# Bathymetric Maps and Water Quality Profiles of ACA Enhanced Fish Stocking Ponds

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Conserving Alberta's Wild Side

# ACKNOWLEDGEMENTS

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# 1.0 INTRODUCTION

Alberta Conservation Association assumed responsibility for the Enhanced Fish Stocking project (EFS) in 1998, annually stocking approximately 60 waterbodies with 120,000 trout. The primary objective of EFS is to provide Albertans with increased recreational fishing, particularly in areas of the province where such opportunities do not otherwise exist. Most ACA stocked lakes are close to municipalities, making them popular family destinations. Under EFS, ACA stocks catchable-sized (i.e., 20 cm) rainbow trout into ponds to create put-and-take fisheries. Anglers can harvest up to five fish per day, and social surveys suggest that the majority of anglers are satisfied with these recreational angling opportunities (Patterson 2011).

Despite the success of EFS in attracting and satisfying anglers (Patterson 2011), as well as the significant annual cost of running the program, very little information exists on the suitability of these stocked waterbodies to support put-and-take sport fisheries throughout the summer season. Consequently, from 2011 to 2016, we surveyed all EFS ponds to establish a comprehensive water quality and bathymetric database to support the evaluation of the suitability of these ponds, as well as improve their management.

## 2.0 STUDY AREA

We collected bathymetric and water quality data at all ACA stocked waterbodies (Figure 1).

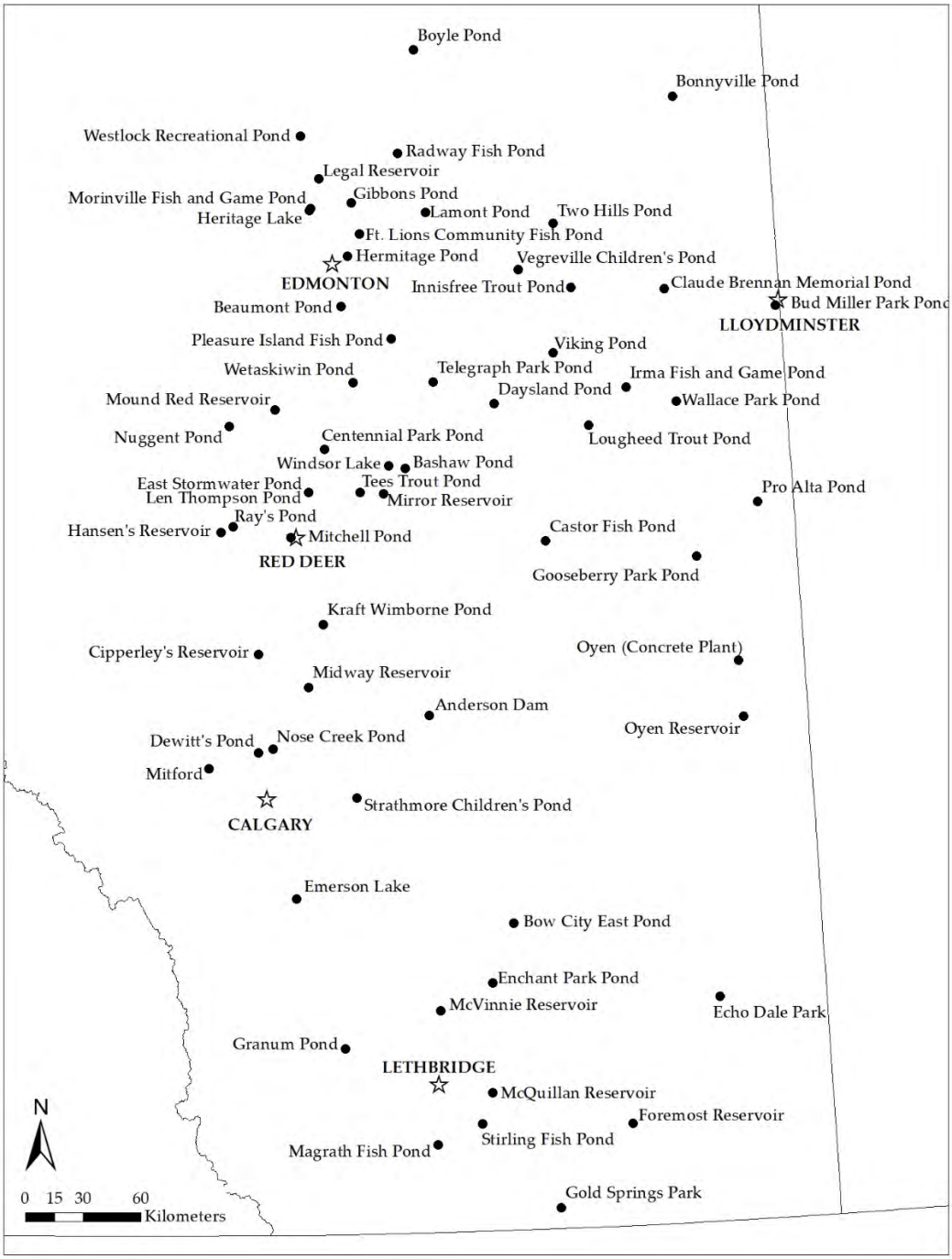


Figure 1. Sampled stocked pond locations throughout Alberta.

# 3.0 MATERIALS AND METHODS

## 3.1 Bathymetry

We collected bathymetry data using a boat-mounted Garmin Chartplotter that recorded UTM coordinates and depth every 5 seconds along a series of 5-m wide transects; the shoreline (zero depth) was mapped with a handheld Garmin 60CSx. Geostatistical tools (i.e., kriging) in Esri ® ArcMap 10.0 were used to interpolate the data and generate the bathymetric maps.

## 3.2 Water Quality

To establish baseline and seasonal snapshots, we collected water samples from each waterbody during the spring (i.e., April – June) and summer (i.e., July – August) in 2011, 2012, 2013, or 2016. We measured temperature, conductivity, pH, dissolved oxygen, and Secchi depth at three sampling locations using a multiparameter YSI meter (YSI Professional Plus) and Secchi disk. The sampling locations were chosen to be representative of maximum depth and any other significant morphometric features (e.g., sub basin; far end of an elongate lake). Temperature, dissolved oxygen, conductivity, and pH were averaged across the three sampling locations at every depth.

Vertically integrated water samples were collected from each of the three sampling locations and mixed to create a composite sample. Composite water samples were analyzed for chlorophyll *a*, ammonia, total phosphorous, total nitrogen, nitrite/nitrate, turbidity, and conductivity by Maxxam Analytics.

## 4.0 RESULTS

## ANDERSON DAM

12 U 372013 5697797

Located 13 km west of Drumheller on Highway 9.

| | |
|---|---|
| Area (ha) | 2.0 |
| Max depth (m) | 8.2 |
| Mean depth (m) | 3.0 |

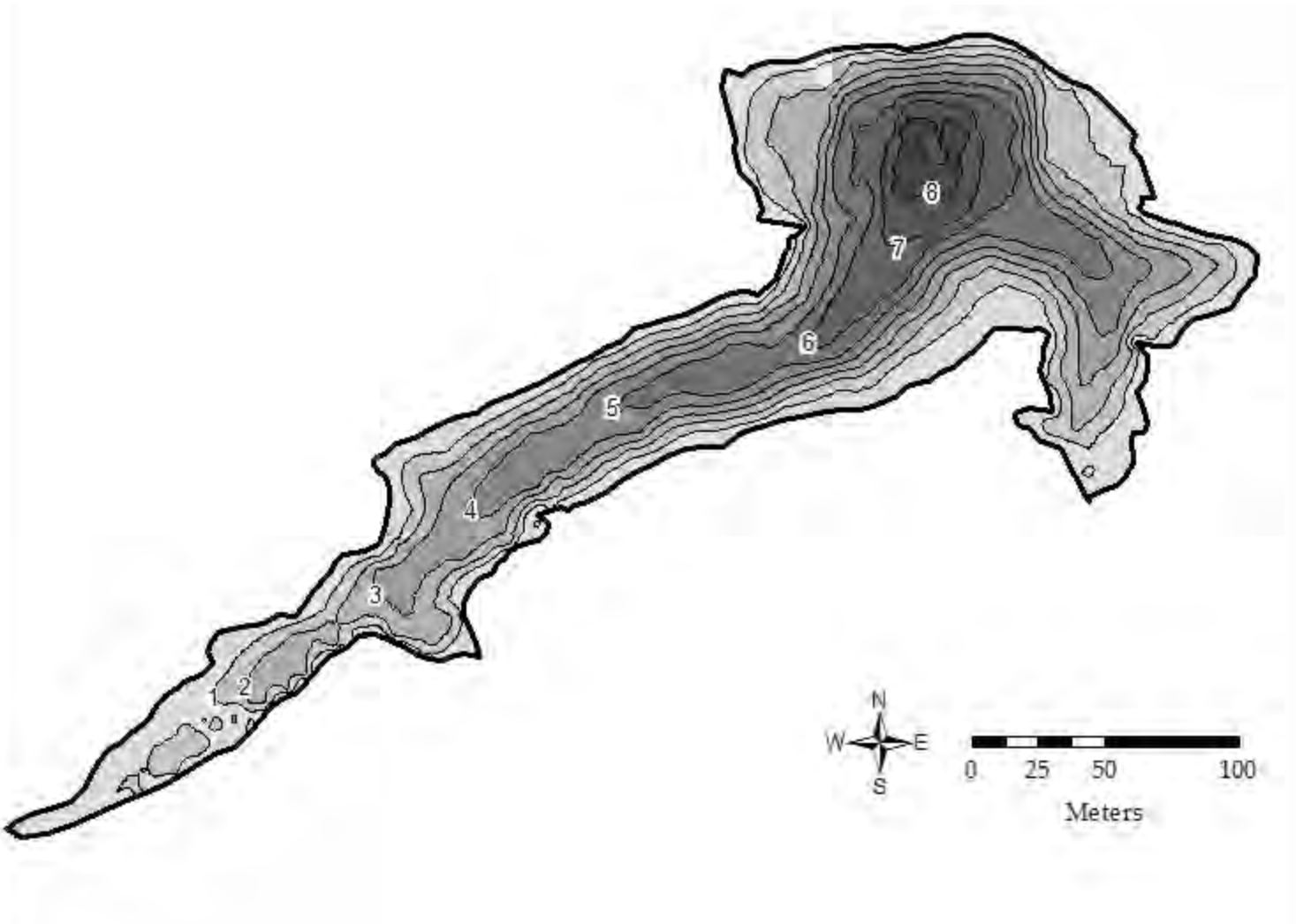


Figure 2. Bathymetric map of Anderson Dam.

Table 1. Physico-chemical characteristics of Anderson Dam: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.07 | 1.4 | <0.003 | <0.003 | <0.003 | NA | 4.5 | 25.1 | 0.7 |
| Summer | 0.3 | 2.6 | 0.009 | <0.003 | 0.009 | NA | 25.0 | 40.9 | 0.4 |

[1] Spring samples collected June 14, 2011; summer samples collected July 21, 2011.

Table 2. Physico-chemical characteristics of Anderson Dam: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 16.7 | 10.2 | 341.9 | 9.5 |
| | 1 | 16.5 | 9.9 | 340.6 | 9.2 |
| | 2 | 16.2 | 8.5 | 340.2 | 9.0 |
| | 3 | 13.4 | 0.8 | 319.2 | 8.3 |
| | 4 | 12.1 | 0.2 | 308.8 | 7.9 |
| | 5 | 11.3 | 0.3 | 304.8 | 8.1 |
| | 6 | 10.8 | 0.2 | 303.9 | 7.8 |
| | 7 | 10.8 | 0.2 | 303.7 | 7.7 |
| Summer | 1 | 20.0 | 9.4 | 317.4 | 9.4 |
| | 2 | 19.5 | 4.8 | 321.3 | 9.0 |
| | 3 | 16.6 | 1.4 | 322.9 | 8.2 |
| | 4 | 13.3 | 1.4 | 307.9 | 7.7 |
| | 5 | 11.9 | 1.8 | 303.2 | 7.5 |

[1] Spring samples collected June 14, 2011; summer samples collected July 21, 2011.

## BASHAW POND

12 U 366772 5827387

Located in Bashaw, approximately 60 km south of Camrose.

| | |
|---|---|
| Area (ha) | 1.5 |
| Max depth (m) | 5.6 |
| Mean depth (m) | 3.4 |

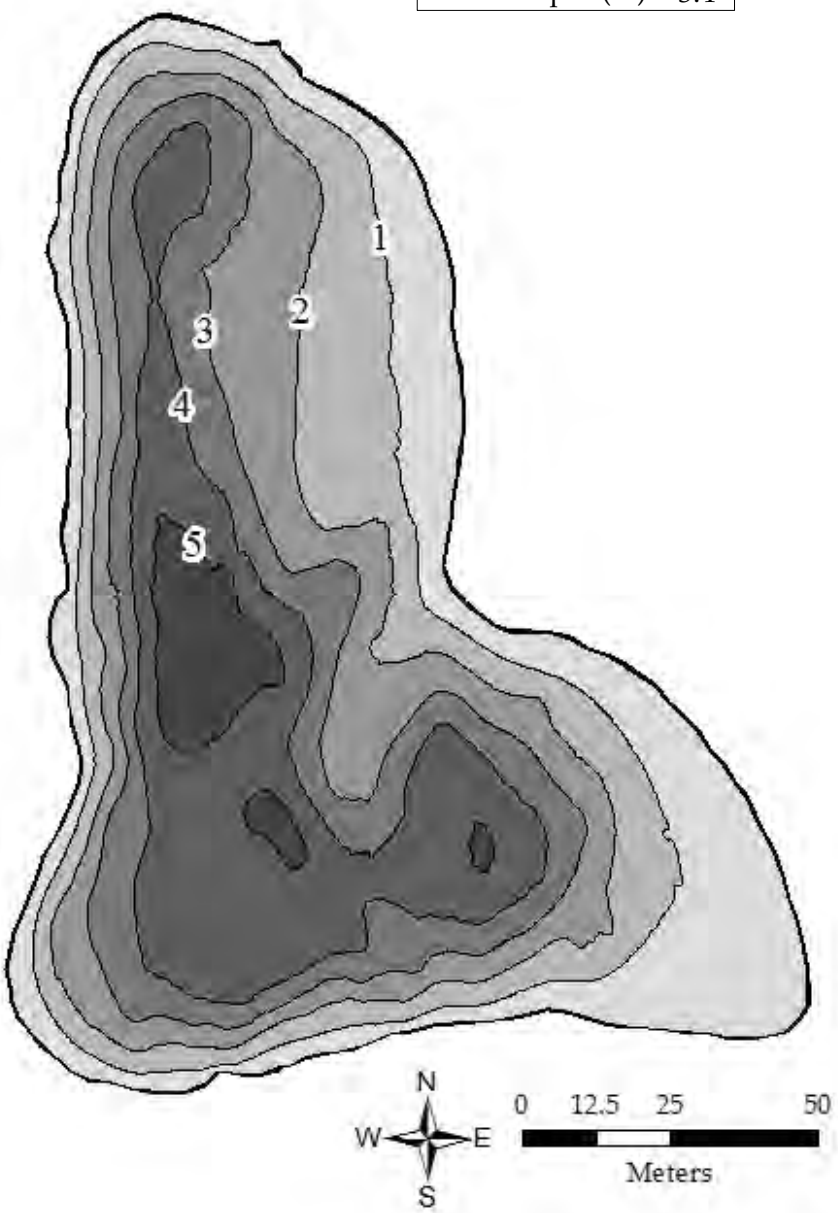


Figure 3. Bathymetric map of Bashaw Pond.

Table 3. Physico-chemical characteristics of Bashaw Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.03 | 1.1 | <0.003 | <0.003 | <0.003 | <0.05 | 2.8 | NA | NA |
| Summer | 0.09 | 1.1 | 0.004 | < 0.003 | 0.004 | NA | 1.5 | 1.8 | 4.7 |

[1] Spring samples collected May 28, 2011; summer samples collected June 22, 2011.

Table 4. Physico-chemical characteristics of Bashaw Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 14.8 | 7.2 | 261.5 | 9.6 |
| | 1 | 14.8 | 7.1 | 278.4 | 9.0 |
| | 2 | 14.4 | 7.1 | 276.8 | 8.7 |
| | 3 | 13.3 | 6.2 | 271.8 | 8.5 |
| | 4 | 11.0 | 0.3 | 269.3 | 8.0 |
| Summer | 0 | 20.8 | 7.8 | 470.6 | 8.4 |
| | 1 | 18.6 | 7.9 | 448.2 | 8.2 |
| | 2 | 17.5 | 7.8 | 437.1 | 8.2 |
| | 3 | 16.9 | 7.0 | 431.6 | 8.2 |
| | 4 | 16.2 | 5.1 | 432.8 | 8.0 |

[1] Spring samples collected May 28, 2011; summer samples collected June 22, 2011.

## BEAUMONT POND

12 U 338296 5913642

Located in Beaumont, approximately 10 km southeast of Edmonton.

| | |
|---|---|
| Area (ha) | 2.3 |
| Max depth (m) | 8.3 |
| Mean depth (m) | 3.0 |

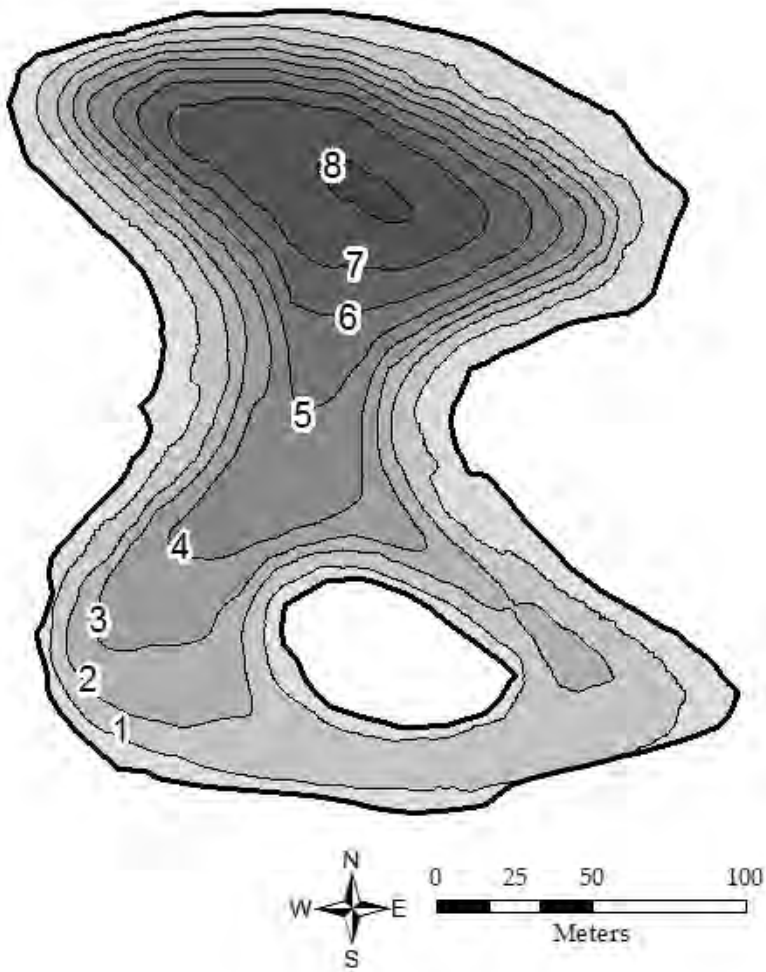


Figure 4. Bathymetric map of Beaumont Pond.

Table 5. Physico-chemical characteristics of Beaumont Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.02 | 0.7 | <0.003 | <0.003 | <0.003 | 0.05 | 1.0 | 3.1 | 4.5 |
| Summer | 0.07 | 1.0 | <0.003 | <0.003 | <0.003 | NA | 2.6 | 23.0 | 2.6 |

[1] Spring samples collected June 28, 2011; summer samples collected August 10, 2011.

Table 6. Physico-chemical characteristics of Beaumont Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 18.4 | 10.4 | 303.7 | 8.5 |
| | 2 | 15.5 | 10.9 | 285.4 | 8.4 |
| | 3 | 13.3 | 10.8 | 272.6 | 8.7 |
| | 4 | 11.3 | 10.1 | 262.6 | 8.8 |
| | 5 | 8.5 | 10.2 | 247.9 | 8.9 |
| | 6 | 6.6 | 0.5 | 243.1 | 9.0 |
| | 7 | 5.8 | 0.3 | 272.0 | 8.9 |
| Summer | 1 | 21.8 | 10.8 | 402.1 | 8.5 |
| | 2 | 21.4 | 9.7 | 401.3 | 8.4 |
| | 3 | 20.7 | 8.7 | 397.6 | 8.2 |
| | 4 | 19.3 | 3.3 | 395.3 | 7.9 |
| | 5 | 17.0 | 0.2 | 368.4 | 7.8 |
| | 6 | 13.4 | 0.2 | 377.8 | 7.6 |
| | 7 | 9.5 | 0.1 | 394.7 | 7.4 |

[1] Spring samples collected May 23, 2014; summer samples collected August 12, 2014.

## BONNYVILLE POND

12 U 516612 6013155

Located in Bonnyville, 240 km northeast of Edmonton.

| | |
|---|---|
| Area (ha) | 0.7 |
| Max depth (m) | 4.0 |
| Mean depth (m) | 1.7 |

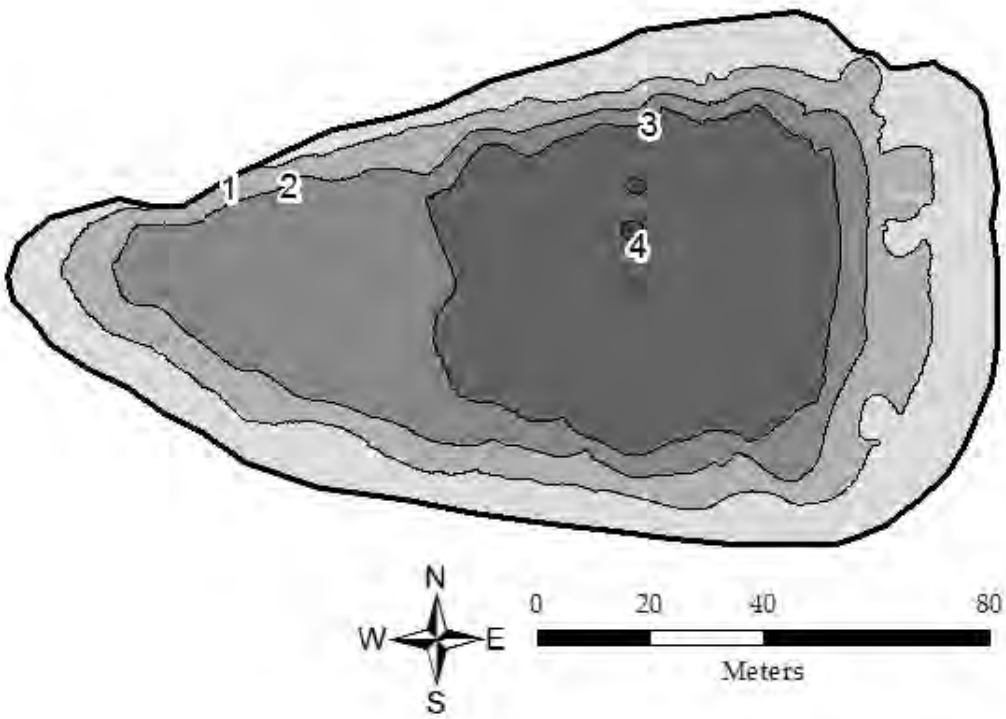


Figure 5. Bathymetric map of Bonnyville Pond.

Table 7. Physico-chemical characteristics of Bonnyville Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.2 | 1.9 | 0.005 | 0.005 | 0.003 | 0.05 | 0.9 | NA | 2.7 |
| Summer | 0.1 | 2.3 | <0.003 | <0.003 | <0.003 | NA | 1.8 | 6.7 | 2.4 |

[1] Spring samples collected May 30, 2012; summer samples collected July 7, 2011.

Table 8. Physico-chemical characteristics of Bonnyville Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 16.9 | 10.6 | 744.7 | 9.1 |
| | 2 | 16.4 | 10.3 | 737.3 | 9.0 |
| | 3 | 13.9 | 6.6 | 702.0 | 8.8 |
| Summer | 0 | 22.3 | 3.9 | 696.3 | 9.2 |
| | 1 | 22.0 | 4.0 | 690.7 | 9.2 |
| | 2 | 21.4 | 3.6 | 684.0 | 9.1 |
| | 3 | 19.1 | 2.5 | 665.0 | 8.9 |

[1] Spring samples collected May 30, 2012; summer samples collected July 7, 2011.

## BOW CITY EAST POND

12 U 410300 5587737

Located approximately 30 km southwest of Brooks, just north of the Bow River and west of Highway 36.

| | |
|---|---|
| Area (ha) | 4.3 |
| Max depth (m) | 20.3 |
| Mean depth (m) | 4.1 |

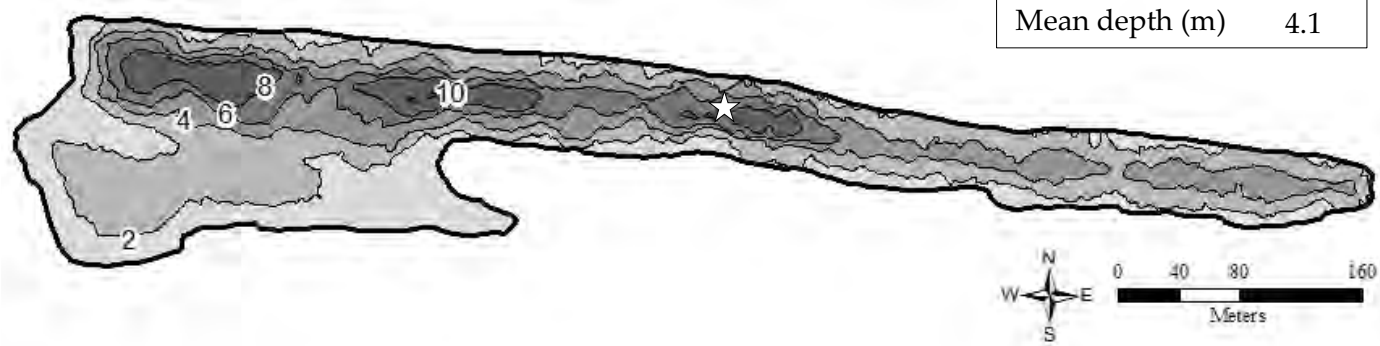


Figure 6. Bathymetric map of Bow City East Pond. Star indicates max depth location.

Table 9. Physico-chemical characteristics of Bow City East Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.01 | 0.9 | 0.01 | <0.003 | 0.01 | NA | 6.0 | 2.4 | 2.4 |
| Summer | 0.01 | 0.7 | 0.005 | <0.003 | 0.005 | NA | 2.7 | 2.4 | 2.5 |

[1] Spring samples collected June 7, 2011; summer samples collected July 26, 2011.

Table 10. Physico-chemical characteristics of Bow City East Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 13.8 | 8.8 | 2,520.0 | 9.1 |
| | 1 | 13.8 | 8.6 | 2,522.3 | 9.1 |
| | 2 | 13.7 | 8.8 | 2,522.3 | 9.1 |
| | 3 | 13.6 | 8.7 | 2,523.3 | 9.1 |
| | 4 | 13.4 | 8.6 | 2,522.3 | 9.1 |
| | 5 | 13.1 | 8.6 | 2,521.3 | 9.1 |
| | 6 | 13.1 | 8.5 | 2,520.3 | 9.1 |
| | 7 | 12.9 | 8.3 | 2,519.3 | 9.1 |
| | 8 | 12.6 | 7.5 | 2,493.0 | 8.7 |
| | 9 | 12.2 | 4.7 | 2,409.0 | 8.4 |
| | 10 | 12.4 | 3.8 | 2,373.5 | 8.1 |
| | 11 | 12.2 | 3.6 | 2,338.0 | 8.2 |
| Summer | 0 | 20.7 | 7.6 | 2,526.0 | 9.2 |
| | 1 | 20.7 | 7.4 | 2,528.7 | 9.2 |
| | 2 | 20.7 | 7.3 | 2,529.0 | 9.2 |
| | 3 | 20.3 | 7.0 | 2,531.7 | 9.2 |
| | 4 | 19.6 | 6.4 | 2,533.3 | 9.2 |
| | 5 | 18.6 | 5.2 | 2,531.3 | 9.1 |
| | 6 | 18.4 | 5.1 | 2,526.5 | 9.1 |
| | 7 | 17.2 | 3.2 | 2,521.5 | 9.0 |

[1] Spring samples collected May 31, 2016; summer samples collected July 19, 2016.

## BOYLE POND

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12 U 383294 6044824

Located approximately 50 km southeast of Athabasca, 5.5 km south of Boyle on Highway 831.

| | |
|---|---|
| Area (ha) | 4.4 |
| Max depth (m) | 5.3 |
| Mean depth (m) | 2.2 |

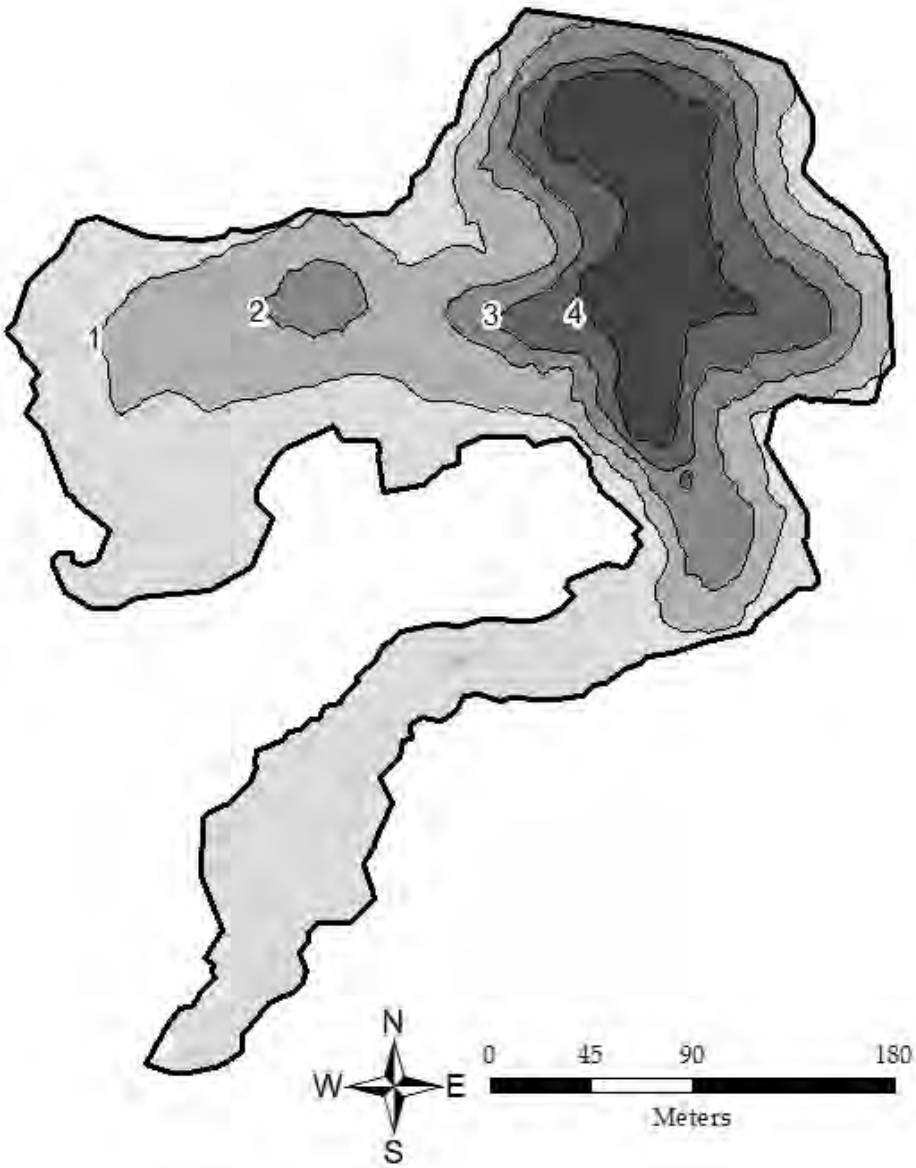


Figure 7. Bathymetric map of Boyle Pond.

Table 11. Physico-chemical characteristics of Boyle Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.03 | 1.6 | <0.003 | <0.003 | <0.003 | <0.05 | 5.5 | 14.8 | 1.1 |
| Summer | 0.07 | 2.3 | <0.003 | <0.003 | <0.003 | NA | 8.5 | 39.1 | 1.2 |

[1] Spring samples collected June 16, 2011; summer samples collected August 3, 2011.

Table 12. Physico-chemical characteristics of Boyle Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 14.0 | 8.7 | 464.7 | 8.4 |
| | 2 | 12.2 | 6.4 | 471.6 | 8.0 |
| | 3 | 9.2 | 0.1 | 552.3 | 7.5 |
| | 4 | 5.8 | 0 | 850.0 | 7.6 |
| Summer | 0 | 19.8 | 7.1 | 257.3 | 8.1 |
| | 1 | 19.0 | 5.3 | 253.4 | 7.7 |
| | 2 | 15.9 | 1.2 | 246.9 | 7.4 |
| | 3 | 11.6 | 0.6 | 278.2 | 7.3 |

[1] Spring samples collected May 31, 2016; summer samples collected August 3, 2011.

## BUD MILLER PARK POND

12 U 564086 5901452

Located in the city of Lloydminster.

| | |
|---|---|
| Area (ha) | 4.0 |
| Max depth (m) | 7.4 |
| Mean depth (m) | 3.7 |

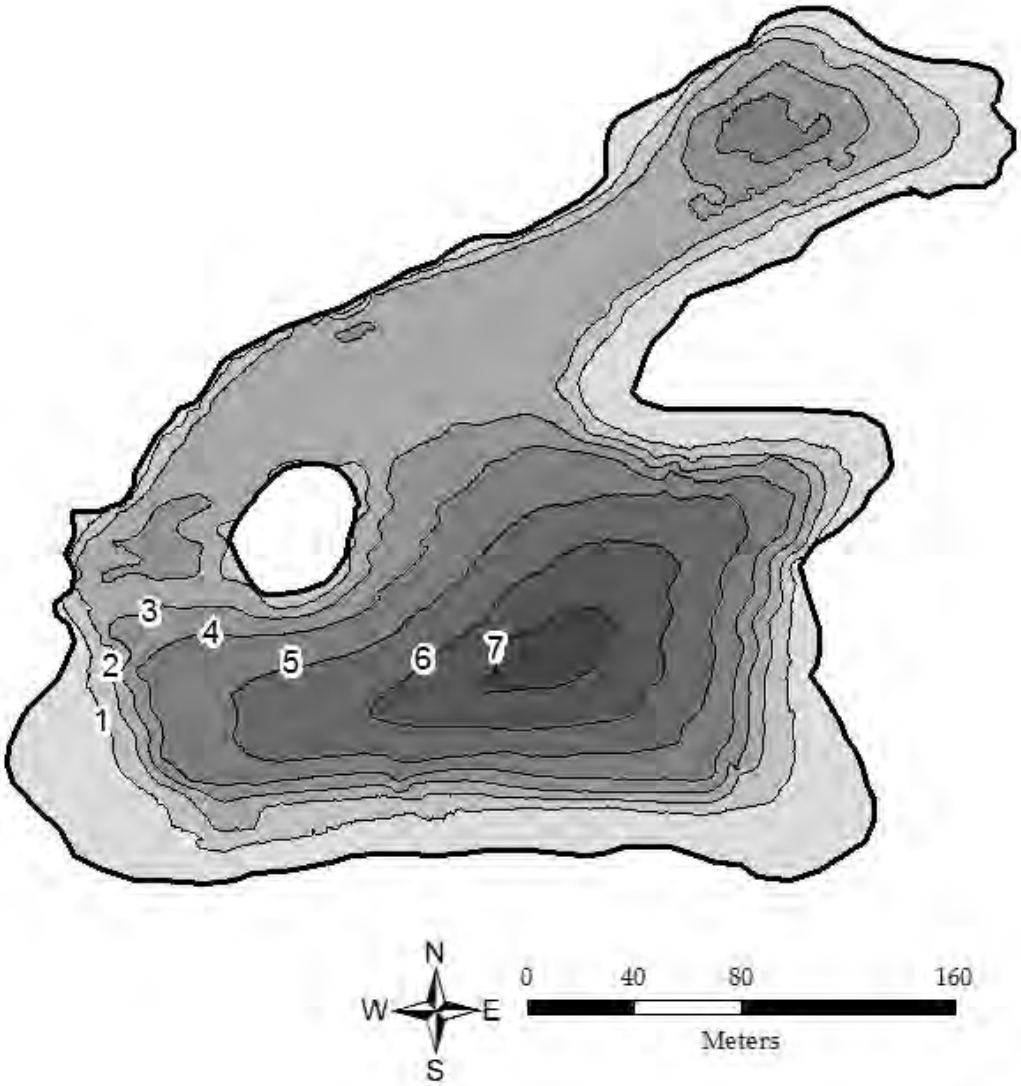


Figure 8. Bathymetric map of Bud Miller Park Pond.

Table 13. Physico-chemical characteristics of Bud Miller Park Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.2 | 2.2 | 0.003 | 0.003 | 0.003 | 0.05 | 11.0 | NA | 0.4 |
| Summer | 0.4 | 2.7 | 0.04 | 0.01 | 0.03 | NA | 3.6 | 27.5 | 1.9 |

[1] Spring samples collected May 31, 2012; summer samples collected July 6, 2011.

Table 14. Physico-chemical characteristics of Bud Miller Park Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 17.3 | 9.5 | 1,272.3 | 8.9 |
| | 2 | 16.3 | 8.0 | 1,276.7 | 8.7 |
| | 3 | 13.8 | 1.2 | 1,285.3 | 7.9 |
| | 4 | 7.2 | 0 | 1,373.5 | 7.3 |
| | 5 | 4.8 | 0 | 1,479.0 | 7.4 |
| | 6 | 4.2 | 0 | 1,532.0 | 7.4 |
| Summer | 0 | 23.4 | 4.2 | 650.3 | 9.3 |
| | 1 | 22.0 | 4.4 | 632.3 | 8.9 |
| | 2 | 20.6 | 4.3 | 617.0 | 8.7 |
| | 3 | 19.5 | 3.1 | 610.7 | 8.0 |
| | 4 | 14.0 | 2.3 | 622.7 | 7.6 |
| | 5 | 6.9 | 2.9 | 610.0 | 7.3 |

[1] Spring samples collected June 1, 2016; summer samples collected July 6, 2011.

## CASTOR FISH POND

12 U 437748 5785704

Located in the town of Castor, 140 km east of Red Deer on Highway 12.

| | |
|---|---|
| Area (ha) | 0.8 |
| Max depth (m) | 8.3 |
| Mean depth (m) | 2.1 |

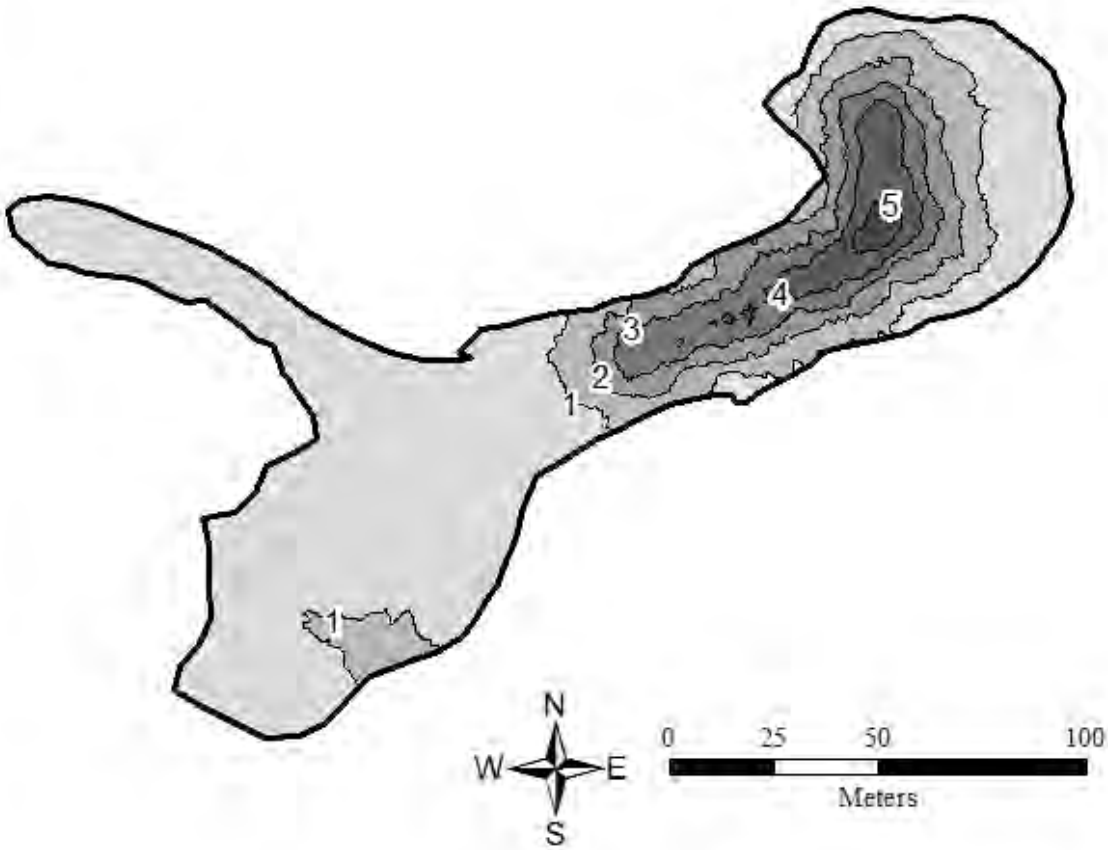


Figure 9. Bathymetric map of Castor Fish Pond.

Table 15. Physico-chemical characteristics of Castor Fish Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.9 | 5.3 | 0.09 | 0.08 | 0.005 | 2.0 | 12.0 | NA | 1.0 |
| Summer | 1.4 | 6.3 | 1.4 | 0.08 | 1.3 | NA | 25.0 | 4.1 | 0.9 |

[1] Spring samples collected June 7, 2012; summer samples collected August 10, 2011.

Table 16. Physico-chemical characteristics of Castor Fish Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 12.8 | 5.2 | 1,556.0 | 7.7 |
| | 2 | 9.9 | 0.3 | 1,947.3 | 7.2 |
| | 3 | 7.2 | 0 | 5,205.3 | 6.4 |
| | 4 | 5.6 | 0 | 5,983.7 | 6.5 |
| | 5 | 5.4 | 0 | 6,110.0 | 6.5 |
| Summer | 0 | 20.6 | 5.8 | 1,677.0 | 7.6 |
| | 1 | 19.6 | 1.5 | 1,655.7 | 7.5 |
| | 2 | 14.7 | 0.2 | 2,643.7 | 6.8 |
| | 3 | 9.4 | 0.3 | 5,374.5 | 6.4 |
| | 4 | 7.0 | 0.4 | 5,959.5 | 6.5 |
| | 5 | 6.1 | 0.4 | 6,170.0 | 6.5 |

[1] Spring samples collected June 2, 2016; summer samples collected August 17, 2016.

## CENTENNIAL PARK POND

12 U 325296 5839899

Located in the town of Ponoka, approximately 100 km south of Edmonton.

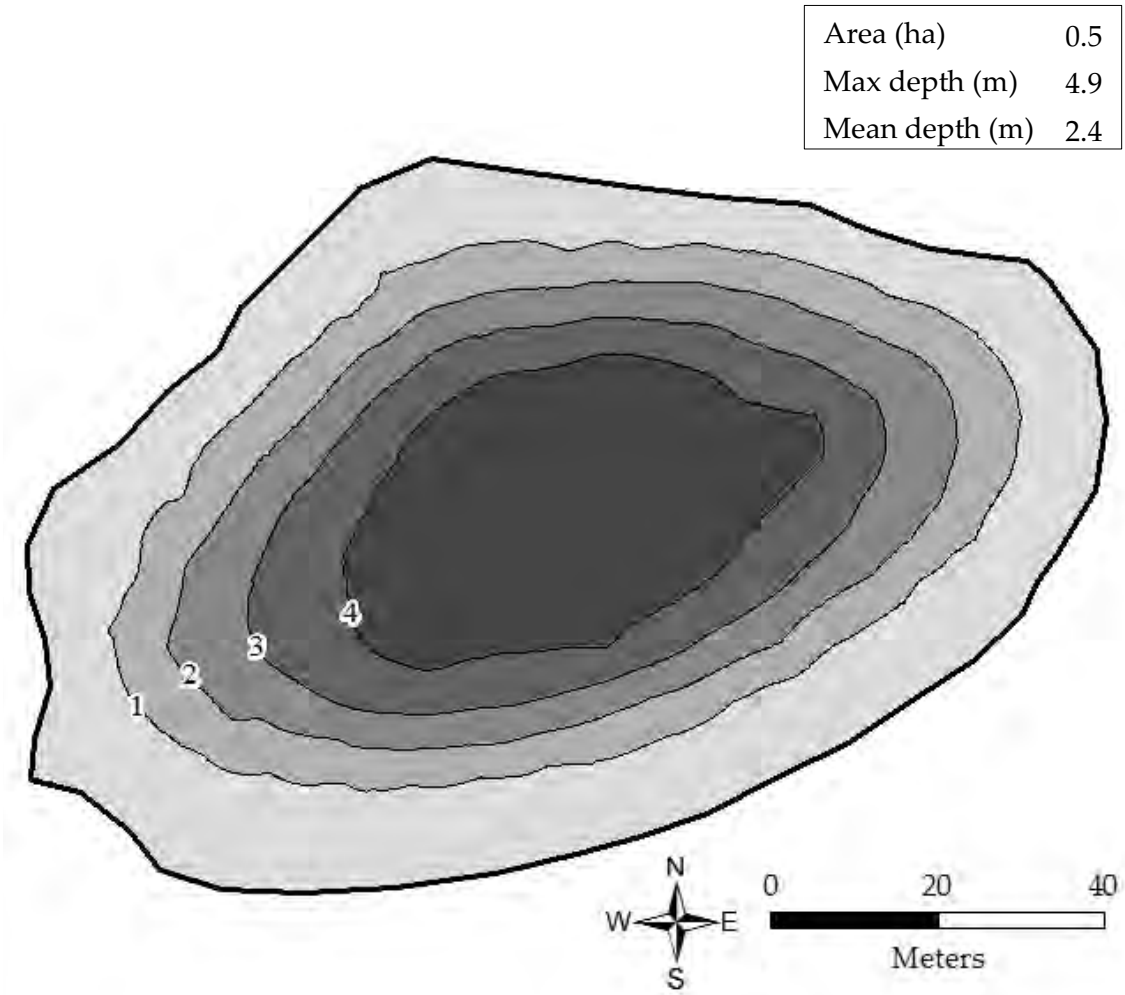


Figure 10. Bathymetric map of Centennial Park Pond.

Table 17. Physico-chemical characteristics of Centennial Park Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (μg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.2 | 2.0 | <0.003 | <0.003 | <0.003 | <0.05 | 8.4 | NA | NA |
| Spring | 0.2 | 1.8 | <0.003 | <0.003 | <0.003 | NA | 3.5 | 19.2 | 2.1 |

[1] Spring samples collected May 17, 2011; summer samples collected June 21, 2011.

Table 18. Physico-chemical characteristics of Centennial Park Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (μS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 16.2 | 8.2 | 1,568.7 | 8.4 |
| | 2 | 14.0 | 7.0 | 1,563.0 | 8.1 |
| | 3 | 12.0 | 4.3 | 1,567.0 | 7.9 |
| | 4 | 10.4 | 0.1 | 1,607.5 | 7.7 |
| Summer | 0 | 19.9 | 8.1 | 1,172.0 | 8.4 |
| | 1 | 16.8 | 8.5 | 1,087.7 | 8.2 |
| | 2 | 16.0 | 7.7 | 1,066.3 | 8.1 |
| | 3 | 14.6 | 2.6 | 1,042.5 | 7.7 |

[1] Spring samples collected June 2, 2016; summer samples collected June 21, 2011.

## CIPPERLEY'S RESERVOIR

11 U 699651 5734303

Located 6.4 km south of Olds, a town 95 km north of Calgary.

| | |
|---|---|
| Area (ha) | 4.3 |
| Max depth (m) | 5.6 |
| Mean depth (m) | 3.0 |

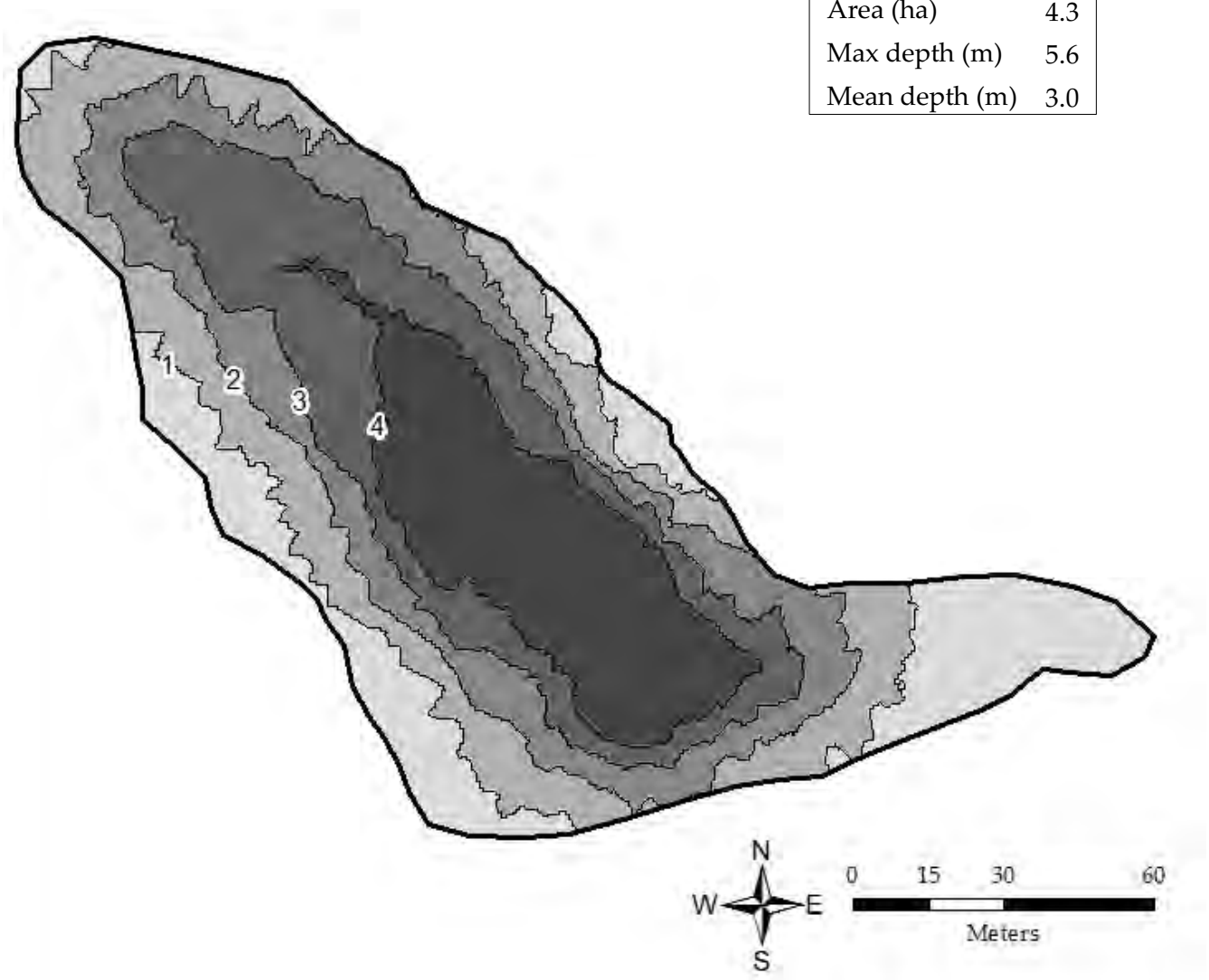


Figure 11. Bathymetric map of Cipperley's Reservoir.

Table 19. Physico-chemical characteristics of Cipperley's Reservoir: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.6 | 2.2 | 0.02 | 0.007 | 0.009 | NA | 1.5 | 3.2 | 1.3 |
| Summer | 0.7 | 2.6 | 0.01 | 0.006 | 0.005 | NA | 1.9 | 21.5 | 0.9 |

[1] Spring samples collected June 15, 2011; summer samples collected July 20, 2011.

Table 20. Physico-chemical characteristics of Cipperley's Reservoir: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 19.8 | 10.2 | 857.7 | 8.8 |
| | 1 | 19.1 | 9.9 | 858.7 | 8.7 |
| | 2 | 18.7 | 9.9 | 850.5 | 8.7 |
| | 3 | 18.2 | 8.8 | 926.7 | 8.7 |
| Summer | 0 | 19.9 | 7.0 | 581.7 | 8.4 |
| | 1 | 19.6 | 6.3 | 577.7 | 8.3 |
| | 2 | 18.5 | 3.4 | 661.7 | 8.0 |
| | 3 | 14.0 | 2.4 | 486.2 | 7.9 |

[1] Spring samples collected June 6, 2016; summer samples collected July 20, 2011.

## CLAUDE BRENNAN MEMORIAL POND

12 U 507762 5912837

Formerly Vermillion Pond, this pond is located in Vermilion Provincial Park, approximately 64 km west of Lloydminster.

| | |
|---|---|
| Area (ha) | 2.0 |
| Max depth (m) | 8.5 |
| Mean depth (m) | 3.8 |

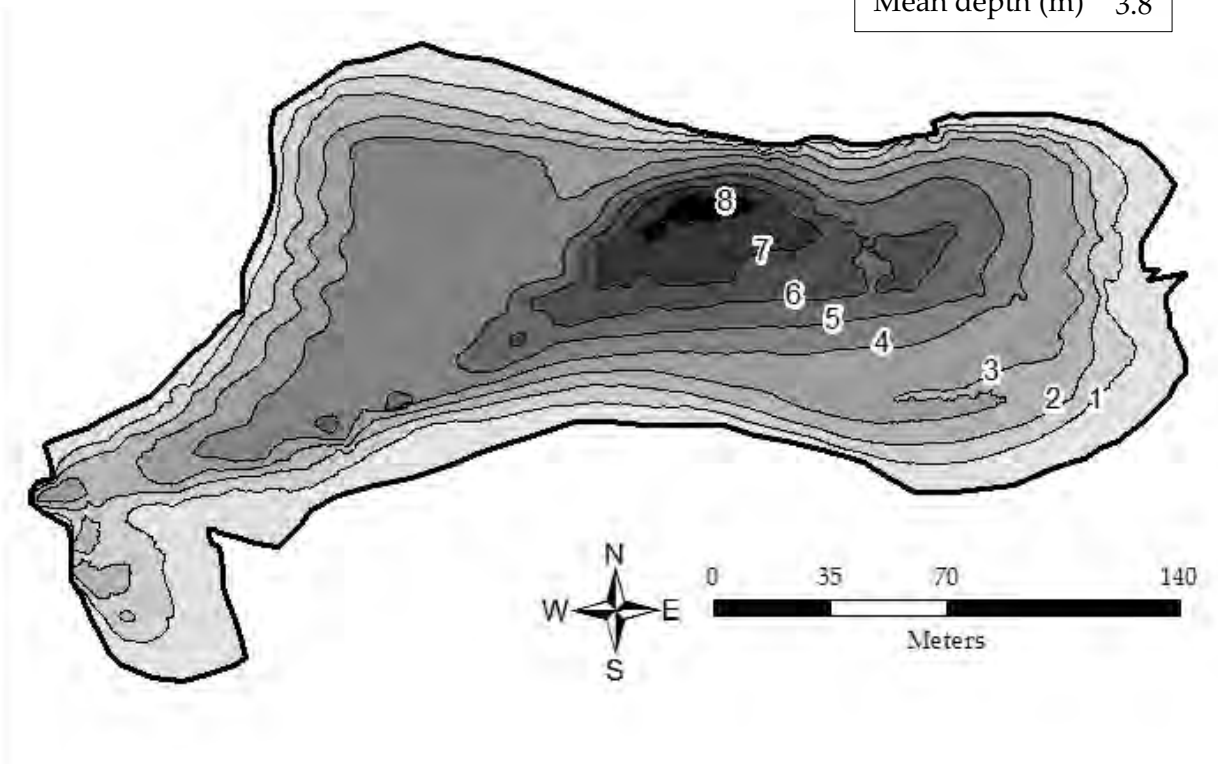


Figure 12. Bathymetric map of Claude Brennan Memorial Pond.

Table 21. Physico-chemical characteristics of Claude Brennan Memorial Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.3 | 2.3 | 0.003 | 0.003 | 0.003 | 0.08 | 7.3 | NA | 0.4 |
| Summer | 0.5 | 3.5 | 0.04 | 0.02 | 0.03 | NA | 6.8 | 32.3 | 0.5 |

[1] Spring samples collected May 31, 2012; summer samples collected July 6, 2011.

Table 22. Physico-chemical characteristics of Claude Brennan Memorial Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 17.9 | 12.0 | 479.8 | 9.2 |
| | 2 | 13.2 | 7.1 | 436.3 | 8.7 |
| | 3 | 11.6 | 3.3 | 422.3 | 8.2 |
| | 4 | 10.2 | 3.0 | 462.0 | 8.1 |
| | 5 | 8.1 | 2.9 | 461.2 | 7.9 |
| | 6 | 6.6 | 2.8 | 451.4 | 8.0 |
| Summer | 0 | 21.9 | 5.2 | 411.8 | 9.7 |
| | 1 | 21.3 | 4.9 | 407.4 | 9.7 |
| | 2 | 18.8 | 3.4 | 407.9 | 9.2 |
| | 3 | 13.6 | 2.1 | 412.0 | 8.3 |
| | 4 | 9.4 | 2.4 | 342.7 | 7.6 |
| | 5 | 7.8 | 2.2 | 328.9 | 7.4 |
| | 6 | 7.3 | 1.3 | 323.6 | 7.4 |
| | 7 | 7.1 | 1.1 | 321.9 | 7.4 |

[1] Spring samples collected May 31, 2012; summer samples collected July 6, 2011.

## DAYSLAND POND

12 U 415035 5858358

Located in Daysland, 140 km southeast of Edmonton.

| | |
|---|---|
| Area (ha) | 0.4 |
| Max depth (m) | 5.7 |
| Mean depth (m) | 2.7 |

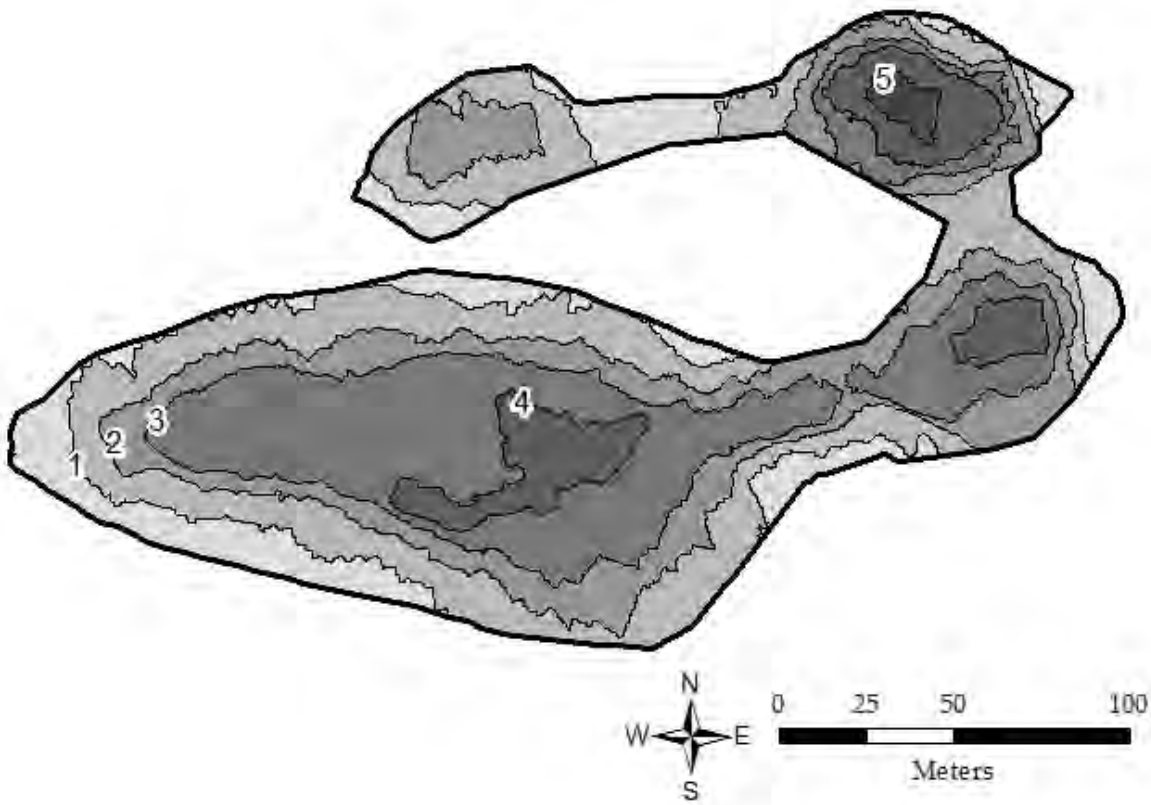


Figure 13. Bathymetric map of Daysland Pond.

Table 23. Physico-chemical characteristics of Daysland Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.1 | 1.9 | 0.003 | 0.003 | 0.003 | 0.05 | 5.4 | NA | 1.3 |
| Summer | 0.3 | 2.3 | 0.009 | 0.005 | 0.004 | NA | 4.4 | 13.9 | 1.5 |

[1] Spring samples collected June 4, 2013; summer samples collected August 9, 2011.

Table 24. Physico-chemical characteristics of Daysland Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 17.7 | 12.3 | 678.7 | 8.4 |
| | 2 | 17.2 | 9.9 | 669.0 | 8.4 |
| | 3 | 15.0 | 8.0 | 640.7 | 8.0 |
| | 4 | 4.7 | 4.9 | 668.0 | 7.4 |
| | 5 | 4.1 | 4.6 | 682.0 | 7.2 |
| Summer | 1 | 20.4 | 12.7 | 851.3 | 8.7 |
| | 2 | 19.1 | 9.6 | 833.0 | 8.5 |
| | 3 | 16.7 | 6.6 | 852.7 | 8.3 |
| | 4 | 13.8 | 0.4 | 839.3 | 7.9 |
| | 5 | 4.6 | 0.0 | 875.0 | 7.5 |

[1] Spring samples collected June 4, 2013; summer samples collected July 2, 2014.

## DEWITT'S POND

11 U 700949 5683052

Located 10 km west of Airdrie, south of Twp Rd. 270 on RR. 15.

| | |
|---|---|
| Area (ha) | 3.2 |
| Max depth (m) | 3.8 |
| Mean depth (m) | 2.0 |

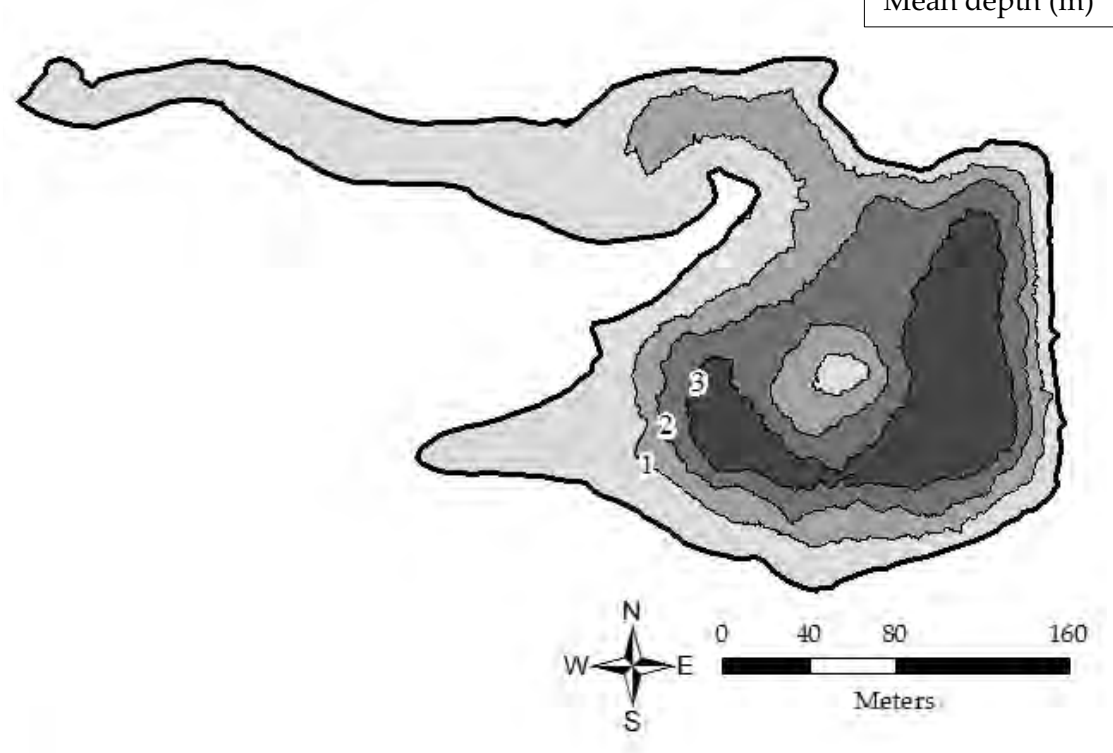


Figure 14. Bathymetric map of Dewitt's Pond.

Table 25. Physico-chemical characteristics of Dewitt's Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.5 | 2.5 | <0.003 | <0.003 | <0.003 | NA | 7.8 | 23.7 | 1.2 |
| Summer | 0.6 | 2.2 | 0.006 | 0.006 | <0.003 | NA | 5.8 | 23.1 | 1.0 |

[1] Spring samples collected June 9, 2011; summer samples collected July 19, 2011.

Table 26. Physico-chemical characteristics of Dewitt's Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 19.0 | 9.6 | 1,368.3 | 8.9 |
| | 1 | 18.3 | 9.2 | 1,369.0 | 8.8 |
| | 2 | 14.4 | 1.8 | 1,390.3 | 8.6 |
| Summer | 0 | 21.2 | 13.4 | 877.0 | 9.3 |
| | 1 | 19.7 | 11.1 | 853.0 | 9.3 |
| | 2 | 17.1 | 6.0 | 812.0 | 9.2 |
| | 3 | 15.9 | 2.9 | 787.5 | 9.1 |

[1] Spring samples collected June 6, 2016; summer samples collected July 19, 2011.

## EAST STORMWATER POND

12 U 315775 5817522

Located in the town of Lacombe.

| | |
|---|---|
| Area (ha) | 1.4 |
| Max depth (m) | 8.5 |
| Mean depth (m) | 2.2 |

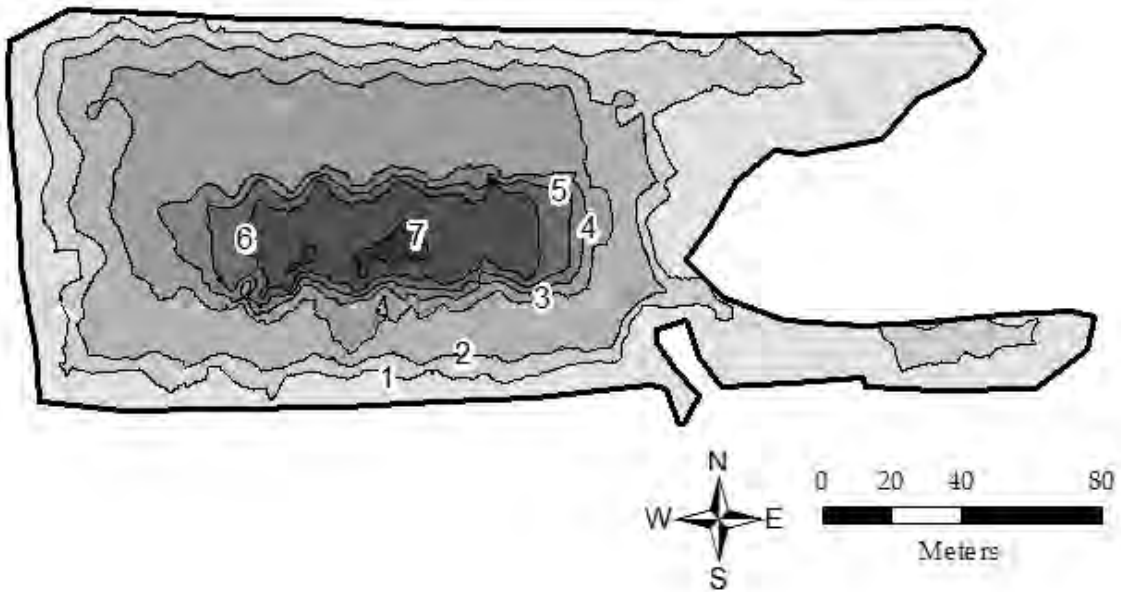


Figure 15. Bathymetric map of East Stormwater Pond.

Table 27. Physico-chemical characteristics of East Stormwater Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.09 | 1.0 | 0.04 | 0.2 | <0.03 | 0.2 | 2.1 | 13.8 | 2.5 |
| Summer | 0.2 | 1.1 | <0.02 | <0.04 | <0.03 | 0.3 | 3.1 | 52.2 | 0.6 |

[1] Spring samples collected June 1, 2016; summer samples collected August 22, 2016.

Table 28. Physico-chemical characteristics of East Stormwater Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 16.1 | 9.6 | 1,043.3 | 8.5 |
| | 1 | 15.8 | 9.6 | 1,043.3 | 8.4 |
| | 2 | 13.5 | 6.6 | 1,076.8 | 8.0 |
| | 3 | 11.2 | 2.5 | 1,109.5 | 7.7 |
| | 4 | 8.5 | 0.3 | 1,246.0 | 7.5 |
| | 5 | 5.4 | 0.2 | 1,467.0 | 7.3 |
| Summer | 0 | 19.4 | 5.0 | 855.7 | 8.6 |
| | 1 | 19.4 | 4.9 | 855.7 | 8.6 |
| | 2 | 19.4 | 4.9 | 856.7 | 8.6 |
| | 3 | 17.6 | 1.0 | 1,022.0 | 7.8 |
| | 4 | 12.8 | 0.5 | 1,273.0 | 7.6 |
| | 5 | 8.6 | 0.3 | 1,463.0 | 7.5 |
| | 6 | 6.3 | 0.2 | 1,537.5 | 7.3 |

[1] Spring samples collected June 1, 2016; summer samples collected August 22, 2016.

## ECHO DALE PARK

12 U 515841 5544369

Located in Echo Dale Regional Park on the west side of Medicine Hat. The park is accessed via RR 64 off Highway 523.

| | |
|---|---|
| Area (ha) | 0.8 |
| Max depth (m) | 3.8 |
| Mean depth (m) | 2.0 |

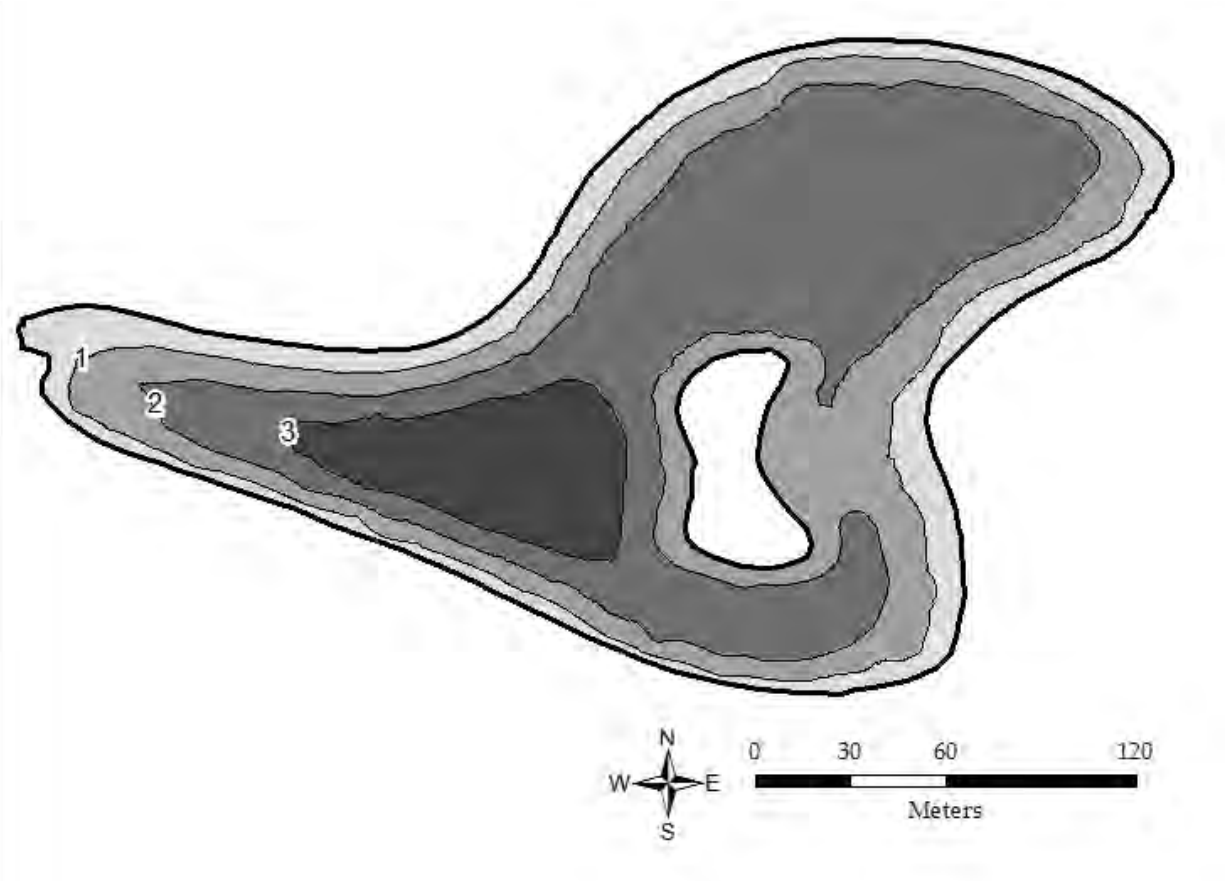


Figure 16. Bathymetric map of Echo Dale Pond.

Table 29. Physico-chemical characteristics of Echo Dale Park: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.04 | 0.1 | NA | NA | NA | NA | 4.0 | NA | NA |
| Summer | 0.02 | 0.7 | <0.003 | <0.003 | <0.003 | NA | 5.4 | 6.1 | 1.2 |

[1] Spring samples collected May 26, 2011; summer samples collected July 14, 2011.

Table 30. Physico-chemical characteristics of Echo Dale Park: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 22.8 | 6.6 | 465.2 | 8.4 |
| | 1 | 22.4 | 6.6 | 467.3 | 8.4 |
| | 2 | 21.4 | 6.5 | 468.6 | 8.3 |
| | 3 | 18.6 | 4.9 | 470.7 | 8.1 |
| Summer | 0 | 24.0 | 10.6 | 381.9 | 8.7 |
| | 1 | 23.9 | 10.3 | 380.5 | 8.6 |
| | 2 | 23.4 | 9.9 | 375.8 | 8.6 |
| | 3 | 21.8 | 5.3 | 374.0 | 8.1 |

[1] Spring samples collected June 7, 2016; summer samples collected July 14, 2011.

## EMERSON LAKE

12 U 297996 5606653

Located in High River, approximately 60 km south of Calgary.

| | |
|---|---|
| Area (ha) | 4.5 |
| Max depth (m) | 8.6 |
| Mean depth (m) | 3.8 |

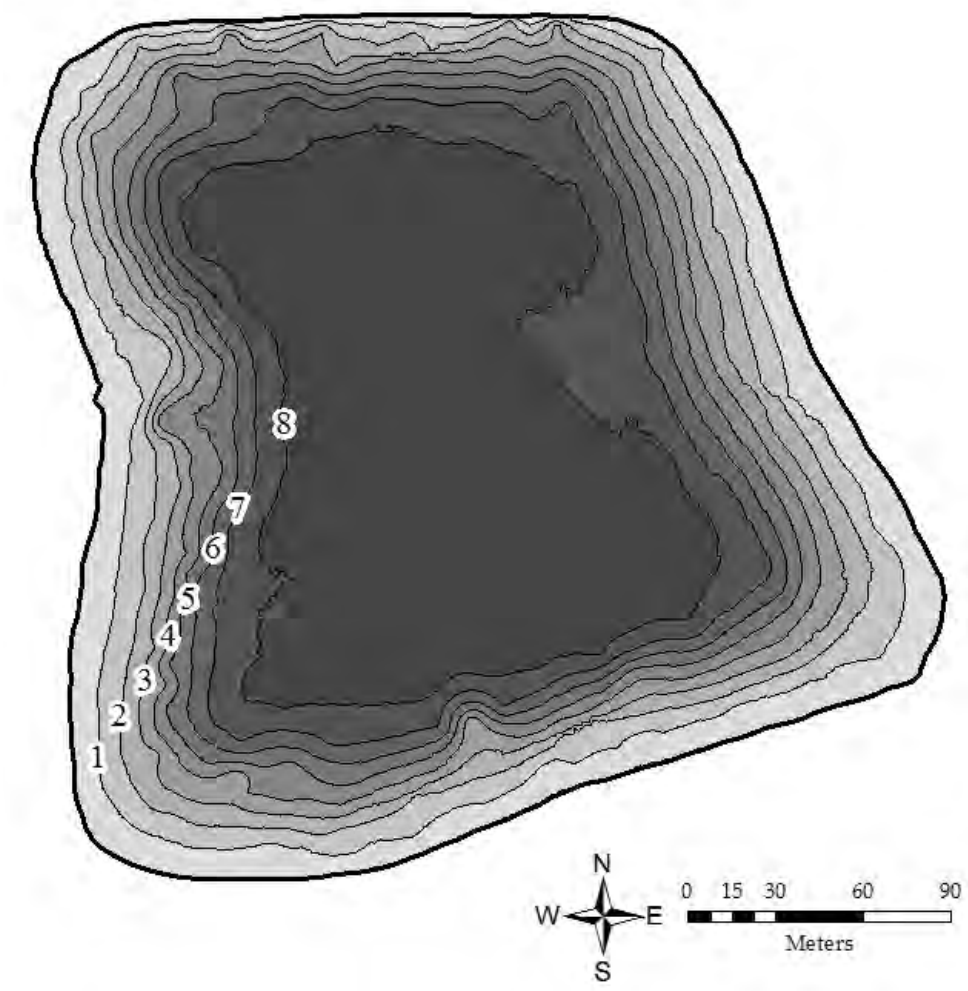


Figure 17. Bathymetric map of Emerson Lake.

Table 31. Physico-chemical characteristics of Emerson Lake: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.09 | 0.5 | 0.003 | <0.003 | 0.003 | NA | 1.8 | 2.9 | 5.3 |
| Summer | 0.01 | 0.4 | 0.006 | 0.006 | <0.003 | NA | 2.3 | 1.4 | 4.0 |

[1] Spring samples collected June 8, 2011; summer samples collected July 18, 2011.

Table 32. Physico-chemical characteristics of Emerson Lake: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 14.2 | 9.8 | 627.8 | 8.8 |
| | 1 | 14.2 | 9.8 | 627.9 | 8.8 |
| | 2 | 14.1 | 9.9 | 628.0 | 8.8 |
| | 3 | 14.0 | 9.8 | 628.1 | 8.7 |
| | 4 | 13.8 | 9.4 | 628.9 | 8.7 |
| | 5 | 13.1 | 9.2 | 630.0 | 8.7 |
| | 6 | 11.9 | 7.3 | 633.8 | 8.6 |
| | 7 | 11.7 | 5.9 | 635.3 | 8.3 |
| Summer | 0 | 17.7 | 6.4 | 587.7 | 8.5 |
| | 1 | 17.6 | 6.4 | 587.7 | 8.5 |
| | 2 | 17.6 | 6.2 | 588.0 | 8.5 |
| | 3 | 17.5 | 6.2 | 588.0 | 8.6 |
| | 4 | 17.5 | 5.9 | 587.7 | 8.5 |
| | 5 | 17.5 | 6.0 | 587.7 | 8.5 |
| | 6 | 17.4 | 5.8 | 588.0 | 8.5 |
| | 7 | 16.9 | 3.9 | 580.0 | 8.4 |
| | 8 | 15.3 | 0.2 | 612.0 | 7.8 |

[1] Spring samples collected May 30, 2016; summer samples collected August 25, 2016.

## ENCHANT PARK POND

12 U 397700 5557660

Located approximately 80 km northeast of Lethbridge in Enchant, on the south side of Highway 526.

| | |
|---|---|
| Area (ha) | 3.3 |
| Max depth (m) | 5.7 |
| Mean depth (m) | 2.4 |

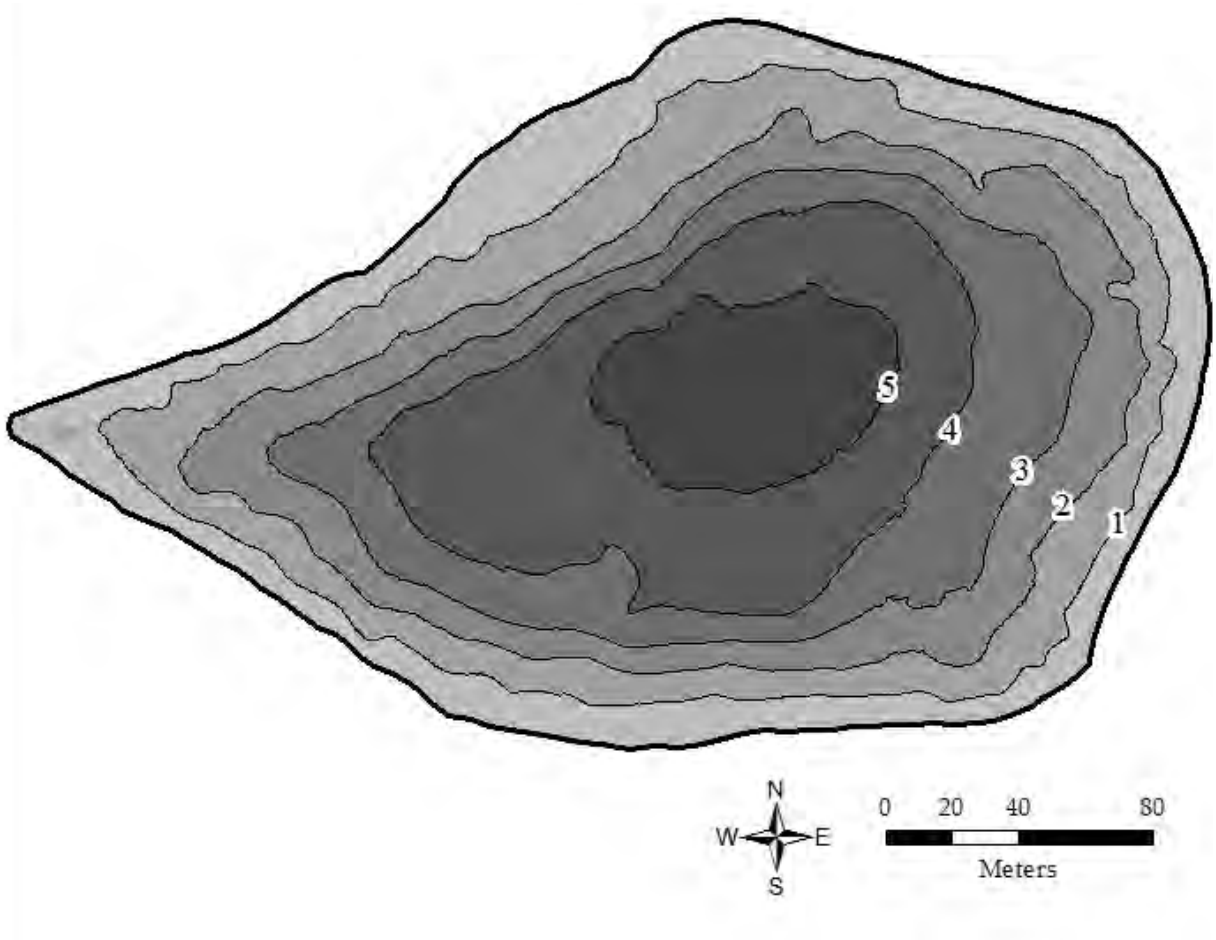


Figure 18. Bathymetric map of Enchant Park Pond.

Table 33. Physico-chemical characteristics of Enchant Park Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.02 | 0.8 | 0.008 | 0.003 | 0.005 | NA | 2.1 | 2.1 | 3.7 |
| Summer | 0.01 | 0.6 | 0.003 | <0.003 | 0.003 | NA | 1.6 | 4.5 | 4.4 |

[1] Spring samples collected June 7, 2011; summer samples collected July 26, 2011.

Table 34. Physico-chemical characteristics of Enchant Park Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 14.7 | 9.4 | 532.5 | 9.1 |
| | 1 | 14.7 | 9.4 | 532.9 | 9.1 |
| | 2 | 14.3 | 9.2 | 533.1 | 9.1 |
| | 3 | 14.2 | 9.1 | 533.0 | 9.1 |
| | 4 | 13.9 | 9.2 | 532.8 | 9.1 |
| | 5 | 13.6 | 8.8 | 533.3 | 9.0 |
| Summer | 0 | 20.7 | 10.0 | 498.3 | 9.1 |
| | 1 | 20.7 | 10.0 | 497.7 | 9.0 |
| | 2 | 20.6 | 9.9 | 497.6 | 8.9 |
| | 3 | 20.6 | 9.9 | 497.2 | 8.9 |
| | 4 | 20.4 | 9.0 | 495.5 | 8.9 |
| | 5 | 19.4 | 2.2 | 496.7 | 8.1 |

[1] Spring samples collected May 31, 2016; summer samples collected July 26, 2011.

## FOREMOST RESERVOIR

12 U 466867 5480668

Located 115 km east of Lethbridge in Foremost, on the south side of Highway 61.

| | |
|---|---|
| Area (ha) | 4.9 |
| Max depth (m) | 10.4 |
| Mean depth (m) | 4.6 |

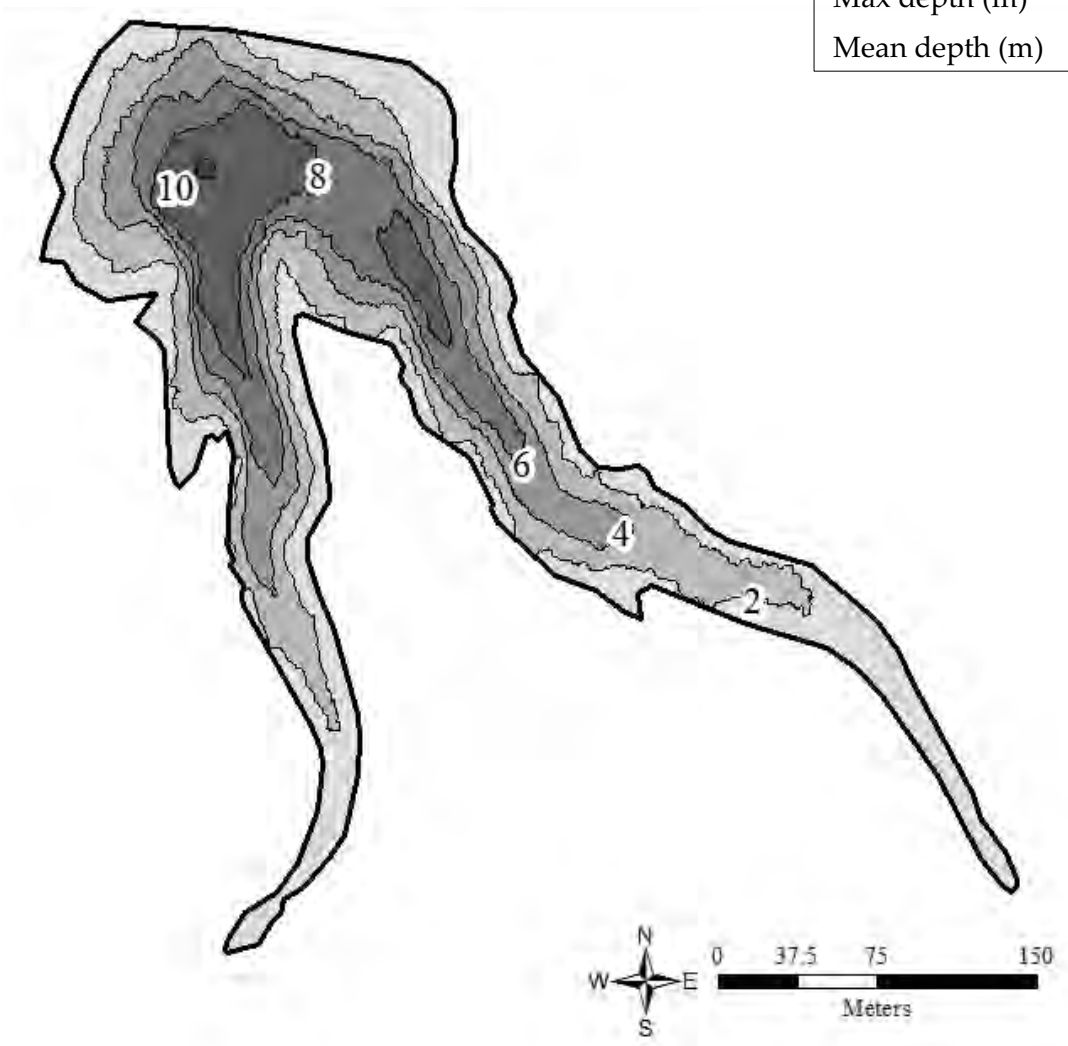


Figure 19. Bathymetric map of Foremost Reservoir.

Table 35. Physico-chemical characteristics of Foremost Reservoir: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.03 | 0.9 | 0.01 | 0.004 | 0.006 | NA | 1.7 | 2.9 | NA |
| Summer | 0.04 | 1.1 | 0.003 | <0.003 | 0.003 | NA | 3.0 | 14.6 | 2.5 |

[1] Spring samples collected June 1, 2011; summer samples collected July 14, 2011.

Table 36. Physico-chemical characteristics of Foremost Reservoir: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 14.7 | 9.6 | 443.2 | 8.9 |
| | 1 | 14.7 | 9.3 | 424.6 | 8.9 |
| | 2 | 14.5 | 9.3 | 424.3 | 8.9 |
| | 3 | 14.2 | 9.3 | 423.4 | 8.9 |
| | 4 | 14.1 | 8.7 | 425.5 | 8.8 |
| | 5 | 13.9 | 7.9 | 427.9 | 8.7 |
| | 6 | 13.7 | 7.6 | 429.9 | 8.6 |
| | 7 | 13.7 | 7.5 | 430.1 | 8.6 |
| | 8 | 13.3 | 8.6 | 426.1 | 8.8 |
| | 9 | 13.1 | 6.0 | 430.0 | 8.4 |
| | 10 | 13.1 | 4.1 | 436.5 | 7.9 |
| Summer | 0 | 21.6 | 9.1 | 498.6 | 8.1 |
| | 1 | 21.4 | 8.9 | 397.9 | 8.1 |
| | 2 | 21.3 | 8.8 | 496.5 | 8.1 |
| | 3 | 21.2 | 8.8 | 496.8 | 8.0 |
| | 4 | 21.1 | 8.6 | 496.0 | 8.0 |
| | 5 | 21.1 | 7.9 | 495.0 | 8.0 |

[1] Spring samples collected June 2, 2016; summer samples collected July 14, 2011.

## FORT LIONS COMMUNITY FISH POND AT WEST RIVER'S EDGE

12 U 349795 5950617

Located in Fort Saskatchewan, 30 km northeast of Edmonton.

| | |
|---|---|
| Area (ha) | 5.0 |
| Max depth (m) | 8.6 |
| Mean depth (m) | 5.0 |

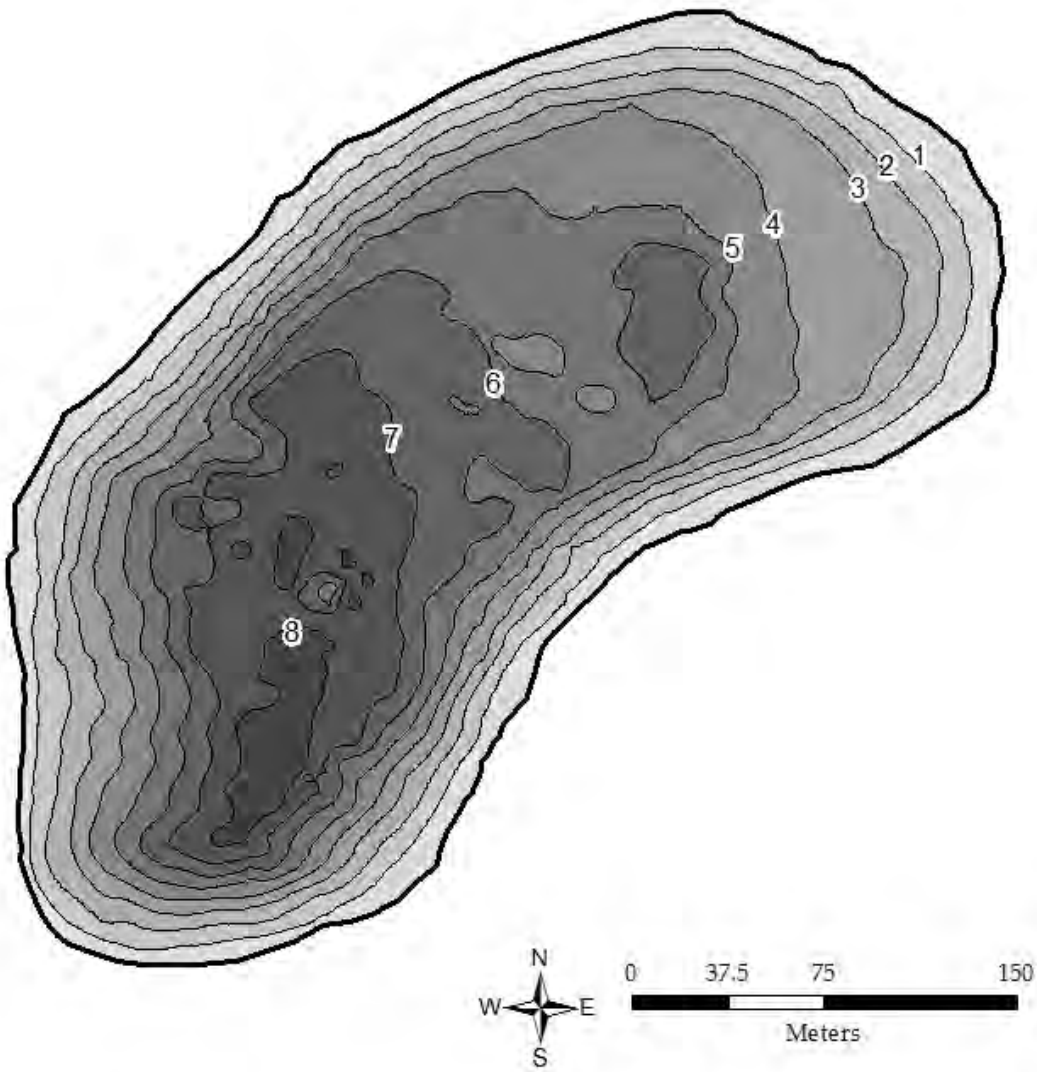


Figure 20. Bathymetric map of Fort Lions Community Fish Pond.

Table 37. Physico-chemical characteristics of Fort Lions Community Fish Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.02 | 0.8 | 0.003 | 0.003 | 0.003 | 0.05 | 2.0 | NA | 3.5 |
| Summer | 0.01 | 0.8 | <0.02 | <0.04 | <0.03 | <0.05 | 1.1 | 3.9 | 3.0 |

[1] Spring samples collected June 11, 2013; summer samples collected August 17, 2016.

Table 38. Physico-chemical characteristics of Fort Lions Community Fish Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 16.0 | 10.2 | 466.0 | 8.7 |
| | 2 | 16.0 | 10.1 | 465.7 | 8.6 |
| | 3 | 16.0 | 10.1 | 465.3 | 8.6 |
| | 4 | 16.0 | 10.2 | 465.0 | 8.6 |
| | 5 | 15.9 | 10.1 | 465.0 | 8.6 |
| | 6 | 15.9 | 10.2 | 464.7 | 8.6 |
| | 7 | 15.9 | 10.3 | 464.0 | 8.6 |
| Summer | 0 | 23.0 | 7.3 | 639.3 | 8.9 |
| | 1 | 23.0 | 7.5 | 638.7 | 8.9 |
| | 2 | 22.9 | 7.4 | 638.7 | 8.9 |
| | 3 | 22.9 | 7.5 | 638.3 | 8.9 |
| | 4 | 22.9 | 7.5 | 638.3 | 8.9 |
| | 5 | 22.5 | 6.5 | 641.3 | 8.8 |
| | 6 | 22.1 | 4.6 | 641.3 | 8.7 |
| | 7 | 21.3 | 0.8 | 651.0 | 8.4 |
| | 8 | 18.3 | 0.1 | 691.0 | 7.8 |

[1] Spring samples collected June 11, 2013; summer samples collected August 14, 2016.

## GIBBONS POND

12 U 346580 5967233

Located approximately 40 km north of Edmonton in the town of Gibbons.

| | |
|---|---|
| Area (ha) | 0.2 |
| Max depth (m) | 3.1 |
| Mean depth (m) | 2.2 |

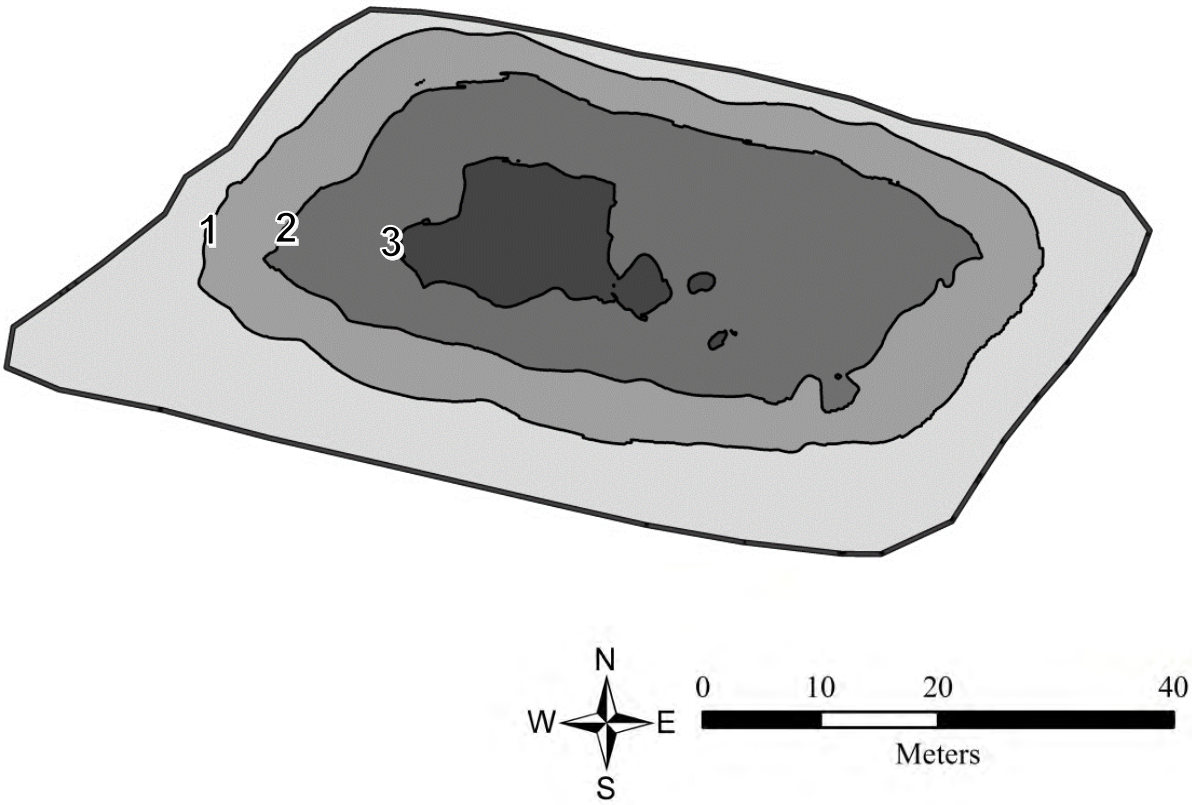


Figure 21. Bathymetric map of Gibbons Pond.

Table 39. Physico-chemical characteristics of Gibbons Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.02 | 0.5 | 0.003 | <0.003 | 0.003 | <0.05 | 1.4 | 4.0 | 2.9 |
| Summer | 0.03 | 0.6 | <0.003 | <0.003 | <0.003 | NA | 1.4 | 4.4 | 3.0 |

[1] Spring samples collected June 23, 2011; summer samples collected August 3, 2011.

Table 40. Physico-chemical characteristics of Gibbons Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 15.4 | 9.4 | 404.4 | 8.2 |
| | 2 | 15.4 | 9.4 | 405.5 | 8.2 |
| | 3 | 15.4 | 9.4 | 405.1 | 8.2 |
| Summer | 0 | 21.1 | 9.7 | 311.1 | 8.5 |
| | 1 | 21.1 | 9.6 | 311.9 | 8.3 |
| | 2 | 21.1 | 9.4 | 310.2 | 8.3 |

[1] Spring samples collected May 31, 2016; summer samples collected August 3, 2011.

## GOLD SPRINGS PARK

12 U 427668 5438450

Located southeast of the town of Milk River.

| | |
|---|---|
| Area (ha) | 6.3 |
| Max depth (m) | 5.4 |
| Mean depth (m) | 3.1 |

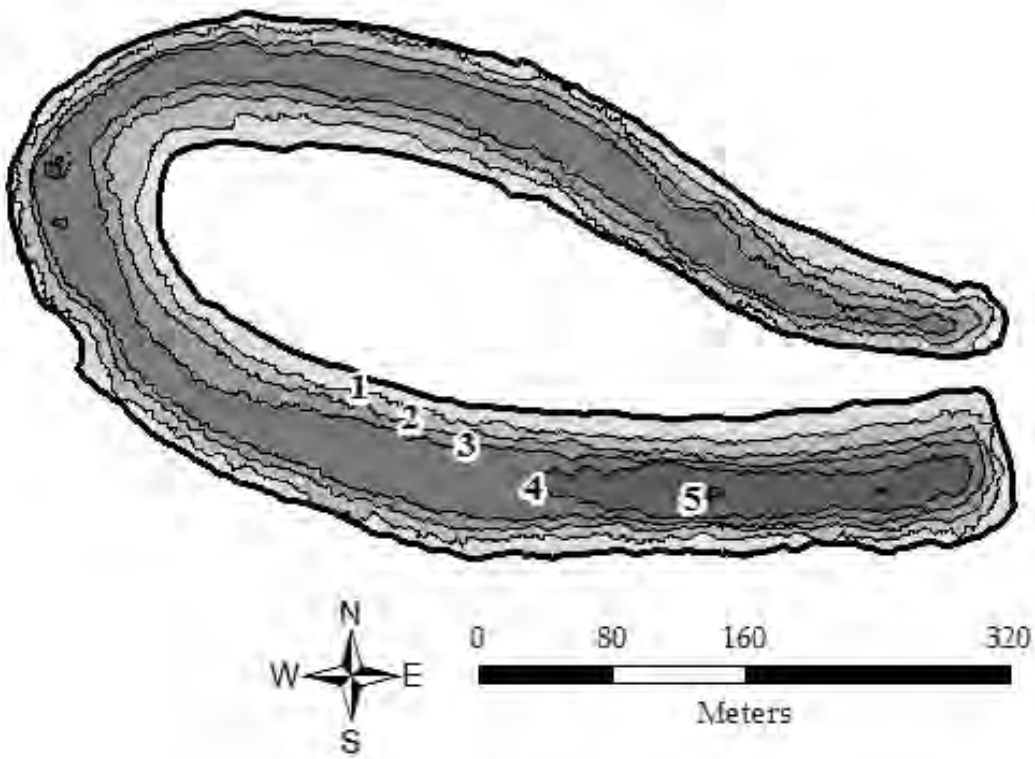


Figure 22. Bathymetric map of Gold Springs Park.

Table 41. Physico-chemical characteristics of Gold Springs Park: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.02 | 0.9 | <0.003 | <0.003 | <0.003 | NA | 4.1 | NA | NA |
| Summer | 0.02 | 0.9 | <0.003 | <0.003 | <0.003 | NA | 1.8 | 2.2 | 3.3 |

[1] Spring samples collected May 31, 2011; summer samples collected July 12, 2011.

Table 42. Physico-chemical characteristics of Gold Springs Park: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 15.9 | 10.5 | 2,760.0 | 9.1 |
| | 1 | 15.9 | 10.3 | 2,762.0 | 9.1 |
| | 2 | 15.7 | 10.3 | 2,761.3 | 9.1 |
| | 3 | 15.5 | 12.6 | 2,755.0 | 9.2 |
| | 4 | 15.4 | 10.2 | 2,764.0 | 9.1 |
| Summer | 0 | 21.2 | 10.4 | 2,562.0 | 8.6 |
| | 1 | 20.4 | 9.7 | 2,530.3 | 8.5 |
| | 2 | 20.1 | 9.5 | 2,509.0 | 8.5 |
| | 3 | 19.7 | 8.6 | 2,484.0 | 8.5 |
| | 4 | 18.2 | 0.5 | 2,401.0 | 8.2 |

[1] Spring samples collected June 2, 2016; summer samples collected July 12, 2011.

## GOOSEBERRY PARK POND

12 U 515839 5773370

Located west of Gooseberry Provincial Park, approximately 12.5 km north of Consort along Highway 41.

| | |
|---|---|
| Area (ha) | 8.7 |
| Max depth (m) | 3.5 |
| Mean depth (m) | 2.1 |

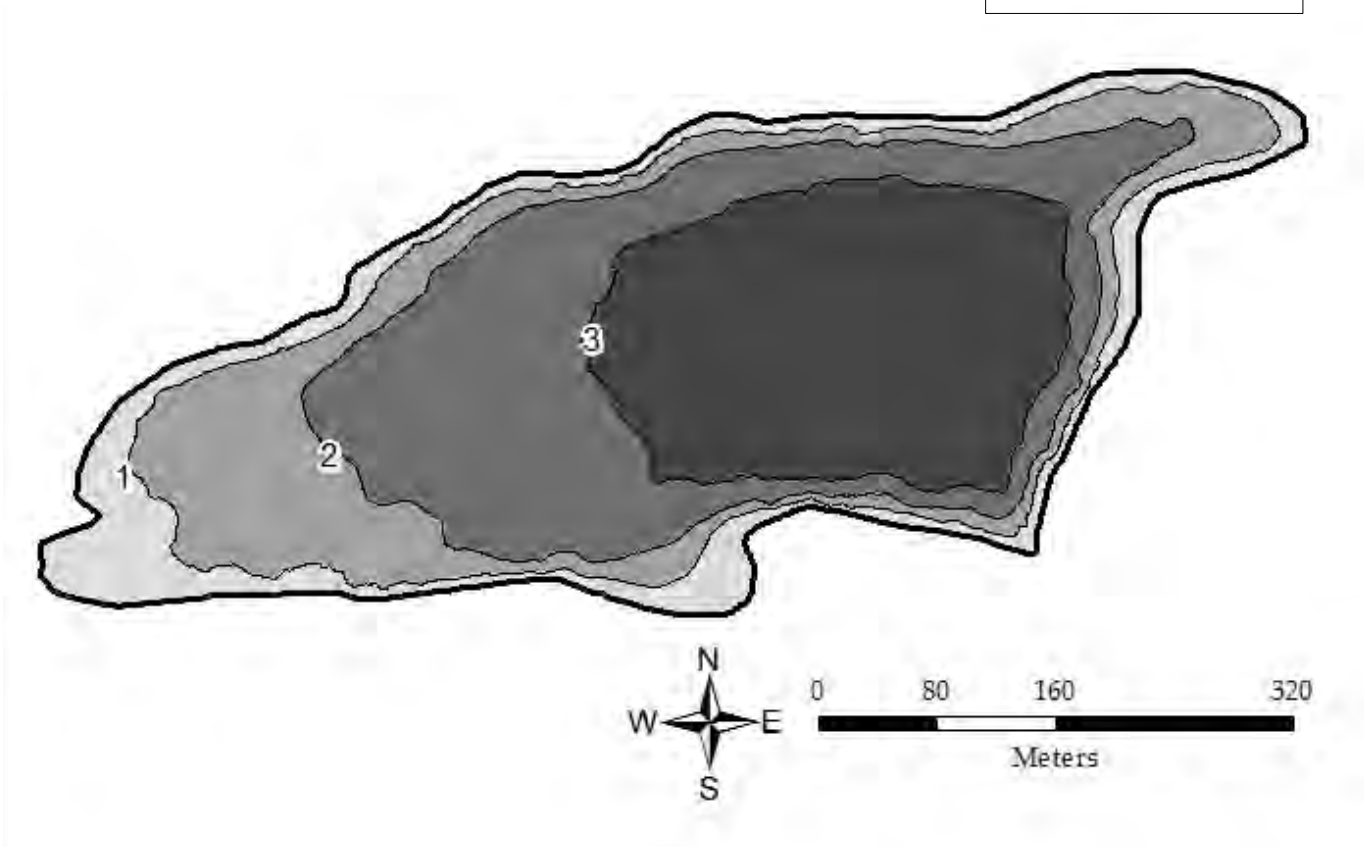


Figure 23. Bathymetric map of Gooseberry Park Pond.

Table 43. Physico-chemical characteristics of Gooseberry Park Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.1 | 1.5 | 0.005 | 0.005 | 0.003 | 0.09 | 9.2 | NA | 1.0 |
| Summer | 0.1 | 1.8 | <0.003 | <0.003 | <0.003 | NA | 17.0 | 17.7 | 0.4 |

[1] Spring samples collected June 9, 2012; summer samples collected August 10, 2011.

Table 44. Physico-chemical characteristics of Gooseberry Park Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 16.2 | 7.5 | 524.3 | 8.6 |
| | 2 | 16.0 | 7.1 | 523.0 | 8.5 |
| | 3 | 15.6 | 6.1 | 518.5 | 8.4 |
| Summer | 0 | 20.3 | 10.0 | 478.1 | 9.2 |
| | 1 | 20.3 | 10.3 | 461.9 | 9.0 |
| | 2 | 19.9 | 9.4 | 477.8 | 8.8 |

[1] Spring samples collected June 9, 2012; summer samples collected August 10, 2011.

## GRANUM POND

12 U 319122 5527286

Located within the town of Granum, approximately 60 km northwest of Lethbridge off Highway 2.

| | |
|---|---|
| Area (ha) | 0.8 |
| Max depth (m) | 2.0 |
| Mean depth (m) | 1.1 |

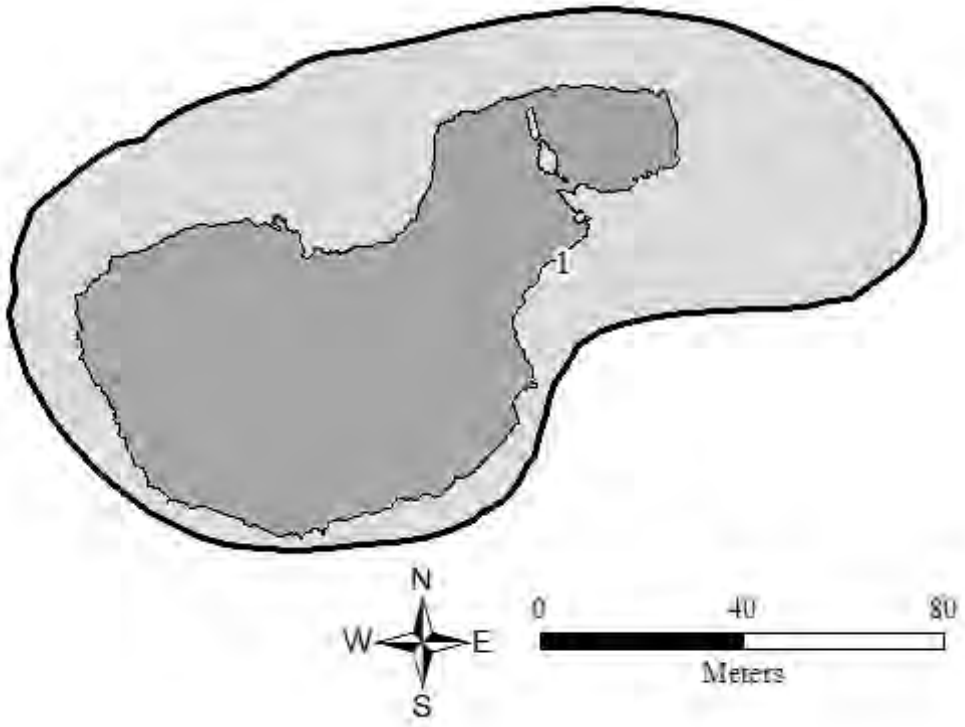


Figure 24. Bathymetric map of Granum Pond.

Table 45. Physico-chemical characteristics of Granum Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.02 | 1.4 | <0.003 | <0.003 | <0.003 | NA | 5.3 | 2.5 | 1.7 |
| Summer | 0.03 | 1.0 | 0.006 | <0.003 | 0.006 | NA | 6.0 | 6.5 | 1.3 |

[1] Spring samples collected June 6, 2011; summer samples collected July 18, 2011.

Table 46. Physico-chemical characteristics of Granum Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 16.4 | 8.6 | 500.0 | 9.4 |
| | 1 | 15.8 | 8.7 | 505.6 | 9.4 |
| | 2 | 15.4 | 9.2 | 504.6 | 9.5 |
| Summer | 0 | 20.9 | 6.6 | 540.1 | 9.0 |
| | 1 | 20.9 | 6.8 | 542.6 | 9.0 |
| | 2 | 20.9 | 6.6 | 541.4 | 9.0 |

[1] Spring samples collected May 31, 2016; summer samples collected July 19, 2016.

## HANSEN'S RESERVOIR

11 U 678328 5797012

Located 23 km west of Sylvan Lake.

| | |
|---|---|
| Area (ha) | 5.2 |
| Max depth (m) | 6.1 |
| Mean depth (m) | 3.2 |

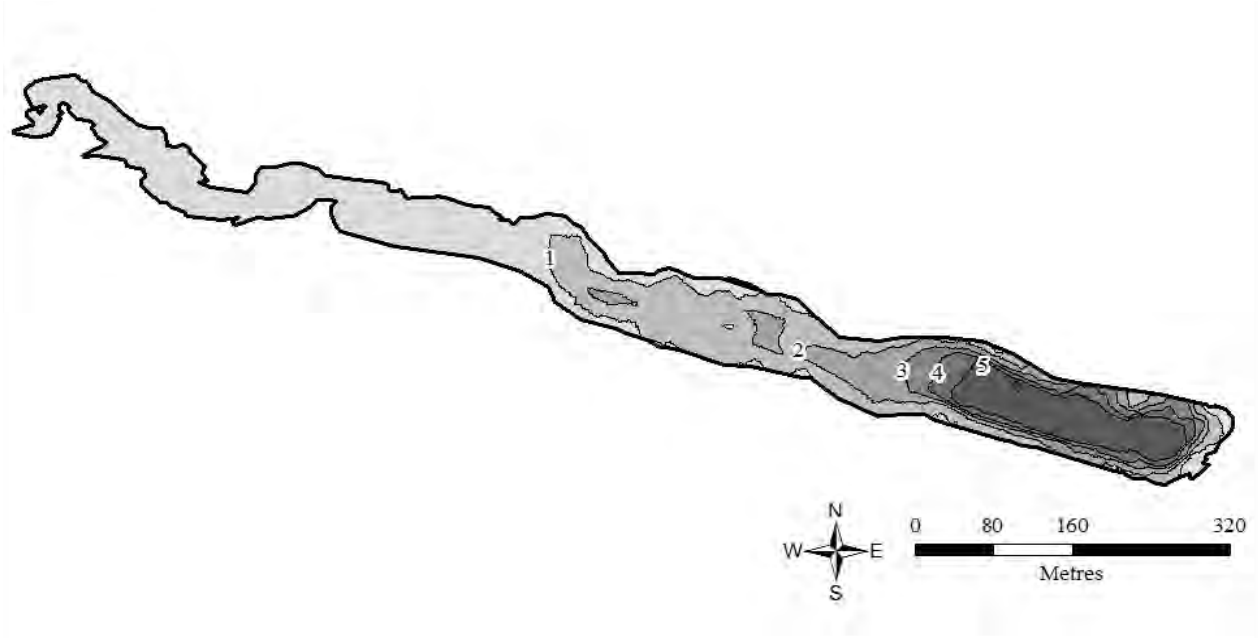


Figure 25. Bathymetric map of Hansen's Reservoir.

Table 47. Physico-chemical characteristics of Hansen's Reservoir: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.09 | 1.5 | 0.04 | 0.004 | 0.03 | <0.05 | 2.4 | N/A | NA |
| Summer | 0.1 | 1.4 | 0.5 | 0.02 | 0.5 | N/A | 1.1 | 1.0 | 1.9 |

[1] Spring samples collected May 28, 2011; summer samples collected June 24, 2011.

Table 48. Physico-chemical characteristics of Hansen's Reservoir: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 13.7 | 8.9 | 427.7 | 8.6 |
| | 1 | 12.1 | 8.2 | 427.7 | 8.4 |
| | 2 | 11.9 | 7.8 | 427.7 | 8.3 |
| | 3 | 11.6 | 7.3 | 427.7 | 8.2 |
| | 4 | 11.4 | 6.7 | 427.7 | 8.1 |
| | 5 | 11.3 | 6.2 | 427.7 | 8.0 |
| Summer | 0 | 18.8 | 4.5 | 349.7 | 8.1 |
| | 1 | 17.8 | 4.6 | 342.2 | 7.9 |
| | 2 | 17.4 | 4.6 | 340.6 | 7.8 |
| | 3 | 16.3 | 4.4 | 331.2 | 7.7 |
| | 4 | 14.7 | 4.4 | 316.7 | 7.7 |
| | 5 | 13.6 | 4.2 | 305.8 | 7.7 |

[1] Spring samples collected May 29, 2011; summer samples collected June 24, 2011.

## HERITAGE LAKE

12 U 324493 5964298

Heritage Lake, formerly Morinville Lake, is located less than 1 km west of Morinville on Highway 642.

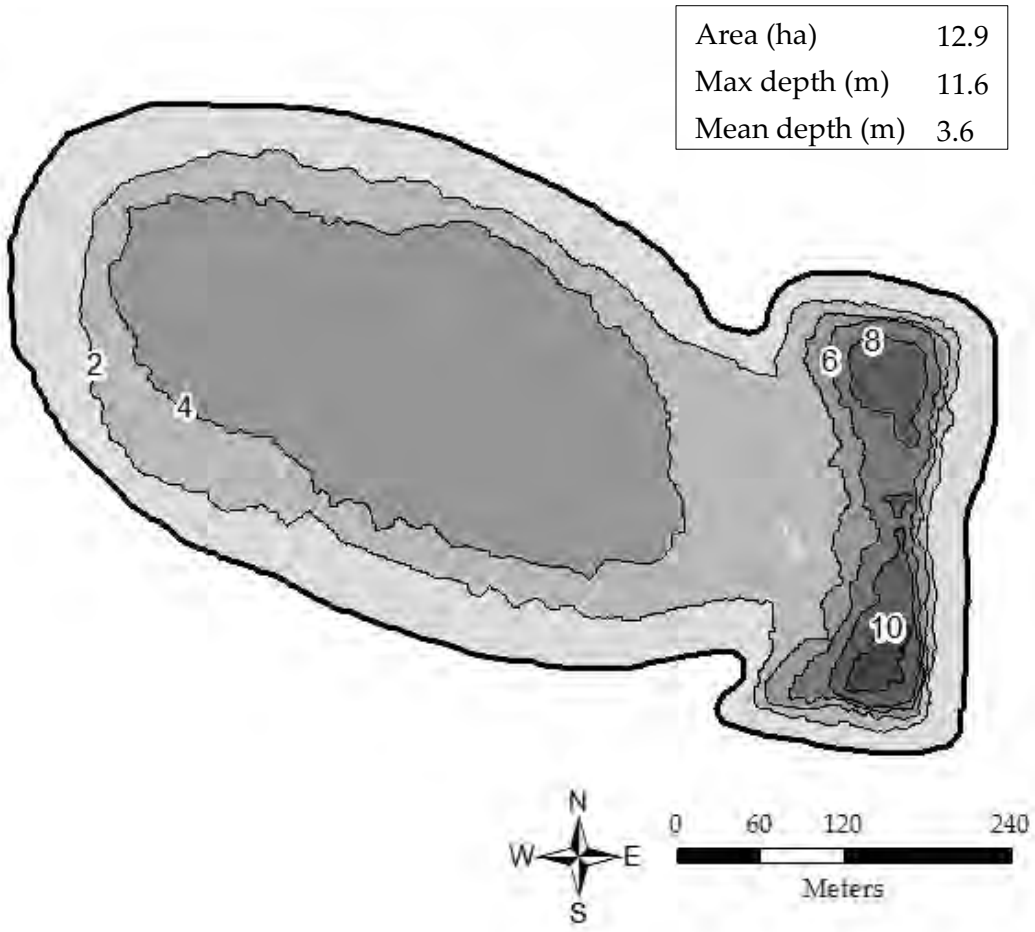


Figure 26. Bathymetric map of Heritage Lake.

Table 49. Physico-chemical characteristics of Heritage Lake: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.05 | 1.3 | 0.06 | 0.003 | 0.06 | 0.09 | 4.5 | 6.0 | 1.6 |
| Summer | 0.1 | 1.9 | 0.01 | <0.003 | 0.01 | NA | 8.2 | 15.0 | 0.9 |

[1] Spring samples collected June 21, 2011; summer samples collected August 4, 2011.

Table 50. Physico-chemical characteristics of Heritage Lake: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 10.9 | 9.0 | 887.7 | 8.3 |
| | 2 | 10.7 | 9.0 | 886.7 | 8.3 |
| | 3 | 10.7 | 8.7 | 886.3 | 8.3 |
| | 4 | 10.7 | 8.8 | 887.0 | 8.3 |
| | 5 | 10.7 | 9.1 | 886.0 | 8.3 |
| | 6 | 10.7 | 9.0 | 886.0 | 8.3 |
| | 7 | 10.7 | 9.0 | 886.0 | 8.3 |
| | 8 | 10.7 | 8.9 | 886.0 | 8.3 |
| Summer | 0 | 21.1 | 13.5 | 459.0 | 9.4 |
| | 1 | 20.4 | 13.0 | 429.4 | 9.3 |
| | 2 | 19.3 | 11.4 | 448.4 | 9.2 |
| | 3 | 19.2 | 11.0 | 420.1 | 9.2 |
| | 4 | 18.0 | 5.7 | 411.9 | 8.4 |
| | 5 | 17.0 | 2.5 | 406.1 | 8.1 |
| | 6 | 15.6 | 1.2 | 357.1 | 8.0 |
| | 7 | 13.3 | 0.9 | 345.3 | 7.9 |
| | 8 | 11.6 | 0.7 | 336.6 | 7.7 |
| | 9 | 10.7 | 0.6 | 294.5 | 7.6 |
| | 10 | 10.6 | 0.7 | 442.5 | 7.7 |

[1] Spring samples collected May 24, 2016; summer samples collected August 3, 2011.

## HERMITAGE POND

12 U 342901 5939646
Located in northeast Edmonton.

| | |
|---|---|
| Area (ha) | 5.2 |
| Max depth (m) | 4.5 |
| Mean depth (m) | 2.1 |

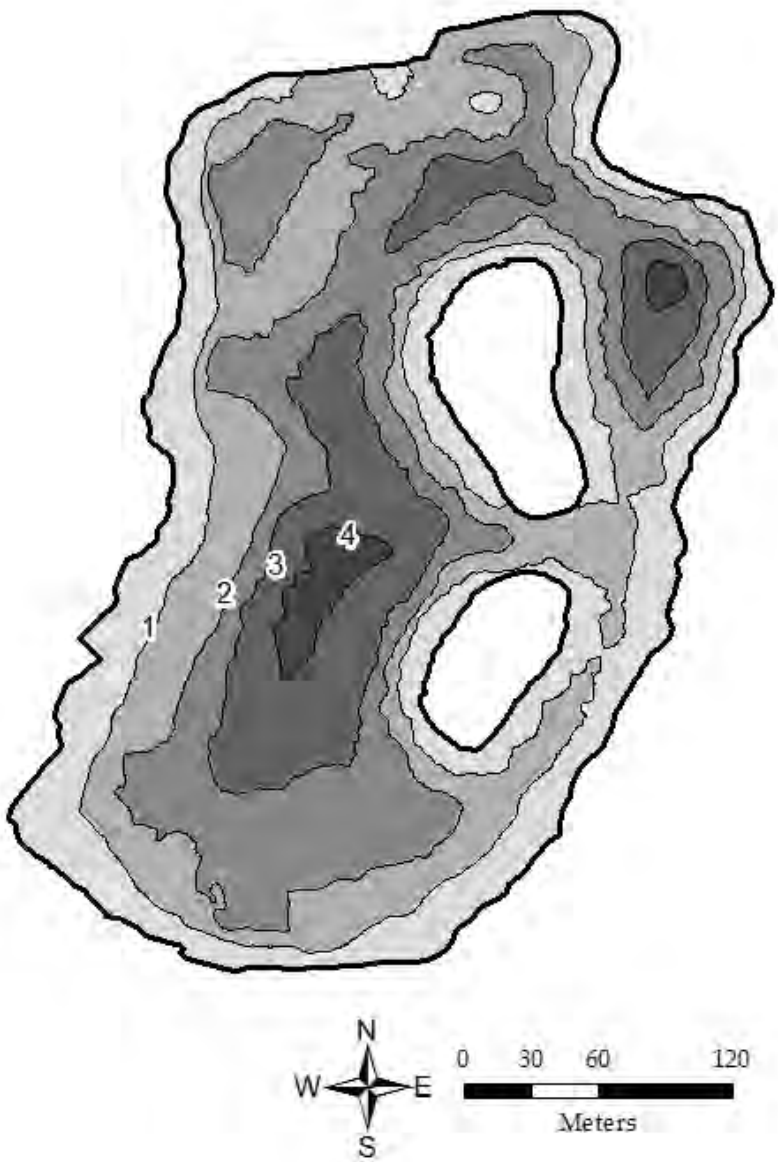


Figure 27. Bathymetric map of Hermitage Pond.

Table 51. Physico-chemical characteristics of Hermitage Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.03 | 1.1 | <0.003 | <0.003 | <0.003 | <0.05 | 4.7 | 19.0 | 2.0 |
| Summer | 0.04 | 1.6 | 0.01 | 0.005 | 0.008 | NA | 5.8 | 14.5 | 1.7 |

[1] Spring samples collected June 27, 2011; summer samples collected August 10, 2011.

Table 52. Physico-chemical characteristics of Hermitage Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 16.4 | 8.3 | 1,251.3 | 8.3 |
| | 2 | 15.4 | 7.8 | 1,251.7 | 8.3 |
| | 3 | 14.9 | 6.4 | 1,256.0 | 8.2 |
| Summer | 0 | 22.5 | 9.2 | 901.7 | 8.5 |
| | 1 | 22.0 | 9.2 | 892.0 | 8.5 |
| | 2 | 21.1 | 6.5 | 877.7 | 8.3 |

[1] Spring samples collected May 31, 2016; summer samples collected August 5, 2011.

## INNISFREE TROUT POND

12 U 458089 5916643

Located just north of Highway 16 between the towns of Innisfree and Ranfurly.

| | |
|---|---|
| Area (ha) | 1.2 |
| Max depth (m) | 8.2 |
| Mean depth (m) | 4.4 |

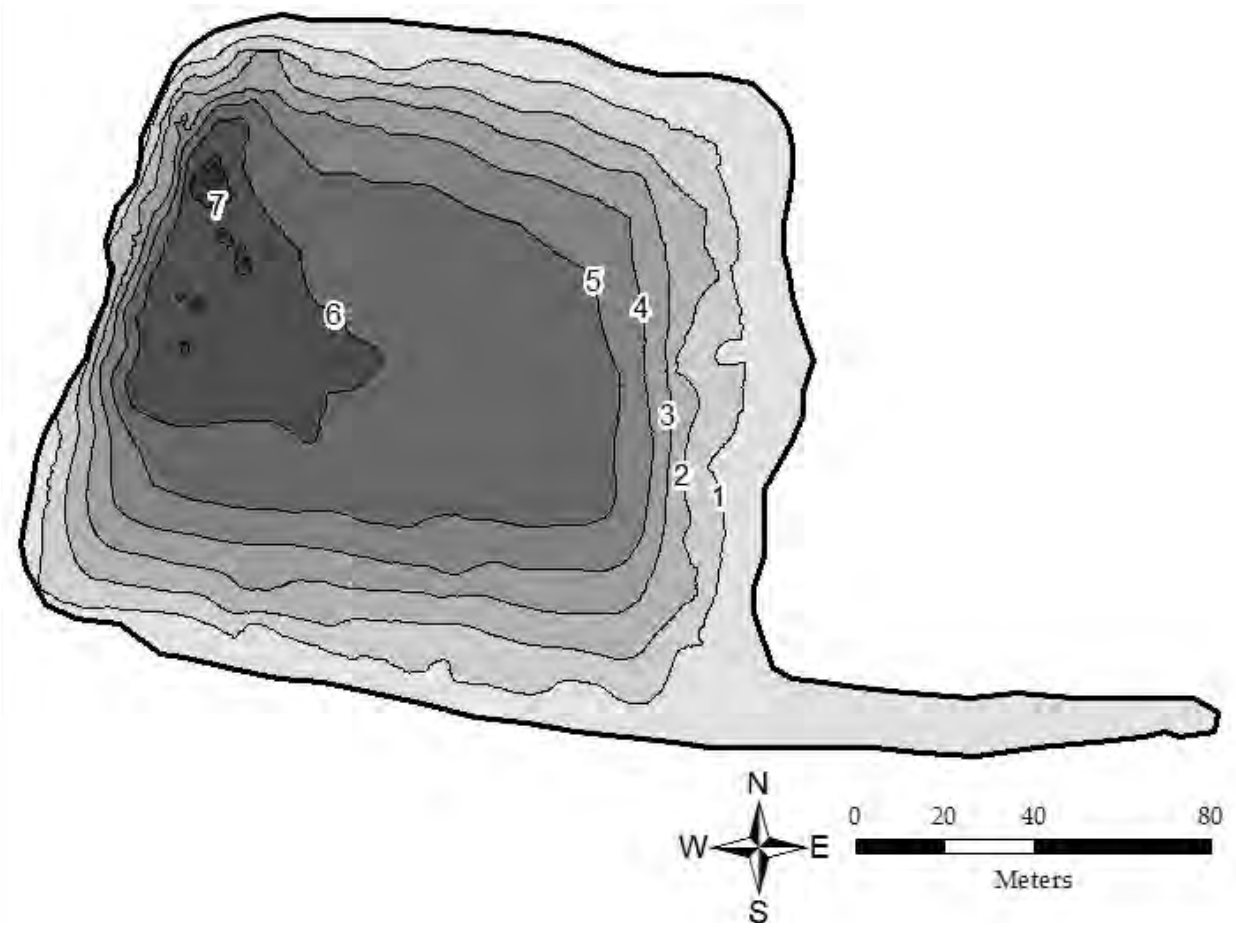


Figure 28. Bathymetric map of Innisfree Trout Pond.

Table 53. Physico-chemical characteristics of Innisfree Trout Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.07 | 1.5 | 0.003 | 0.003 | 0.003 | 0.05 | 7.6 | NA | 1.1 |
| Summer | 0.05 | 1.6 | 0.008 | <0.003 | 0.008 | 0.2 | 11.0 | 7.0 | 1.0 |

[1] Spring samples collected May 29, 2012; summer samples collected June 28, 2011.

Table 54. Physico-chemical characteristics of Innisfree Trout Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 15.6 | 10.2 | 952.3 | 9.5 |
| | 2 | 14.5 | 10.3 | 924.7 | 9.4 |
| | 3 | 11.4 | 9.7 | 849.3 | 9.6 |
| | 4 | 11.1 | 8.4 | 842.0 | 9.5 |
| | 5 | 10.9 | 5.1 | 836.5 | 9.6 |
| | 6 | 10.6 | 2.2 | 835.0 | 9.7 |
| Summer | 0 | 22.1 | 6.6 | 990.0 | 9.3 |
| | 1 | 18.5 | 7.0 | 910.7 | 9.3 |
| | 2 | 17.8 | 6.6 | 895.3 | 9.2 |
| | 3 | 17.0 | 5.8 | 878.0 | 9.2 |
| | 4 | 13.9 | 3.8 | 828.0 | 8.9 |
| | 5 | 11.3 | 3.2 | 772.0 | 8.7 |
| | 6 | 10.4 | 1.7 | 753.0 | 8.3 |
| | 7 | 10.3 | 0.6 | 75.02 | 8.2 |

[1] Spring samples collected May 29, 2012; summer samples collected June 28, 2011.

## IRMA FISH AND GAME POND

12 U 484139 5863202

Located in the town of Irma, approximately 175 km southeast of Edmonton.

| | |
|---|---|
| Area (ha) | 0.3 |
| Max depth (m) | 6.4 |
| Mean depth (m) | 2.8 |

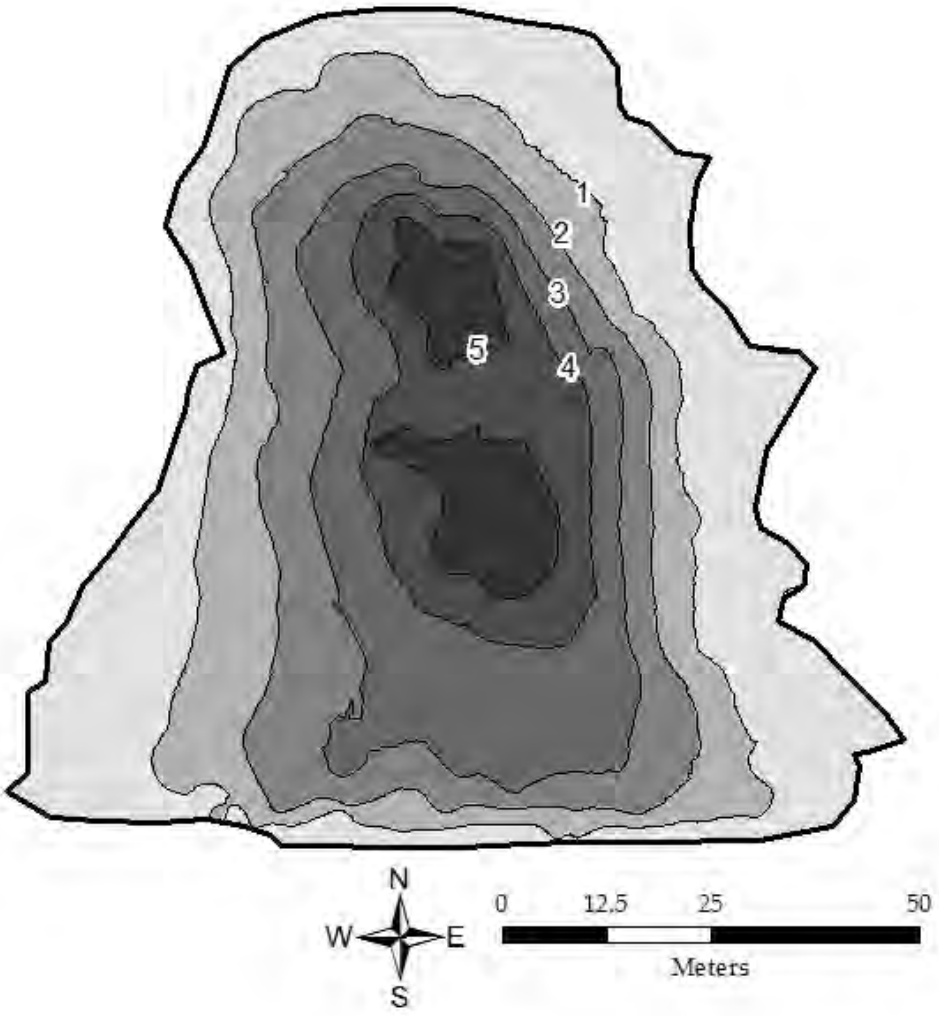


Figure 29. Bathymetric map of Irma Fish and Game Pond.

Table 55. Physico-chemical characteristics of Irma Fish and Game Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.2 | 1.8 | 0.02 | 0.02 | 0.004 | 0.09 | 4.6 | NA | 2.1 |
| Summer | 0.2 | 1.9 | <0.003 | <0.003 | <0.003 | NA | 3.8 | 11.9 | 2.3 |

[1] Spring samples collected June 11, 2012; summer samples collected July 5, 2011.

Table 56. Physico-chemical characteristics of Irma Fish and Game Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 15.5 | 6.9 | 883.3 | 8.6 |
| | 2 | 14.8 | 6.4 | 868.3 | 8.6 |
| | 3 | 14.7 | 6.0 | 866.7 | 8.5 |
| | 4 | 14.6 | 5.5 | 864.5 | 8.6 |
| | 5 | 11.2 | 0.4 | 827.0 | 7.9 |
| Summer | 0 | 20.3 | 5.3 | 773.7 | 9.1 |
| | 1 | 19.9 | 5.2 | 769.3 | 9.0 |
| | 2 | 19.2 | 5.0 | 757.0 | 8.6 |
| | 3 | 17.8 | 4.4 | 741.5 | 9.0 |

[1] Spring samples collected June 11, 2012; summer samples collected July 5, 2011.

## KRAFT WIMBORNE POND

12 U 319576 5748764

Located 2 km west of the town of Wimborne, approximately 70 km south of Red Deer.

| | |
|---|---|
| Area (ha) | 0.6 |
| Max depth (m) | 5.7 |
| Mean depth (m) | 2.7 |

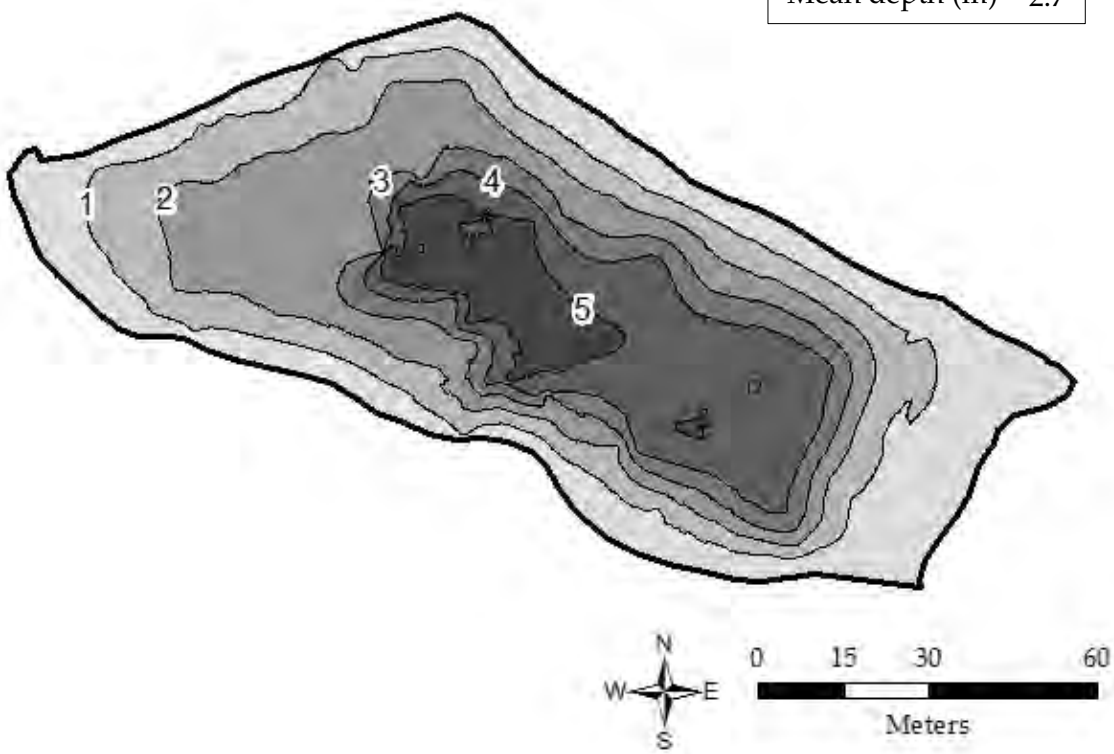


Figure 30. Bathymetric map of Kraft Wimborne Pond.

Table 57. Physico-chemical characteristics of Kraft Wimborne Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.1 | <0.05 | <0.003 | <0.003 | <0.003 | NA | 5.8 | 12.2 | 1.1 |
| Summer | 0.09 | 1.4 | 0.003 | <0.003 | 0.003 | NA | 10.0 | 14.9 | 0.7 |

[1] Spring samples collected June 10, 2011; summer samples collected July 20, 2011.

Table 58. Physico-chemical characteristics of Kraft Wimborne Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 16.4 | 9.2 | 1,188.0 | 9.9 |
| | 1 | 16.1 | 9.0 | 1,178.3 | 9.5 |
| | 2 | 14.2 | 8.7 | 1,129.3 | 9.3 |
| | 3 | 12.2 | 6.5 | 1,071.3 | 9.2 |
| | 4 | 8.4 | 0.5 | 1,080.3 | 8.8 |
| | 5 | 5.0 | 0.3 | 1,143.5 | 8.7 |
| Summer | 0 | 21.1 | 9.9 | 1,376.0 | 8.8 |
| | 1 | 19.7 | 9.5 | 1,333.0 | 8.7 |
| | 2 | 18.9 | 5.8 | 1,320.2 | 8.5 |
| | 3 | 17.2 | 1.1 | 1,287.5 | 8.3 |
| | 4 | 13.3 | 0.8 | 1196.0 | 8.2 |

[1] Spring samples collected June 10, 2011; summer samples collected July 20, 2011.

## LAMONT POND

12 U 384563 5960060

Located approximately 60 km northeast of Edmonton, and 2 km northeast of Lamont.

| | |
|---|---|
| Area (ha) | 5.6 |
| Max depth (m) | 6.7 |
| Mean depth (m) | 4.4 |

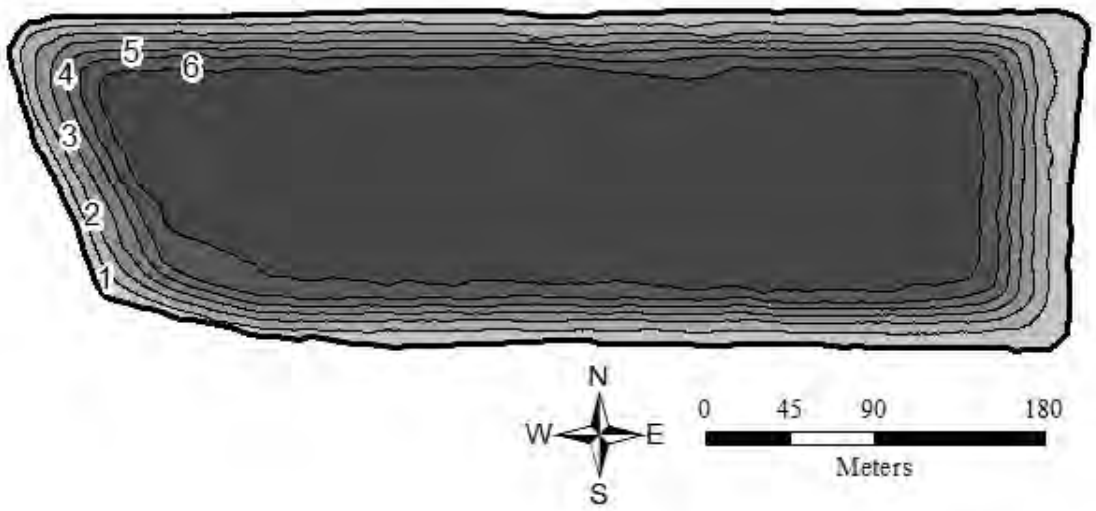


Figure 31. Bathymetric map of Lamont Pond.

Table 59. Physico-chemical characteristics of Lamont Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.2 | 3.6 | <0.003 | <0.003 | <0.003 | <0.05 | 28.0 | 10.7 | 0.5 |
| Summer | 0.2 | 3.4 | <0.003 | <0.003 | <0.003 | NA | 21.0 | 5.9 | 0.3 |

[1] Spring samples collected June 15, 2011; summer samples collected August 3, 2011.

Table 60. Physico-chemical characteristics of Lamont Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 14.4 | 8.3 | 569.3 | 9.4 |
| | 2 | 14.1 | 7.4 | 565.0 | 9.3 |
| | 3 | 13.8 | 5.7 | 558.7 | 9.2 |
| | 4 | 12.2 | 1.3 | 543.0 | 8.9 |
| | 5 | 10.7 | 0.1 | 515.0 | 8.6 |
| | 6 | 8.8 | 0.1 | 501.0 | 8.2 |
| Summer | 0 | 19.6 | 10.1 | 579.1 | 9.6 |
| | 1 | 19.6 | 9.9 | 586.4 | 9.6 |
| | 2 | 19.5 | 9.0 | 583.4 | 9.5 |
| | 3 | 19.2 | 7.3 | 475.6 | 9.5 |
| | 4 | 18.3 | 1.5 | 453.6 | 9.3 |
| | 5 | 16.5 | 0.9 | 451.1 | 9.1 |

[1] Spring samples collected June 7, 2014; summer samples collected August 3, 2011.

## LEGAL RESERVOIR

12 U 330181 5980823

This reservoir is located in Centennial Park in Legal, approximately 50 km north of Edmonton.

| | |
|---|---|
| Area (ha) | 1.6 |
| Max depth (m) | 4.3 |
| Mean depth (m) | 3.1 |

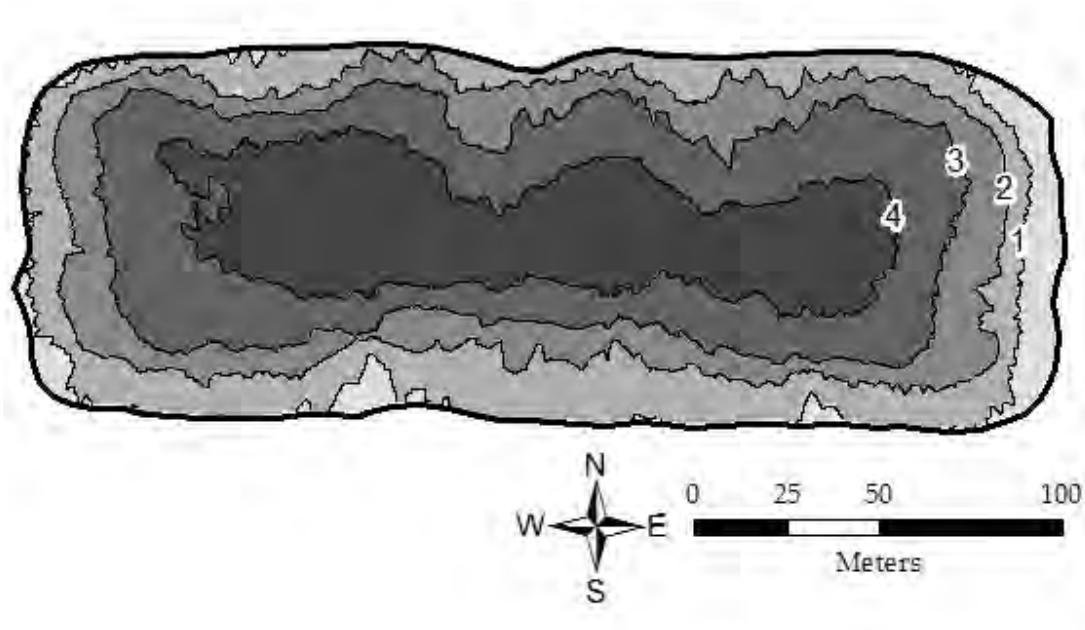


Figure 32. Bathymetric map of Legal Reservoir.

Table 61. Physico-chemical characteristics of Legal Reservoir: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.03 | 1.4 | 0.01 | 0.004 | 0.009 | 0.07 | 2.4 | 6.5 | 2.0 |
| Summer | 0.04 | 1.5 | <0.003 | <0.003 | <0.003 | NA | 3.7 | 16.4 | 1.7 |

[1]Spring samples collected June 24, 2011; summer samples collected August 4, 2011.

Table 62. Physico-chemical characteristics of Legal Reservoir: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 14.3 | 8.6 | 334.2 | 8.2 |
| | 2 | 13.9 | 8.6 | 335.3 | 8.2 |
| Summer | 0 | 20.6 | 9.3 | 257.5 | 9.0 |
| | 1 | 19.9 | 9.1 | 252.7 | 8.9 |
| | 2 | 19.6 | 8.7 | 251.3 | 8.8 |
| | 3 | 18.1 | 2.8 | 242.6 | 8.0 |

[1] Spring samples collected May 31, 2016; summer samples collected August 3, 2011.

## LEN THOMPSON POND

12 U 315774 5817532

Located in the town of Lacombe.

| | |
|---|---|
| Area (ha) | 2.1 |
| Max depth (m) | 4.5 |
| Mean depth (m) | 2.0 |

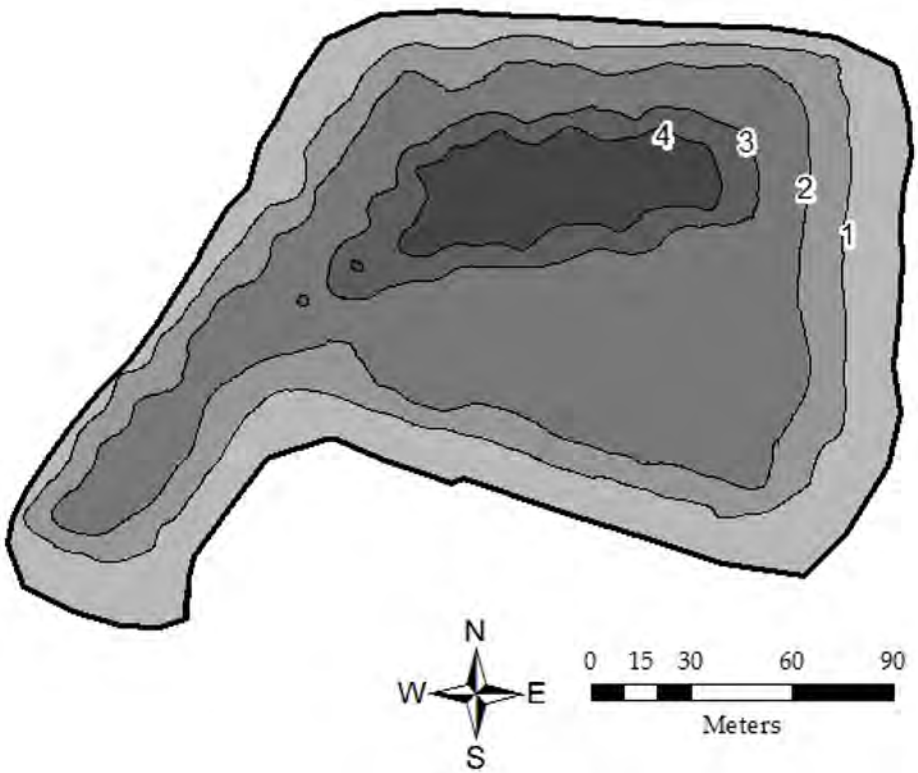


Figure 33. Bathymetric map of Len Thompson Pond.

Table 63. Physico-chemical characteristics of Len Thompson Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.02 | 0.7 | <0.02 | <0.04 | <0.03 | 0.06 | 2.3 | 10.7 | 1.6 |
| Summer | 0.03 | 0.8 | <0.02 | <0.04 | <0.03 | 0.1 | 2.4 | 11.2 | 0.7 |

[1]Spring samples collected June 1, 2016; summer samples collected August 22, 2016.

Table 64. Physico-chemical characteristics of Len Thompson Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 15.2 | 10.2 | 1,404.0 | 8.4 |
| | 1 | 15.1 | 10.3 | 1,404.3 | 8.4 |
| | 2 | 14.8 | 10.1 | 1,406.2 | 8.4 |
| | 3 | 14.0 | 8.8 | 1,407.3 | 8.2 |
| | 4 | 13.4 | 8.1 | 1,512.0 | 8.0 |
| Summer | 0 | 19.0 | 5.2 | 1,112.7 | 8.5 |
| | 1 | 19.1 | 5.2 | 1,112.7 | 8.5 |
| | 2 | 19.1 | 5.1 | 1,112.7 | 8.5 |
| | 3 | 19.1 | 5.1 | 1,097.0 | 8.5 |
| | 4 | 18.2 | 5.2 | 959.0 | 8.4 |

[1] Spring samples collected June 1, 2016; summer samples collected August 22, 2016.

## LOUGHEED TROUT POND

12 U 463560 5844715

Located on the north side of the town of Lougheed, approximately 95 km southeast of Camrose along Highway 13.

| | |
|---|---|
| Area (ha) | 0.7 |
| Max depth (m) | 7.7 |
| Mean depth (m) | 3.7 |

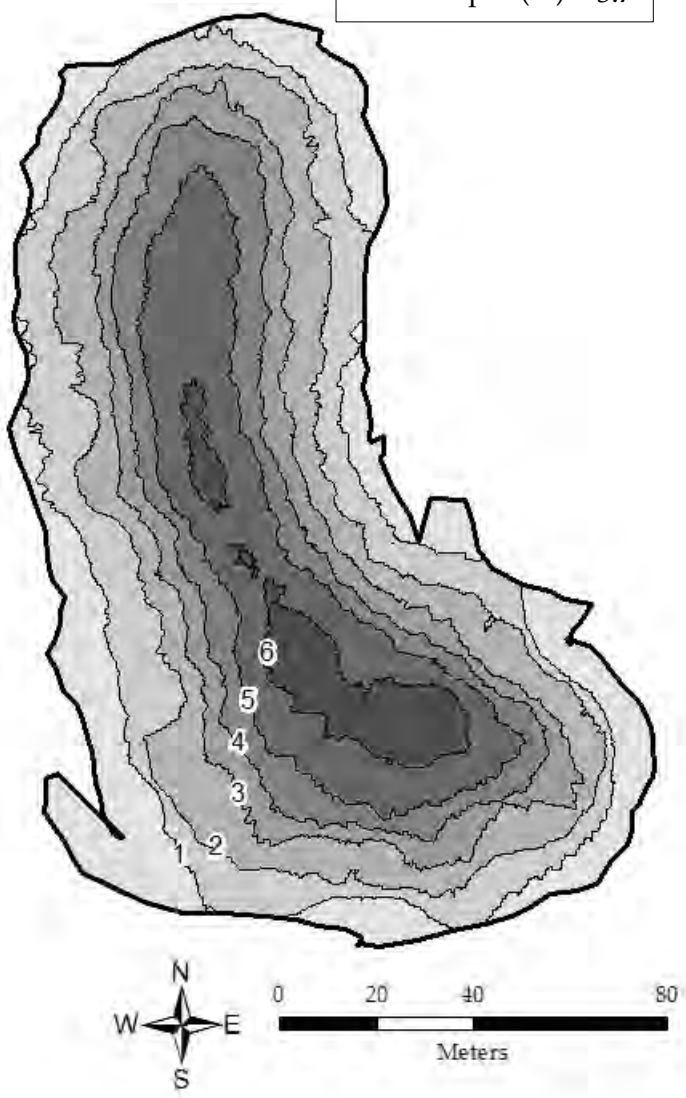


Figure 34. Bathymetric map of Lougheed Trout Pond.

Table 65. Physico-chemical characteristics of Lougheed Trout Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.08 | 2.7 | 0.003 | 0.003 | 0.003 | 0.1 | 4.8 | NA | 1.1 |
| Summer | 0.1 | 3.0 | 0.04 | 0.03 | 0.01 | NA | 6.1 | 5.6 | 1.4 |

[1] Spring samples collected June 13, 2012; summer samples collected August 9, 2011.

Table 66. Physico-chemical characteristics of Lougheed Trout Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 16.2 | 6.8 | 2,781.0 | 8.9 |
| | 2 | 15.8 | 6.6 | 2,777.7 | 8.9 |
| | 3 | 13.8 | 5.4 | 2,808.3 | 8.9 |
| | 4 | 11.4 | 0.5 | 2,861.0 | 8.8 |
| | 5 | 8.8 | 0 | 3,000.3 | 8.6 |
| Summer | 0 | 22.9 | 8.0 | 2,739.3 | 9.1 |
| | 1 | 22.6 | 8.6 | 2,737.7 | 9.1 |
| | 2 | 22.3 | 7.9 | 2,735.7 | 9.1 |
| | 3 | 21.5 | 6.2 | 2,728.3 | 9.1 |
| | 4 | 19.5 | 0.1 | 2,779.3 | 8.9 |
| | 5 | 12.7 | 0.0 | 2,975.5 | 8.3 |

[1] Spring samples collected June 2, 2016; summer samples collected August 16, 2016.

## MAGRATH FISH POND

12 U 364745 5474764

Located in the town of Magrath, 37 km south of Lethbridge.

| | |
|---|---|
| Area (ha) | 0.8 |
| Max depth (m) | 2.7 |
| Mean depth (m) | 1.3 |

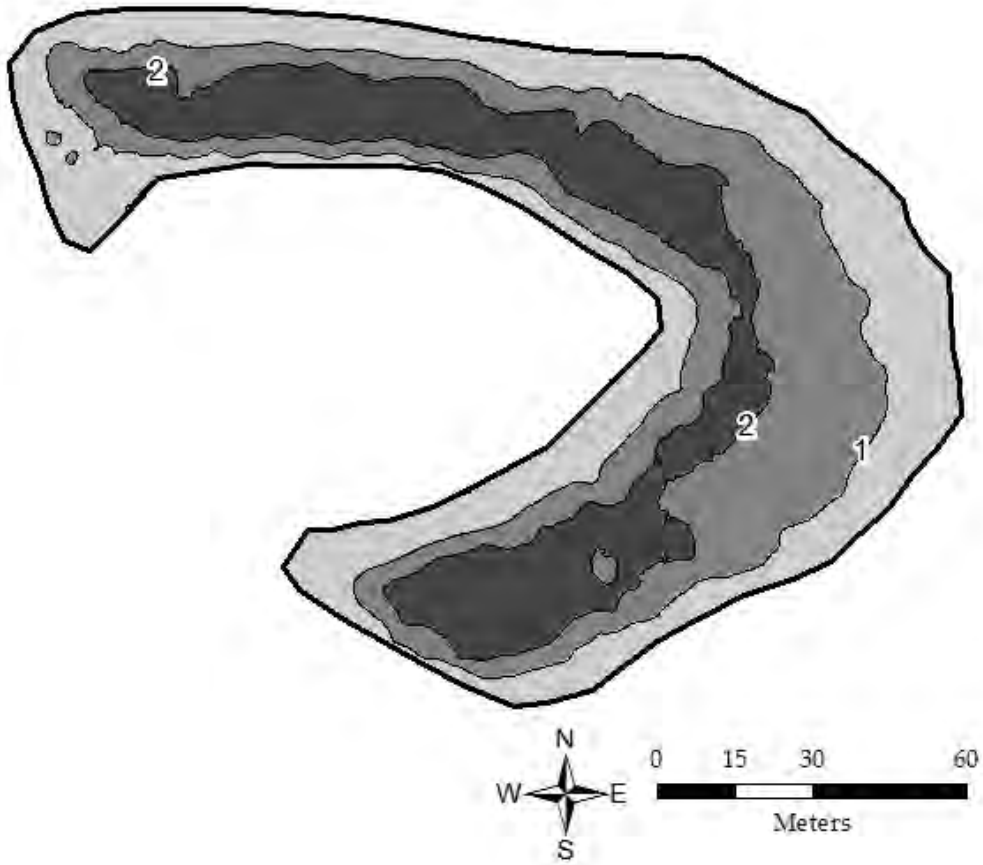


Figure 35. Bathymetric map of Magrath Fish Pond.

Table 67. Physico-chemical characteristics of Magrath Fish Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | NA | 1.5 | 2.0 | 0.07 | 1.9 | 0.09 | 5.8 | NA | 2.4 |
| Summer | 0.06 | 1.1 | 0.01 | 0.005 | 0.009 | NA | 3.4 | 3.4 | 2.4 |

[1] Spring samples collected June 2, 2011; summer samples collected July 11, 2011.

Table 68. Physico-chemical characteristics of Magrath Fish Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 13.8 | 10.8 | 621.3 | 9.6 |
| | 1 | 13.8 | 10.5 | 620.7 | 9.4 |
| | 2 | 13.6 | 10.1 | 620.0 | 9.2 |
| Summer | 0 | 22.6 | 4.5 | 585.3 | 9.4 |
| | 1 | 20.7 | 4.9 | 562.0 | 9.1 |
| | 2 | 20.2 | 4.8 | 559.0 | 9.0 |

[1] Spring samples collected June 2, 2011; summer samples collected July 11, 2011.

## McQUILLAN RESERVOIR

12 U 394636 5500410

Located approximately 34 km southeast of Lethbridge on RR 191 and Twp Rd 82.

| | |
|---|---|
| Area (ha) | 9.3 |
| Max depth (m) | 5.5 |
| Mean depth (m) | 2.5 |

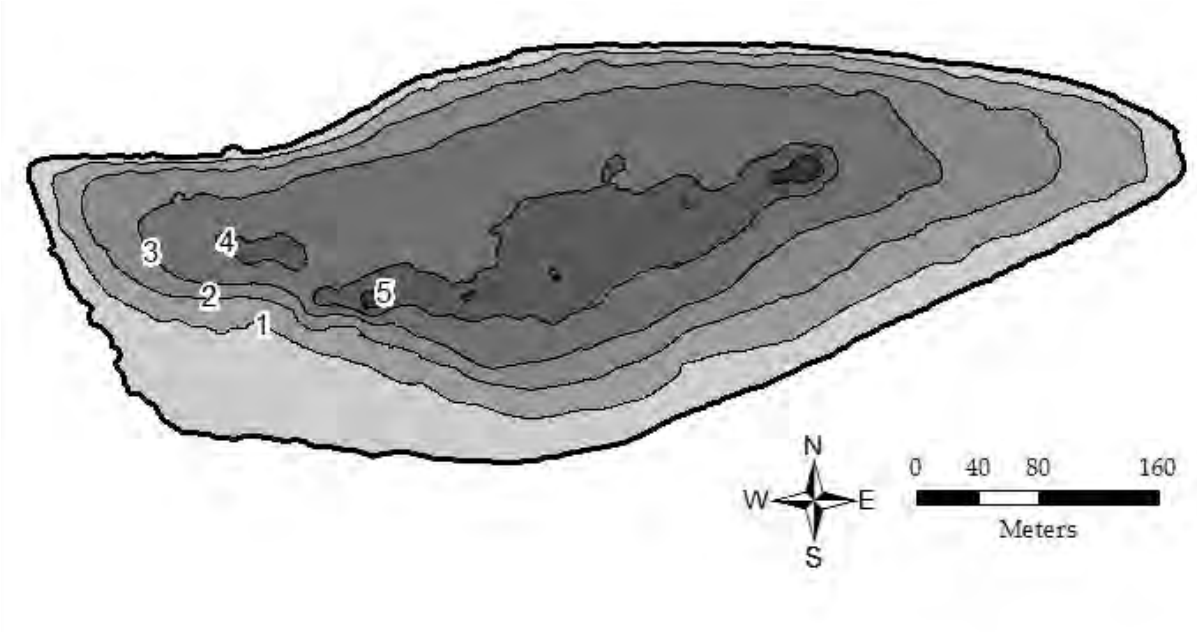


Figure 36. Bathymetric map of McQuillan Reservoir.

Table 69. Physico-chemical characteristics of McQuillan Reservoir: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.08 | 1.9 | NA | NA | NA | NA | 4.9 | NA | NA |
| Summer | 0.05 | 1.9 | 0.004 | <0.003 | 0.004 | NA | 5.6 | 9.4 | 1.2 |

[1] Spring samples collected May 30, 2011; summer samples collected July 12, 2011.

Table 70. Physico-chemical characteristics of McQuillan Reservoir: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 19.1 | 8.7 | 752.7 | 9.3 |
| | 1 | 19.0 | 8.7 | 753.0 | 9.3 |
| | 2 | 18.8 | 8.3 | 752.7 | 9.3 |
| | 3 | 18.7 | 8.4 | 754.0 | 9.3 |
| | 4 | 18.4 | 7.4 | 757.0 | 9.3 |
| Summer | 0 | 20.3 | 6.9 | 728.3 | 8.0 |
| | 1 | 19.5 | 6.7 | 717.3 | 8.0 |
| | 2 | 19.2 | 6.0 | 712.3 | 7.9 |
| | 3 | 18.6 | 4.0 | 707.7 | 7.8 |
| | 4 | 15.0 | 3.1 | 705.0 | 7.7 |
| | 5 | 18.0 | 2.2 | 702.0 | 7.6 |

[1] Spring samples collected June 7, 2016; summer samples collected July 12, 2011.

## McVINNIE RESERVOIR

12 U 369772 5543978

Located north of Lethbridge on RR 214.

| | |
|---|---|
| Area (ha) | 2.5 |
| Max depth (m) | 5.5 |
| Mean depth (m) | 2.5 |

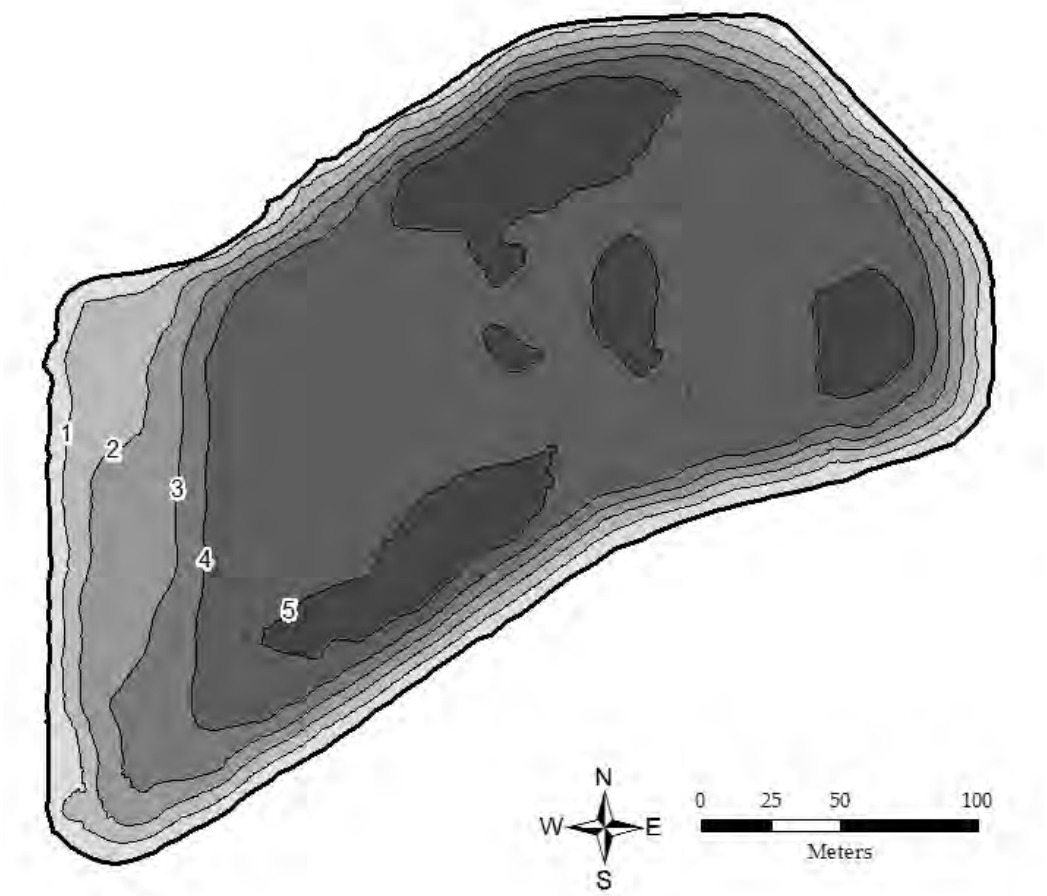


Figure 37. Bathymetric map of McVinnie Reservoir.

Table 71. Physico-chemical characteristics of McVinnie Reservoir: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.01 | 0.9 | NA | NA | NA | NA | 1.1 | NA | NA |
| Summer | 0.02 | 1.2 | 0.005 | 0.005 | <0.003 | NA | 2.6 | 3.5 | 3.0 |

[1] Spring samples collected May 27, 2011; summer samples collected July 13, 2011.

Table 72. Physico-chemical characteristics of McVinnie Reservoir: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 15.3 | 12.5 | 330.1 | 8.8 |
| | 2 | 14.6 | 12.2 | 326.1 | 8.8 |
| | 3 | 14.2 | 11.5 | 322.8 | 8.8 |
| | 4 | 13.5 | 12.3 | 315.2 | 8.9 |
| | 5 | 13.4 | 12.3 | 313.1 | 9.0 |
| Summer | 0 | 19.7 | 3.8 | 397.6 | 8.8 |
| | 1 | 19.6 | 3.7 | 396.7 | 8.9 |
| | 2 | 19.5 | 3.7 | 396.2 | 8.8 |
| | 3 | 19.0 | 3.8 | 394.3 | 8.8 |
| | 4 | 18.3 | 3.8 | 390.2 | 8.7 |
| | 5 | 18.1 | 4.0 | 389.7 | 8.7 |

[1] Spring samples collected May 29, 2013; summer samples collected July 13, 2011.

## MIDWAY RESERVOIR

12 U 310570 5716071

Located approximately 50 km northeast of Airdrie on RR 273.

| | |
|---|---|
| Area (ha) | 3.2 |
| Max depth (m) | 4.6 |
| Mean depth (m) | 1.9 |

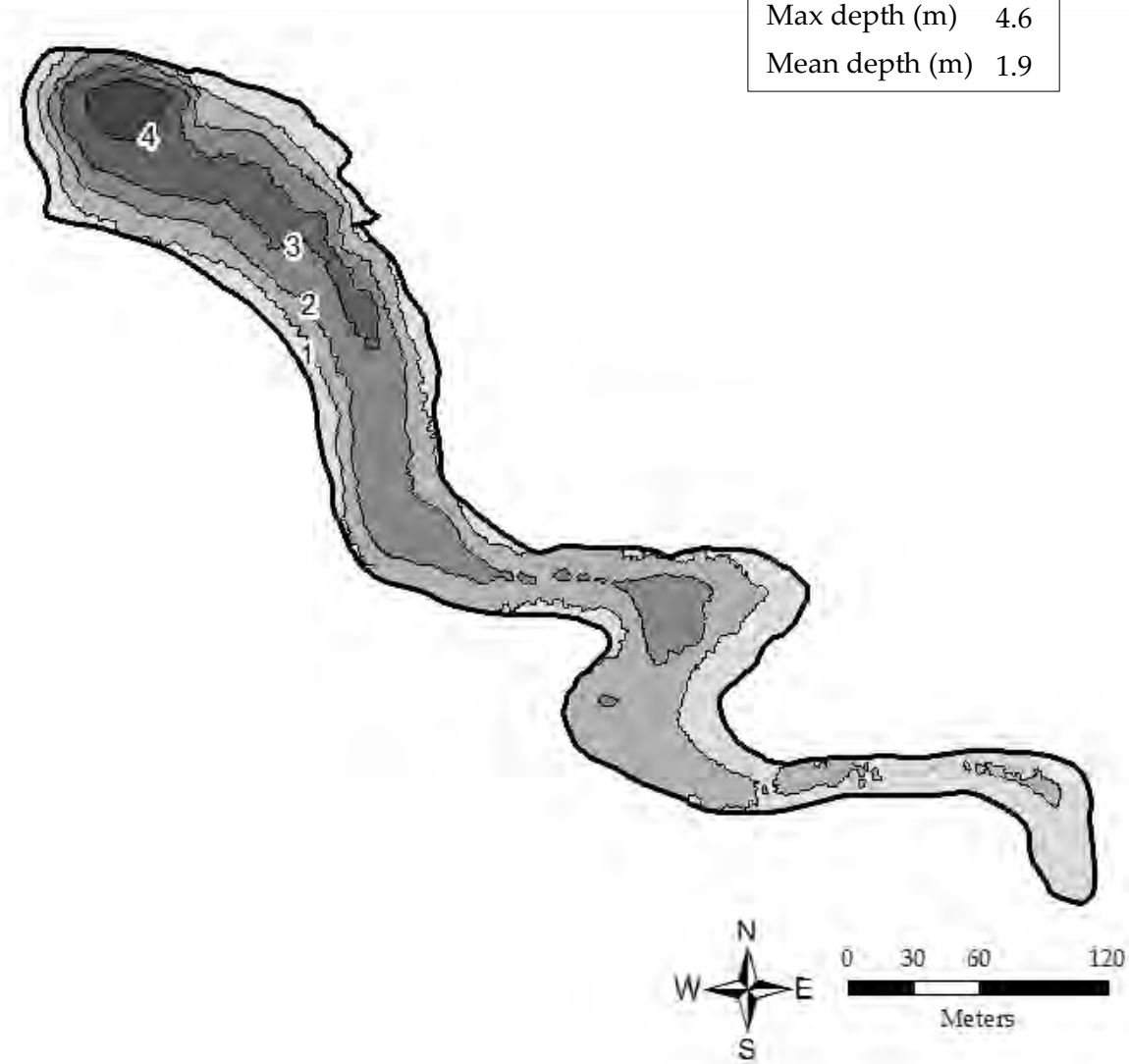


Figure 38. Bathymetric map of Midway Reservoir.

Table 73. Physico-chemical characteristics of Midway Reservoir: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.5 | 2.8 | 0.02 | 0.009 | 0.01 | NA | 9.7 | 15.4 | 0.5 |
| Summer | 0.9 | 2.9 | <0.003 | <0.003 | <0.003 | NA | 13.0 | 17.9 | 0.4 |

[1] Spring samples collected June 10, 2011; summer samples collected July 20, 2011.

Table 74. Physico-chemical characteristics of Midway Reservoir: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 19.5 | 9.5 | 893.3 | 9.4 |
| | 1 | 16.7 | 8.4 | 837.0 | 9.3 |
| | 2 | 14.9 | 5.4 | 801.6 | 9.1 |
| | 3 | 15.2 | 6.0 | 808.0 | 9.0 |
| | 4 | 14.6 | 4.1 | 798.0 | 8.9 |
| Summer | 0 | 14.5 | 4.6 | 1,947.3 | 9.4 |
| | 1 | 14.5 | 4.3 | 1,948.0 | 9.4 |
| | 2 | 14.8 | 3.8 | 1,948.0 | 9.4 |

[1] Spring samples collected June 10, 2011; summer samples collected August 23, 2016.

## MIRROR RESERVOIR

12 U 354865 5814813

Located approximately 65 km northeast of Red Deer, directly west of Mirror on Highway 50.

| | |
|---|---|
| Area (ha) | 4.3 |
| Max depth (m) | 4.9 |
| Mean depth (m) | 3.3 |

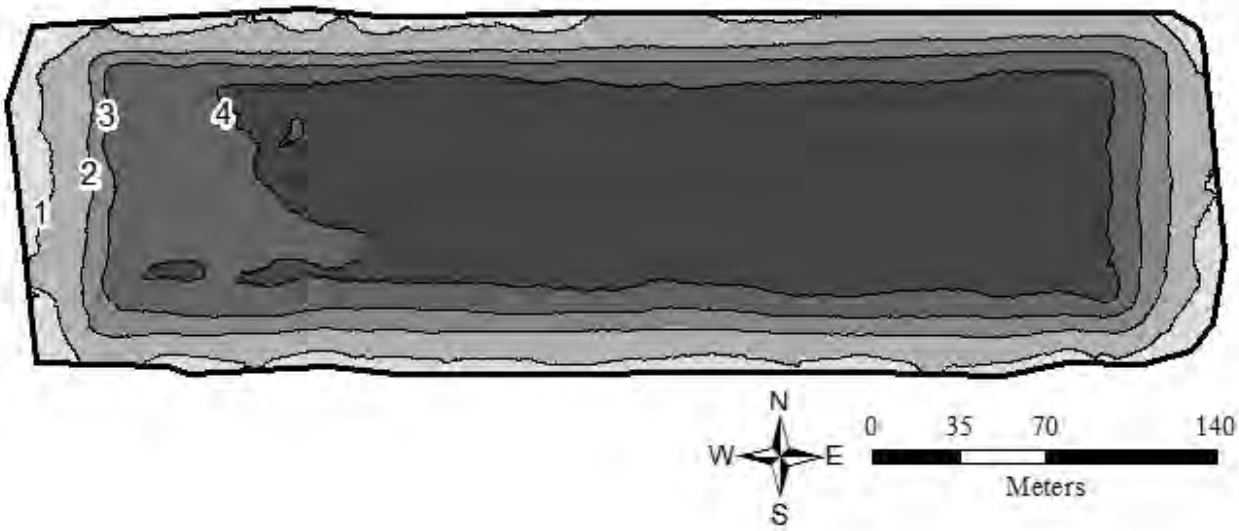


Figure 39. Bathymetric map of Mirror Reservoir.

Table 75. Physico-chemical characteristics of Mirror Reservoir: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.06 | 2.5 | <0.003 | <0.003 | <0.003 | <0.05 | 7.4 | NA | NA |
| Summer | 0.1 | 2.5 | <0.003 | <0.003 | <0.003 | NA | 14.0 | 7.1 | 0.6 |

[1] Spring samples collected May 26, 2011; summer samples collected June 22, 2011.

Table 76. Physico-chemical characteristics of Mirror Reservoir: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 16.3 | 11.3 | 1,689.7 | 9.4 |
| | 2 | 14.4 | 11.3 | 1,683.0 | 9.4 |
| | 3 | 13.3 | 8.4 | 1,680.3 | 9.4 |
| Summer | 0 | 19.0 | 10.8 | 1,048.7 | 9.6 |
| | 1 | 18.1 | 11.1 | 1,026.7 | 9.5 |
| | 2 | 16.8 | 10.6 | 994.0 | 9.4 |
| | 3 | 16.2 | 8.4 | 979.3 | 9.3 |

[1] Spring samples collected June 2, 2016; summer samples collected June 22, 2011.

## MITCHELL POND

12 U 305353 5794821

Formerly Waskasoo Park Pond, this pond is located in Red Deer.

| | |
|---|---|
| Area (ha) | 2.2 |
| Max depth (m) | 5.2 |
| Mean depth (m) | 2.6 |

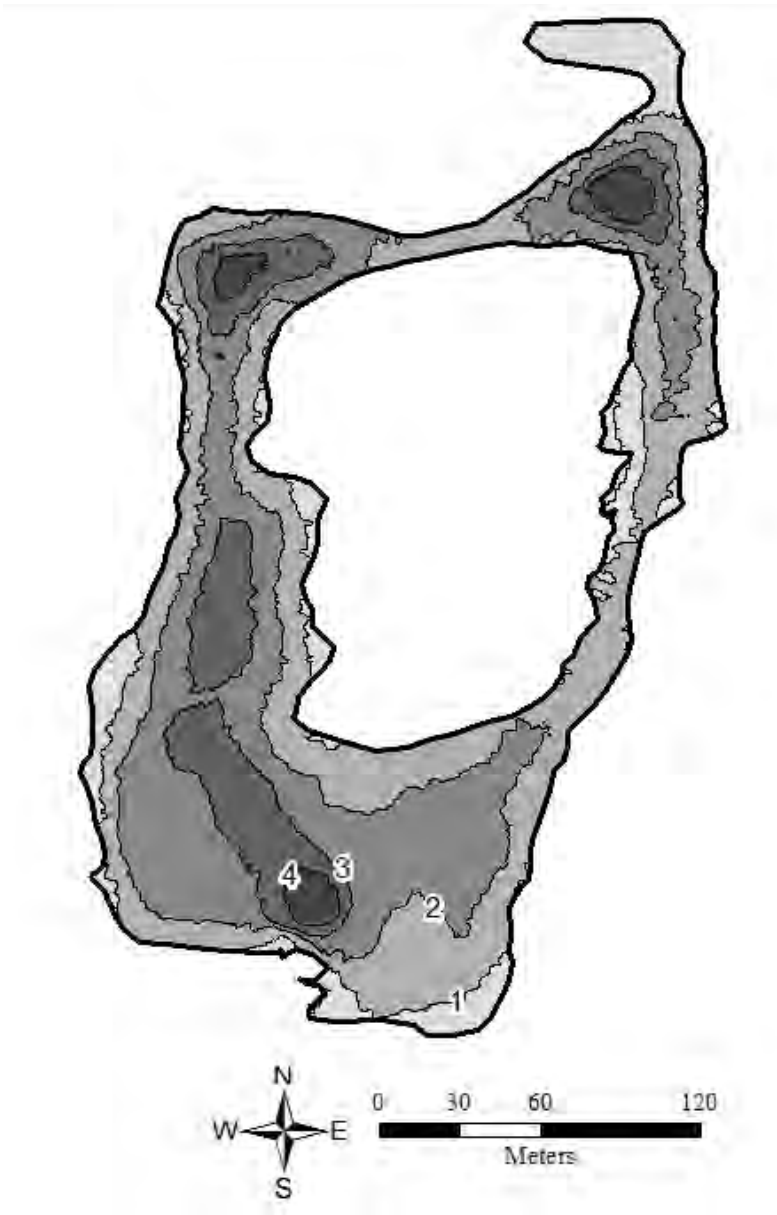

Figure 40. Bathymetric map of Mitchell Pond.

Table 77. Physico-chemical characteristics of Mitchell Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.02 | 0.7 | <0.003 | <0.003 | <0.003 | <0.05 | 2.8 | NA | NA |
| Summer | 0.01 | 0.6 | 0.01 | <0.003 | 0.01 | NA | 3.1 | 2.0 | 2.4 |

[1] Spring samples collected May 18, 2011; summer samples collected June 20, 2011.

Table 78. Physico-chemical characteristics of Mitchell Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 14.6 | 9.3 | 350.1 | 8.7 |
| | 2 | 14.3 | 9.2 | 390.7 | 8.5 |
| | 3 | 13.9 | 9.3 | 362.4 | 8.4 |
| | 4 | 9.7 | 2.2 | 417.9 | 7.5 |
| | 5 | 5.8 | 0.2 | 376.2 | 7.4 |
| Summer | 0 | 18.5 | 8.5 | 344.2 | 8.7 |
| | 1 | 17.6 | 8.2 | 336.0 | 8.1 |
| | 2 | 17.1 | 8.5 | 332.1 | 8.6 |
| | 3 | 16.6 | 7.9 | 329.8 | 8.4 |
| | 4 | 16.0 | 4.2 | 335.8 | 8.35 |

[1] Spring samples collected May 18, 2011; summer samples collected June 20, 2011.

## MITFORD

11 U 675211 5673950

Located in Cochrane. Upper and Lower waterbodies are connected by a small stream flowing from the southeast edge of Upper to the southwest edge of Lower.

| | |
|---|---|
| Area (ha) | 0.7 |
| Max depth (m) | 3.4 |
| Mean depth (m) | 1.3 |

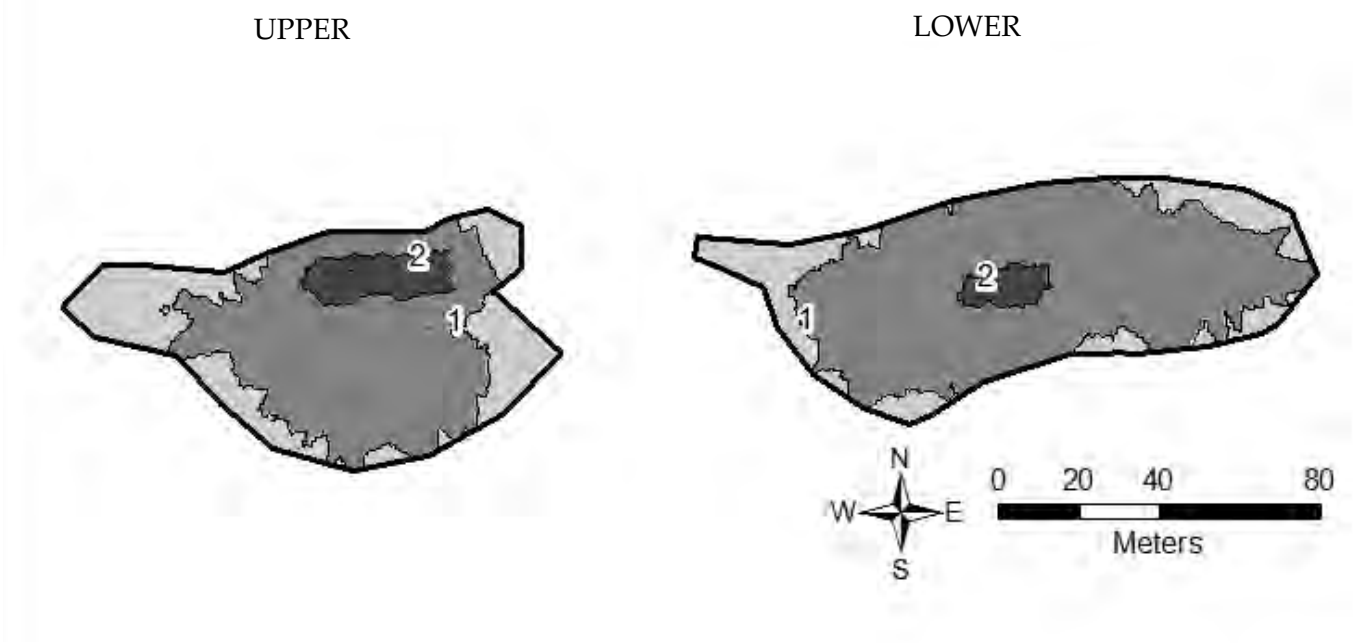


Figure 41. Bathymetric map of Mitford.

Table 79. Physico-chemical characteristics of Mitford: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.007 | 0.6 | <0.02 | <0.04 | <0.03 | <0.05 | 1.6 | 2.3 | 1.9 |
| Summer | 0.01 | 0.7 | <0.02 | <0.04 | <0.03 | 0.1 | 0.9 | 2.2 | 2.2 |

[1] Spring samples collected May 30, 2016; summer samples collected August 25, 2016.

Table 80. Physico-chemical characteristics of Mitford: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 14.6 | 9.4 | 318.0 | 9.1 |
| | 1 | 14.6 | 9.4 | 318.1 | 9.1 |
| | 2 | 14.6 | 9.6 | 318.8 | 9.1 |
| Summer | 0 | 16.0 | 7.6 | 296.8 | 9.3 |
| | 1 | 16.0 | 7.6 | 296.7 | 9.3 |
| | 2 | 16.1 | 7.8 | 296.6 | 9.3 |
| | 3 | 15.9 | 6.3 | 300.2 | 9.2 |

[1] Spring samples collected May 30, 2016; summer samples collected August 25, 2016.

## MORINVILLE FISH AND GAME POND

12 U 325014 5965799

Located within the town of Morinville, approximately 40 km north of Edmonton.

| | |
|---|---|
| Area (ha) | 1.9 |
| Max depth (m) | 35.4 |
| Mean depth (m) | 8.7 |

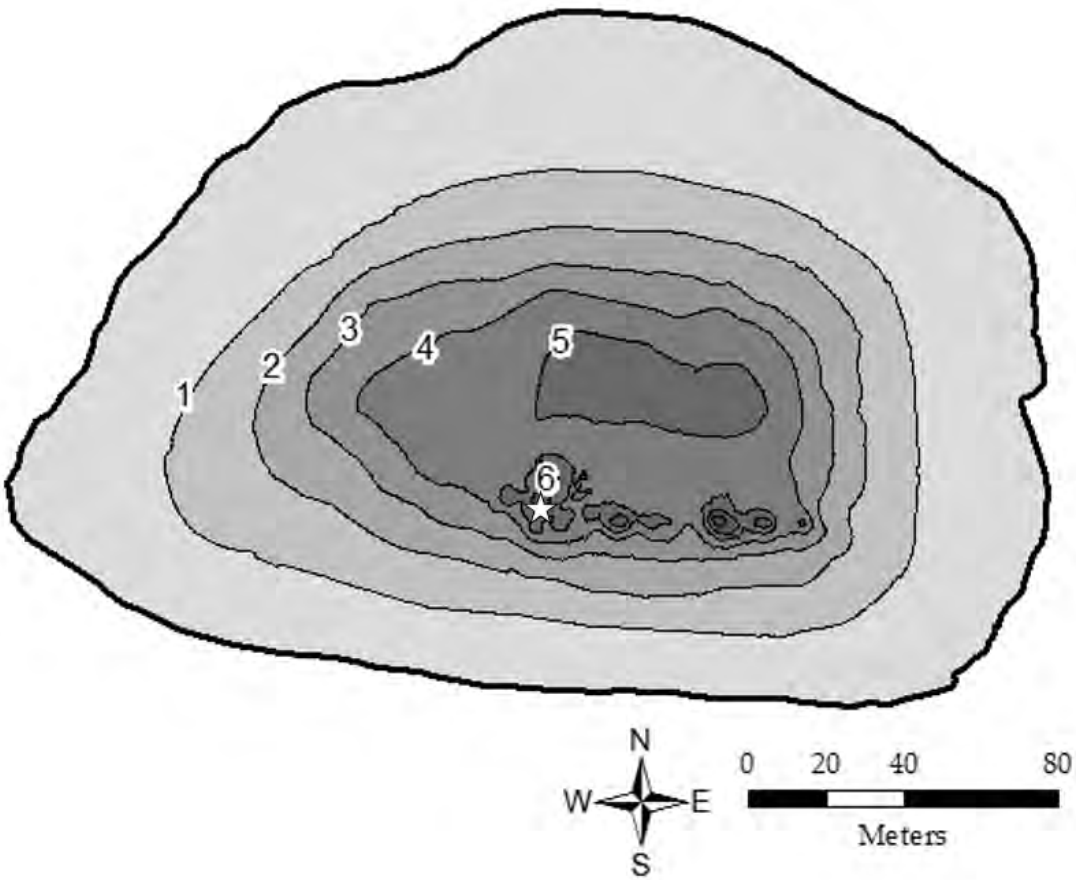


Figure 42. Bathymetric map of Morinville Fish and Game Pond. Star indicates max depth location.

Table 81. Physico-chemical characteristics of Morinville Fish and Game Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.07 | 1.4 | 0.3 | 0.01 | 0.3 | 0.1 | 4.0 | 3.9 | 2.0 |
| Summer | 0.2 | 2.3 | 0.005 | <0.003 | 0.005 | NA | 5.9 | 17.5 | 0.8 |

[1] Spring samples collected June 24, 2011; summer samples collected August 4, 2011.

Table 82. Physico-chemical characteristics of Morinville Fish and Game Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 10.8 | 10.6 | 1,200.0 | 9.2 |
| | 2 | 10.2 | 9.9 | 1,200.3 | 9.1 |
| | 3 | 10.1 | 9.4 | 1,201.7 | 9.1 |
| | 4 | 10 | 8.9 | 1,204.3 | 9.1 |
| | 5 | 9.9 | 8.7 | 1,214.5 | 9.0 |
| | 6 | 9.7 | 8.1 | 1,227.5 | 8.9 |
| | 7 | 7.5 | 3.3 | 1,190.5 | 8.3 |
| | 8 | 6.0 | 1.3 | 1,178.0 | 8.0 |
| | 9 | 5.8 | 1.0 | 1,179.0 | 7.8 |
| | 10 | 5.5 | 0.7 | 1,181.0 | 7.9 |
| | 11 | 5.3 | 0.2 | 1,184.0 | 7.7 |
| | 12 | 5.2 | 0.1 | 1,185.0 | 7.6 |
| | 13 | 5.0 | 1.0 | 1,187.0 | 7.6 |
| | 14 | 5.0 | 0.1 | 1,186.0 | 7.5 |
| | 15 | 5.0 | 0.1 | 1,185.0 | 7.5 |
| | 16 | 5.0 | 0.1 | 1,176.0 | 7.4 |
| | 17 | 5.0 | 0.1 | 1,168.0 | 7.3 |
| | 18 | 5.0 | 0 | 1,169.0 | 7.3 |
| | 19 | 4.9 | 0 | 1,167.0 | 7.2 |
| | 20 | 4.9 | 0 | 1,168.0 | 7.2 |
| Summer | 0 | 23.4 | 14.1 | 844.3 | 9.5 |

| | | | | |
|---|---|---|---|---|
| 1 | 19.7 | 14.5 | 778.7 | 9.5 |
| 2 | 19.2 | 10.6 | 770.0 | 9.1 |
| 3 | 18.1 | 4.8 | 765.3 | 8.5 |
| 4 | 16.6 | 1.9 | 769.7 | 8.3 |
| 5 | 14.1 | 1.0 | 768.7 | 8.1 |
| 6 | 11.3 | 0.7 | 743.0 | 7.9 |
| 7 | 7.8 | 0.7 | 701.0 | 8.1 |
| 8 | 6.5 | 0.7 | 683.5 | 7.8 |
| 9 | 5.5 | 0.8 | 673.0 | 7.8 |
| 10 | 5.0 | 0.8 | 667.5 | 7.8 |
| 11 | 4.6 | 0.8 | 664.0 | 7.7 |
| 12 | 4.3 | 0.9 | 662.0 | 7.7 |
| 13 | 4.2 | 0.9 | 662.0 | 7.7 |

[1] Spring samples collected May 24, 2016; summer samples collected August 3, 2011.

## MOUND RED RESERVOIR

12 U 300728 5861810

Located approximately 34 km northwest of Ponoka.

| | |
|---|---|
| Area (ha) | 4.2 |
| Max depth (m) | 4.4 |
| Mean depth (m) | 2.2 |

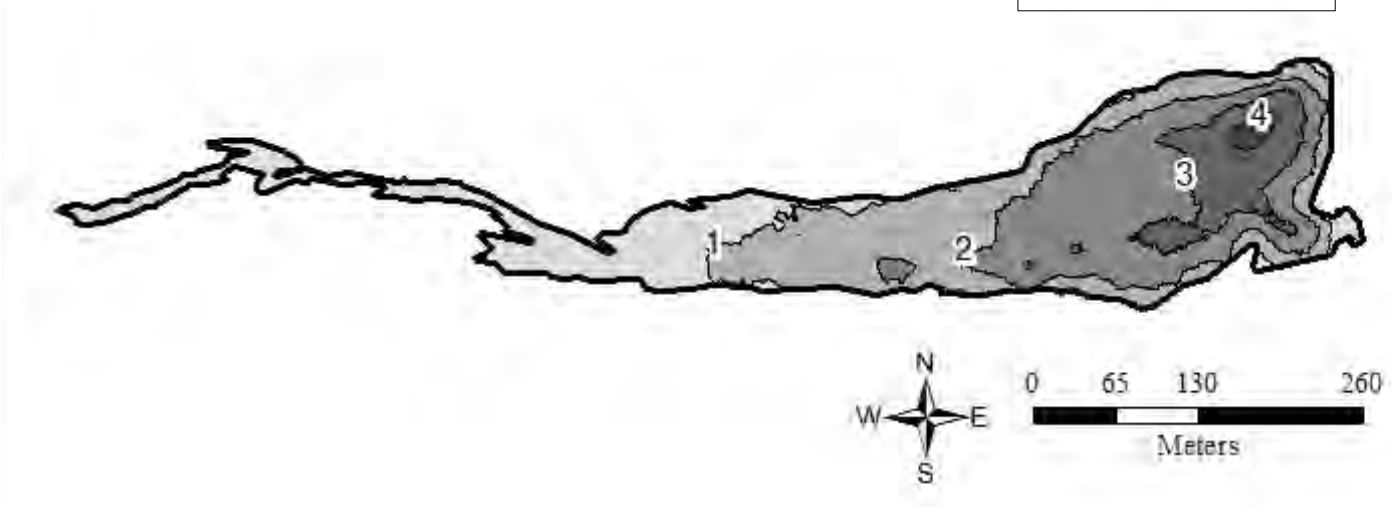


Figure 43. Bathymetric map of Mound Red Reservoir.

Table 83. Physico-chemical characteristics of Mound Red Reservoir: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.1 | 1.2 | <0.003 | <0.003 | <0.003 | <0.05 | 7.0 | NA | NA |
| Summer | 0.1 | 1.6 | 0.006 | <0.003 | 0.006 | NA | 8.7 | 9.7 | 1.1 |

[1] Spring samples collected May 19, 2011; summer samples collected June 21, 2011.

Table 84. Physico-chemical characteristics of Mound Red Reservoir: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 16.7 | 9.1 | 342.5 | 8.5 |
| | 1 | 14.9 | 8.5 | 311.1 | 8.0 |
| | 2 | 11.1 | 7.1 | 275.5 | 8.1 |
| | 3 | 8.0 | 1.1 | 592.0 | 7.6 |
| | 4 | 7.4 | 0.2 | 243.7 | 7.5 |
| Summer | 0 | 16.8 | 8.2 | 373.2 | 9.3 |
| | 1 | 15.1 | 8.2 | 356.3 | 9.2 |
| | 2 | 14.3 | 7.3 | 344.1 | 9.5 |
| | 3 | 12.4 | 1.7 | 357.7 | 9.5 |

[1] Spring samples collected May 19, 2011; summer samples collected June 21, 2011.

## NOSE CREEK POND

11 U 708471 5685181

Formerly Airdrie Pond, Nose Creek Pond is located 35 km north of Calgary in Airdrie.

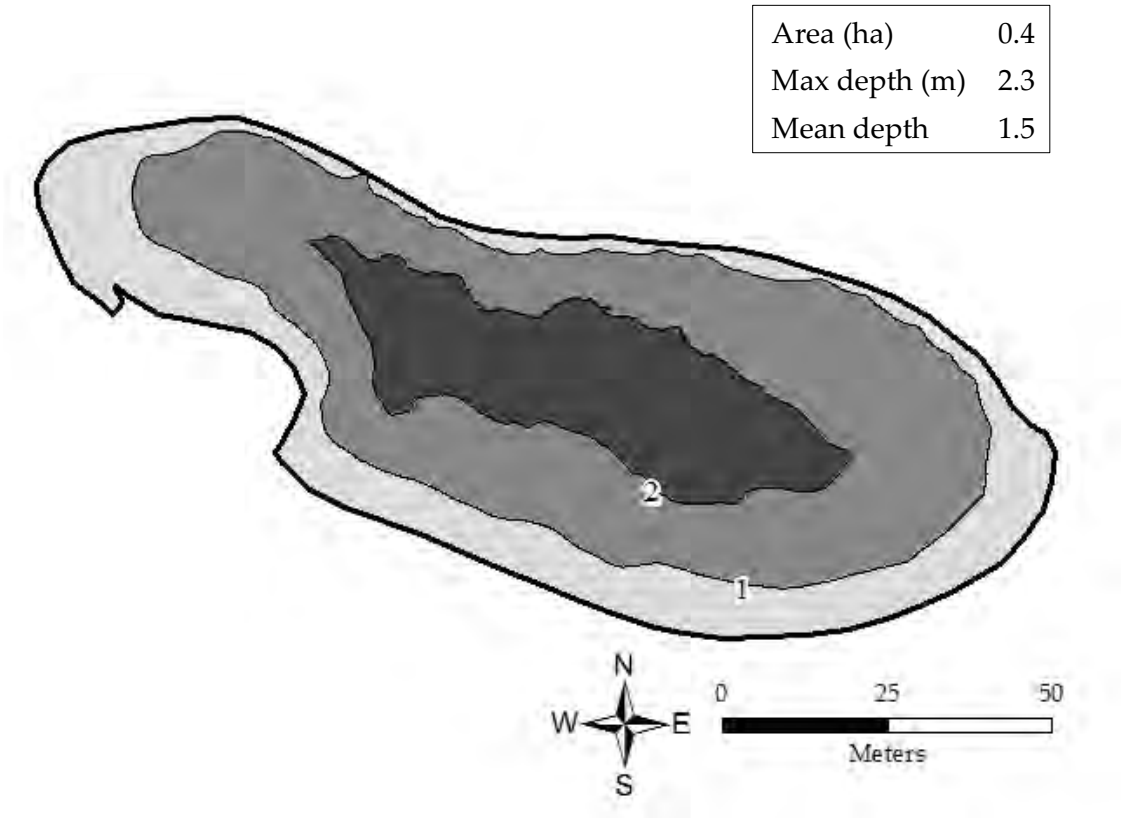


Figure 44. Bathymetric map of Nose Creek Pond.

Table 85. Physico-chemical characteristics of Nose Creek Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.2 | 1.8 | 0.2 | 0.004 | 0.2 | NA | 24.0 | 17.4 | 0.6 |
| Summer | 0.4 | 1.7 | <0.003 | <0.003 | <0.003 | NA | 14.0 | 22.6 | 0.6 |

[1] Spring samples collected June 9, 2011; summer samples collected July 19, 2011.

Table 86. Physico-chemical characteristics of Nose Creek Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 16.3 | 8.8 | 698.3 | 9.8 |
| | 1 | 16.1 | 8.9 | 694.7 | 9.6 |
| Summer | 0 | 21.6 | 8.3 | 823.7 | 8.6 |
| | 1 | 21.2 | 7.7 | 815.3 | 8.6 |

[1] Spring samples collected June 9, 2011; summer samples collected July 19, 2011.

## NUGGENT POND

11 U 680927 5852498

Located approximately 90 km northwest of Red Deer, 7.5 km south of Hoadley along Highway 20.

| | |
|---|---|
| Area (ha) | 0.6 |
| Max depth (m) | 4.3 |
| Mean depth (m) | 3.2 |

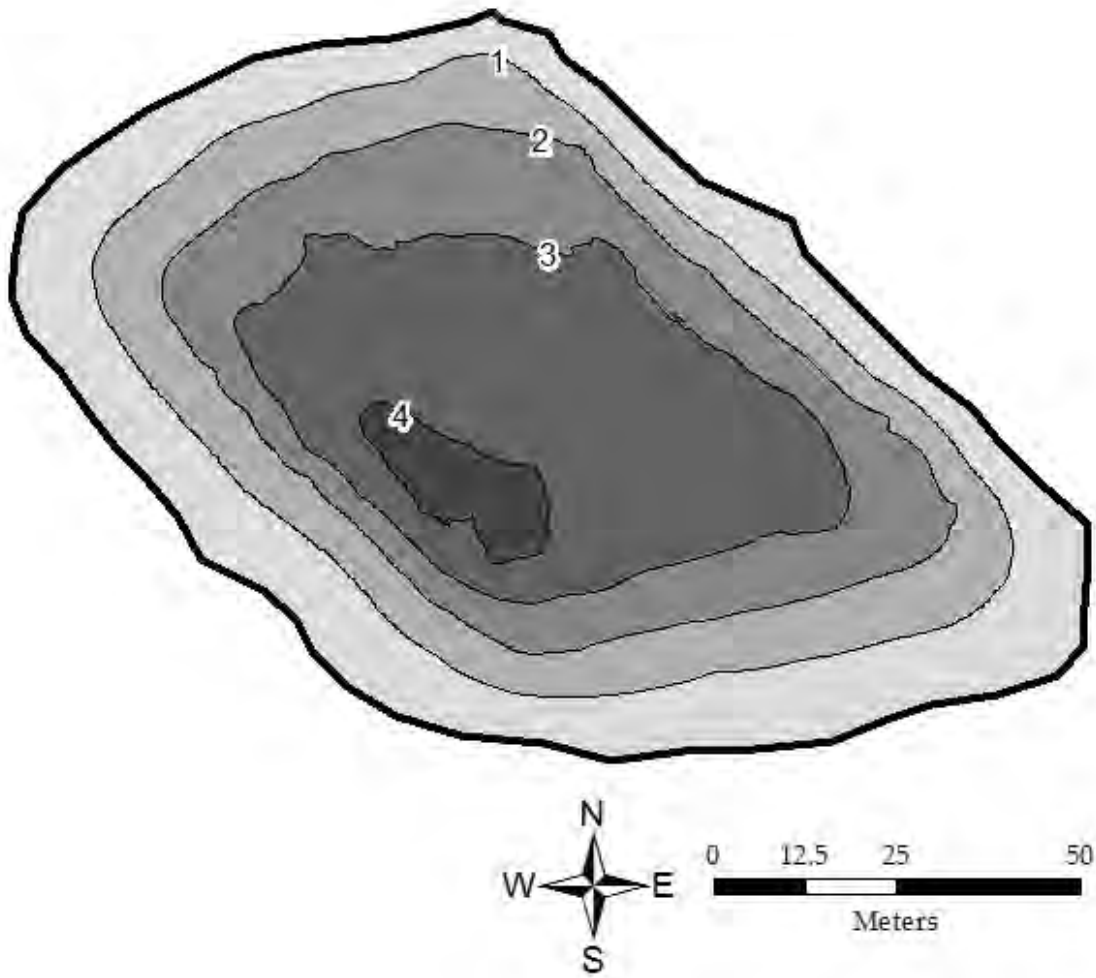


Figure 45. Bathymetric map of Nuggent Pond.

Table 87. Physico-chemical characteristics of Nuggent Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | Chl*a* (μg/L) | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | NA | 0.03 | 0.8 | <0.003 | <0.003 | <0.003 | <0.05 | 2.5 | NA |
| Summer | 3.2 | 0.01 | 0.8 | <0.003 | <0.003 | <0.003 | NA | 2.7 | 3.0 |

[1] Spring samples collected May 19, 2011; summer samples collected June 21, 2011.

Table 88. Physico-chemical characteristics of Nuggent Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (μS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 16.6 | 8.5 | 300.8 | 9.2 |
| | 1 | 15.9 | 8.5 | 199.9 | 8.7 |
| | 2 | 13.4 | 9.1 | 186.5 | 8.9 |
| | 3 | 8.3 | 10.7 | 195.8 | 8.7 |
| Summer | 0 | 16.4 | 8.0 | 178.0 | 9.7 |
| | 1 | 16.2 | 8.0 | 176.8 | 8.7 |
| | 2 | 16.0 | 7.6 | 176.2 | 8.8 |
| | 3 | 15.7 | 6.7 | 177.6 | 8.7 |

[1] Spring samples collected May 19, 2011; summer samples collected June 21, 2011.

## OYEN (CONCRETE PLANT)

12 U 535620 5689001

Located on the east side of Oyen near the concrete plant, approximately 200 km north of Medicine Hat.

| | |
|---|---|
| Area (ha) | 0.5 |
| Max depth (m) | 3.7 |
| Mean depth (m) | 2.6 |

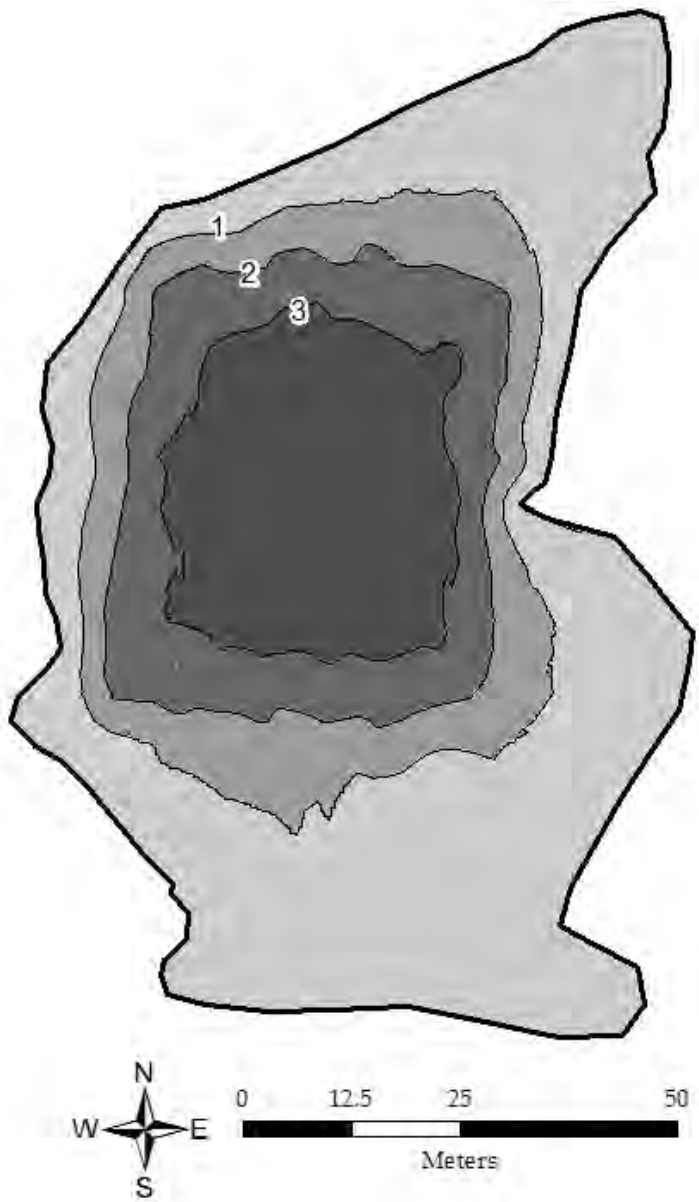

Figure 46. Bathymetric map of Oyen (Concrete Plant).

Table 89. Physico-chemical characteristics of Oyen (Concrete Plant): nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.2 | 1.3 | 0.008 | 0.008 | 0.003 | 0.05 | 4.6 | NA | 1.1 |
| Summer | 0.5 | 1.1 | 0.01 | <0.003 | 0.01 | NA | 4.6 | 9.3 | 1.6 |

[1] Spring samples collected June 10, 2012; summer samples collected August 10, 2011.

Table 90. Physico-chemical characteristics of Oyen (Concrete Plant): vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 15.2 | 6.3 | 883.7 | 8.0 |
| | 2 | 15.2 | 6.3 | 885.3 | 8.0 |
| | 3 | 15.3 | 6.2 | 901.0 | 7.9 |
| Summer | 0 | 19.7 | 4.1 | 793.0 | 8.4 |
| | 1 | 19.7 | 3.4 | 804.7 | 8.3 |
| | 2 | 18.9 | 1.4 | 817.5 | 8.7 |

[1] Spring samples collected June 10, 2012; summer samples collected August 10, 2011.

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## OYEN RESERVOIR

12 U 534759 5718108

Located 30 km north of the town of Oyen on Highway 41, approximately 200 km north of Medicine Hat.

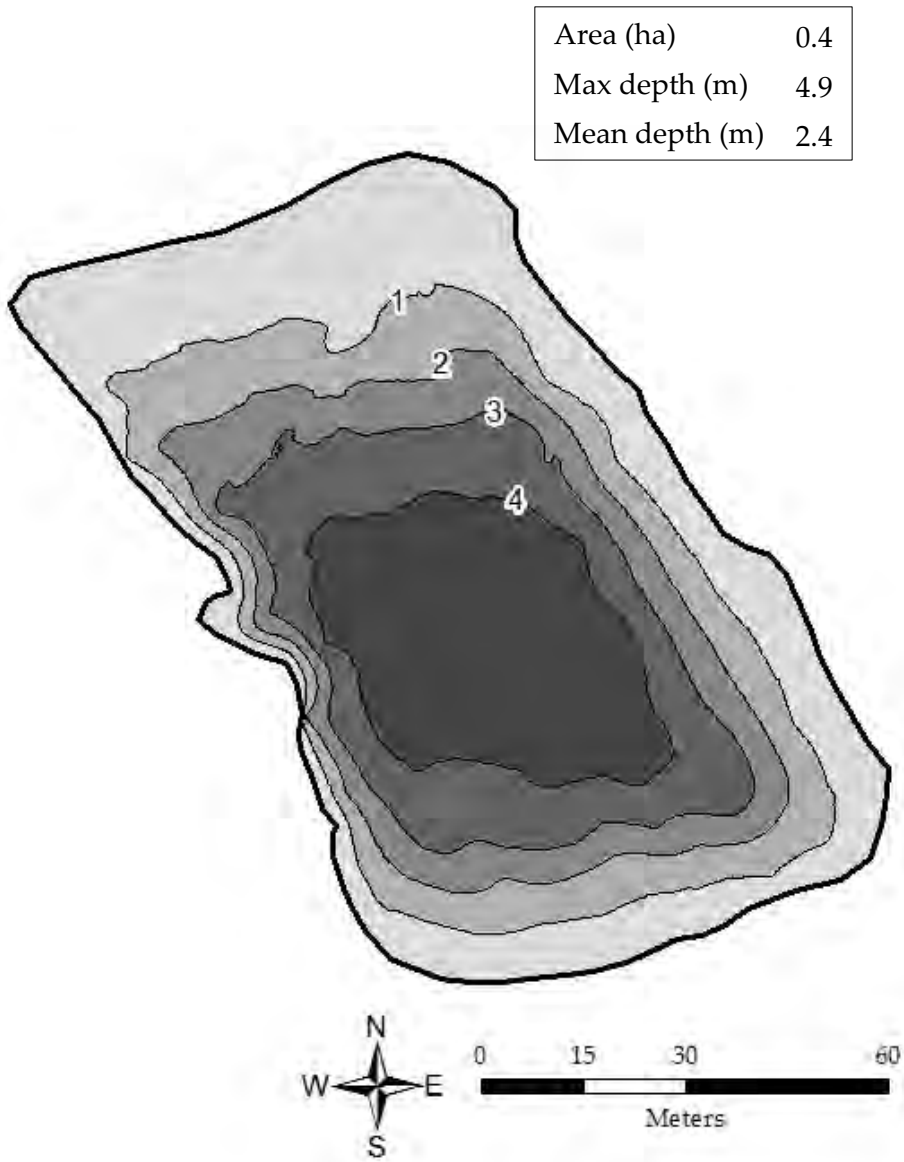


Figure 47. Bathymetric map of Oyen Reservoir.

Table 91. Physico-chemical characteristics of Oyen Reservoir: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.04 | 1.9 | 0.005 | 0.005 | 0.003 | 0.06 | 1.8 | NA | 2.1 |
| Summer | 0.2 | 1.9 | 0.02 | 0.01 | 0.004 | NA | 3.2 | 4.1 | 3.1 |

[1] Spring samples collected June 10, 2012; summer samples collected August 10, 2011.

Table 92. Physico-chemical characteristics of Oyen Reservoir: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 15.2 | 8.1 | 724.3 | 8.8 |
| | 2 | 15.2 | 8.2 | 724.7 | 8.7 |
| | 3 | 15.2 | 8.2 | 724.5 | 8.7 |
| | 4 | 15.2 | 8.2 | 724.5 | 8.6 |
| Summer | 0 | 17.5 | 5.9 | 882.0 | 9.2 |
| | 1 | 17.5 | 5.8 | 882.0 | 9.1 |
| | 2 | 17.5 | 5.8 | 882.0 | 9.1 |
| | 3 | 17.5 | 5.5 | 882.0 | 9.1 |
| | 4 | 17.5 | 5.5 | 882.0 | 9.1 |

[1] Spring samples collected June 10, 2012; summer samples collected August 23, 2016.

## PLEASURE ISLAND FISH POND

12 U 383796 5871383

Located approximately 4 km southeast of Camrose and is accessed south of Highway 13 on RR 195.

| | |
|---|---|
| Area (ha) | 2.3 |
| Max depth (m) | 5.1 |
| Mean depth (m) | 3.1 |

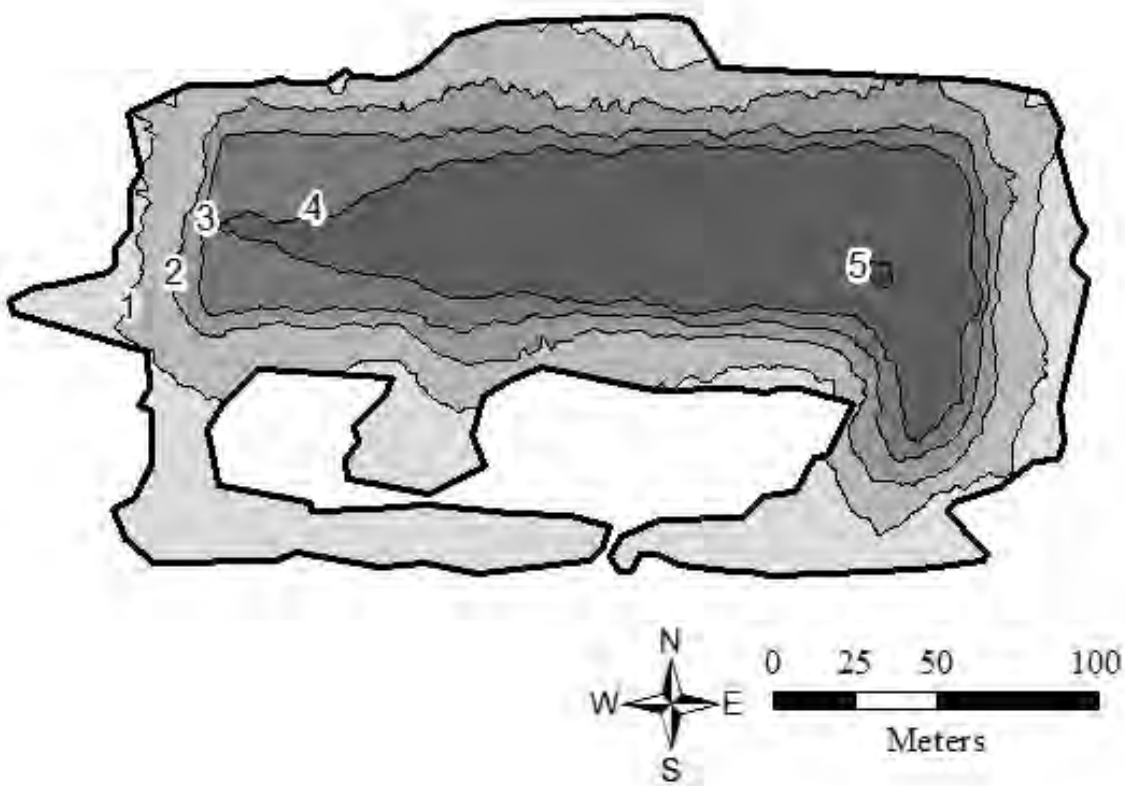


Figure 48. Bathymetric map of Pleasure Island Fish Pond.

Table 93. Physico-chemical characteristics of Pleasure Island Fish Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.09 | 1.8 | <0.003 | <0.003 | <0.003 | <0.05 | 20.0 | NA | NA |
| Summer | 0.1 | 2.2 | 0.4 | 0.03 | 0.4 | NA | 14.0 | 16.8 | 0.6 |

[1] Spring samples collected May 27, 2011; summer samples collected June 23, 2011.

Table 94. Physico-chemical characteristics of Pleasure Island Fish Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 13.6 | 6.8 | 427.7 | 9.3 |
| | 1 | 13.5 | 6.8 | 427.7 | 9.0 |
| | 2 | 13.5 | 6.6 | 427.7 | 8.7 |
| | 3 | 13.4 | 6.6 | 427.7 | 8.7 |
| | 4 | 13.4 | 6.2 | 427.7 | 8.5 |
| Summer | 0 | 19.5 | 8.3 | 578.0 | 8.5 |
| | 1 | 19.0 | 8.3 | 571.3 | 8.4 |
| | 2 | 18.5 | 8.3 | 565.7 | 8.4 |
| | 3 | 17.8 | 8.1 | 556.7 | 8.2 |
| | 4 | 17.5 | 7.8 | 553.2 | 8.2 |

[1] Spring samples collected May 27, 2011; summer samples collected June 23, 2011.

## PRO ALTA POND

12 U 549246 5800061

Located in the southwest corner of Provost, approximately 125 km south of Lloydminster.

| | |
|---|---|
| Area (ha) | 1.9 |
| Max depth (m) | 4.9 |
| Mean depth (m) | 2.5 |

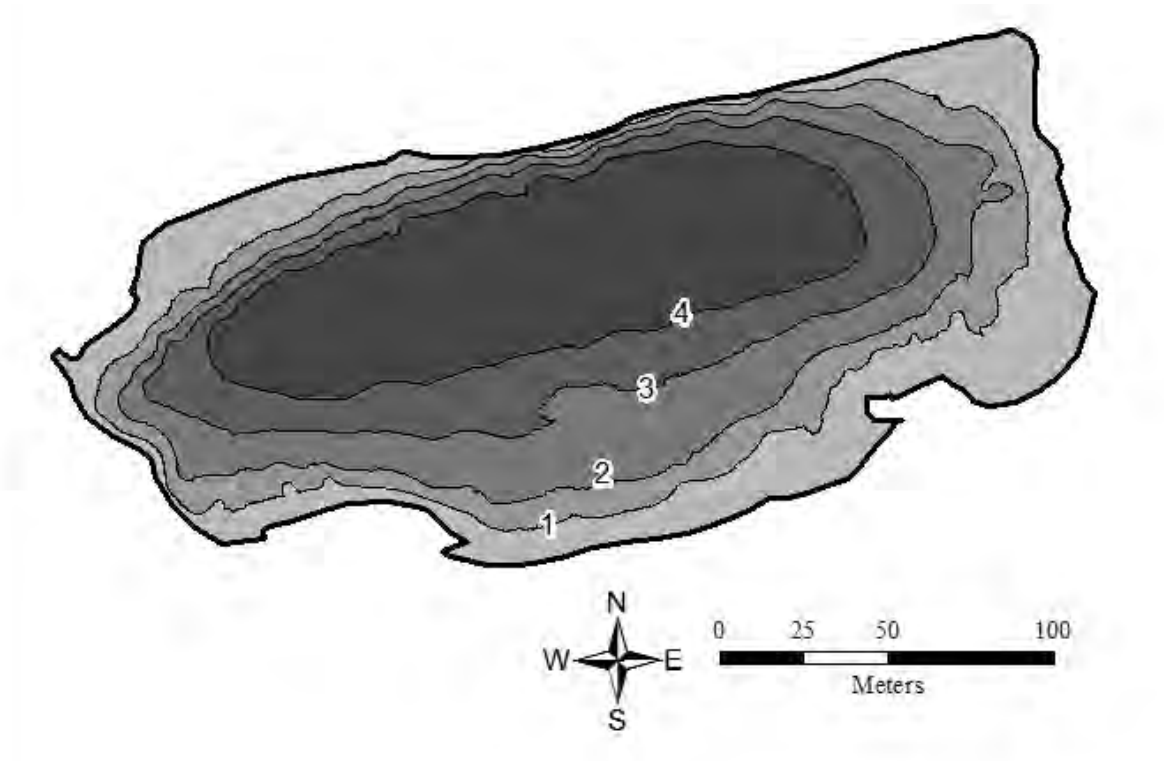


Figure 49. Bathymetric map of Pro Alta Pond.

Table 95. Physico-chemical characteristics of Pro Alta Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.5 | 3.0 | 0.01 | 0.008 | 0.004 | 0.2 | 1.0 | NA | NA |
| Summer | 0.5 | 3.6 | <0.003 | <0.003 | <0.003 | N/A | 5.1 | 64.0 | 0.9 |

[1] Spring samples collected June 8, 2012; summer samples collected August 9, 2011.

Table 96. Physico-chemical characteristics of Pro Alta Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 17.3 | 8.5 | 1,821.0 | 8.4 |
| | 2 | 15.4 | 7.4 | 1,818.0 | 8.3 |
| | 3 | 14.3 | 2.8 | 1,815.7 | 8.0 |
| | 4 | 12.3 | 0.1 | 1,813.5 | 7.8 |
| Summer | 0 | 22.0 | 5.3 | 1,928.7 | 9.3 |
| | 1 | 21.3 | 5.0 | 1,933.0 | 9.3 |
| | 2 | 20.0 | 0.9 | 1,920.3 | 9.3 |
| | 3 | 18.9 | 0.0 | 1,935.7 | 9.1 |
| | 4 | 15.9 | 0.0 | 1,948.0 | 8.1 |

[1] Spring samples collected June 1, 2016; summer samples collected August 15, 2016.

## RADWAY FISH POND

12U 371964 5991598

Located in the town of Radway, approximately 80 km northeast of Edmonton on Highway 28.

| | |
|---|---|
| Area (ha) | 1.4 |
| Max depth (m) | 6.8 |
| Mean depth (m) | 3.5 |

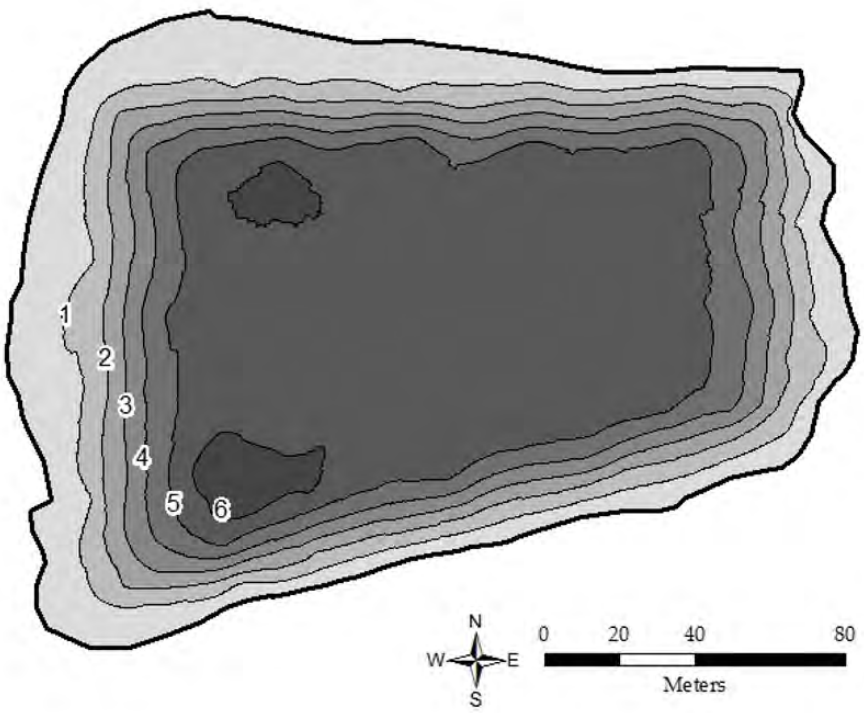


Figure 50. Bathymetric map of Radway Fish Pond.

Table 97. Physico-chemical characteristics of Radway Fish Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.03 | 1.2 | 0.003 | 0.003 | 0.003 | 0.05 | 2.9 | NA | 1.5 |
| Summer | 0.06 | 1.7 | 0.03 | 0.2 | <0.03 | 0.2 | 2.6 | 15.3 | 1.8 |

[1] Spring samples collected June 6, 2013, summer samples collected July 28, 2016.

Table 98. Physico-chemical characteristics of Radway Fish Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 17.3 | 10.5 | 322.5 | 8.8 |
| | 2 | 17.0 | 10.5 | 320.1 | 8.8 |
| | 3 | 12.5 | 5.4 | 287.5 | 8.0 |
| | 4 | 8.3 | 4.9 | 272.4 | 7.5 |
| | 5 | 5.9 | 5.2 | 271.9 | 7.4 |
| Summer | 1 | 22.9 | 7.1 | 470.3 | 8.2 |
| | 2 | 22.8 | 6.9 | 470.3 | 8.2 |
| | 3 | 22.8 | 6.9 | 470.6 | 8.1 |
| | 4 | 22.7 | 6.7 | 470.7 | 8.1 |
| | 5 | 22.6 | 6.6 | 470.9 | 8.1 |

[1] Spring samples collected June 6, 2013, summer samples collected July 28, 2016.

## RAY'S POND

11 U 684588 5800414

Formerly Niemela Reservoir, Ray's Pond is located west of Sylvan Lake on Highway 11.

| | |
|---|---|
| Area (ha) | 2.2 |
| Max depth (m) | 4.1 |
| Mean depth (m) | 1.9 |

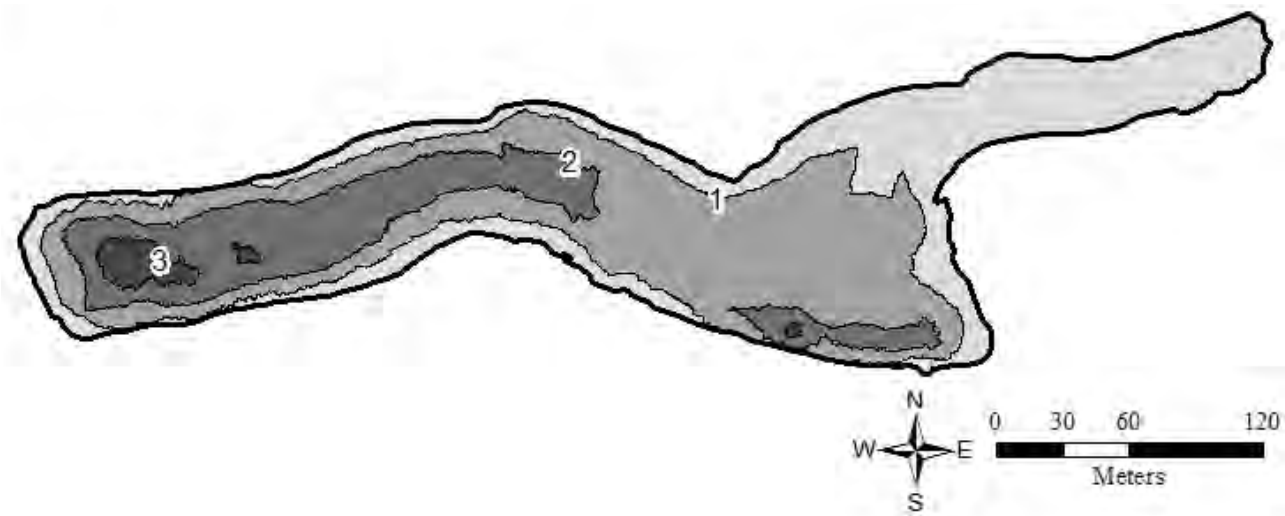


Figure 51. Bathymetric map of Ray's Pond.

Table 99. Physico-chemical characteristics of Ray's Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.03 | 1.0 | <0.003 | <0.003 | <0.003 | <0.05 | 1.6 | NA | NA |
| Summer | 0.04 | 1.3 | 0.06 | 0.01 | 0.05 | NA | 6.7 | 18.3 | 1.0 |

[1] Spring samples collected May 26, 2011; summer samples collected June 24, 2011.

Table 100. Physico-chemical characteristics of Ray's Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 10.5 | 9.0 | 241.5 | 9.5 |
| | 1 | 10.5 | 9.0 | 244.0 | 9.1 |
| | 2 | 10.0 | 8.9 | 295.8 | 9.4 |
| Summer | 0 | 17.2 | 9.1 | 513.3 | 8.9 |
| | 1 | 17.0 | 8.9 | 511.8 | 8.7 |
| | 2 | 14.5 | 8.3 | 490.6 | 8.6 |

[1] Spring samples collected May 26, 2011; summer samples collected June 24, 2011.

## STIRLING FISH POND

12 U 388687 5484278

Located in the Village of Stirling, approximately 35 km southeast of Lethbridge on Highway 4.

| | |
|---|---|
| Area (ha) | 2.9 |
| Max depth (m) | 5.0 |
| Mean depth (m) | 2.9 |

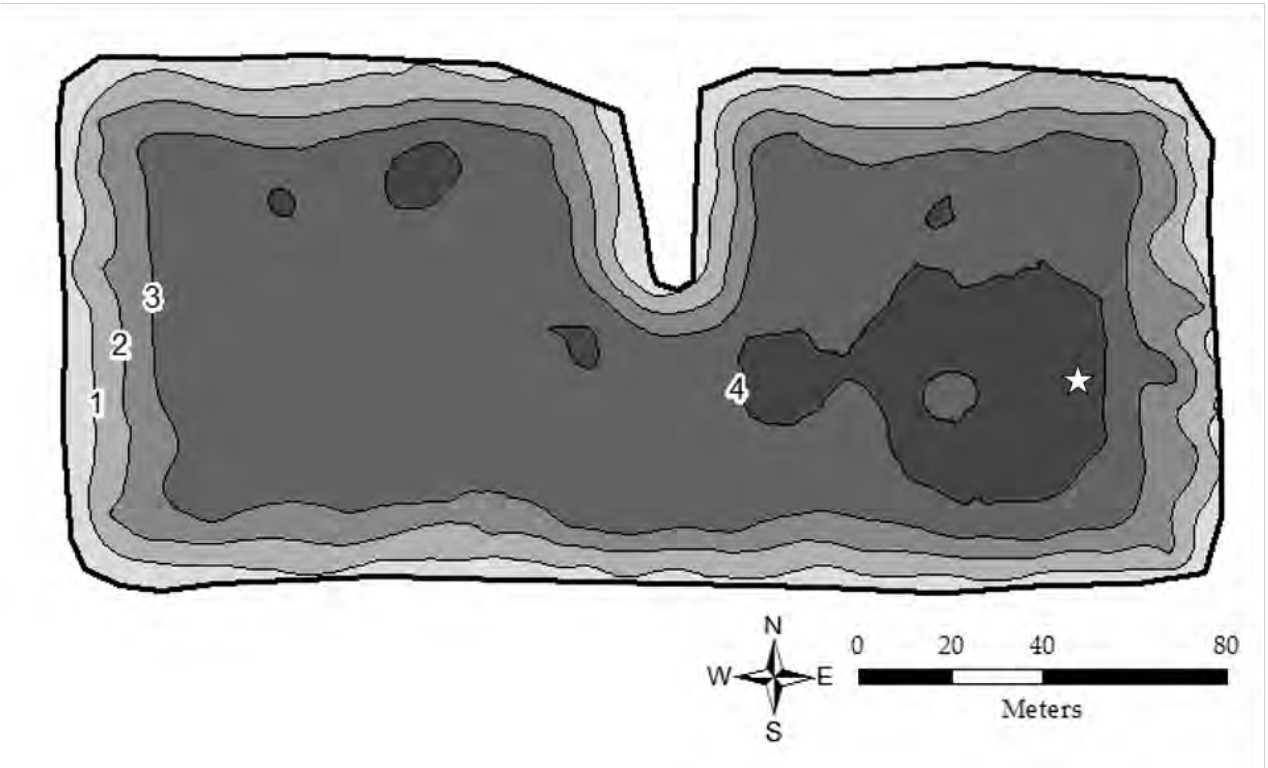


Figure 52. Bathymetric map of Stirling Fish Pond. Star indicates max depth location.

Table 101. Physico-chemical characteristics of Stirling Fish Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.03 | 1.3 | 0.003 | <0.003 | 0.003 | NA | 4.5 | NA | 1.3 |
| Summer | 0.02 | 1.2 | 0.005 | <0.003 | 0.005 | NA | 3.9 | 5.1 | 1.6 |

[1] Spring samples collected June 2, 2011; summer samples collected July 11, 2011.

Table 102. Physico-chemical characteristics of Stirling Fish Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 15.8 | 9.2 | 733.0 | 9.1 |
| | 1 | 15.8 | 8.9 | 735.0 | 9.1 |
| | 2 | 14.8 | 9.5 | 734.3 | 9.1 |
| | 3 | 13.9 | 10.1 | 729.7 | 9.1 |
| Summer | 0 | 19.5 | 3.7 | 488.7 | 8.9 |
| | 1 | 19.1 | 3.7 | 484.0 | 8.9 |
| | 2 | 18.6 | 3.8 | 477.6 | 8.9 |
| | 3 | 18.1 | 3.8 | 472.3 | 8.9 |

[1] Spring samples collected June 2, 2016; summer samples collected July 11, 2011.

## STRATHMORE CHILDREN'S POND

12 U 332463 5657182

Located in Strathmore, approximated 50 km east of Calgary on Highway 1.

| | |
|---|---|
| Area (ha) | 2.2 |
| Max depth (m) | 3.4 |
| Mean depth (m) | 2.1 |

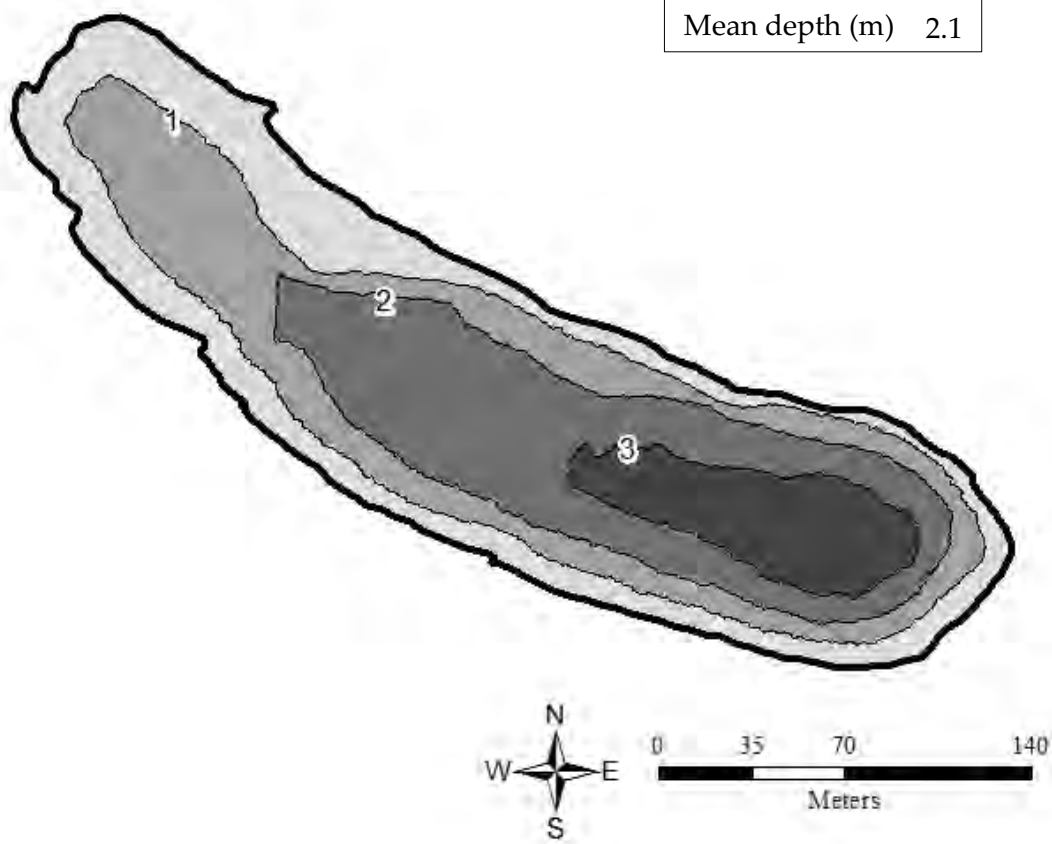


Figure 53. Bathymetric map of Strathmore Children's Pond.

Table 103 Physico-chemical characteristics of Strathmore Children's Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.2 | 1.9 | <0.003 | <0.003 | <0.003 | NA | 11.0 | 15.5 | 1.8 |
| Summer | 0.06 | 1.0 | <0.003 | <0.003 | <0.003 | NA | 3.3 | 13.1 | 2.2 |

[1] Spring samples collected June 14, 2011; summer samples collected July 19, 2011.

Table 104. Physico-chemical characteristics of Strathmore Children's Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 18.5 | 8.9 | 727.3 | 8.9 |
| | 1 | 18.0 | 8.5 | 720.7 | 8.7 |
| | 2 | 17.4 | 8.5 | 711.7 | 8.6 |
| Summer | 0 | 25.0 | 11.0 | 716.3 | 9.1 |
| | 1 | 23.6 | 9.8 | 708.0 | 9.0 |
| | 2 | 21.8 | 8.6 | 714.3 | 8.9 |

[1] Spring samples collected June 14, 2011; summer samples collected July 19, 2011.

## TEES TROUT POND

12 U 342675 5816159

Located 1 km north of Tees on Highway 821, approximately 55 km northeast of Red Deer.

| | |
|---|---|
| Area (ha) | 0.7 |
| Max depth (m) | 3.6 |
| Mean depth (m) | 2.0 |


Figure 54. Bathymetric map of Tees Trout Pond.

Table 105. Physico-chemical characteristics of Tees Trout Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.04 | 1.0 | <0.003 | <0.003 | <0.003 | <0.05 | 2.7 | NA | NA |
| Summer | 0.05 | 1.3 | <0.003 | <0.003 | <0.003 | NA | 6.2 | 26.4 | 1.4 |

[1] Spring samples collected May 18, 2011; summer samples collected June 22, 2011.

Table 106. Physico-chemical characteristics of Tees Trout Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 14.8 | 7.6 | 809.0 | 8.7 |
| | 2 | 13.4 | 7.9 | 780.0 | 8.6 |
| | 3 | 8.6 | 4.7 | 780.0 | 8.3 |
| Summer | 0 | 18.9 | 8.0 | 745.0 | 8.9 |
| | 1 | 16.4 | 4.7 | 714.3 | 8.6 |
| | 2 | 14.0 | 0.5 | 683.7 | 8.5 |

[1] Spring samples collected May 21, 2014; summer samples collected June 22, 2011.

## TELEGRAPH PARK POND

12 U 363519 5895313

Located southeast of Hay Lakes on Highway 617 and RR 215, approximately 40 km east of Leduc.

| | |
|---|---|
| Area (ha) | 2.2 |
| Max depth (m) | 7.4 |
| Mean depth (m) | 5.5 |

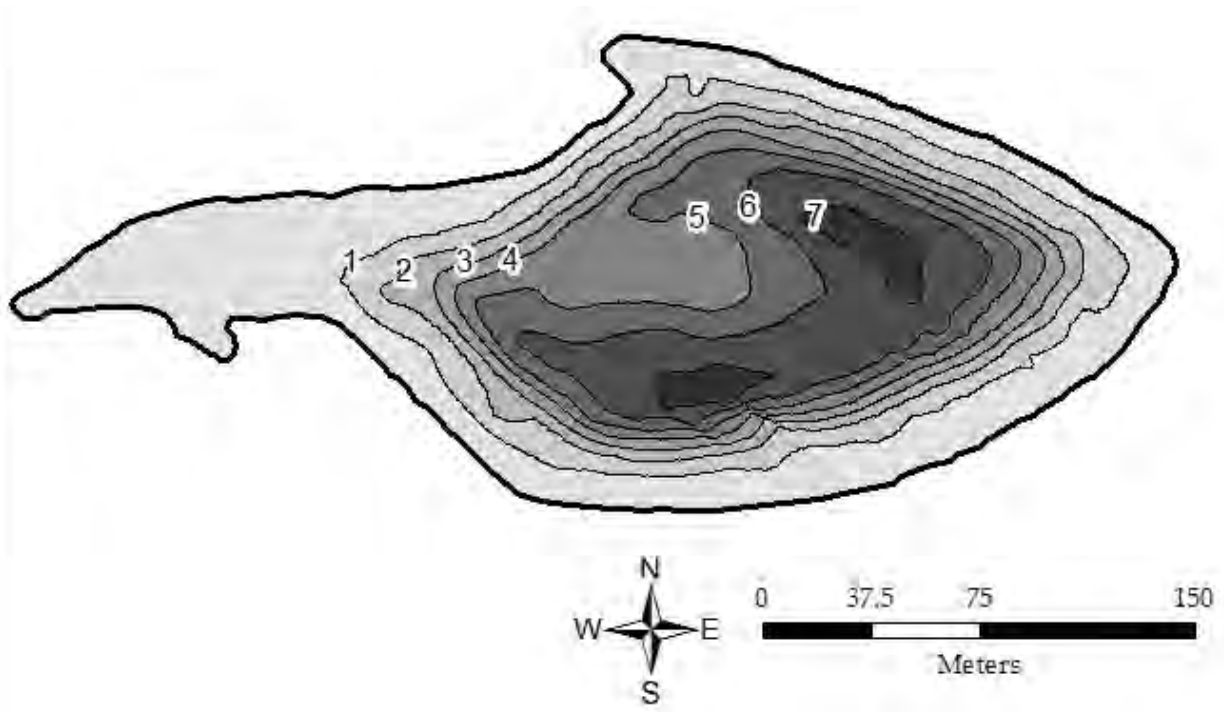


Figure 55. Bathymetric map of Telegraph Park Pond.

Table 107. Physico-chemical characteristics of Telegraph Park Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.09 | 2.1 | 0.09 | 0.02 | 0.07 | 0.2 | 1.5 | 4.8 | 2.8 |
| Summer | 0.2 | 2.2 | 0.03 | 0.007 | 0.02 | NA | 2.3 | 17.4 | 1.4 |

[1] Spring samples collected June 14, 2011; summer samples collected August 2, 2011.

Table 108. Physico-chemical characteristics of Telegraph Park Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 14.9 | 9.2 | 1,250.0 | 8.5 |
| | 2 | 15.0 | 9.0 | 1,249.3 | 8.5 |
| | 3 | 15.0 | 9.1 | 1,248.3 | 8.5 |
| | 4 | 15.0 | 9.1 | 1,248.7 | 8.5 |
| | 5 | 15.0 | 8.7 | 1,249.0 | 8.4 |
| | 6 | 14.9 | 7.5 | 1,248.7 | 8.4 |
| | 7 | 14.7 | 0.2 | 1,223.0 | 7.7 |
| | 8 | 14.7 | 0.2 | 1,217.0 | 7.6 |
| Summer | 0 | 21.6 | 12.6 | 955.0 | 8.7 |
| | 1 | 20.2 | 11.1 | 926.5 | 8.2 |
| | 2 | 19.9 | 9.9 | 921.0 | 8.1 |
| | 3 | 19.8 | 9.4 | 918.5 | 8.1 |
| | 4 | 19.7 | 8.9 | 915.0 | 8.1 |
| | 5 | 19.6 | 8.7 | 914.0 | 8.0 |
| | 6 | 18.7 | 4.9 | 902.0 | 7.8 |

[1] Spring samples collected May 30, 2016; summer samples collected August 2, 2011.

## TWO HILLS POND

12 U 450830 5950879
Located off Highway 36 in the town of Two Hills, approximately 130 km east of Edmonton.

| | |
|---|---|
| Area (ha) | 1.4 |
| Max depth (m) | 4.2 |
| Mean depth (m) | 2.8 |

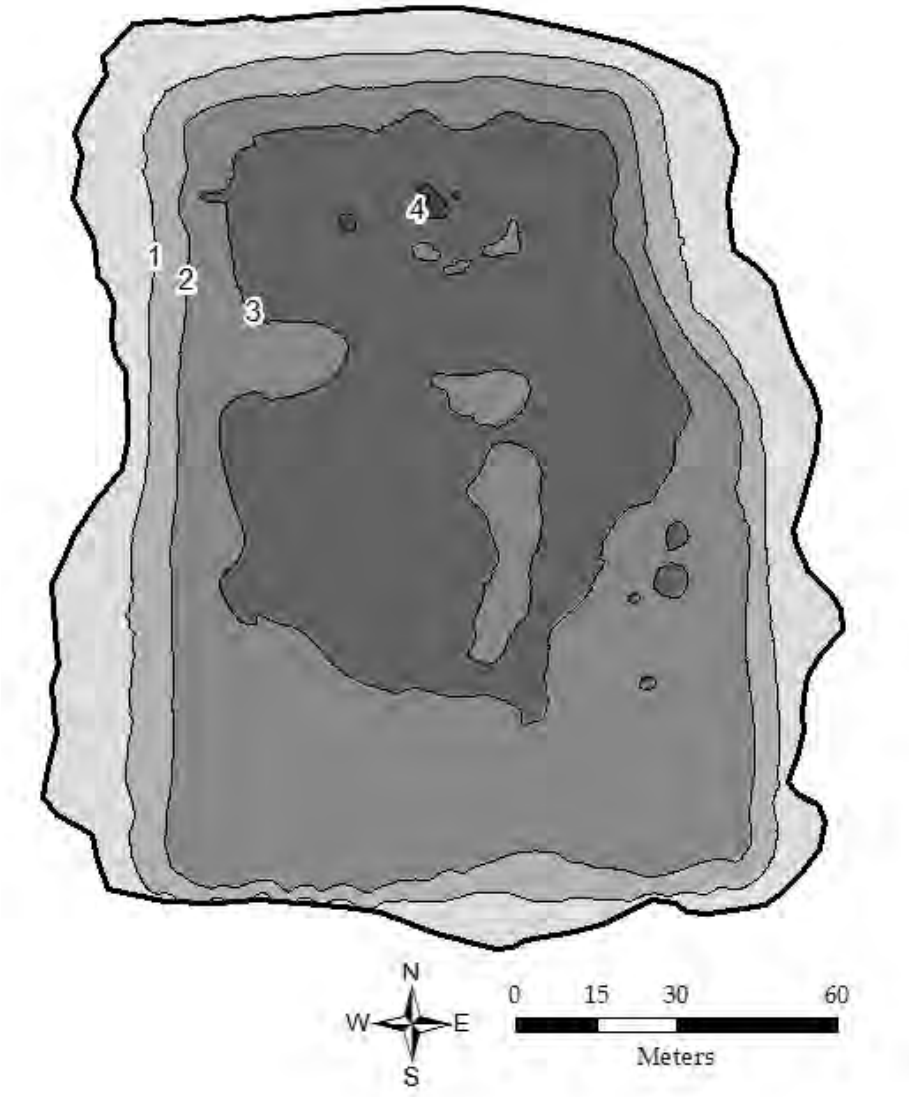


Figure 56. Bathymetric map of Two Hills Pond.

Table 109. Physico-chemical characteristics of Two Hills Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.05 | 2.6 | 0.003 | 0.003 | 0.003 | 0.2 | 2.1 | NA | 2.5 |
| Summer | 0.05 | 2.3 | <0.003 | <0.003 | <0.003 | NA | 3.5 | 2.5 | 2.3 |

[1] Spring samples collected June 5, 2013; summer samples collected June 27, 2011.

Table 110. Physico-chemical characteristics of Two Hills Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 18.2 | 9.9 | 2,713.3 | 9.4 |
| | 2 | 17.9 | 9.0 | 2,691.7 | 9.3 |
| | 3 | 18.1 | 7.8 | 2,706.0 | 9.3 |
| Summer | 0 | 18.5 | 7.5 | 2,361.0 | 9.3 |
| | 1 | 18.4 | 7.7 | 2,359.3 | 8.9 |
| | 2 | 18.3 | 7.8 | 2,350.7 | 9.2 |
| | 3 | 18.2 | 7.8 | 2345.5 | 9.2 |

[1] Spring samples collected June 5, 2013; summer samples collected June 27, 2011.

## VEGREVILLE CHILDREN'S POND

12 U 431265 5927414
Located in the town of Vegreville, approximately 100 km east of Edmonton.

| | |
|---|---|
| Area (ha) | 0.3 |
| Max depth (m) | 4.4 |
| Mean depth (m) | 2.5 |

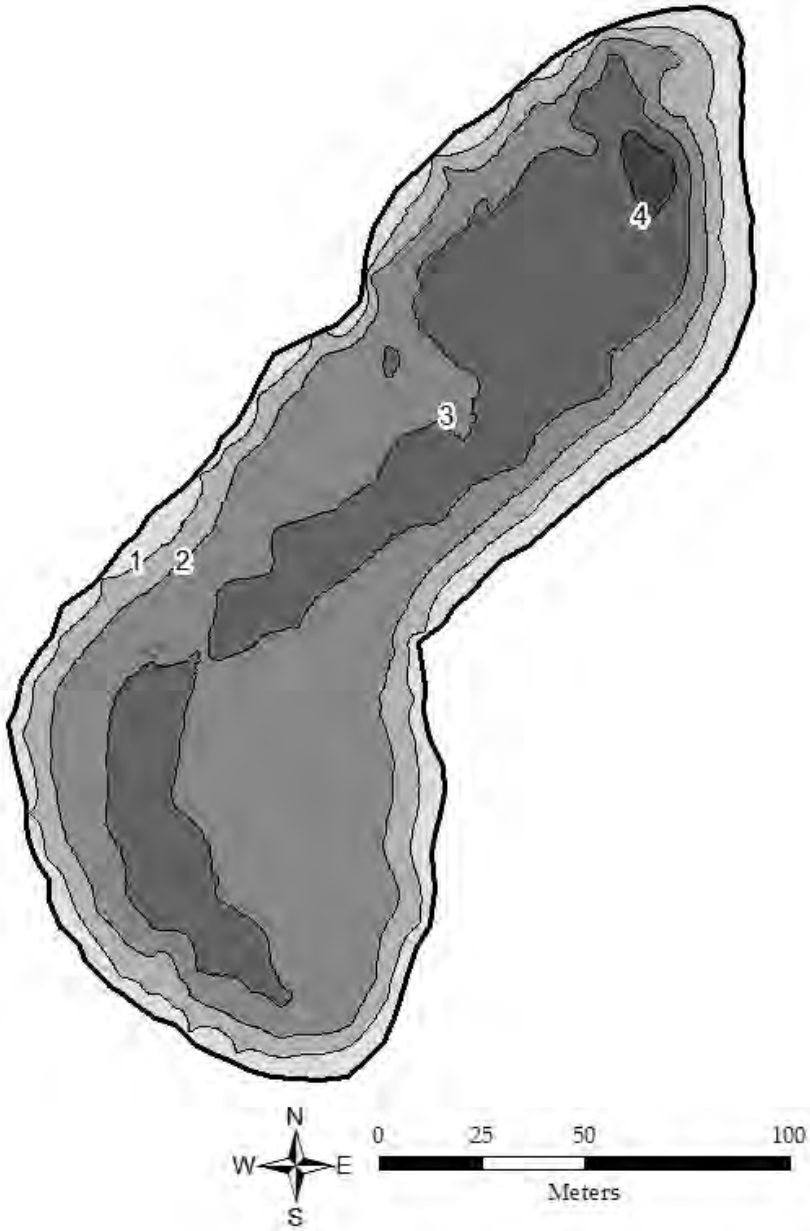

Figure 57. Bathymetric map of Vegreville Children's Pond.

Table 111. Physico-chemical characteristics of Vegreville Children's Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.2 | 2.1 | 0.06 | 0.02 | 0.03 | 0.4 | 1.8 | NA | 2.1 |
| Summer | 0.1 | 2.0 | 0.003 | <0.003 | 0.003 | NA | 7.7 | 26.8 | 1.3 |

[1] Spring samples collected June 5, 2013; summer samples collected June 27, 2011.

Table 112. Physico-chemical characteristics of Vegreville Children's Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 17.3 | 6.7 | 447.6 | 8.4 |
| | 2 | 16.4 | 5.6 | 428.9 | 8.2 |
| | 3 | 11.9 | 4.7 | 390.8 | 8.1 |
| Summer | 0 | 17.9 | 6.9 | 482.7 | 8.7 |
| | 1 | 17.9 | 6.9 | 485.2 | 8.6 |
| | 2 | 17.9 | 6.9 | 484.6 | 8.6 |
| | 3 | 18.1 | 7.1 | 486.1 | 9.8 |

[1] Spring samples collected June 5, 2013; summer samples collected June 27, 2011.

## VIKING POND

12 U 447089 5883366

Located in Viking, approximately 130 km southeast of Edmonton on Highway 14.

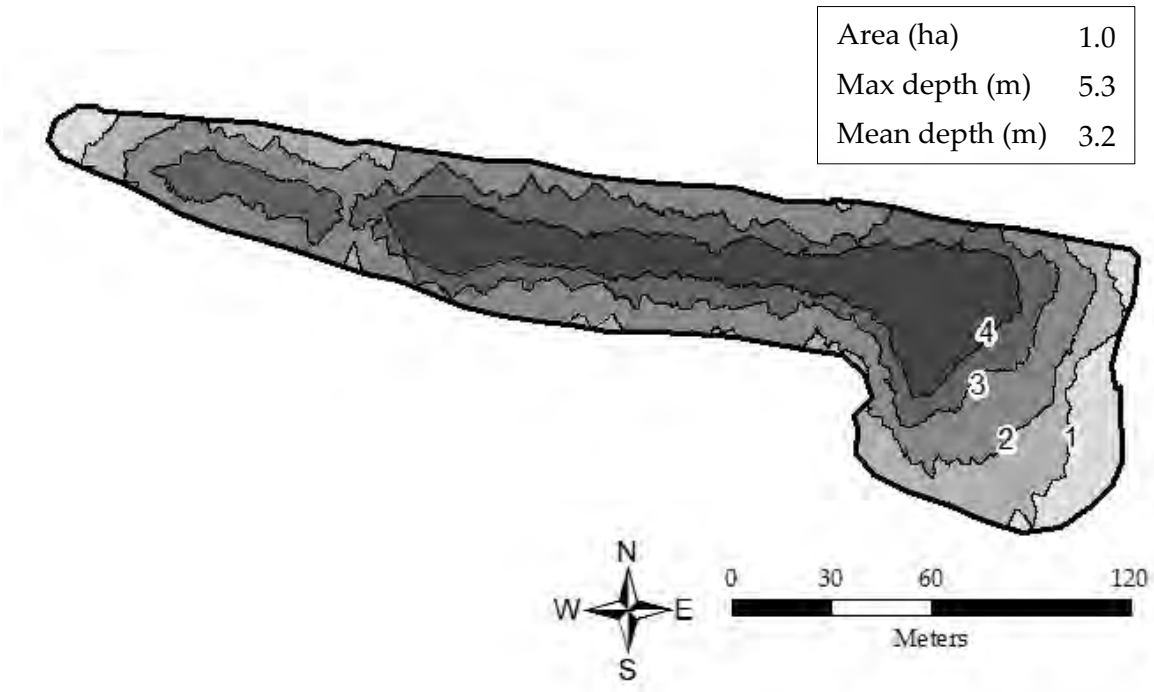


Figure 58. Bathymetric map of Viking Pond.

Table 113. Physico-chemical characteristics of Viking Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.02 | 1.1 | 0.003 | 0.003 | 0.003 | 0.05 | 1.0 | NA | 3.1 |
| Summer | 0.03 | 1.3 | 0.004 | <0.003 | 0.004 | <0.05 | 1.8 | 3.9 | 4.2 |

[1] Spring samples collected June 21, 2012; summer samples collected June 28, 2011.

Table 114. Physico-chemical characteristics of Viking Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 18.0 | 12.5 | 903.0 | 9.8 |
| | 2 | 17.7 | 12.2 | 895.3 | 9.6 |
| | 3 | 17.6 | 11.3 | 893.0 | 9.6 |
| | 4 | 16.6 | 8.8 | 889.0 | 9.4 |
| Summer | 0 | 23.0 | 9.4 | 961.0 | 9.3 |
| | 1 | 22.4 | 9.8 | 960.7 | 9.5 |
| | 2 | 21.7 | 8.8 | 960.3 | 9.4 |
| | 3 | 20.6 | 3.2 | 987.7 | 8.8 |
| | 4 | 17.3 | 0.1 | 1,006.0 | 8.0 |
| | 5 | 13.7 | 0.0 | 1,034.0 | 7.5 |

[1] Spring samples collected June 21, 2012; summer samples collected August 16, 2016.

## WALLACE PARK POND

12 U 509799 5854706

Located in Wainwright off of Highway 14.

| | |
|---|---|
| Area (ha) | 0.5 |
| Max depth (m) | 4.0 |
| Mean depth (m) | 2.1 |

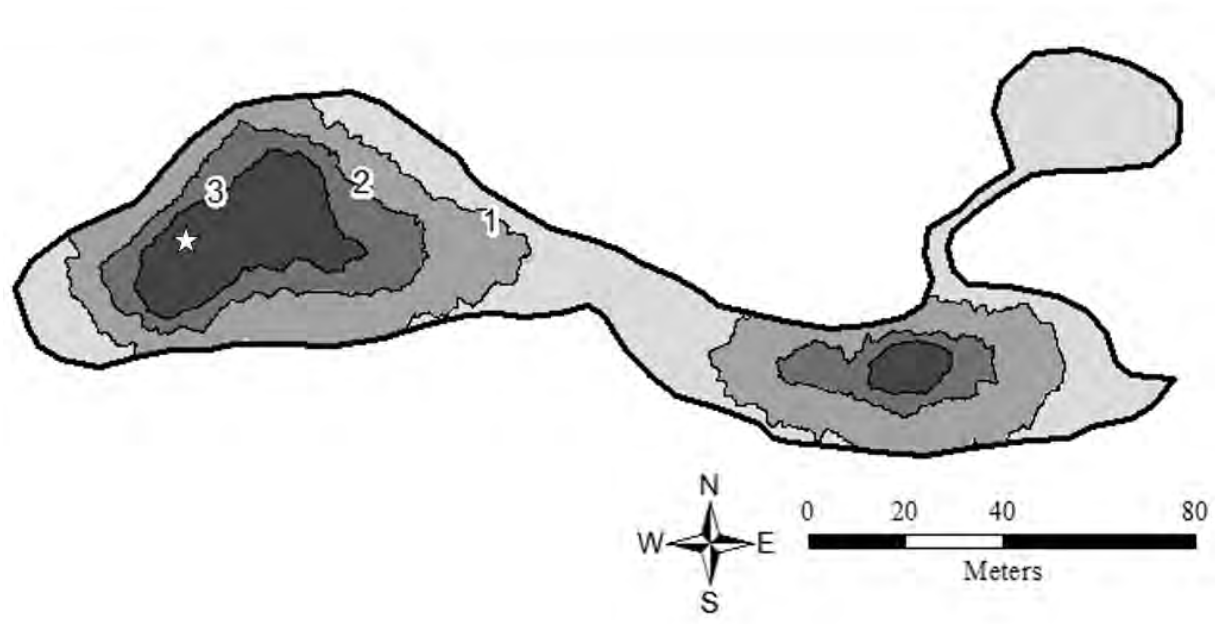


Figure 59. Bathymetric map of Wallace Park Pond. Star indicates max depth location.

Table 115. Physico-chemical characteristics of Wallace Park Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.2 | 2.3 | 0.006 | 0.006 | 0.003 | 0.07 | 1.4 | NA | 3.5 |
| Summer | 0.2 | 2.2 | 0.006 | 0.003 | 0.003 | NA | 2.7 | 4.8 | 2.8 |

[1] Spring samples collected June 11, 2012; summer samples collected July 5, 2011.

Table 116. Physico-chemical characteristics of Wallace Park Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 16.7 | 9.6 | 1,911.0 | 9.2 |
| | 2 | 15.9 | 9.1 | 1,910.7 | 9.1 |
| | 3 | 15.2 | 6.9 | 1,908.0 | 9.1 |
| Summer | 0 | 21.8 | 5.8 | 2,071.7 | 9.5 |
| | 1 | 20.9 | 5.1 | 2,071.0 | 9.5 |
| | 2 | 20.5 | 4.4 | 2,070.3 | 9.5 |
| | 3 | 20.6 | 3.2 | 2,064.0 | 9.5 |

[1] Spring samples collected June 1, 2016; summer samples collected August 16, 2016.

## WESTLOCK RECREATIONAL POND

12 U 321878 6003234

Located 90 km north of Edmonton, approximately 7 km east of Westlock off Highway 18 and RR 255.

| | |
|---|---|
| Area (ha) | 1.4 |
| Max depth (m) | 5.3 |
| Mean depth (m) | 3.4 |

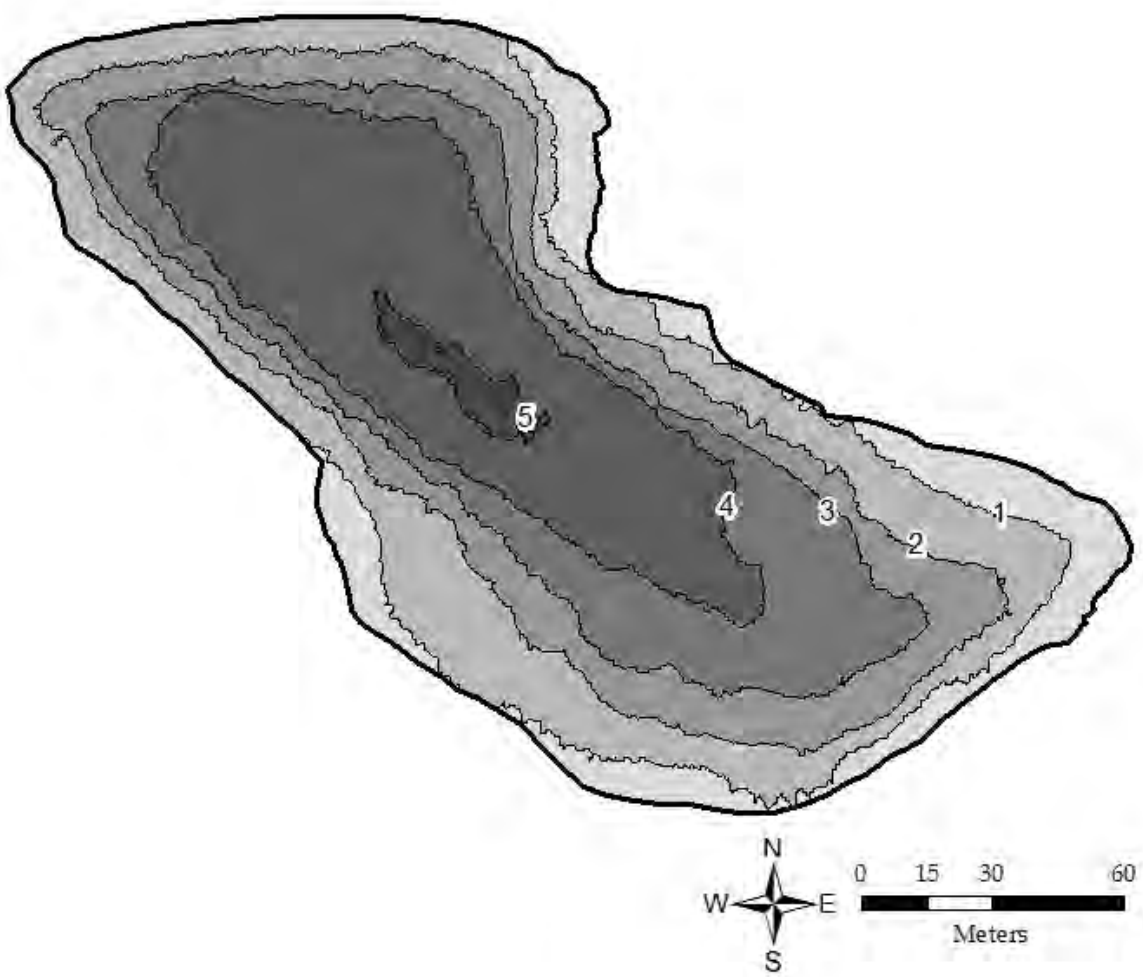


Figure 60. Bathymetric map of Westlock Recreational Pond.

Table 117. Physico-chemical characteristics of Westlock Recreational Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.09 | 2.0 | 0.5 | 0.02 | 0.5 | 0.1 | 29.0 | 4.3 | 0.4 |
| Summer | 0.2 | 2.5 | 0.005 | <0.003 | 0.005 | NA | 42.0 | 3.1 | 0.3 |

[1] Spring samples collected June 22, 2012; summer samples collected August 4, 2011.

Table 118. Physico-chemical characteristics of Westlock Recreational Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 1 | 13.7 | 9.9 | 366.9 | 9.0 |
| | 2 | 12.2 | 5.5 | 366.8 | 8.3 |
| | 3 | 10.6 | 0.1 | 366.3 | 7.8 |
| | 4 | 10.2 | 0 | 373.0 | 7.6 |
| Summer | 0 | 19.7 | 7.7 | 214.9 | 8.1 |
| | 1 | 18.9 | 7.1 | 209.8 | 8.0 |
| | 2 | 17.1 | 1.3 | 197.4 | 7.7 |
| | 3 | 14.4 | 0.8 | 194.7 | 7.4 |
| | 4 | 12.8 | 0.9 | 230.6 | 7.2 |

[1] Spring samples collected May 31, 2016; summer samples collected August 4, 2011.

## WETASKIWIN POND

12 U 342070 5873434

Located in Wetaskiwin.

| | |
|---|---|
| Area (ha) | 0.3 |
| Max depth (m) | 5.7 |
| Mean depth (m) | 4.5 |

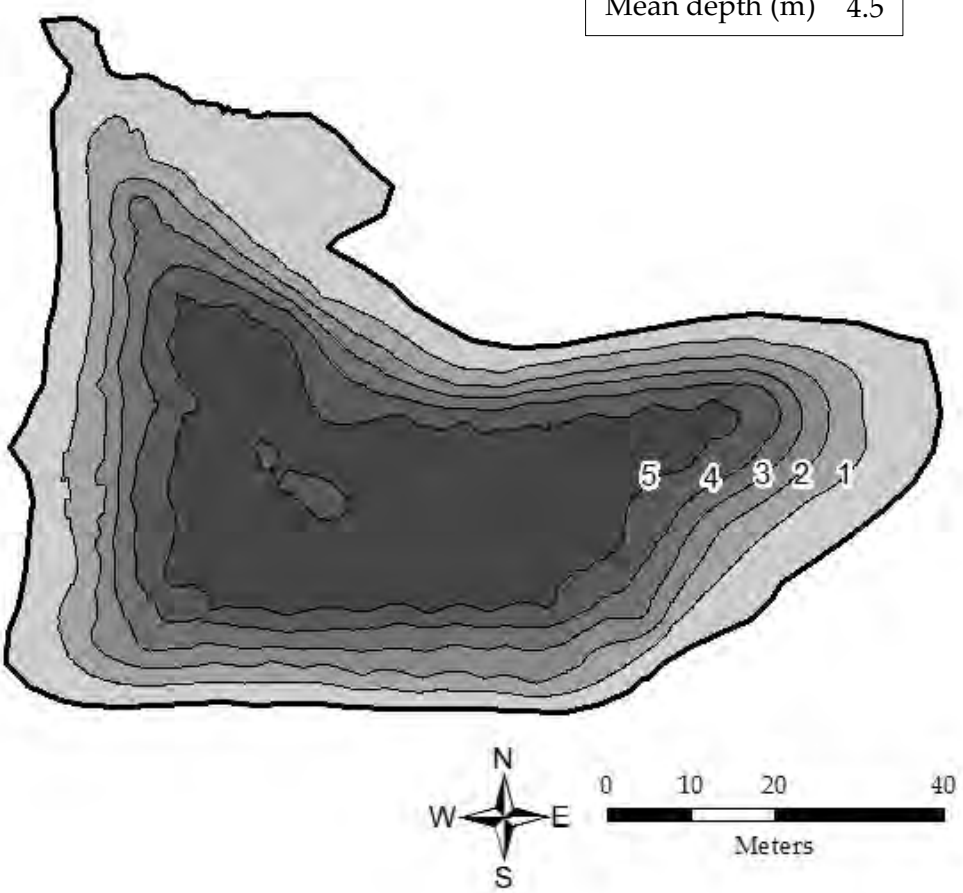


Figure 61. Bathymetric map of Wetaskiwin Pond.

Table 119. Physico-chemical characteristics of Wetaskiwin Pond: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Chl*a* (µg/L) | Turb (NTU) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.04 | 1.1 | <0.003 | <0.003 | <0.003 | <0.05 | NA | 1.9 | NA |
| Summer | 0.06 | 1.2 | 0.3 | 0.02 | 0.3 | NA | 12.2 | 2.9 | 2.0 |

[1] Spring samples collected May 27, 2011; summer samples collected June 23, 2011.

Table 120. Physico-chemical characteristics of Wetaskiwin Pond: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 13.9 | 7.5 | 147.6 | 8.6 |
| | 1 | 13.9 | 7.5 | 166.6 | 8.7 |
| | 2 | 13.9 | 7.4 | 167.2 | 8.6 |
| | 3 | 12.4 | 4.2 | 158.8 | 8.1 |
| | 4 | 10.7 | 0.4 | 153.9 | 7.7 |
| Summer | 0 | 22.4 | 7.6 | 748.3 | 8.8 |
| | 1 | 22.4 | 7.6 | 748.3 | 8.8 |
| | 2 | 22.4 | 7.5 | 748.7 | 8.7 |
| | 3 | 22.3 | 7.1 | 749.0 | 8.7 |
| | 4 | 22.3 | 7.0 | 749.7 | 8.7 |
| | 5 | 21.7 | 2.4 | 764.0 | 8.2 |

[1] Spring samples collected May 27, 2011; summer samples collected August 17, 2016.

## WINDSOR LAKE

12 U 358077 5829219

Located approximately 90 km northeast of Red Deer.

| | |
|---|---|
| Area (ha) | 16.9 |
| Max depth (m) | 5.7 |
| Mean depth (m) | 3.1 |

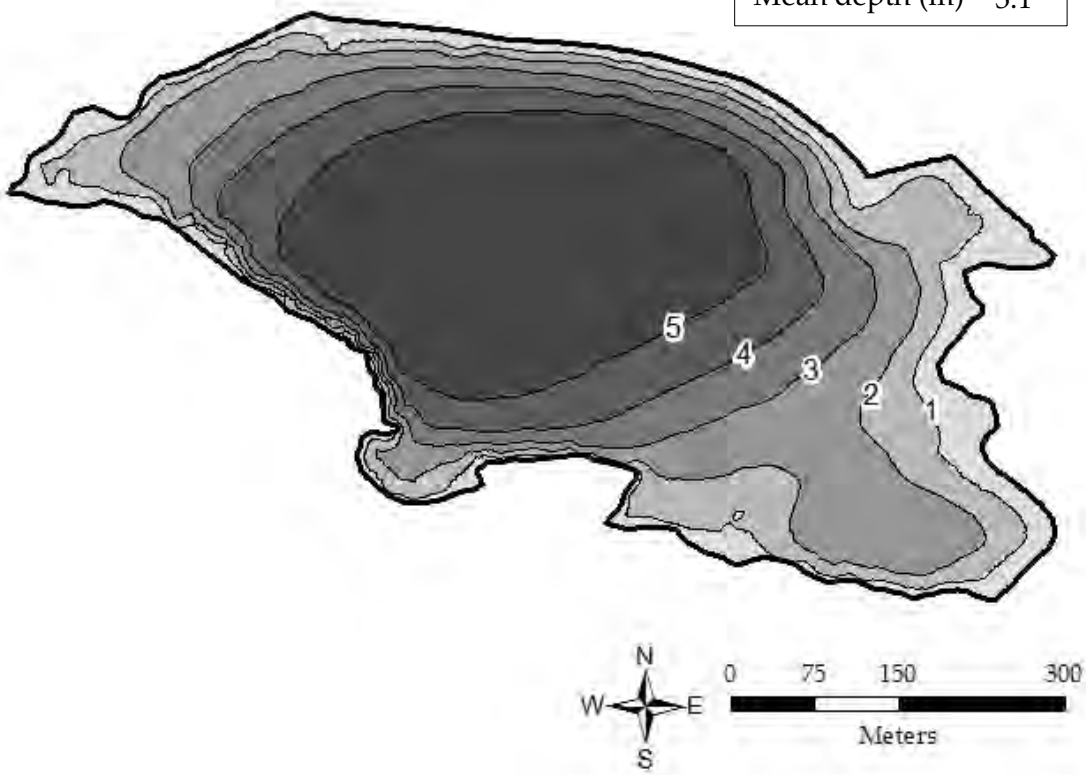


Figure 62. Bathymetric map of Windsor Lake.

Table 121. Physico-chemical characteristics of Windsor Lake: nutrients, turbidity (Turb), chlorophyll *a*, and Secchi depth.

| Season[1] | TP (mg/L) | TKN (mg/L) | $NO_2$_$NO_3$ (mg/L) | $NO_3$ (mg/L) | $NO_2$ (mg/L) | $NH_3$ (mg/L) | Turb (NTU) | Chl*a* (µg/L) | Secchi (m) |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 0.07 | 2.0 | <0.003 | <0.003 | <0.003 | <0.05 | 6.8 | NA | NA |
| Summer | 0.06 | 2.2 | 0.02 | 0.004 | 0.01 | NA | 7.0 | 8.5 | 1.8 |

[1] Spring samples collected May 28, 2011; summer samples collected June 22, 2011.

Table 122. Physico-chemical characteristics of Windsor Lake: vertical profiles of temperature (Temp), dissolved oxygen (DO), conductivity (Cond), and pH.

| Season[1] | Depth (m) | Temp (˚C) | DO (mg/L) | Cond (µS/cm) | pH |
|---|---|---|---|---|---|
| Spring | 0 | 13.7 | 7.1 | 427.7 | 9.4 |
| | 1 | 13.7 | 7.1 | 427.7 | 9.3 |
| | 2 | 13.7 | 7.1 | 427.7 | 9.2 |
| | 3 | 13.6 | 6.9 | 427.7 | 8.8 |
| | 4 | 13.4 | 5.9 | 427.7 | 9.0 |
| | 5 | 13.2 | 4.7 | 427.7 | 8.8 |
| Summer | 0 | 20.6 | 11.2 | 706.0 | 8.8 |
| | 1 | 19.9 | 11.2 | 693.0 | 8.8 |
| | 2 | 16.7 | 8.8 | 648.0 | 8.7 |
| | 3 | 16.0 | 6.4 | 640.7 | 8.5 |
| | 4 | 15.8 | 4.9 | 642.0 | 8.6 |
| | 5 | 15.6 | 2.3 | 657.3 | 8.4 |

[1] Spring samples collected May 28, 2011; summer samples collected June 22, 2011.

## 5.0 LITERATURE CITED

Patterson, W.F. 2011. Do hatchery trucks make happy anglers? Evaluating entrenched assumptions of put-and-take fisheries. MSc Thesis. Royal Roads University.