

**Alberta Conservation Association**  
**2018/19 Project Summary Report**

**Project Name:** ACA Fish Stocking Project Evaluation

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**Partnerships**

Alberta Environment and Parks

**Key Findings**

- Angler effort varied from 12 hours/ha at Mirror Reservoir to 4,517 hours/ha at Kraft Pond.
- Angler counts varied from a total of 35 at Bonneville Pond to 5,885 at Dewitt's Pond.
- Three size-classes of brown trout were captured in Mitford Pond indicating fish survived multiple years in the pond, but this was not the case at Mirror Reservoir or Dewitt's Pond.
- Brown trout do not appear to be a suitable replacement for rainbow trout in ponds where avian predation is high.

**Introduction**

In 1998, ACA assumed responsibility for delivering the Enhanced Fish Stocking Project (hereafter referred to as ACA Fish Stocking Project [AFS]), with the objective to provide increased angling opportunities to Albertans by stocking catchable-sized ( $\geq 20$  cm) rainbow trout in parts of the province where angling opportunities are limited. In 2018, we stocked 106,090

catchable rainbow, brown, and brook trout into 63 waterbodies. Most waterbodies are small and situated near densely populated areas, making them popular family destinations. As a result, these stocked ponds can have substantial angling pressure.

Our 2018 objectives were to:

- Cost effectively estimate angler effort at 15 AFS ponds where this information is currently absent.
- Describe the size structure of brown and rainbow trout in Dewitt's and Mitford ponds, and Mirror Reservoir.
- Assess if brown trout survive longer than rainbow trout in Mirror Reservoir, a pond with high avian predation.

## **Methods**

We used trail cameras to collect hourly angler counts at 15 AFS waterbodies (Table 1) between May 15 and August 31. Cameras were programmed to take photographs daily from 0500 to 2200 hours and were attached to stationary structures (e.g., power pole or tree) or to a sign channel (Newton et al. 2013). Anglers in each photograph were counted, and these instantaneous counts were used to develop a distribution of mean instantaneous angler counts. These instantaneous counts were extrapolated over the entire lake, using the ratio of in-camera field of view area to total lake area. These angler count distributions were the basis for estimating angling hours and will be combined with previously estimated use to help evaluate the AFS project and work towards setting and achieving its objectives and goals.

Gill netting was performed on Dewitt's and Mitford ponds, and Mirror Reservoir to determine the multi-year persistence of brown trout. Net sets were short (approximately 15 minutes) to reduce trout mortality and nets were placed randomly to ensure coverage of the ponds. To assess brown trout experimentally stocked in Mirror Reservoir, we used short set gill nets as above, and overnight net sets.

## **Results**

Angler counts and estimates of angler effort varied considerably among the 15 ponds (Table 1).

Estimated angler effort ranged from 12 hours/ha at Mirror Reservoir to 4,517 hours/ha at Kraft Pond (Figure 1).

Table 1. Trail camera angler counts and estimated total angler effort at 15 AFS waterbodies (2018).

Waterbody	Number of anglers in camera field of view	Lake area (ha)	Estimated total angler effort (hours)	
			Total	Per ha
Bonneville Pond	33	0.69	42	61
Castor Pond	37	0.81	64	79
County Sportsplex	77	2.92	242	83
Dewitt's Pond	4,237	3.20	14,223	4,445
East Stormwater	31	2.92	58	20
Fort Lions	283	4.93	468	95
Kraft Pond	708	0.60	2,710	4,517
Legal	377	1.61	1,355	842
Len Thompson	484	1.99	664	334
Mirror Reservoir	49	4.30	53	12
Shell True North	92	0.84	81	97
Stirling	129	1.78	223	125
Taber	134	6.73	652	97
Vermilion	157	2.01	711	354
Windsor Lake	435	16.96	1,232	73

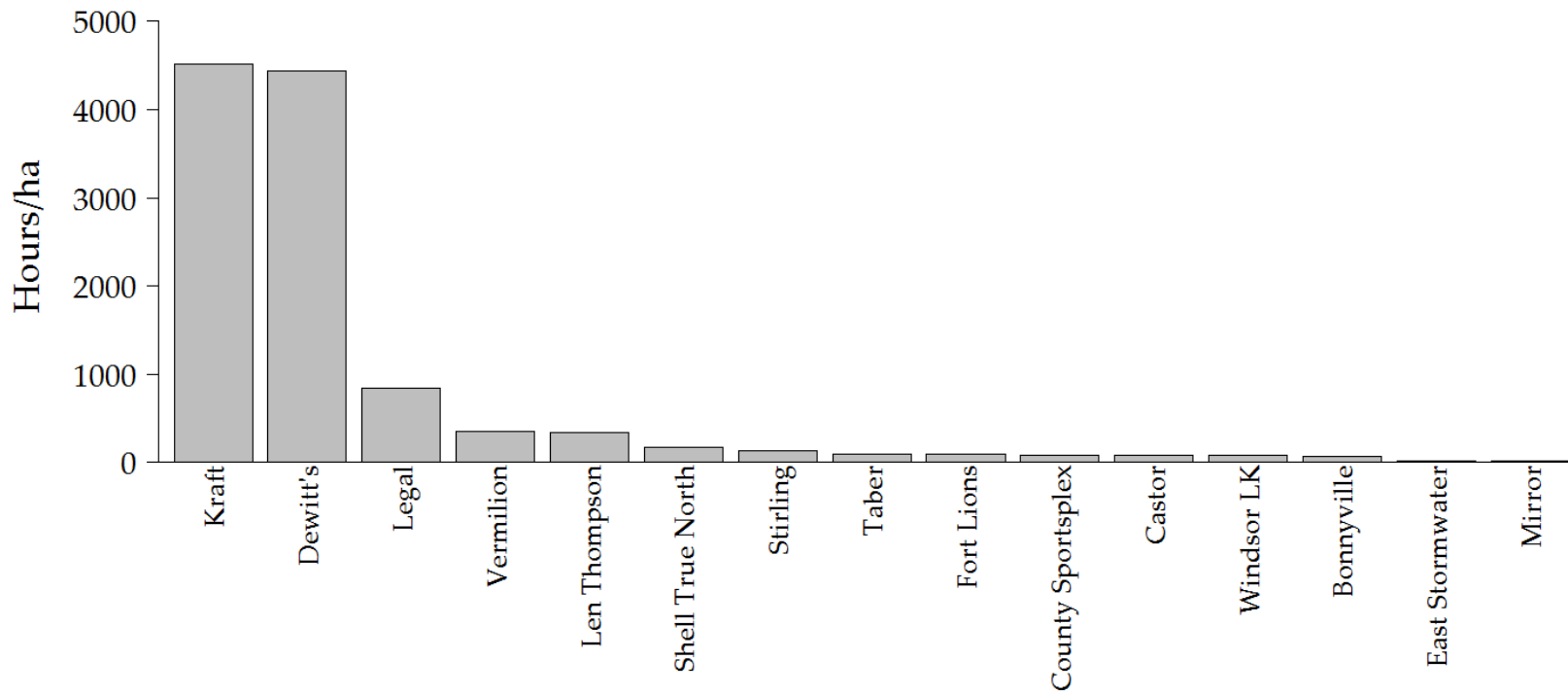


Figure 1. Estimated angling effort (hours/ha) at selected AFS ponds in the summer of 2018.

At waterbodies assessed for brown trout survival, Mitford Pond had multiple size classes, while Dewitt’s Pond and Mirror Reservoir did not (Table 2). At Dewitt’s Pond, we had high catch rates of Prussian carp, and few rainbow trout and no brown trout caught. Very low catch per unit effort of brown trout stocked into Mirror Reservoir suggests that they did not have an advantage in avoiding avian predation compared to rainbow trout.

Table 2. Gill netting results and catch per unit effort (CPUE) from three AFS waterbodies (2018).

Waterbody	Fish Species <sup>1</sup>	Number of Fish	CPUE Fish/m <sup>2</sup> *hour	Size Range (mm)
Mirror Reservoir short set	BNTR	10	0.0005	225-280
Mirror Reservoir overnight set	BNTR	8	0.001	264-282
Mitford Pond short set	BNTR	14	0.004	200-384
	BNTR	0	0.0	NA
Dewitt's Pond short set	RNTR	4	0.0009	242-268
	PRCR	136	0.03	48-204

<sup>1</sup> RNTR= Rainbow, BNTR = Brown Trout, PRCR = Prussian Carp

## Conclusion

Angler counts and effort varied greatly among the 15 waterbodies assessed in 2018 with effort ranging 12 hours/ha at Mirror Reservoir to 4,517 hours/ha at Kraft Pond. We found multiple size-classes of brown trout in Mitford Pond indicating survival of fish between years, while this was not the case at Mirror Reservoir or Dewitt’s Pond. Brown trout did not have an advantage over rainbow trout in withstanding avian predation at Mirror Reservoir. Using these data, we will be able to manage stocking times and rates, species selection, and evaluate site management options (e.g., amenities, infrastructure) at individual waterbodies.

## Communications

- Presented findings at Great Plains Fisheries Conference.

### Literature Cited

Newton, E, B. van Poorten, T. Godin, A. Clarke, S. Greenberg, and J. Post. 2013. Using cameras to remotely measure angling effort on small lakes. Presentation at the 66th Canadian Conference for Fisheries Research – CCFFR'13, Windsor, Ontario, January 3–5, 2013.

### Photos



Anglers at Dewitt's Pond, May 27, 2018. Photo: ACA



Trail camera being installed by ACA staff for AFS evaluation. Photo: John Hallett



Netting at Dewitt's Pond, May 15, 2018. Photo: Andrew Clough



Prussian carp caught in Dewitt's Pond, May 15, 2018. Photo: Kevin Fitzsimmons



Brown trout caught during netting of Mitford Pond, May 3, 2018. Photo: Kevin Fitzsimmons