

Alberta Conservation Association 2015/16 Project Summary Report

Project Name: Fish Stocking Expansion – New Lakes

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Partnerships

Alberta Fish & Game Association
City of Airdrie
Town of Cochrane

Key Findings

- Initial assessments identified Edmonton, Calgary, Medicine Hat and Airdrie as priority areas for expanding the Enhanced Fish Stocking (EFS) project. Grande Prairie, Fort McMurray, Red Deer and Lethbridge were identified as second priority for EFS expansion. However, very few suitable waterbodies were found in primary or secondary areas during field surveys.
- Desktop queries and recommendations from interest groups and regional fisheries biologists initially identified 205 waterbodies; of these, 41 showed potential as trout stocking sites.
- Field evaluations of 21 of the 41 waterbodies indicated that 4 met the requirements for a rainbow trout fishery; we will actively pursue development of a trout fishery at a minimum of one of these sites during the 2016/17 fiscal year.
- Two urban stormwater ponds (one each in Airdrie and Cochrane) did not meet the minimum dissolved oxygen requirements for establishing a rainbow trout recreational fishery.

Introduction

There are approximately 300,000 recreational anglers and only 1,100 waterbodies with sport fish in Alberta; 800 waterbodies have natural fish populations and 300 are stocked fisheries (Zwickel 2012). Given the limited number of fishable waterbodies in Alberta, stocked waterbodies are very popular. Alberta Conservation Association (ACA) stocks 60 of these waterbodies through its Enhanced Fish Stocking (EFS) project. These stocked waterbodies may receive upwards of 1,000 angler hours per hectare during the summer months (Fitzsimmons and Keeling 2015), making them some of the most fished waterbodies per hectare of surface area in the province. Existing EFS waterbodies are also very popular because they are often within a reasonable driving distance of many anglers (Patterson and Sullivan 2013). Given the relatively limited fishing opportunities in Alberta, ACA is working to identify new lakes to stock with

rainbow trout through the EFS project. Initial assessments in 2014/15 identified Edmonton, Calgary, Medicine Hat and Airdrie as priority areas for EFS expansion. Grande Prairie, Fort McMurray, Lethbridge and Red Deer areas were identified as second priority for EFS expansion. The primary goal of this expansion project is to create fishing opportunities in close proximity to urban centres. To recruit new anglers, we believe that angling opportunities must be as easily accessible and readily available as other forms of recreation.

Methods

We identified all waterbodies within a 50 km radius of primary and secondary priority areas using Google Earth, satellite imagery projected in ArcGIS, input from regional fisheries biologists, and input from interest groups. We also included waterbodies outside of the 50 km radius of priority areas that were recommended by biologists or interest groups. We used satellite imagery and provincial fisheries database queries to eliminate unsuitable waterbodies based on attributes such as potential for fish escapement, water depth (excessive weed growth), overlap with sensitive amphibian habitat, and potential for user conflict (e.g., located on a golf course). We conducted site visits to several waterbodies to measure water depth, dissolved oxygen, temperature, conductivity, pH and water clarity.

In addition to our assessment of rural waterbodies, we completed monthly water quality and water chemistry sampling at two urban stormwater ponds, one in Cochrane and one in Airdrie, to assess the suitability of these ponds to be stocked for recreational fishing.

We also evaluated current literature for relevant pond improvement options to enhance fish survival and anglers' experiences at existing EFS ponds.

Results

We initially identified 205 waterbodies as potential candidates for EFS project expansion: 188 waterbodies were within a 50 km radius of primary and secondary priority areas, and 17 waterbodies were beyond these areas. Of the 205 waterbodies, 41 met predetermined satellite imagery and provincial fisheries database query criteria as potentially suitable sites for expansion. Field evaluations of 21 of the 41 waterbodies indicated that only 4 met the requirements for a rainbow trout fishery (Figure 1). The remaining 20 waterbodies were not evaluated because we could not attain permission from private landowners.

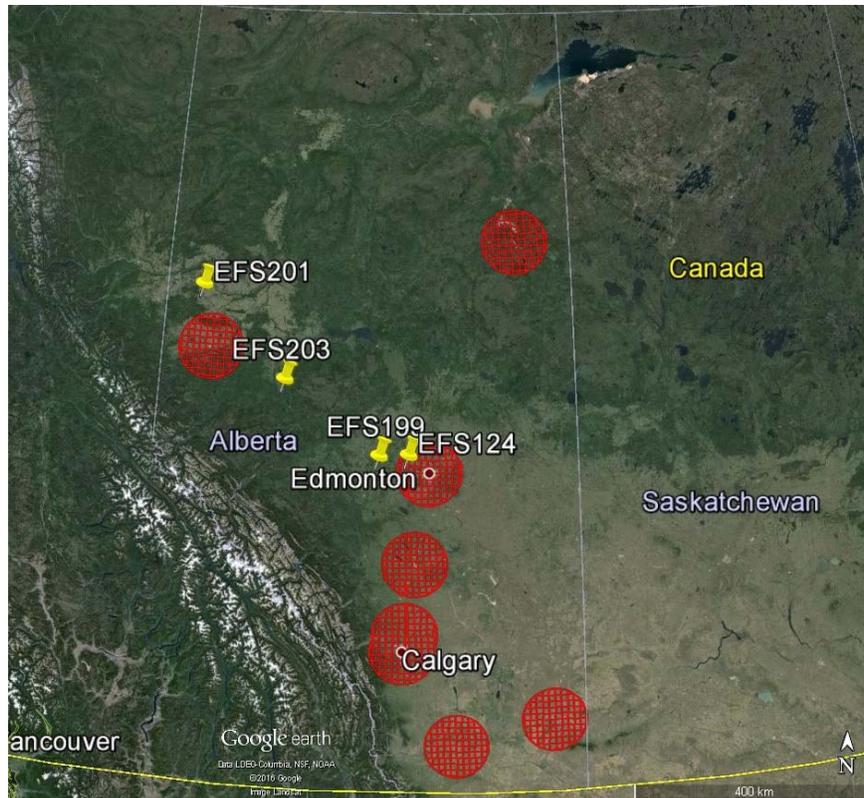


Figure 1. Provincial focal areas for Enhanced Fish Stocking project expansion, showing 50 km radius buffers around priority areas (red circles) and the top four candidate ponds with fisheries potential (yellow pins).

We found that the urban stormwater ponds in Cochrane and Airdrie would not be suitable for trout stocking because summer dissolved oxygen concentrations were well below the requirements for rainbow trout survival.

Our investigation of remedial options to improve water quality necessary to support a trout stocked fishery in existing EFS ponds revealed few suitable options. Most EFS ponds are too shallow to use most conventional rehabilitation techniques. Remaining options include experimental aeration and dredging.

Conclusions

Initial assessments in 2014/15 identified Edmonton, Calgary, Medicine Hat and Airdrie as priority areas for EFS expansion and Grande Prairie, Fort McMurray, Red Deer and Lethbridge areas as second priority for EFS expansion. However, few suitable waterbodies with fisheries potential were found in these areas during our 2015/16 survey. Therefore, opportunities to create new artificial waterbodies with suitable fish habitat should be evaluated. Furthermore, given the limited number of unstocked waterbodies with fisheries potential, remedial action to improve existing fisheries warrants further investigation despite the high cost associated with lake rehabilitation. Development of at least one of the four existing waterbodies identified through this project will be a priority for the 2016/17 fiscal year.

Our results also indicated there is limited opportunity to use urban stormwater ponds for recreational fisheries at this time because of the liability associated with stocking stormwater ponds, the reluctance of most municipalities to support a stormwater stocking initiative, and the low dissolved oxygen concentrations typical of these ponds.

Communications

- Published article on the project in the May 2015 issue of *Alberta Outdoorsman*.
- Presented project results to the St. Albert Fish & Game Club at the request of the club.

Literature Cited

Fitzsimmons, K., and B. Keeling. 2015. Survival of stocked trout and a creel based sport fishery assessment of 12 Alberta Conservation Association stocked ponds. Data Report, produced by Alberta Conservation Association, Sherwood Park, Alberta, Canada.

Patterson, W.F., and M.G. Sullivan. 2013. Testing and refining the assumptions of put-and-take rainbow trout fisheries in Alberta. *Human Dimensions of Wildlife* 18: 340–354.

Zwickel, H. 2012. Sport fishing in Alberta 2010: summary report from the eighth survey of recreational fishing in Canada. Alberta Sustainable Resource Development, Fisheries Management Branch. Edmonton, Alberta, Canada. 46 pp.

Photos



Enhanced Fish Stocking project candidate waterbody EFS 201, located approximately 102 km north of Grande Prairie. Photo: Scott Seward



Enhanced Fish Stocking project candidate waterbody EFS 203, located approximately 169 km southeast of Grande Prairie. Photo: Britt Keeling



Enhanced Fish Stocking project candidate waterbody EFS 199, located approximately 89 km west of Edmonton. Photo: Britt Keeling



Enhanced Fish Stocking project candidate waterbody EFS 124, located approximately 44 km west of Edmonton. Photo: Britt Keeling