

Alberta Conservation Association 2017/18 Project Summary Report

Project Name: Fish Stocking Expansion – New Species and Strains

Fisheries Program Manager: Peter Aku

Project Leader: Mike Rodtka

Primary ACA staff on project: Andrew Clough, Mandy Couve, Troy Furukawa, Brendan Ganton, Mike Rodtka, and Britt Schmidt

Partnerships

Alberta Environment and Parks
Cabela's Canada Inc.
Lacombe County
Town of Beaumont
Town of High River

Key Findings

- Of the 2,250 trout we tagged (1,125 of each strain), anglers reported catching 205 Lyndon and 256 Silver trout. Of these, 115 Lyndons and 130 Silvers were kept.
- Trout condition was good overall and typically comparable between strains; both strains tended to lose condition over the summer.
- Estimates indicated a large proportion of both strains were harvested from most ponds although Silver strain fish appeared to be harvested more rapidly.

Introduction

The Government of Alberta currently stocks several strains of rainbow trout, including both in-house and commercially produced strains. Of the commercially produced strains, Troutlodge Silver Steelhead and Lyndon strains both show promise. Silver Steelhead trout are specially bred by Troutlodge to have a distinctive silver colour and excellent growth. The Lyndon strain is believed to be derived from both steelhead and inland forms of rainbow trout and is bred by Lyndon Fish Hatcheries for favourable growth rate, late maturation, disease resistance and egg quality. Both strains are delivered to provincial and private fish hatcheries as eyed eggs and are routinely stocked by Alberta Conservation Association (ACA) through its Enhanced Fish Stocking (EFS) project. Different strains may vary widely in their hatchery and field performance, so we partnered with the provincial government to compare angler harvest and condition of the Silver Steelhead and Lyndon strains in EFS fisheries.

Methods

Study trout were reared under comparable conditions at the Cold Lake Fish Hatchery. Trout were marked with a combination of anchor tag and/or fin clip at the hatchery in mid-April. Marking allowed trout strain to be identified and tag loss to be estimated. Equal numbers of each strain with approximate fork length of 255 mm were stocked into Beaumont Pond, Emerson Lake, Nuggent Pond, and Ray's Pond in early May. Stocking density at the ponds ranged between 550 and 1,667 trout per hectare. All ponds are managed as put-and-take fisheries with a five trout limit. Relative abundance of each strain was assessed days after stocking and again in September using standardized gill net sets designed to minimize trout mortality. Condition of both strains was assessed in Nuggent Pond in June. Anglers who harvested a tagged trout were encouraged to report their catch online or by telephone, and this information was used to estimate angler harvest of each strain at each pond (Pine et al. 2012). Survey cards, distributed to anglers throughout the summer at study ponds, were used to estimate anglers' tag reporting rate (Zale and Bain 1994).

Results

Relative weight (W_r) of each strain, a measure of fish condition, was good overall and typically comparable between the strains; both strains tended to lose condition over the summer (Figure 1).

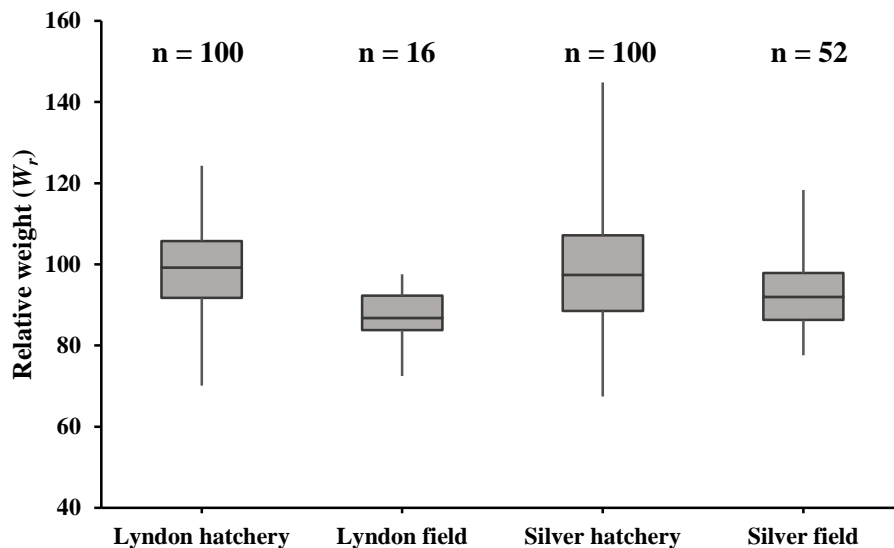


Figure 1. Relative weight (W_r) of two strains of rainbow trout estimated at the hatchery and 38 days post-stocking into Nuggent Pond. Minimum and maximum, first- and third-quartile, and median values are represented by whiskers, boxes, and horizontal lines, respectively. A W_r of 100 describes a fish in good condition.

Of the 2,250 trout we tagged, anglers reported catching 461 (20%) trout consisting of 205 Lyndons and 256 Silvers. Of these, 115 (56%) Lyndons and 130 (51%) Silvers were kept (Table 1).

Table 1. Angler reporting rate of two strains of tagged trout stocked into four Enhanced Fish Stocking ponds during the summer of 2016.

EFS pond	Strain	Number tagged	Number reported	Number kept
Beaumont	Lyndon	375	60	37
	Silver	375	76	37
Emerson	Lyndon	375	55	28
	Silver	375	74	31
Nuggent	Lyndon	150	39	31
	Silver	150	55	43
Ray's	Lyndon	225	51	19
	Silver	225	51	19

Interestingly, half of all Silver strain tag reports occurred within the first two weeks after stocking but it took nearly twice as long for the Lyndon strain to achieve a comparable rate. Based on tag reporting information and estimated tag loss we were able to estimate angler harvest rates of both strains at each study pond (Table 2).

Table 2. Estimates of angler harvest of two strains of rainbow trout stocked into Enhanced Fish Stocking ponds during the summer of 2017.

EFS pond	Lyndon		Silver	
	Median	95% CI	Median	95% CI
Beaumont	0.92	0.64 – 1.00	0.70	0.53 – 1.00
Emerson	1.00	1.00 – 1.00	1.00	0.71 – 1.00
Nuggent	1.00	1.00 – 1.00	1.00	1.00 – 1.00
Ray's	0.58	0.44 – 0.81	0.60	0.45 – 0.85

With the exception of Ray's Pond, it is clear that a large proportion of both strains were harvested from study ponds. Only a handful of trout were captured at the study ponds in the autumn despite intensive netting, broadly corroborating our estimates of angler harvest.

Conclusions

Both the Lyndon and Troutlodge Silver strains of rainbow trout appear well-suited for stocking into EFS ponds. Both strains had good condition in a hatchery setting, and loss of condition post-stocking was modest. Both strains were readily harvested from our study ponds by anglers, although the Silver strain appeared to be harvested more rapidly.

Communications

- Catch information was submitted to the provincial Fisheries and Wildlife Management Information System database.
- Information signs were installed at study ponds.
- The study was featured on ACA's social media platforms.
- ACA Report Series data report.

Literature Cited

Pine, W.E., J.E. Hightower, L.G. Coggins, M.V. Laretta, and K.H. Pollock. 2012. Design and analysis of tagging studies. Pages 521–572. *In: Fisheries techniques*, 3rd edition. American Fisheries Society, Bethesda, Maryland.

Zale, A.V., and M.B. Bain. 1994. Management briefs: estimating tag-reporting rates with postcards as tag surrogates. *North American Journal of Fisheries Management* 14: 208-211.

Photos



An example of the information signs installed at study ponds.
Photo: Andrew Clough



A large Lyndon strain rainbow trout captured at Ray's Pond. Photo: Mandy Couve



Alberta Conservation Association employee Chad Judd checking a gill net at Ray's Pond. Photo: Mike Rodtka