0
08/10/16	1	Canmore	2	N	Edmonton	NA	0
08/10/16	1	Canmore	2	N	Canmore	MNWH	12
08/10/16	1	Canmore	0.5	N	Canmore	MNWH	2
08/10/16	1	Canmore	0.5	N	Canmore	NA	0
08/10/16	1	Canmore	0.5	N	Canmore	NA	0
08/10/16	1	Canmore	0.5	N	Canmore	NA	0
09/10/16	1	Cochrane Hwy. 22	0.25	N	Cochrane	NA	0
09/10/16	1	Cochrane Hwy. 22	1	N	Edmonton	NA	0
09/10/16	1	Cochrane Hwy. 22	0.5	Y	Calgary	NA	0
09/10/16	1	Cochrane Hwy. 22	0.5	Y	Calgary	NA	0
09/10/16	1	Cochrane Hwy. 22	0.5	Y	Calgary	NA	0
10/10/16	1	Ghost Dam	2	Y	Calgary	NA	0
11/10/16	0	NA	NA	NA	NA	NA	NA
12/10/16	1	Canmore	5	Y	Ontario	MNWH	1
12/10/16	1	Canmore	2	N	Canmore	MNWH	1
16/10/16	1	Ghost Dam	2	N	Calgary	CTTR	1
16/10/16	1	Ghost Dam	2	N	Calgary	NA	0
16/10/16	1	Cochrane Hwy. 22	1	N	Cochrane	MNWH	13
16/10/16	1	Cochrane RC	2	Y	Calgary	NA	0
16/10/16	1	Cochrane RC	0.5	N	Calgary	MNWH	1
17/10/16	1	Canmore	0.5	Y	Calgary	NA	0
19/10/16	1	Ghost Dam	3	Y	Calgary	LKTR	1
19/10/16	1	Ghost Dam	3	Y	Calgary	NA	0
20/10/16	1	Seebe	2	Y	Edmonton	NA	0
21/10/16	1	Wildcat	1	Y	Airdrie	NA	0
21/10/16	1	Cochrane Hwy. 22	3	Y	Unknown	NA	0
21/10/16	1	Harvie Hgts.	1	N	Cochrane	MNWH	4
21/10/16	1	Harvie Hgts.	0.5	N	Cochrane	MNWH	1
21/10/16	1	Harvie Hgts.	2	Y	Cochrane	RNTR	1
21/10/16	SAA	NA	NA	NA	NA	BNTR	2
22/10/16	1	Cochrane Hwy. 22	3	N	Cochrane	BNTR	1
22/10/16	SAA	NA	NA	NA	NA	MNWH	16

Appendix 3. Instantaneous angler counts from the upper Bow River (2016).

Date (d/m/y)	Reach	Angler count	Access	Easting	Northing	Count start time
11/05/16	1	1	shore	674871	5674068	16:13
11/05/16	1	1	shore	660313	5677115	16:13
11/05/16	2	0	-	-	-	16:13
11/05/16	3	1	shore	631894	5660291	16:13
13/05/16	1	0	-	-	-	16:47
13/05/16	2	1	shore	648361	5670957	16:47
13/05/16	2	1	shore	647942	5670839	16:47
13/05/16	3	1	shore	621259	5655743	16:47
30/05/16	1	2	shore	665731	5676403	16:40
30/05/16	1	1	shore	660098	5677033	16:40
30/05/16	2	1	shore	648289	5670996	16:40
30/05/16	3	1	shore	632597	5660839	16:40
30/05/16	3	1	shore	617528	5658352	16:40
30/05/16	3	1	shore	613941	5660823	16:40
09/06/16	1	0	-	-	-	10:50
09/06/16	2	0	-	-	-	10:50
09/06/16	3	0	-	-	-	10:50
09/06/16	3	1	boat	630487	5658845	10:50
11/06/16	1	1	boat	686875	5670211	13:00
11/06/16	1	1	shore	674549	5673999	13:00
11/06/16	1	1	shore	666636	5676457	13:00
11/06/16	2	1	shore	648008	5670879	13:00
11/06/16	2	2	shore	647180	5669129	13:00
11/06/16	3	2	shore	635467	5662510	13:00
11/06/16	3	3	shore	623268	5656939	13:00
11/06/16	3	1	shore	617276	5658147	13:00
11/06/16	3	1	shore	614064	5660626	13:00
12/06/16	1	2	shore	676182	5673046	10:47
12/06/16	2	0	-	-	-	10:47
12/06/16	3	0	-	-	-	10:47
20/06/16	1	1	shore	678735	5672378	19:22
20/06/16	2	0	-	-	-	19:22
20/06/16	3	1	shore	618548	5656963	19:22
02/07/16	1	2	shore	675875	5673235	11:02
02/07/16	1	1	shore	674228	5674417	11:02
02/07/16	1	2	shore	667051	5676536	11:02
02/07/16	2	2	shore	628755	5657930	11:02

Appendix 3. Continued.

Date (d/m/y)	Reach	Angler count	Access	Easting	Northing	Count start time
02/07/16	3	1	boat	619202	5657636	11:02
02/07/16	3	1	boat	615447	5659851	11:02
04/07/16	1	0	-	-	-	13:07
04/07/16	2	0	-	-	-	13:07
04/07/16	3	1	shore	632823	5661029	13:07
04/07/16	3	4	boat	631803	5660028	13:07
04/07/16	3	1	shore	614551	5660862	13:07
04/07/16	3	1	boat	620682	5655726	13:07
04/07/16	3	1	boat	620376	5656807	13:07
04/07/16	3	2	shore	619867	5657908	13:07
10/07/16	1	1	shore	674715.1	5674050	16:48
10/07/16	1	2	boat	666568.6	5676564	16:48
10/07/16	1	2	shore	660090.4	5676959	16:48
10/07/16	2	2	shore	647987.4	5670863	16:48
10/07/16	3	1	shore	632290.5	5660604	16:48
10/07/16	3	2	boat	621314.2	5655874	16:48
20/07/16	1	0	-	-	-	8:17
20/07/16	2	0	-	-	-	8:17
20/07/16	3	2	shore	613553.7	5664110	8:17
20/07/16	3	2	shore	611417	5665640	8:17
22/07/16	1	0	-	-	-	14:30
22/07/16	2	2	shore	635980	5662432	14:30
22/07/16	3	4	shore	624628.7	5657823	14:30
22/07/16	3	1	boat	621280.9	5656797	14:30
22/07/16	3	2	boat	619830	5657836	14:30
22/07/16	3	1	boat	619775.8	5656283	14:30
22/07/16	3	2	boat	620449.8	5656162	14:30
22/07/16	3	1	shore	613370.4	5664366	14:30
28/07/16	1	0	-	-	-	16:45
28/07/16	2	0	-	-	-	16:45
28/07/16	3	2	shore	619916.1	5657895	16:45
28/07/16	3	1	shore	614704.6	5659950	16:45
28/07/16	3	1	shore	614801.7	5660769	16:45
28/07/16	3	4	shore	612352.7	5665184	16:45
07/08/16	1	0	-	-	-	19:04
07/08/16	2	0	-	-	-	19:04
07/08/16	3	0	-	-	-	19:04

Appendix 3. Continued.

Date (d/m/y)	Reach	Angler count	Access	Easting	Northing	Count start time
09/08/16	1	3	shore	667296.9	5676272	14:18
09/08/16	2	0	–	–	–	14:18
09/08/16	3	1	shore	633231	5661478	14:18
09/08/16	3	1	shore	621094.1	5656498	14:18
09/08/16	3	1	shore	620124.5	5657734	14:18
09/08/16	3	1	shore	617190.9	5658738	14:18
09/08/16	3	2	shore	615635.4	5659679	14:18
13/08/16	1	2	shore	687660.5	5668987	12:07
13/08/16	1	2	shore	687490.1	5669249	12:07
13/08/16	1	1	boat	679908.4	5670917	12:07
13/08/16	1	1	shore	663535.6	5677069	12:07
13/08/16	2	1	shore	633217.4	5661443	12:07
13/08/16	2	1	shore	632409.3	5660751	12:07
13/08/16	3	1	boat	618400.6	5657459	12:07
13/08/16	3	2	boat	617584.6	5658403	12:07
13/08/16	3	1	boat	617272	5658584	12:07
13/08/16	3	2	shore	614750.1	5660653	12:07
19/08/16	1	0	–	–	–	13:21
19/08/16	2	0	–	–	–	13:21
19/08/16	3	5	shore	633731.5	5662039	13:21
19/08/16	3	1	boat	632535.8	5660905	13:21
19/08/16	3	2	boat	630242.4	5658587	13:21
19/08/16	3	2	shore	622047.1	5656639	13:21
19/08/16	3	2	boat	621079.7	5656765	13:21
19/08/16	3	1	boat	621125.4	5656324	13:21
19/08/16	3	1	shore	615699.8	5659500	13:21
19/08/16	3	2	shore	615374.8	5659959	13:21
21/08/16	1	1	shore	685404.5	5671117	10:55
21/08/16	1	1	shore	674991.6	5674035	10:55
21/08/16	2	1	shore	647856.7	5670613	10:55
21/08/16	3	3	boat	630125.7	5658170	10:55
21/08/16	3	1	boat	623172.8	5656968	10:55
21/08/16	3	2	shore	611640.2	5665717	10:55
31/08/16	1	0	–	–	–	10:30
31/08/16	2	0	–	–	–	10:30
31/08/16	3	2	boat	619664.9	5657742	10:30
31/08/16	3	2	boat	619159.7	5657766	10:30

Appendix 3. Continued.

Date (d/m/y)	Reach	Angler count	Access	Easting	Northing	Count start time
31/08/16	3	4	shore	618311.7	5658109	10:30
31/08/16	3	2	shore	612440.4	5665048	10:30
01/09/16	1	1	shore	674612.4	5674169	18:03
01/09/16	2	0	–	–	–	18:03
01/09/16	3	1	boat	635285.3	5662544	18:03
01/09/16	3	1	shore	633129.6	5661389	18:03
01/09/16	3	2	boat	631377.2	5659893	18:03
01/09/16	3	1	shore	623377.7	5656895	18:03
01/09/16	3	1	shore	621546.2	5656327	18:03
01/09/16	3	1	shore	617001.7	5658064	18:03
01/09/16	3	1	shore	614753.2	5660365	18:03
01/09/16	3	1	shore	614757.6	5660747	18:03
01/09/16	3	2	shore	611537.3	5665571	18:03
06/09/16	1	1	shore	678276.7	5672776	13:00
06/09/16	1	1	shore	674946.4	5674087	13:00
06/09/16	2	0	–	–	–	13:00
06/09/16	3	1	boat	620960.5	5656881	13:00
06/09/16	3	2	boat	617477.6	5658502	13:00
07/09/16	1	1	shore	676715.8	5672604	16:45
07/09/16	2	0	–	–	–	16:45
07/09/16	3	1	shore	629123.6	5657938	16:45
07/09/16	3	2	boat	612414.4	5665106	16:45
07/09/16	3	2	boat	613679.8	5660642	16:45
10/09/16	1	0	–	–	–	13:22
10/09/16	2	0	–	–	–	13:22
10/09/16	3	2	boat	625701	5657904	13:22
10/09/16	3	3	shore	623309.6	5656800	13:22
10/09/16	3	2	boat	619422.2	5657875	13:22
10/09/16	3	2	boat	619493.1	5656573	13:22
10/09/16	3	2	boat	619714.8	5656409	13:22
10/09/16	3	2	boat	620358.5	5655923	13:22
10/09/16	3	1	shore	617256.4	5658651	13:22
10/09/16	3	3	boat	616281.7	5659186	13:22
10/09/16	3	1	shore	611161	5665985	13:22
12/09/16	1	0	–	–	–	13:12
12/09/16	2	0	–	–	–	13:12
12/09/16	3	2	boat	621028.8	5655696	13:12

Appendix 3. Continued.

Date (d/m/y)	Reach	Angler count	Access	Easting	Northing	Count start time
12/09/16	3	2	boat	617470.8	5658466	13:12
16/09/16	1	1	boat	686593.3	5669778	13:18
16/09/16	2	1	shore	636261.5	5662753	13:18
16/09/16	3	2	boat	621181	5656691	13:18
17/09/16	1	1	shore	680892.8	5670941	16:40
17/09/16	2	0	–	–	–	16:40
17/09/16	3	2	boat	635328	5662733	16:40
17/09/16	3	2	shore	630336.5	5658874	16:40
17/09/16	3	1	boat	616667.6	5659055	16:40
17/09/16	3	1	shore	614417.4	5660264	16:40
17/09/16	3	1	shore	614865.8	5660649	16:40
17/09/16	3	2	shore	613306.4	5664466	16:40
22/09/16	1	1	shore	675012.4	5674017	16:47
22/09/16	2	0	–	–	–	16:47
22/09/16	3	0	–	–	–	16:47
28/09/16	1	1	shore	678643.7	5672069	15:15
28/09/16	2	0	–	–	–	15:15
28/09/16	3	2	boat	621358.8	5655697	15:15
28/09/16	3	1	shore	621492.2	5655777	15:15
28/09/16	3	1	shore	615329.9	5659798	15:15
28/09/16	3	3	shore	612341.1	5665005	15:15
29/09/16	1	0	–	–	–	16:12
29/09/16	2	0	–	–	–	16:12
29/09/16	3	2	boat	621209.8	5655724	16:12
01/10/16	1	3	shore	675703.2	5673367	16:43
01/10/16	2	0	–	–	–	16:43
01/10/16	3	1	boat	625715.2	5657838	16:43
01/10/16	3	2	shore	614194.7	5661323	16:43
02/10/16	1	1	shore	673209.1	5674913	13:13
02/10/16	1	1	boat	661203.6	5676588	13:13
02/10/16	1	1	shore	660172.6	5677000	13:13
02/10/16	2	0	–	–	–	13:13
02/10/16	3	2	shore	623926.9	5657291	13:13
11/10/16	1	0	–	–	–	16:14
11/10/16	2	0	–	–	–	16:14
11/10/16	3	0	–	–	–	16:14
12/10/16	1	1	shore	678264.9	5672766	14:00

Appendix 3. Continued.

Date (d/m/y)	Reach	Angler count	Access	Easting	Northing	Count start time
12/10/16	1	1	shore	678248.1	5672574	14:00
12/10/16	2	1	shore	647988.2	5670750	14:00
12/10/16	3	1	shore	614224.9	5661156	14:00
16/10/16	1	1	shore	678289.7	5672653	13:18
16/10/16	1	1	shore	667018.4	5676458	13:18
16/10/16	2	0	–	–	–	13:18
16/10/16	3	0	–	–	–	13:18
19/10/16	1	0	–	–	–	8:33
19/10/16	2	0	–	–	–	8:33
19/10/16	3	0	–	–	–	8:33
22/10/16	1	2	boat	668934	5676881	13:19
22/10/16	2	0	–	–	–	13:19
22/10/16	3	2	shore	621197	5655861	13:19
22/10/16	3	1	shore	617701	5658415	13:19
27/10/16	1	0	–	–	–	15:28
27/10/16	2	0	–	–	–	15:28
27/10/16	3	0	–	–	–	15:28
31/10/16	1	1	shore	5641637	5672603	10:49
31/10/16	2	0	–	–	–	10:49
31/10/16	3	0	–	–	–	10:49

Appendix 4. Instantaneous angler counts from the Elbow River (2016). Code: na = not available.

Date (d/m/y)	Reach	Angler count	Access	Easting	Northing	Count start time
20/06/16	1	1	shore	684228.1	5657239	20:41
20/06/16	1	2	shore	694575.5	5654813	20:41
20/06/16	1	2	shore	695904.6	5654661	20:41
20/06/16	1	2	shore	699848.2	5652844	20:41
20/06/16	2	2	shore	671107	5647351	20:41
20/06/16	2	1	shore	677397.9	5656221	20:41
20/06/16	2	2	shore	668867.2	5645098	20:41
02/07/16	1	2	shore	688789.8	5656952	12:19
02/07/16	1	2	shore	696074.7	5654197	12:19
02/07/16	2	0	-	-	-	12:19
02/07/16	2	1	shore	664134.1	5641583	12:19
04/07/16	1	1	shore	694454.2	5654462	na
04/07/16	1	2	shore	696839.6	5654424	na
04/07/16	2	2	shore	675739.1	5653530	na
04/07/16	2	1	shore	660300.7	5637941	na
04/07/16	2	2	shore	662974.6	5641627	na
20/07/16	1	0	-	-	-	9:45
20/07/16	2	0	-	-	-	9:45
20/07/16	2	0	-	-	-	9:45
22/07/16	2	1	shore	669812.3	5645945	15:47
22/07/16	1	2	shore	683922.8	5657511	15:47
22/07/16	1	1	shore	692404.9	5655420	15:47
22/07/16	2	0	-	-	-	15:47
22/07/16	2	1	shore	670407.7	5646398	15:47
28/07/16	1	0	-	-	-	17:52
28/07/16	2	0	-	-	-	17:52
28/07/16	2	0	-	-	-	17:52
07/08/16	1	0	-	-	-	19:41
07/08/16	2	2	shore	673845.1	5650853	19:41
07/08/16	2	0	-	-	-	19:41
09/08/16	1	0	-	-	-	15:35
09/08/16	2	0	-	-	-	15:35
09/08/16	2	0	-	-	-	15:35
19/08/16	2	1	shore	658722.6	5637028	14:25
19/08/16	2	1	shore	661136.3	5638126	14:25
19/08/16	2	2	shore	662988.1	5641599	14:25

Appendix 4. Continued.

Date (d/m/y)	Reach	Angler count	Access	Easting	Northing	Count start time
19/08/16	2	1	shore	669578.5	5646580	14:25
19/08/16	2	0	-	-	-	14:25
19/08/16	1	1	shore	677732.1	5656443	14:25
19/08/16	1	2	shore	695090.5	5654469	14:25
19/08/16	1	1	shore	697495.9	5654200	14:25
21/08/16	2	1	shore	660758.4	5637945	13:32
21/08/16	1	2	shore	677879.6	5656470	13:32
21/08/16	1	1	shore	692590.3	5655461	13:32
21/08/16	2	0	-	-	-	13:32
21/08/16	2	1	shore	661073.4	5638219	13:32
21/08/16	2	1	shore	663329.1	5641574	13:32
21/08/16	2	2	shore	668349.4	5644201	13:32
31/08/16	2	1	shore	658285	5637162	12:00
31/08/16	2	0	-	-	-	12:00
31/08/16	1	1	shore	684133.6	5657366	12:00
31/08/16	1	1	shore	694413.9	5654473	12:00
01/09/16	2	1	shore	656574.2	5637398	19:28
01/09/16	2	2	shore	662545.6	5640762	19:28
01/09/16	2	1	shore	663368.4	5642057	19:28
01/09/16	2	2	shore	664490.5	5643037	19:28
01/09/16	2	1	shore	670533.7	5646486	19:28
01/09/16	2	1	shore	677216.8	5656056	19:28
01/09/16	1	1	shore	682735.6	5657960	19:28
01/09/16	1	2	shore	695995.6	5654565	19:28
01/09/16	1	1	shore	700294.7	5652644	19:28
06/09/16	2	0	-	-	-	14:08
06/09/16	2	0	-	-	-	14:08
06/09/16	1	1	shore	678598.8	5657121	14:08
06/09/16	1	1	shore	693003	5655430	14:08
06/09/16	1	1	shore	696311.4	5654498	14:08
06/09/16	1	2	shore	694265.4	5654557	14:08
07/09/16	1	1	shore	677913.7	5656564	18:01
07/09/16	1	1	shore	690974.4	5655862	18:01
07/09/16	1	1	shore	692573.2	5656056	18:01
07/09/16	1	1	shore	694431.5	5654454	18:01
07/09/16	2	1	shore	674147.2	5651273	18:01
07/09/16	2	2	shore	664464	5642177	18:01

Appendix 4. Continued.

Date (d/m/y)	Reach	Angler count	Access	Easting	Northing	Count start time
10/09/16	1	2	shore	677835.3	5656525	14:39
10/09/16	1	1	shore	678133.1	5656722	14:39
10/09/16	1	1	shore	689274.5	5656510	14:39
10/09/16	1	1	shore	691569.8	5655535	14:39
10/09/16	1	2	shore	694019.8	5654646	14:39
10/09/16	1	3	shore	694578.7	5654205	14:39
10/09/16	1	1	shore	696193.6	5653972	14:39
10/09/16	1	1	shore	696460.8	5654525	14:39
10/09/16	1	1	shore	695786.2	5654497	14:39
10/09/16	1	1	shore	696810.2	5653916	14:39
10/09/16	2	0	-	-	-	14:39
10/09/16	2	1	shore	658459	5636952	14:39
10/09/16	2	1	shore	660186.6	5637900	14:39
10/09/16	2	1	shore	661262	5638080	14:39
10/09/16	2	1	shore	664287	5641657	14:39
10/09/16	2	1	shore	670407	5646356	14:39
12/09/16	2	0	-	-	-	14:22
12/09/16	2	0	-	-	-	14:22
12/09/16	1	1	shore	697980	5654329	14:22
14/09/16	1	0	-	-	-	10:58
14/09/16	2	0	-	-	-	10:58
14/09/16	2	2	shore	669254.7	5645968	10:58
14/09/16	2	2	shore	662416.1	5641136	10:58
16/09/16	1	1	shore	677744.6	5656529	14:41
16/09/16	1	2	shore	677533.5	5656495	14:41
16/09/16	1	2	shore	682634.9	5658271	14:41
16/09/16	1	2	shore	684554.7	5657259	14:41
16/09/16	1	2	shore	697839.1	5654006	14:41
16/09/16	2	1	shore	673998	5650851	14:41
16/09/16	2	1	shore	658318.1	5637207	14:41
16/09/16	2	1	shore	659818.5	5637152	14:41
16/09/16	2	2	shore	660279.1	5637782	14:41
16/09/16	2	2	shore	664686.5	5642888	14:41
16/09/16	2	2	shore	669471.9	5646337	14:41
16/09/16	2	1	shore	670271.8	5647053	14:41
16/09/16	2	1	shore	671172.4	5647029	14:41
17/09/16	1	0	-	-	-	18:17

Appendix 4. Continued.

Date (d/m/y)	Reach	Angler count	Access	Easting	Northing	Count start time
17/09/16	2	0	-	-	-	18:17
17/09/16	2	0	-	-	-	18:17
22/09/16	1	0	-	-	-	18:12
22/09/16	2	0	-	-	-	18:12
22/09/16	2	1	shore	658065.2	5637180	18:12
28/09/16	1	1	shore	691999.8	5655542	16:35
28/09/16	1	2	shore	695791.1	5653998	16:35
28/09/16	2	0	-	-	-	16:35
28/09/16	2	2	shore	663598.9	5641668	16:35
29/09/16	1	0	-	-	-	17:25
29/09/16	2	2	shore	671539	5648751	17:25
29/09/16	2	1	shore	664302.4	5642741	17:25
01/10/16	1	0	-	-	-	17:51
01/10/16	2	0	-	-	-	17:51
01/10/16	2	0	-	-	-	17:51
02/10/16	1	1	shore	669039.9	5645964	14:25
02/10/16	1	1	shore	691873.6	5655519	14:25
02/10/16	1	3	shore	692249.8	5655668	14:25
02/10/16	1	1	shore	694492.8	5654523	14:25
02/10/16	1	2	shore	695847.5	5654049	14:25
02/10/16	2	1	shore	658767	5637220	14:25
02/10/16	2	1	shore	663318.4	5641655	14:25
02/10/16	2	1	shore	664385.2	5641876	14:25
11/10/16	1	0	-	-	-	17:20
11/10/16	2	0	-	-	-	17:20
11/10/16	2	2	shore	658233.7	5637100	17:20
12/10/16	2	0	-	-	-	15:09
12/10/16	2	0	-	-	-	15:09
12/10/16	1	1	shore	695426.7	5653960	15:09
16/10/16	1	0	-	-	-	14:05
16/10/16	2	1	shore	676970.4	5655856	14:05
16/10/16	2	2	shore	677297.1	5656190	14:05
16/10/16	2	1	shore	677554	5656387	14:05
16/10/16	2	0	-	-	-	14:05
19/10/16	1	0	-	-	-	9:38
19/10/16	2	0	-	-	-	9:38
19/10/16	2	0	-	-	-	9:38

Appendix. 4. Continued.

Date (d/m/y)	Reach	Angler count	Access	Easting	Northing	Count start time
22/10/16	1	0	-	-	-	14:41
22/10/16	2	1	shore	664385	5641782	14:41
22/10/16	2	0	-	-	-	14:41
27/10/16	1	0	-	-	-	na
27/10/16	2	0	-	-	-	na
27/10/16	2	0	-	-	-	na
31/10/16	1	0	-	-	-	na
31/10/16	2	0	-	-	-	na
31/10/16	2	1	shore	664268	na	na

Alberta Conservation Association acknowledges the following partner for its generous support of this project:

The logo for the province of Alberta, featuring the word "Alberta" in a grey, cursive script font. To the right of the word is a small blue square with a white stylized shape inside, representing the province's flag.