Lake Roosevelt Fisheries Monitoring Program

Measurement of Lake Roosevelt Biota in Relation to Reservoir Operations Appendices

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1992

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MEASUREMENT OF LAKE ROOSEVELT BIOTA IN RELATION TO RESERVOIR OPERATIONS

APPENDICES
1992

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APPENDIX A

Table A.1 Daily midnight reservoir inflow, outflow, elevation, storage capacity, and water retention time for Lake Roosevelt in January, 1992. Data from CORPs daily summary reports.

JANUARY					
DAY OF MONTH	INFLOW (KCFS)	OUTFLOW (KCFS)	RESERVOIR ELEVATION (FT)	STORAGE CAPACITY (KCFSD)	WATER RETENTION TIME (D)
1	108.50	94.50	1285.10	4392.20	46.48
2	105.20	103.20	1285.20	4396.20	42.60
3	105.10	101.10	1285.30	4400.20	43.52
4	108.90	98.00	1285.50	4408.20	44.98
5	123.20	109.20	1285.90	4424.20	40.51
6	123.30	121.30	1285.90	4424.20	36.47
7	122.50	128.50	1285.80	4420.20	34.40
8	119.60	121.60	1285.70	4416.20	36.32
9	123.12	117.10	1285.90	4424.20	37.78
10	113.80	103.70	1286.10	4432.30	42.74
11	116.10	75.80	1287.10	4472.70	59.01
12	134.50	93.80	1288.10	4513.40	48.12
13	128.20	118.00	1288.40	4525.60	38.35
14	117.70	111.50	1288.50	4529.70	40.63
15	109.80	109.80	1288.50	4529.70	41.25
16	110.50	100.30	1288.80	4542.00	45.28
17	103.70	118.10	1288.40	4525.60	38.32
18	93.30	97.40	1288.30	4521.50	46.42
19	79.50	100.00	1287.80	4501.10	45.01
20	78.90	131.60	1286.50	4448.40	33.80
21	89.60	103.70	1286.20	4436.30	42.78
22	105.90	108.00	1286.10	4432.30	41.04
23	98.10	98.10	1286.10	4432.30	45.18
24	108.60	95.80	1286.40	4444.40	46.39
25	98.00	75.90	1287.00	4468.60	58.87
26	102.20	71.70	1287.70	4497.00	62.72
27	106.50	90.20	1288.10	4513.40	50.04
28	108.50	94.20	1288.50	4529.70	48.09
29	113.50	74.40	1289.40	4525.60	60.83
30	94.60	90.50	1289.50	4570.90	50.51
31	81.60	90.10	1289.30	4562.60	50.64
Mean Totals	107.50	101.52	1287.13	4472.93	45.13

Table A.2 Daily midnight reservoir inflow, outflow, elevation, storage capacity, and water retention time for Lake Roosevelt in February, 1992. Data from CORPs daily summary reports.

FEBRUARY					
DAY OF MONTH	INFLOW (KCFS)	OUTFLOW (KCFS)	RESERVOIR ELEVATION (FT)	STORAGE CAPACITY (KCFSD)	WATER RETENTION TIME (D)
1	58.10	62.20	1289.20	4558.50	73.29
2	56.50	68.90	1288.90	4546.20	65.98
3	49.30	75.90	1288.30	4521.50	59.57
4	76.40	70.20	1288.40	4525.60	64.47
5	79.70	67.40	1288.70	4537.90	67.33
6	66.50	72.70	1288.60	4533.80	62.36
7	70.60	97.20	1287.90	4505.20	46.35
8	62.50	70.60	1287.70	4497.00	63.70
9	71.50	63.40	1287.85	4505.20	71.06
10	70.60	80.80	1287.60	4493.00	55.61
11	86.10	76.00	1287.90	4505.20	59.28
12	84.10	75.90	1288.10	4513.40	59.47
13	79.60	63.20	1288.50	4529.70	71.67
14	75.40	69.30	1288.60	4533.80	65.42
15	70.10	63.90	1288.80	4542.00	71.08
16	49.80	84.60	1287.90	4505.20	53.25
17	71.80	90.10	1287.50	4488.90	49.82
18	79.70	98.00	1287.00	4468.60	45.60
19	82.70	92.80	1286.80	4460.50	48.07
20	83.10	99.20	1286.40	4444.40	44.80
21	78.60	74.60	1286.50	4448.40	59.63
22	76.60	82.60	1286.60	4452.40	53.90
23	88.00	73.90	1286.90	4464.60	60.41
24	97.90	73.50	1287.50	4488.90	61.07
25	94.80	74.40	1288.00	4509.30	60.61
26	75.80	83.90	1287.80	4501.10	53.65
27	77.20	81.30	1287.70	4497.00	55.31
28	76.50	88.40	1287.40	4484.80	50.73
29	79.20	79.20	1287.40	4484.80	56.63
Mean Totals	74.78	77.73	1287.81	4501.62	58.97

Table A.3 Daily midnight reservoir inflow, outflow, elevation, storage capacity, and water retention time for Lake Roosevelt in March, 1992. Data from CORPs daily summary reports.

MARCH					
DAY OF MONTH	INFLOW (KCFS)	OUTFLOW (KCFS)	RESERVOIR ELEVATION (FT)	STORAGE CAPACITY (KCFSD)	WATER RETENTION TIME (D)
1	80.50	76.40	1287.50	4488.90	58.76
2	82.50	103.20	1287.00	4468.60	43.30
3	76.80	91.00	1286.65	4456.50	48.97
4	80.50	106.40	1286.00	4428.30	41.62
5	77.60	91.50	1285.70	4416.20	48.26
6	73.20	120.80	1284.50	4368.30	36.16
7	82.40	82.40	1284.50	4368.30	53.01
8	91.60	83.60	1284.70	4376.30	52.35
9	96.90	118.80	1284.10	4352.50	36.64
10	107.30	119.40	1283.80	4340.60	36.35
11	104.70	112.50	1283.60	4332.70	38.51
12	103.30	115.20	1283.30	4320.90	37.51
13	96.80	80.80	1283.70	4336.70	53.67
14	93.90	82.30	1283.90	4344.60	52.79
15	86.10	86.30	1283.80	4340.60	50.30
16	68.00	125.90	1282.30	4281.70	34.01
17	75.70	114.60	1281.30	4242.90	37.02
18	62.70	104.00	1280.20	4200.50	40.39
19	70.90	88.10	1279.70	4181.40	47.46
20	65.20	72.20	1279.50	4173.70	57.81
21	58.80	53.40	1279.60	4177.50	78.23
22	58.30	41.40	1280.00	4192.80	101.28
23	67.70	85.20	1279.50	4173.70	48.99
24	60.10	100.40	1278.40	4131.80	41.15
25	61.90	82.90	1277.80	4109.10	49.57
26	64.00	98.30	1276.85	4075.10	41.46
27	64.10	90.40	1276.10	4045.00	44.75
28	69.40	77.30	1275.80	4033.80	52.18
29	70.40	76.40	1275.50	4022.60	52.65
30	70.30	105.10	1274.50	3985.30	37.92
31	65.60	85.70	1273.90	3963.00	46.24
Mean Totals	77.01	92.64	1281.41	4249.35	48.36

Table A.4 Daily midnight reservoir inflow, outflow, elevation, storage capacity, and water retention time for Lake Roosevelt in April, 1992. Data from CORPs daily summary reports.

APRIL					
DAY OF MONTH	INFLOW (KCFS)	OUTFLOW (KCFS)	RESERVOIR ELEVATION (FT)	STORAGE CAPACITY (KCFSD)	WATER RETENTION TIME (D)
1	67.90	88.90	1273.20	3937.10	44.29
2	65.50	79.50	1272.70	3918.70	49.29
3	66.50	71.40	1272.40	3907.60	54.73
4	66.80	75.50	1271.80	3885.60	51.46
5	73.70	82.30	1271.30	3867.30	46.99
6	70.10	95.30	1270.40	3834.50	40.24
7	103.50	103.50	1269.30	3794.60	36.66
8	60.00	88.60	1268.40	3762.10	42.46
9	64.20	81.50	1267.80	3740.60	45.90
10	64.40	63.50	1267.60	3733.40	58.79
11	60.80	47.60	1267.70	3737.00	78.51
12	64.30	40.30	1268.10	3751.30	93.08
13	63.10	69.50	1267.80	3740.60	53.82
14	65.40	57.10	1267.90	3744.20	65.57
15	66.40	61.70	1267.90	3744.20	60.68
16	70.20	69.10	1267.80	3740.60	54.13
17	71.20	82.70	1267.30	3722.60	45.01
18	80.10	55.80	1267.70	3737.00	66.97
19	85.20	39.30	1268.80	3776.50	96.09
20	78.20	92.40	1268.20	3754.90	40.64
21	75.30	92.10	1267.60	3733.40	40.54
22	76.90	102.60	1266.75	3704.80	36.11
23	78.00	96.50	1266.10	3679.80	38.13
24	79.10	103.10	1265.20	3647.90	35.38
25	82.80	69.80	1265.25	3651.40	52.31
26	85.20	54.50	1265.80	3669.20	67.32
27	84.30	115.80	1264.70	3630.20	31.35
28	90.00	109.50	1264.00	3605.60	32.93
29	94.30	98.70	1263.70	3595.00	36.42
30	101.70	92.10	1263.80	3598.50	39.07
Mean Totals	75.17	79.34	1267.90	3744.87	51.16

Table A.5 Daily midnight reservoir inflow, outflow, elevation, storage capacity, and water retention time for Lake Roosevelt in May, 1992. Data from CORPs daily summary reports.

MAY					
DAY OF MONTH	INFLOW (KCFS)	OUTFLOW (KCFS)	RESERVOIR ELEVATION (FT)	STORAGE CAPACITY (KCFSD)	WATER RETENTION TIME (D)
1	112.70	111.30	1263.60	3591.50	32.27
2	112.00	76.20	1264.30	3616.10	47.46
3	118.50	79.00	1265.10	3644.40	46.13
4	113.80	108.60	1265.00	3640.80	33.52
5	120.70	109.30	1265.10	3644.40	33.34
6	122.10	103.70	1265.40	3655.00	35.25
7	128.30	100.90	1266.00	3676.30	36.44
8	133.70	84.50	1267.10	3715.50	43.97
9	130.50	65.70	1268.60	3769.30	57.37
10	129.20	78.30	1269.60	3805.50	48.60
11	124.20	113.80	1269.70	3809.10	33.47
12	121.90	136.50	1269.05	3765.70	27.59
13	116.60	128.00	1268.50	3765.70	29.42
14	113.90	111.00	1268.40	3762.10	33.89
15	115.90	114.70	1268.20	3754.90	32.74
16	117.70	120.10	1267.90	3744.20	31.18
17	112.20	127.10	1267.20	3719.10	29.26
18	108.80	151.70	1265.80	3669.20	24.19
19	114.20	144.80	1264.80	3633.80	25.10
20	114.00	145.40	1263.70	3595.00	24.72
21	114.60	139.60	1262.80	3563.50	25.53
22	137.60	136.40	1262.60	3556.50	26.07
23	140.70	108.50	1263.30	3581.00	33.00
24	155.10	99.90	1264.60	3623.10	36.27
25	141.40	101.80	1265.40	3655.00	35.90
26	149.90	132.20	1265.70	3664.60	27.72
27	159.30	130.10	1266.30	3651.40	28.07
28	153.30	124.00	1266.90	3708.40	29.91
29	155.50	104.30	1268.10	3751.30	35.97
30	148.20	99.20	1269.10	3787.40	38.18
31	148.90	88.80	1270.40	3834.50	43.18
Mean Totals	128.56	112.11	1266.40	3688.85	34.38

Table A.6 Daily midnight reservoir inflow, outflow, elevation, storage capacity, and water retention time for Lake Roosevelt in June, 1992. Data from CORPs daily summary reports.

JUNE					
DAY OF MONTH	INFLOW (KCFS)	OUTFLOW (KCFS)	RESERVOIR ELEVATION (FT)	STORAGE CAPACITY (KCFSD)	WATER RETENTION TIME (D)
1	145.00	121.30	1270.80	3849.10	31.73
2	141.40	100.80	1271.70	3882.00	38.51
3	145.00	96.70	1272.70	3918.70	40.52
4	138.40	100.90	1273.60	3951.90	39.17
5	141.50	87.00	1274.90	4000.20	45.98
6	140.40	76.60	1276.20	4048.80	52.86
7	156.00	74.80	1278.00	4116.70	55.04
8	153.80	121.70	1278.80	4147.00	34.08
9	153.00	129.80	1279.00	4154.60	32.01
10	148.70	146.40	1278.90	4150.80	28.35
11	159.10	153.00	1278.80	4147.00	27.10
12	155.50	147.20	1278.80	4147.00	28.17
13	176.60	128.90	1279.90	4189.00	32.50
14	187.20	112.10	1281.30	4204.30	37.50
15	186.60	136.70	1282.40	4285.60	31.35
16	199.10	163.80	1283.20	4317.00	26.36
17	192.70	179.90	1283.40	4324.80	24.04
18	182.30	147.70	1284.10	4352.50	29.47
19	175.90	128.80	1285.20	4396.20	34.13
20	182.60	129.90	1286.20	4436.30	34.15
21	176.20	141.00	1286.90	4464.60	31.66
22	173.90	153.50	1287.30	4480.80	29.19
23	160.20	163.40	1287.10	4472.70	27.37
24	165.10	168.20	1286.80	4460.50	26.52
25	148.70	159.50	1286.40	4444.40	27.86
26	133.70	166.30	1285.40	4404.20	26.48
27	136.30	156.30	1284.60	4372.30	27.97
28	125.20	131.20	1284.10	4352.50	33.17
29	113.00	131.50	1283.40	4324.80	32.89
30	126.10	94.70	1284.00	4348.50	45.92
Mean Totals	157.31	131.65	1281.13	4238.16	33.74

Table A.7 Daily midnight reservoir inflow, outflow, elevation, storage capacity, and water retention time for Lake Roosevelt in July, 1992. Data from CORPs daily summary reports.

JULY					
DAY OF MONTH	INFLOW (KCFS)	OUTFLOW (KCFS)	RESERVOIR ELEVATION (FT)	STORAGE CAPACITY (KCFSD)	WATER RETENTION TIME (D)
1	111.90	89.50	1284.40	4364.40	48.76
2	115.40	54.90	1285.80	4420.20	80.51
3	104.70	52.00	1286.90	4464.60	85.86
4	88.30	29.00	1288.10	4513.40	155.63
5	79.40	29.90	1289.10	4554.40	152.32
6	77.80	62.50	1289.30	4562.60	73.00
7	79.70	64.90	1289.50	4570.90	70.43
8	73.50	71.00	1289.40	4566.80	64.32
9	71.00	85.00	1288.90	4546.20	53.48
10	74.90	84.70	1288.50	4529.70	53.48
11	67.60	56.90	1288.60	4533.80	79.68
12	77.70	60.80	1288.85	4546.20	74.77
13	71.90	113.60	1287.70	4497.00	39.59
14	74.60	96.10	1287.10	4472.70	46.54
15	71.60	96.90	1286.30	4440.30	45.82
16	73.30	101.30	1285.50	4408.20	43.52
17	79.00	107.40	1284.60	4372.30	40.71
18	94.30	91.80	1284.50	4368.30	47.58
19	107.70	93.10	1284.60	4372.30	46.96
20	105.50	107.10	1284.40	4364.40	40.75
21	103.40	112.30	1284.00	4348.50	38.72
22	98.70	85.80	1284.20	4356.40	50.77
23	106.40	93.10	1284.40	4364.40	46.88
24	103.00	81.90	1284.75	4380.30	53.48
25	111.70	69.60	1285.50	4408.20	63.34
26	102.90	55.00	1286.50	4448.40	80.88
27	101.80	92.80	1286.60	4452.40	47.98
28	99.90	87.60	1286.80	4460.50	50.92
29	93.40	90.00	1286.80	4460.50	49.56
30	96.70	85.30	1287.00	4468.60	52.39
31	95.40	95.40	1286.90	4464.60	46.80
Mean Totals	90.75	80.55	1286.63	4454.24	62.11

Table A.8 Daily midnight reservoir inflow, outflow, elevation, storage capacity, and water retention time for Lake Roosevelt in August, 1992. Data from CORPs daily summary reports.

AUGUST					
DAY OF MONTH	INFLOW (KCFS)	OUTFLOW (KCFS)	RESERVOIR ELEVATION (FT)	STORAGE CAPACITY (KCFSD)	WATER RETENTION TIME (D)
1	91.30	76.60	1287.00	4468.60	58.34
2	81.60	60.70	1287.30	4480.80	73.82
3	80.90	98.30	1286.70	4456.50	45.34
4	78.70	81.80	1286.50	4448.40	54.38
5	81.20	82.30	1286.30	4440.30	53.95
6	78.40	81.50	1286.10	4432.30	54.38
7	81.90	76.40	1286.10	4432.30	58.01
8	73.90	55.30	1286.30	4440.30	80.29
9	98.20	57.30	1287.10	4472.70	78.06
10	99.40	109.20	1286.70	4456.50	40.81
11	95.40	98.40	1286.50	4448.40	45.21
12	96.60	87.60	1286.55	4452.40	50.83
13	91.60	92.70	1286.40	4444.40	47.94
14	89.40	101.70	1286.00	4428.30	43.54
15	92.30	82.20	1286.00	4428.30	53.87
16	80.10	83.80	1285.70	4416.20	52.70
17	85.00	112.30	1284.80	4380.30	39.01
18	81.90	109.10	1284.00	4348.50	39.86
19	91.50	98.40	1283.70	4336.70	44.07
20	89.80	84.60	1283.70	4336.70	51.26
21	89.70	74.60	1283.90	4344.60	58.24
22	84.90	58.40	1284.30	4360.40	74.66
23	89.40	49.00	1285.10	4392.20	89.64
24	99.20	74.20	1285.50	4408.20	59.41
25	91.60	74.60	1285.80	4420.20	59.25
26	100.70	87.70	1286.00	4428.30	50.49
27	92.00	91.10	1285.90	4424.20	48.56
28	93.00	79.80	1286.10	4432.30	55.54
29	93.60	56.50	1286.90	4464.60	79.02
30	83.50	60.40	1287.30	4480.80	74.19
31	67.00	97.10	1286.40	4444.40	45.77
Mean Totals	87.76	81.73	1285.89	4422.16	56.79

Table A.9 Daily midnight reservoir inflow, outflow, elevation, storage capacity, and water retention time for Lake Roosevelt in September, 1992. Data from CORPs daily summary reports.

SEPTEMBER					
DAY OF MONTH	INFLOW (KCFS)	OUTFLOW (KCFS)	RESERVOIR ELEVATION (FT)	STORAGE CAPACITY (KCFSD)	WATER RETENTION TIME (D)
1	46.50	75.50	1285.60	4412.20	58.44
2	57.90	75.70	1285.10	4392.20	58.02
3	49.20	77.70	1284.30	4360.40	56.12
4	54.90	79.00	1283.60	4332.70	54.84
5	63.10	56.20	1283.60	4332.70	77.09
6	41.00	46.00	1283.30	4320.90	93.93
7	49.10	61.90	1282.80	4301.30	69.49
8	45.00	87.70	1281.60	4254.50	48.51
9	50.10	74.70	1280.90	4227.40	56.59
10	53.70	65.20	1280.60	4215.90	64.66
11	67.50	67.50	1280.25	4204.30	62.29
12	71.10	69.70	1280.10	4196.70	60.21
13	89.80	53.80	1280.90	4227.40	78.58
14	91.30	103.70	1280.50	4215.90	40.65
15	95.00	83.80	1280.70	4219.70	50.35
16	87.70	74.50	1281.00	4231.30	56.80
17	79.70	71.50	1281.20	4239.00	59.29
18	80.10	71.30	1281.30	4242.90	59.51
19	78.30	48.30	1281.80	4262.30	88.25
20	74.90	44.80	1282.40	4285.60	95.66
21	74.50	99.00	1281.70	4258.40	43.01
22	68.10	99.50	1280.80	4223.60	42.45
23	61.00	90.20	1280.00	4192.80	46.48
24	58.00	83.10	1279.30	4166.10	50.13
25	54.30	67.40	1278.90	4150.80	61.58
26	67.30	60.20	1278.90	4150.80	68.95
27	78.40	54.20	1279.40	4169.90	76.94
28	83.20	84.50	1279.30	4166.10	49.30
29	85.80	82.30	1279.30	4166.10	50.62
30	80.10	82.40	1279.20	4162.30	50.51
Mean Totals	67.89	73.04	1281.28	4242.74	60.98

Table A.10 Daily midnight reservoir inflow, outflow, elevation, storage capacity, and water retention time for Lake Roosevelt in October, 1992. Data from CORPs daily summary reports.

OCTOBER					
DAY OF MONTH	INFLOW (KCFS)	OUTFLOW (KCFS)	RESERVOIR ELEVATION (FT)	STORAGE CAPACITY (KCFSD)	WATER RETENTION TIME (D)
1	81.50	72.30	1279.40	4169.90	57.67
2	74.90	80.30	1279.20	4162.30	51.83
3	86.00	56.10	1279.80	4185.40	74.61
4	87.40	51.60	1280.60	4192.80	81.26
5	87.80	82.90	1280.60	4192.80	50.58
6	86.50	71.30	1281.00	4231.30	59.35
7	87.30	60.40	1281.60	4254.50	70.44
8	85.90	64.70	1282.10	4273.90	66.06
9	87.80	67.80	1282.55	4293.50	63.33
10	83.90	61.40	1282.90	4305.20	70.12
11	84.90	44.60	1283.70	4336.70	97.24
12	86.50	79.70	1283.70	4336.70	54.41
13	85.30	66.80	1284.00	4348.50	65.10
14	89.10	80.80	1284.10	4352.50	53.87
15	82.60	87.70	1283.70	4336.70	49.45
16	76.80	77.60	1283.50	4328.80	55.78
17	79.40	44.50	1284.40	4364.40	98.08
18	87.30	39.40	1285.55	4412.20	111.98
19	93.50	63.40	1286.30	4440.30	70.04
20	73.80	69.80	1286.40	4444.40	63.67
21	66.00	66.00	1286.40	4444.40	67.34
22	72.40	66.30	1286.60	4452.40	67.16
23	60.40	68.50	1286.40	4444.40	64.88
24	61.80	49.70	1286.70	4456.50	89.67
25	63.80	43.60	1287.20	4476.70	102.68
26	69.50	69.50	1287.15	4476.70	64.41
27	60.90	79.10	1286.70	4456.50	56.34
28	63.80	79.90	1286.30	4440.30	55.57
29	58.10	76.20	1285.90	4424.20	58.06
30	58.70	62.70	1285.80	4420.20	70.50
31	61.10	57.10	1285.90	4424.20	77.48
Mean Totals	76.93	65.86	1284.07	4350.95	69.00

Table A.11 Daily midnight reservoir inflow, outflow, elevation, storage capacity, and water retention time for Lake Roosevelt in November, 1992. Data from CORPs daily summary reports.

NOVEMBER					
DAY OF MONTH	INFLOW (KCFS)	OUTFLOW (KCFS)	RESERVOIR ELEVATION (FT)	STORAGE CAPACITY (KCFSD)	WATER RETENTION TIME (D)
1	64.10	56.10	1286.05	4432.30	79.01
2	70.50	86.50	1285.65	4416.20	51.05
3	73.50	79.50	1285.50	4408.20	55.45
4	69.30	77.30	1285.30	4400.20	56.92
5	77.80	73.80	1285.40	4404.20	59.68
6	69.00	69.00	1285.40	4404.20	63.83
7	74.20	50.20	1286.00	4428.30	88.21
8	59.90	47.80	1286.30	4440.30	92.89
9	67.50	87.60	1285.80	4420.20	50.46
10	67.00	99.00	1285.00	4388.20	44.33
11	73.30	93.20	1284.50	4368.30	46.87
12	67.50	75.50	1284.30	4360.40	57.75
13	65.20	77.10	1284.00	4348.50	56.40
14	70.30	58.40	1284.30	4360.40	74.66
15	89.20	61.40	1285.00	4388.20	71.47
16	65.40	87.30	1284.50	4368.30	50.04
17	76.50	74.50	1284.50	4368.30	58.63
18	75.10	79.10	1284.40	4364.40	55.18
19	73.40	97.20	1283.80	4340.60	44.66
20	76.20	97.90	1283.30	4320.90	44.14
21	90.00	99.80	1283.00	4309.10	43.18
22	89.20	83.20	1283.20	4317.00	51.89
23	99.00	116.60	1282.70	4297.40	36.86
24	98.70	120.10	1282.20	4277.80	35.62
25	107.90	106.00	1280.20	4200.50	39.63
26	94.40	59.30	1283.10	4313.10	72.73
27	88.80	73.00	1283.50	4328.80	59.30
28	85.20	75.30	1283.80	4340.60	57.64
29	78.60	92.40	1283.40	4324.80	46.81
30	77.90	101.50	1282.80	4301.30	42.38
Mean Totals	77.82	81.85	1284.23	4358.03	56.26

Table A.12 Daily midnight reservoir inflow, outflow, elevation, storage capacity, and water retention time for Lake Roosevelt in December, 1992. Data from CORPs daily summary reports.

DECEMBER					
DAY OF MONTH	INFLOW (KCFS)	OUTFLOW (KCFS)	RESERVOIR ELEVATION (FT)	STORAGE CAPACITY (KCFSD)	WATER RETENTION TIME (D)
1	85.70	128.50	1281.70	4258.40	33.14
2	75.70	116.40	1280.70	4219.70	36.25
3	79.60	129.40	1279.40	4169.90	32.22
4	76.90	128.30	1278.00	4116.70	32.09
5	64.80	125.20	1276.40	4056.30	32.40
6	80.50	119.80	1275.40	4018.80	33.55
7	79.00	129.30	1274.00	3966.70	30.68
8	86.00	117.40	1273.20	3937.10	33.54
9	92.00	115.90	1272.50	3911.30	33.75
10	85.60	114.90	1271.70	3882.00	33.79
11	92.80	103.70	1271.40	3871.00	37.33
12	92.80	89.20	1271.50	3874.60	43.44
13	105.60	94.60	1271.80	3885.60	41.07
14	100.30	114.90	1271.40	3871.00	33.69
15	91.50	120.60	1270.60	3841.80	31.86
16	101.40	137.70	1269.60	3805.50	27.64
17	84.10	131.00	1268.30	3758.50	28.69
18	100.80	125.80	1267.60	3733.40	29.68
19	114.10	107.00	1267.80	3740.60	34.96
20	120.60	95.50	1268.50	3765.70	39.43
21	127.60	109.60	1269.00	3783.40	34.52
22	132.00	103.00	1269.80	3812.10	37.01
23	132.80	92.80	1270.90	3852.70	41.52
24	114.90	58.20	1272.50	3911.30	67.20
25	115.80	67.80	1273.80	3959.30	58.40
26	104.40	69.20	1274.70	4007.60	57.91
27	100.70	85.80	1275.10	4007.60	46.71
28	100.80	111.90	1274.80	3995.50	35.71
29	92.80	118.90	1274.10	3970.40	33.39
30	98.50	122.60	1273.50	3948.20	32.20
31	95.60	121.40	1272.80	3922.40	
Mean Totals	97.60	109.88	1272.98	3930.81	37.46

Table A.13 Elevation-Area data points for Lake Roosevelt. Data from U.S. Bureau of Reclamation 1977.

Elevation (feet)	Area (acres)	Elevation (feet)	Area (acres)
930.5	511	1120	12980
940	819	1130	22205
950	1219	1140	24748
960	1700	1150	27429
970	2260	1160	30248
980	2900	1170	33205
990	3520	1180	36674
1000	4200	1190	39307
1010	5106	1200	43059
1020	6100	1210	46232
1030	6815	1220	50163
1040	7571	1230	55028
1050	8365	1240	59811
1060	9200	1250	63959
1070	10688	1260	98304
1080	12287	1270	71989
1090	13998	1280	75949
1100	15821	1290	82270
1110	17755	1291	82916

Table A.14 Elevation-Gross storage data points for Lake Roosevelt from Reservoir storage tables for Grand Coulee Reservoir. U.S. Bureau of Reclamation and U.S. Geological Survey. October 1977.

Elevation (feet)	Gross Storage (MAF)	Elevation (feet)	Gross Storage (MAF)
1205	3786.7	1248	6087.2
1206	3831.5	1249	6150.5
1207	3876.6	1250	6214.2
1208	3921.9	1251	6278.4
1209	3967.8	1252	6343.0
1210	4013.9	1253	6408.0
1211	4060.3	1254	6473.5
1212	4107.1	1255	6539.4
1213	4154.3	1256	6605.7
1214	4201.9	1257	6672.5
1215	4249.9	1258	6739.7
1216	4298.2	1259	6807.3
1217	4347.0	1260	6875.4
1218	4396.2	1261	6943.9
1219	4445.7	1262	7012.8
1220	4495.7	1263	7082.0
1221	4546.1	1264	7151.6
1222	4597.0	1265	7221.5
1223	4648.3	1266	7291.8
1224	4700.2	1267	7362.5
1225	4752.5	1268	7433.6
1226	4805.3	1269	7505.0
1227	4558.6	1270	7576.8
1228	4912.4	1271	7649.0
1229	4966.7	1272	7721.6
1230	5021.5	1273	7794.6
1231	5076.7	1274	7867.9
1232	5132.5	1275	7941.7
1233	5188.7	1276	8015.8
1234	5245.4	1277	8090.4
1235	5302.5	1278	8165.3
1236	5360.1	1279	8240.7
1237	5418.3	1280	8316.4
1238	5476.9	1281	8392.7
1239	5535.9	1282	8469.6
1240	5595.5	1283	8547.1
1241	5655.5	1284	8625.2
1242	5715.9	1285	8704.0
1243	5776.8	1286	8783.4
1244	5838.0	1287	8863.4
1245	5899.7	1288	8944.1
1246	5961.8	1289	9025.4
1247	6024.3	1290	9107.4

APPENDIX B

Table B.1 Mean density (#/m^3) values calculated for zooplankton collected in January 1992 at four sampling locations on Lake Roosevelt, WA

	Gifford Mean Density (#/m^3)	Porcupine Bay Mean Density (#/m^3)	Seven Bays Mean Density (#/m^3)	Spring Canyon Mean Density (#/m^3)
Cladocera				
Ceriodaphnia quadranqula				
Daphnia galeata mendotae	NO DATA COLLECTED DUE TO INCLIMATE WEATHER	0.26		NO DATA COLLECTED DUE TO INCLIMATE WEATHER
Daphnia retrocurva				
Daphnia schødleri		66.65	6.78	
Daphnia thorata				
Megafenestra aurita				
Simocephalus serrulatus				
Alona guttata				
Alona quadrangularis				
Chydorus sphaericus				
Eurycerus lamellatus				
Pleuroxus denticulatus				
Diaphanosoma brachyurum				
Diaphanosoma birgei				
Sida crystallina		1.06	0.31	
Macrothrix laticornis				
Streblocerus serricaudatus				
Bosmina longirostris		4.49	0.40	
Leptodora kindti				
Eucopepoda				
Leptodiaptomus ashlandi		38.54	3.17	
Skistodiaptomus oregonensis				
Epischura nevadensis			0.04	
Diacyclops bicuspidatus thomasi		24.02	2.60	
Mesocyclop edax			0.00	
Bryocamptus spp. nauplii		33.52	6.56	
Total *Daphnia* spp.		**66.9**	**6.8**	
Total Cladocera		**72.5**	**7.5**	
Total Copepoda		**62.6**	**5.8**	
Total Nauplii		**33.5**	**6.6**	
Grand Total		**168.5**	**19.8**	

Table B.2 Mean density (#/m^3) values calculated for zooplankton collected in February 1992 at four sampling locations on Lake Roosevelt, WA

	Gifford Mean Density (#/m^3)	Porcupine Bay Mean Density (#/m^3)	Seven Bays Mean Density (#/m^3)	Spring Canyon Mean Density (#/m^3)
Cladocera				
Ceriodaphnia quadranqula				
Daphnia galeata mendotae				
Daphnia retrocurva				
Daphnia schødleri	0.09	4.05	0.22	0.70
Daphnia thorata				
Daphnia pulicaria			0.22	
Megafenestra aurita				
Simocephalus serrulatus				
Alona guttata				
Alona quadrangularis				
Chydorus sphaericus				
Eurycerus lamellatus				
Pleuroxus denticulatus				
Diaphanosoma brachyurum				
Diaphanosoma birgei				
Sida crystallina				
Macrothrix laticornis				
Streblocerus serricaudatus				
Bosmina longirostris		1.19		0.53
Leptodora kindti			0.04	
Eucopepoda				
Leptodiaptomus ashlandi	0.35	4.18	1.10	9.50
Skistodiaptomus oregonensis				
Epischura nevadensis		0.22	0.00	
Diacyclops bicuspidatus thomasi	0.57	6.03	0.22	2.64
Mesocyclop edax		0.75	0.22	0.79
Bryocamptus spp. nauplii	1.89	12.54	4.44	17.03
Total *Daphnia* spp.	**0.1**	**4.0**	**0.4**	**0.7**
Total Cladocera	**0.1**	**5.2**	**0.5**	**1.2**
Total Copepoda	**0.9**	**11.2**	**1.5**	**12.9**
Total Nauplii	**1.9**	**12.5**	**4.4**	**17.0**
Grand Total	**2.9**	**28.9**	**6.5**	**31.2**

Table B.3 Mean density (#/m^3) values calculated for zooplankton collected in March 1992 at four sampling locations on Lake Roosevelt, WA

	Gifford Mean Density (#/m^3)	Porcupine Bay Mean Density (#/m^3)	Seven Bays Mean Density (#/m^3)	Spring Canyon Mean Density (#/m^3)
Cladocera				
Ceriodaphnia quadranqula				
Daphnia galeata mendotae				
Daphnia retrocurva				
Daphnia schødleri				55.83
Daphnia pulicaria		0.18	0.04	0.66
Daphnia thorata				
Megafenestra aurita				
Simocephalus serrulatus				
Alona guttata				
Alona quadrangularis				
Chydorus sphaericus				
Eurycerus lamellatus				
Pleuroxus denticulatus				
Diaphanosoma brachyurum				
Diaphanosoma birgei				
Sida crystallina				
Macrothrix laticornis				
Streblocerus serricaudatus				
Bosmina longirostris		0.31		5.02
Leptodora kindti				
Eucopepoda				
Leptodiaptomus ashlandi	0.26	0.66	0.53	43.69
Skistodiaptomus oregonensis				
Epischura nevadensis				
Diacyclops bicuspidatus thomasi	0.18	3.48	1.14	22.44
Mesocyclop edax	0.04	2.29	0.31	3.70
Bryocamptus spp. nauplii	4.31	3.83	2.11	34.32
Total *Daphnia* spp.	**0.0**	**0.2**	**0.0**	**56.5**
Total Cladocera	**0.0**	**0.5**	**0.0**	**61.5**
Total Copepoda	**0.5**	**6.4**	**2.0**	**69.8**
Total Nauplii	**4.3**	**3.8**	**2.1**	**34.3**
Grand Total	**4.8**	**10.7**	**4.1**	**165.6**

Table B.4 Mean density (#/m^3) values calculated for zooplankton collected in April 1992 at four sampling locations on Lake Roosevelt, WA

	Gifford Mean Density (#/m^3)	Porcupine Bay Mean Density (#/m^3)	Seven Bays Mean Density (#/m^3)	Spring Canyon Mean Density (#/m^3)
Cladocera				
Ceriodaphnia quadranqula				
Daphnia galeata mendotae		0.66		
Daphnia retrocurva				
Daphnia schødleri	4.36	5.68	14.66	3.83
Daphnia thorata				
Megafenestra aurita				
Simocephalus serrulatus				
Alona guttata	0.66			0.40
Alona quadrangularis				
Chydorus sphaericus				
Eurycerus lamellatus				
Pleuroxus denticulatus				
Diaphanosoma brachyurum				
Diaphanosoma birgei				
Sida crystallina				
Macrothrix laticornis				
Streblocerus serricaudatus				
Bosmina longirostris	0.92	7.79	13.20	1.06
Leptodora kindti	0.26	0.00		
Eucopepoda				
Leptodiaptomus ashlandi	18.21	2.77	39.59	11.22
Skistodiaptomus oregonensis				
Epischura nevadensis				0.40
Diacyclops bicuspidatus thomasi	22.83	129.61	161.31	44.08
Mesocyclop edax	0.92	11.09	17.60	3.96
Bryocamptus spp. nauplii	31.41	67.18	302.09	31.68
Total *Daphnia* spp.	**4.4**	**6.3**	**14.7**	**3.8**
Total Cladocera	**6.2**	**14.1**	**27.9**	**5.3**
Total Copepoda	**42.0**	**143.5**	**218.5**	**59.7**
Total Nauplii	**31.4**	**67.2**	**302.1**	**31.7**
Grand Total	**79.6**	**224.8**	**548.5**	**96.6**

Table B.5 Mean density (#/m^3) values calculated for zooplankton collected in May 1992 at four sampling locations on Lake Roosevelt, WA

	Gifford Mean Density (#/m^3)	Porcupine Bay Mean Density (#/m^3)	Seven Bays Mean Density (#/m^3)	Spring Canyon Mean Density (#/m^3)
Cladocera				
Ceriodaphnia quadranqula				
Daphnia galeata mendotae	0.26	3.70	5.87	
Daphnia retrocurva		0.66		
Daphnia schødleri	6.47	29.17	23.46	26.40
Daphnia thorata				
Megafenestra aurita				
Simocephalus serrulatus				
Alona guttata		0.13		
Alona quadrangularis				
Chydorus sphaericus				
Eurycerus lamellatus				
Pleuroxus denticulatus				
Diaphanosoma brachyurum				
Diaphanosoma birgei				
Sida crystallina				
Macrothrix laticornis				
Streblocerus serricaudatus				
Bosmina longirostris	1.45	8.18	19.06	5.87
Leptodora kindti	0.13	1.72	1.47	
Eucopepoda				
Leptodiaptomus ashlandi	3.96	2.90	29.33	35.20
Skistodiaptomus oregonensis				
Epischura nevadensis	0.79	12.67	1.47	
Diacyclops bicuspidatus thomasi	7.92	25.08	277.16	89.45
Mesocyclop edax	1.45	2.77	16.13	16.13
Bryocamptus spp. nauplii	16.89	50.55	485.40	542.59
Total *Daphnia* spp.	**6.7**	**33.5**	**29.3**	**26.4**
Total Cladocera	**8.3**	**43.6**	**49.9**	**32.3**
Total Copepoda	**14.1**	**43.4**	**324.1**	**140.8**
Total Nauplii	**16.9**	**50.5**	**485.4**	**542.6**
Grand Total	**39.3**	**137.5**	**859.3**	**715.6**

Table B.6 Mean density (#/m^3) values calculated for zooplankton collected in June 1992 at four sampling locations on Lake Roosevelt, WA

	Gifford Mean Density (#/m^3)	Porcupine Bay Mean Density (#/m^3)	Seven Bays Mean Density (#/m^3)	Spring Canyon Mean Density (#/m^3)
Cladocera				
Ceriodaphnia quadranqula				
Daphnia galeata mendotae	2.24	5.87	17.60	2.93
Daphnia retrocurva		8.80		
Daphnia schødleri	8.45	142.25	76.26	117.32
Daphnia thorata				
Megafenestra aurita				
Simocephalus serrulatus				
Alona guttata	0.53	1.47	1.47	
Alona quadrangularis				
Chydorus sphaericus				
Eurycerus lamellatus				
Pleuroxus denticulatus				
Diaphanosoma brachyurum				
Diaphanosoma birgei				
Sida crystallina				1.47
Macrothrix laticornis				
Streblocerus serricaudatus				
Bosmina longirostris	6.86	2.93	42.53	13.20
Leptodora kindti		5.87	8.80	13.20
Eucopepoda				
Leptodiaptomus ashlandi	0.79	10.27	1.47	41.06
Skistodiaptomus oregonensis				
Epischura nevadensis		4.40	7.33	4.40
Diacyclops bicuspidatus thomasi	12.67	231.70	258.10	243.43
Mesocyclop edax			4.40	
Bryocamptus spp.		5.87		
nauplii	70.87	516.20	265.43	199.09
Total *Daphnia* spp.	**10.7**	**156.9**	**93.9**	**120.3**
Total Cladocera	**18.1**	**167.2**	**146.6**	**148.1**
Total Copepoda	**13.5**	**252.2**	**271.3**	**288.9**
Total Nauplii	**70.9**	**516.2**	**265.4**	**856.4**
Grand Total	**102.4**	**935.6**	**683.4**	**1293.4**

Table B.7 Mean density (#/m^3) values calculated for zooplankton collected in July 1992 at four sampling locations on Lake Roosevelt, WA

	Gifford Mean Density (#/m^3)	Porcupine Bay Mean Density (#/m^3)	Seven Bays Mean Density (#/m^3)	Spring Canyon Mean Density (#/m^3)
Cladocera				
Ceriodaphnia quadranqula				
Daphnia galeata mendotae	9.50	23.46	143.71	No Data Collected Due Too Mechanical Problems.
Daphnia retrocurva	0.26			
Daphnia schødleri	6.73	107.05	129.05	
Daphnia thorata				
Megafenestra aurita				
Simocephalus serrulatus				
Alona guttata	0.04			
Alona quadrangularis				
Chydorus sphaericus				
Eurycerus lamellatus				
Pleuroxus denticulatus				
Diaphanosoma brachyurum				
Diaphanosoma birgei				
Sida crystallina	0.09			
Macrothrix laticornis				
Streblocerus serricaudatus				
Bosmina longirostris	0.31			
Leptodora kindti				
Eucopepoda				
Leptodiaptomus ashlandi	0.40	112.92	63.06	
Skistodiaptomus oregonensis				
Epischura nevadensis	0.09	26.40	10.27	
Diacyclops bicuspidatus thomasi	3.96	90.92	108.52	
Mesocyclop edax	2.20	20.53		
Bryocamptus spp.				
nauplii	7.96	376.88	432.61	
Total *Daphnia* spp.	**16.5**	**130.5**	**272.8**	
Total Cladocera	**16.9**	**130.5**	**272.8**	
Total Copepoda	**6.6**	**250.8**	**181.8**	
Total Nauplii	**8.0**	**376.9**	**432.6**	
Grand Total	**31.5**	**758.2**	**887.2**	

Table B.8 Mean density (#/m^3) values calculated for zooplankton collected in August 1992 at four sampling locations on Lake Roosevelt, WA

	Gifford Mean Density (#/m^3)	Porcupine Bay Mean Density (#/m^3)	Seven Bays Mean Density (#/m^3)	Spring Canyon Mean Density (#/m^3)
Cladocera				
Ceriodaphnia quadranqula				
Daphnia galeata mendotae	102.65	0.40	41.06	17.60
Daphnia retrocurva	4.40			
Daphnia schødleri	159.84	8.05	294.76	287.43
Daphnia thorata	16.13	0.26	13.20	
Megafenestra aurita				
Simocephalus serrulatus				
Alona guttata	2.93	0.26		
Alona quadrangularis				
Chydorus sphaericus				
Eurycerus lamellatus				
Pleuroxus denticulatus				
Diaphanosoma brachyurum				
Diaphanosoma birgei				
Sida crystallina	2.93	0.66		
Macrothrix laticornis				
Streblocerus serricaudatus				
Bosmina longirostris	8.80	0.26		
Leptodora kindti	0.13			
Eucopepoda				
Leptodiaptomus ashlandi	35.20	22.70	344.62	674.57
Skistodiaptomus oregonensis				
Epischura nevadensis	4.40		24.93	30.80
Diacyclops bicuspidatus thomasi	76.26	9.11	190.64	258.10
Mesocyclop edax	2.93			
Bryocamptus spp. nauplii	143.71	31.94	504.46	351.95
Total *Daphnia* spp.	**283.0**	**8.7**	**349.0**	**305.0**
Total Cladocera	**297.8**	**9.9**	**349.0**	**305.0**
Total Copepoda	**118.8**	**31.8**	**560.2**	**963.5**
Total Nauplii	**143.7**	**31.9**	**504.5**	**352.0**
Grand Total	**560.3**	**73.6**	**1413.7**	**1620.4**

Table B.9 Mean density (#/m^3) values calculated for zooplankton collected in September 1992 at four sampling locations on Lake Roosevelt, WA

	Gifford Mean Density (#/m^3)	Porcupine Bay Mean Density (#/m^3)	Seven Bays Mean Density (#/m^3)	Spring Canyon Mean Density (#/m^3)
Cladocera				
Ceriodaphnia quadranqula				
Daphnia galeata mendotae	13.07		5.87	0.88
Daphnia retrocurva	0.66			
Daphnia schødleri	43.82	165.71	60.13	65.99
Daphnia thorata	2.77		5.87	0.88
Megafenestra aurita				
Simocephalus serrulatus				
Alona guttata				
Alona quadrangularis				
Chydorus sphaericus				
Eurycerus lamellatus				
Pleuroxus denticulatus				
Diaphanosoma brachyurum		1.47		
Diaphanosoma birgei				
Sida crystallina			10.27	2.20
Macrothrix laticornis				
Streblocerus serricaudatus				
Bosmina longirostris	0.79		22.00	2.64
Leptodora kindti	0.13	0.13		
Eucopepoda				
Leptodiaptomus ashlandi	10.29	211.17	381.28	206.33
Skistodiaptomus oregonensis				
Epischura nevadensis		2.93	10.27	7.92
Diacyclops bicuspidatus thomasi	12.67	108.52	140.78	34.32
Mesocyclop edax	0.66	29.33		
Bryocamptus spp. nauplii	57.28	391.55	747.90	118.34
Total *Daphnia* spp.	**60.3**	**165.7**	**71.9**	**67.8**
Total Cladocera	**61.2**	**167.3**	**104.1**	**72.6**
Total Copepoda	**23.6**	**352.0**	**532.3**	**248.6**
Total Nauplii	**57.3**	**391.5**	**747.9**	**118.3**
Grand Total	**142.1**	**910.8**	**1384.3**	**439.5**

Table B.10 Mean density (#/m^3) values calculated for zooplankton collected in October 1992 at four sampling locations on Lake Roosevelt, WA

	Gifford Mean Density (#/m^3)	Porcupine Bay Mean Density (#/m^3)	Seven Bays Mean Density (#/m^3)	Spring Canyon Mean Density (#/m^3)
Cladocera				
Ceriodaphnia quadranqula				
Daphnia galeata mendotae	1.98		7.33	
Daphnia retrocurva				
Daphnia schødleri	43.95	88.43	217.04	8.80
Daphnia thorata	0.40			
Megafenestra aurita				
Simocephalus serrulatus				
Alona guttata				
Alona quadrangularis				
Chydorus sphaericus				
Eurycerus lamellatus				
Pleuroxus denticulatus				
Diaphanosoma brachyurum		0.44		
Diaphanosoma birgei				0.44
Sida crystallina	0.13	0.44		
Macrothrix laticornis				
Streblocerus serricaudatus				
Bosmina longirostris	1.06		7.33	0.88
Leptodora kindti	0.13			
Eucopepoda				
Leptodiaptomus ashlandi	4.09	14.17	391.55	91.07
Skistodiaptomus oregonensis				
Epischura nevadensis				0.88
Diacyclops bicuspidatus thomasi	7.13	6.91	190.64	33.88
Mesocyclop edax	0.79	27.28		
Bryocamptus spp. nauplii	33.00	48.13	759.63	177.74
Total *Daphnia* spp.	**46.3**	**88.4**	**224.4**	**8.8**
Total Cladocera	**47.6**	**89.3**	**231.7**	**10.1**
Total Copepoda	**12.0**	**48.3**	**582.2**	**125.8**
Total Nauplii	**33.0**	**48.1**	**759.6**	**177.7**
Grand Total	**92.7**	**185.8**	**1573.5**	**313.7**

Table B.11 Mean density (#/m^3) values calculated for zooplankton collected in November 1992 at four sampling locations on Lake Roosevelt, WA

	Gifford Mean Density (#/m^3)	Porcupine Bay Mean Density (#/m^3)	Seven Bays Mean Density (#/m^3)	Spring Canyon Mean Density (#/m^3)
Cladocera				
Ceriodaphnia quadranqula				
Daphnia galeata mendotae				
Daphnia retrocurva				
Daphnia schødleri	88.82	159.84	76.26	18.61
Daphnia thorata				
Megafenestra aurita				
Simocephalus serrulatus				
Alona guttata				
Alona quadrangularis				
Chydorus sphaericus				
Eurycerus lamellatus				
Pleuroxus denticulatus				
Diaphanosoma brachyurum				
Diaphanosoma birgei				
Sida crystallina	1.58			
Macrothrix laticornis				
Streblocerus serricaudatus				
Bosmina longirostris	4.75	2.93	2.93	0.79
Leptodora kindti				
Eucopepoda				
Leptodiaptomus ashlandi	9.77	275.70	174.51	64.67
Skistodiaptomus oregonensis				
Epischura nevadensis				
Diacyclops bicuspidatus thomasi	5.87 8.58	98.25	42.53	4.88
Mesocyclop edax	1.45	32.26		
Bryocamptus spp. nauplii	33.79	457.54	309.42	25.74
Total *Daphnia* spp.	**88.8**	**159.8**	**76.3**	**18.6**
Total Cladocera	**95.2**	**162.8**	**79.2**	**19.4**
Total Copepoda	**19.8**	**412.1**	**217.0**	**69.6**
Total Nauplii	**33.8**	**457.5**	**309.4**	**25.7**
Grand Total	**148.7**	**1032.4**	**605.6**	**114.7**

Table B.12 Mean density (#/m^3) values calculated for zooplankton collected in December 1992 at four sampling locations on Lake Roosevelt, WA

No Data Collected Due To Inclimate Weather

Table B.13 Size ranges (mm), mean lengths (mm) and biomass calculations ($\mu g/m^3$) for zooplankton collected at four sampling locations in January 1992 on Lake Roosevelt, WA

	Size range (mm)	Mean length (mm)	Biomass ($\mu g/m^3$)
Location 2			
Daphnia galeata mendotae	No Samples were collected		
Daphnia retrocurva			
Daphnia schødleri			
Daphnia thorata			
Leptodora kindti			
Total Biomass			
Location 4			
Daphnia galeata mendotae	1.36-1.92	1.63	4.1
Daphnia retrocurva			
Daphnia schødleri	0.60-2.30	1.43	2,027.9
Daphnia thorata			
Leptodora kindti			
Total Biomass			**2,032.0**
Location 6			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.80-2.40	1.62	304.0
Daphnia thorata			
Leptodora kindti			
Total Biomass			**304.0**
Location 9			
Daphnia galeata mendotae	No Samples were collected		
Daphnia retrocurva			
Daphnia schødleri			
Daphnia thorata			
Leptodora kindti			
Total Biomass			

Table B.14 Size ranges (mm), mean lengths (mm) and biomass calculations ($\mu g/m^3$) for zooplankton collected at four sampling locations in February 1992 on Lake Roosevelt, WA

	Size range (mm)	Mean length (mm)	Biomass ($\mu g/m^3$)
Location 2			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.80-2.40	1.62	304.0
Daphnia thorata			
Leptodora kindti			
Total Biomass			**304.0**
Location 4			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.62-2.60	1.50	142.0
Daphnia thorata			
Leptodora kindti			
Total Biomass			**142.0**
Location 6			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	1.04-1.32	1.22	4.1
Daphnia pulicaria	1.90-2.4	2.06	20.6
Leptodora kindti			
Total Biomass			**24.7**
Location 9			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.90	1.84	15.6
Daphnia thorata			
Leptodora kindti			
Total Biomass			**15.6**

Table B.15 Size ranges (mm), mean lengths (mm) and biomass calculations ($\mu g/m^3$) for zooplankton collected at four sampling locations in March 1992 on Lake Roosevelt, WA

	Size range (mm)	Mean length (mm)	Biomass ($\mu g/m^3$)
Location 2			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri			
Daphnia thorata			
Leptodora kindti			
Total Biomass			
Location 4			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia pulicaria	1.10-1.64	1.36	4.7
Daphnia thorata			
Leptodora kindti			
Total Biomass			4.7
Location 6			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia pulicaria	1.24	1.24	0.8
Daphnia thorata			
Leptodora kindti			
Total Biomass			0.8
Location 9			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.62-2.06	1.19	959.8
Daphnia pulicaria	1.18-1.62	1.39	18.3
Leptodora kindti			
Total Biomass			978.1

Table B.16 Size ranges (mm), mean lengths (mm) and biomass calculations ($\mu g/m^3$) for zooplankton collected at four sampling locations in April 1992 on Lake Roosevelt, WA

	Size range (mm)	Mean length (mm)	Biomass ($\mu g/m^3$)
Location 2			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.42-1.04	0.73	16.4
Daphnia thorata			
Leptodora kindti	2.50-3.00	2.75	1.7
Total Biomass			**18.1**
Location 4			
Daphnia galeata mendotae	0.70-0.86	0.79	1.6
Daphnia retrocurva			
Daphnia schødleri	0.40-1.20	0.81	29.7
Daphnia thorata			
Leptodora kindti			
Total Biomass			**31.4**
Location 6			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.60-0.82	0.74	56.5
Daphnia thorata			
Leptodora kindti			
Total Biomass			**56.5**
Location 9			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.60-1.84	0.98	36.2
Daphnia thorata			
Leptodora kindti			
Total Biomass			**36.2**

Table B.17 Size ranges (mm), mean lengths (mm) and biomass calculations ($\mu g/m^3$) for zooplankton collected at four sampling locations in May 1992 on Lake Roosevelt, WA

	Size range (mm)	Mean length (mm)	Biomass ($\mu g/m^3$)
Location 2			
Daphnia galeata mendotae	0.68-0.76	0.72	0.5
Daphnia retrocurva			
Daphnia schødleri	0.44-1.36	0.79	30.7
Daphnia thorata			
Leptodora kindti	2.50	2.50	0.66
Total Biomass			**31.9**
Location 4			
Daphnia galeata mendotae	0.44-1.42	0.91	13.2
Daphnia retrocurva	0.60-1.00	0.78	1.3
Daphnia schødleri	0.40-1.62	0.90	208.4
Daphnia thorata			
Leptodora kindti	2.00-7.50	3.65	24.1
Total Biomass			**247.0**
Location 6			
Daphnia galeata mendotae	0.44-1.04	0.63	8.0
Daphnia retrocurva	0.50	0.50	0.7
Daphnia schødleri	0.44-1.68	0.90	170.8
Daphnia thorata			
Leptodora kindti	2.00	2.00	4.1
Total Biomass			**183.6**
Location 9			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.44-1.40	0.83	150.4
Daphnia thorata			
Leptodora kindti			
Total Biomass			**150.4**

Table B.18 Size ranges (mm), mean lengths (mm) and biomass calculations ($\mu g/m^3$) for zooplankton collected at four sampling locations in June 1992 on Lake Roosevelt, WA

	Size range (mm)	Mean length (mm)	Biomass ($\mu g/m^3$)
Location 2			
Daphnia galeata mendotae	0.50-1.20	0.87	7.2
Daphnia retrocurva			
Daphnia schødleri	0.40-1.40	0.93	66.6
Daphnia thorata			
Leptodora kindti			
Total Biomass			**73.8**
Location 4			
Daphnia galeata mendotae	0.76-1.76	1.11	34.8
Daphnia retrocurva	1.84-2.20	2.06	355.8
Daphnia schødleri	0.52-2.80	1.26	2,897.4
Daphnia thorata			
Leptodora kindti	6.50-11.00	8.50	782.0
Total Biomass			**4,070.0**
Location 6			
Daphnia galeata mendotae	0.76-1.26	0.87	55.5
Daphnia retrocurva			
Daphnia schødleri	0.46-2.46	1.01	783.3
Daphnia thorata			
Leptodora kindti	2.50-10.00	5.17	310.3
Total Biomass			**1,149.1**
Location 9			
Daphnia galeata mendotae	0.72-1.80	0.97	12.2
Daphnia retrocurva			
Daphnia schødleri	0.64-2.80	1.14	1,775.7
Daphnia thorata			
Leptodora kindti	4.00-10.00	7.33	1,185.6
Total Biomass			**2,973.5**

Table B.19 Size ranges (mm), mean lengths (mm) and biomass calculations ($\mu g/m^3$) for zooplankton collected at four sampling locations in July 1992 on Lake Roosevelt, WA

	Size range (mm)	Mean length (mm)	Biomass ($\mu g/m^3$)
Location 2			
Daphnia galeata mendotae	0.28-1.68	0.92	34.7
Daphnia retrocurva	0.82-1.44	1.22	2.1
Daphnia schødleri	0.46-1.44	0.91	47.0
Daphnia thorata			
Leptodora kindti			
Total Biomass			**83.8**
Location 4			
Daphnia galeata mendotae	0.78-2.00	1.48	288.7
Daphnia retrocurva			
Daphnia schødleri	0.82-2.06	1.35	2,694.7
Daphnia thorata			
Leptodora kindti			
Total Biomass			**2,983.3**
Location 6			
Daphnia galeata mendotae	0.40-1.40	0.94	561.3
Daphnia retrocurva			
Daphnia schødleri	0.60-2.06	1.05	1,484.9
Daphnia thorata			
Leptodora kindti			
Total Biomass			**2,046.2**
Location 9			
Daphnia galeata mendotae	**No Samples Collected**		
Daphnia retrocurva			
Daphnia schødleri			
Daphnia thorata			
Leptodora kindti			
Total Biomass			

Table B.20 Size ranges (mm), mean lengths (mm) and biomass calculations ($\mu g/m^3$) for zooplankton collected at four sampling locations in August 1992 on Lake Roosevelt, WA

	Size range (mm)	Mean length (mm)	Biomass ($\mu g/m^3$)
Location 2			
Daphnia galeata mendotae	0.42-2.02	1.16	683.2
Daphnia retrocurva	1.16-1.22	1.18	30.9
Daphnia schødleri	0.40-2.80	1.13	2,303.2
Daphnia thorata	0.60-2.18	1.34	475.4
Leptodora kindti			
Total Biomass			**3,492.7**
Location 4			
Daphnia galeata mendotae	0.42-0.80	0.64	0.58
Daphnia retrocurva			
Daphnia schødleri	0.68-2.06	1.17	131.3
Daphnia thorata	1.64-2.40	2.05	22.5
Leptodora kindti			
Total Biomass			**154.3**
Location 6			
Daphnia galeata mendotae	0.48-1.86	1.12	249.5
Daphnia retrocurva			
Daphnia schødleri	0.72-2.30	1.51	10,645.9
Daphnia thorata	1.18-1.84	1.53	544.8
Leptodora kindti			
Total Biomass			**11,440.1**
Location 9			
Daphnia galeata mendotae	1.50-2.18	1.85	386.6
Daphnia retrocurva			
Daphnia schødleri	0.46-2.60	1.63	12,926.1
Daphnia thorata			
Leptodora kindti			
Total Biomass			**13,312.7**

Table B.21 Size ranges (mm), mean lengths (mm) and biomass calculations ($\mu g/m^3$) for zooplankton collected at four sampling locations in September 1992 on Lake Roosevelt, WA

	Size range (mm)	Mean length (mm)	Biomass ($\mu g/m^3$)
Location 2			
Daphnia galeata mendotae	0.44-1.48	0.98	55.5
Daphnia retrocurva	0.88-1.22	1.04	3.16
Daphnia schødleri	0.46-2.16	1.21	787.7
Daphnia thorata	0.74-1.60	1.16	56.1
Leptodora kindti	4.00	4.00	2.3
Total Biomass			**904.8**
Location 4			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.68-2.12	1.20	2,893.6
Daphnia thorata			
Leptodora kindti	4.00	4.00	2.31
Total Biomass			**2,895.9**
Location 6			
Daphnia galeata mendotae	0.60-1.00	0.86	17.9
Daphnia retrocurva			
Daphnia schødleri	0.58-2.60	1.18	998.0
Daphnia thorata	0.46-1.22	0.92	67.1
Leptodora kindti			
Total Biomass			**1,083.0**
Location 9			
Daphnia galeata mendotae	1.04-2.16	1.47	10.71
Daphnia retrocurva			
Daphnia schødleri	0.62-2.42	1.52	2,397.7
Daphnia thorata	0.82-2.06	1.51	34.9
Leptodora kindti			
Total Biomass			**2,443.3**

Table B.22 Size ranges (mm), mean lengths (mm) and biomass calculations ($\mu g/m^3$) for zooplankton collected at four sampling locations in October 1992 on Lake Roosevelt, WA

	Size range (mm)	Mean length (mm)	Biomass ($\mu g/m^3$)
Location 2			
Daphnia galeata mendotae	0.80-1.48	1.20	14.4
Daphnia retrocurva			
Daphnia schødleri	0.44-1.62	1.06	522.9
Daphnia thorata	1.20-1.62	1.42	13.7
Leptodora kindti	3.50	3.50	1.62
Total Biomass			**552.6**
Location 4			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.64-1.84	1.17	1,447.1
Daphnia thorata			
Leptodora kindti			
Total Biomass			**1,447.1**
Location 6			
Daphnia galeata mendotae	0.78-1.44	1.15	47.6
Daphnia retrocurva			
Daphnia schødleri	0.88-2.00	1.39	6,024.8
Daphnia thorata			
Leptodora kindti			
Total Biomass			**6,072.4**
Location 9			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.68-2.60	1.26	178.4
Daphnia thorata			
Leptodora kindti			
Total Biomass			**178.4**

Table B.23 Size ranges (mm), mean lengths (mm) and biomass calculations ($\mu g/m^3$) for zooplankton collected at four sampling locations in November 1992 on Lake Roosevelt, WA

	Size range (mm)	Mean length (mm)	Biomass ($\mu g/m^3$)
Location 2			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.46-1.72	1.09	1,146.8
Daphnia thorata			
Leptodora kindti			
Total Biomass			**1,146.8**
Location 4			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.46-3.32	1.47	5,274.3
Daphnia thorata			
Leptodora kindti			
Total Biomass			**5,274.3**
Location 6			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.84-2.00	1.37	2,015.1
Daphnia thorata			
Leptodora kindti			
Total Biomass			**2,015.1**
Location 9			
Daphnia galeata mendotae			
Daphnia retrocurva			
Daphnia schødleri	0.42-1.62	1.02	195.9
Daphnia thorata			
Leptodora kindti			
Total Biomass			**195.9**

Table B.24 Size ranges (mm), mean lengths (mm) and biomass calculations ($\mu g/m^3$) for zooplankton collected at four sampling locations in December 1992 on Lake Roosevelt, WA

	Size range (mm)	Mean length (mm)	Biomass ($\mu g/m^3$)
Location 2			
Daphnia galeata mendotae	No Samples were collected		
Daphnia retrocurva			
Daphnia schødleri			
Daphnia thorata			
Leptodora kindti			
Total Biomass			
Location 4			
Daphnia galeata mendotae	No Samples were collected		
Daphnia retrocurva			
Daphnia schødleri			
Daphnia thorata			
Leptodora kindti			
Total Biomass			
Location 6			
Daphnia galeata mendotae	No Samples were collected		
Daphnia retrocurva			
Daphnia schødleri			
Daphnia thorata			
Leptodora kindti			
Total Biomass			
Location 9			
Daphnia galeata mendotae	No Samples were collected		
Daphnia retrocurva			
Daphnia schødleri			
Daphnia thorata			
Leptodora kindti			
Total Biomass			

APPENDIX C

Table C.1 Number of benthic macroinvertebrate samples collected each month at each location on Lake Roosevelt in 1992.

Month	Res. Elevation	Res. Location	Area Number	Number of Samples	Mean Sample Depth (m)
March	1284	2	1	2	20
			2	2	45
			3	0	-
		4	1	2	20
			2	2	35
			3	0	-
		6	1	3	15
			2	3	40
			3	3	72
		9	1	3	18
			2	3	40
			3	3	70
May	1268	2	1	3	15
			2	3	43
			3	3	62
		4	1	2	20
			2	2	41
			3	2	57
		6	1	3	23
			2	3	42
			3	3	61
		9	1	3	20
			2	3	46
			3	0	-

Table C.1 Continued.

Month	Res. Elevation	Res. Location	Area Number	Number of Samples	Mean Sample Depth (m)
June	1282	2	1	3	22
			2	3	61
			3	3	80
		4	1	3	21
			2	3	41
			3	3	82
		6	1	3	20
			2	3	51
			3	3	80
		9	1	0	-
			2	0	-
			3	0	-
July	1286	2	1	3	40
			2	3	63
			3	3	80
		4	1	3	32
			2	3	61
			3	3	80
		6	1	3	23
			2	3	60
			3	3	80
		9	1	0	-
			2	0	-
			3	0	-

Table C.1 Continued.

Month	Res. Elevation	Res. Location	Area Number	Number of Samples	Mean Sample Depth (m)
August	1286	2	1	3	25
			2	3	60
			3	3	80
		4	1	3	24
			2	3	61
			3	3	80
		6	1	3	22
			2	3	63
			3	3	81
		9	1	3	18
			2	3	62
			3	3	80
October	1284	2	1	3	20
			2	3	63
			3	3	85
		4	1	3	21
			2	3	64
			3	3	83
		6	1	3	20
			2	3	65
			3	3	80
		9	1	3	22
			2	3	65
			3	0	-

Table C.2 Number of acres within each benthic macroinvertebrate sampling area and calculations.

Sampling Areas and Descriptions:

Area 1 ≤1210 at full pool
Area 2 From 1211 to 1240 at full pool
Area 3 From 1290 to 1241

Benthic Sampling Area	Elev. used for calculations	Acres at elevation	# of Acres in Sampling Area
1	1210 930.5	46,232 511	45,721
2	1240 1210	59811 46232	13,579
3	1240 1290	59811 82270	22,459

Acres converted to m^2.

Sampling Area	Acres/Area (x 4046.8564)	m^2/Area
1	45,721	185,026,321
2	13,579	54,952,263
3	22,459	90,888,348

Table C.3 Orders and families of benthic macroinvertebrates found in the substrate of Lake Roosevelt.

Order	**Amphipoda (scuds)**	
	Family:	Gammerus
Order	**Basommatophora (snails)**	
	Family	Lynmaeidae
		Planoribidae
		Physidae
Order	**Diptera (midges)**	
	Family	Chironomidae
Order	**Hydrachnellae (aquatic spiders)**	
	Family	Hydracarina
Order	**Oligocheata (worms)**	
	Family	Lumbriculidae
Order	**Pelecypoda (clams)**	
	Family	Sphaeridae
Order	**Trichoptera (caddisflies)**	
	Family	Leptoceridae
		Limnephilidae

Table C.4 Mean monthly weight values (#/m^2) ± standard deviation of
benthic macroinvertebrates used to calculate weight frequen

Weights (g)	May/Mar	June	July	Augu
	X ± S.D.	X ± S.D.	X ± S.D.	X ± S.
Amphipoda (scuds)				
Gammarus		.0040 ± .0032	.0075 ± .0055	.0194 ± .
Basommatophora (snails)				
Lymnaeidae				.0037 ± .
Planorbidae		.0237 ± .0000	.0148 ± .0156	.0034 ± .
Physidae		.0041 ± .0000		.0022 ± .
Diptera (midges)				
Chironomidae pupae	.0009 ± .0009	.0012 ± .0015	.0012 ± .0015	.0033 ± .
Chironomidae larvae	.0015 ± .0020	.0024 ± .0020	.0045 ± .0029	.0016 ± .
Simuliidae				
Hydrachnellae (spiders)				
Hydracarina			.0018 ± .0002	.0004 ± .
Oligochaeta (worms)				
Lumbriculidae	.0028 ± .0031	0.1148 ± .0031	.0026 ± .0021	.0022 ± .
Pelecypoda (clams)				
Sphaeridae				.0007 ± .
Trichoptera (caddisflies)				
Leptoceridae	.0022 ± .0016	.0075 ± .0000	.0012 ± .0006	.0019 ± .
Limnephilidae	.0030 ± .0016	.0057 ± .0042	.0021 ± .0009	.0031 ± .

APPENDIX D

Table D.1 Water quality measurements taken with Hydrolab Surveyor II at Gifford, Porcupine Bay, Seven Bays, and Spring Canyon in January 1992.

No data collected at Gifford due to inclimate weather.

PORCUPINE

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	3.67	7.72	12.72	.159	.144
3	3.64	7.71	12.75	.160	.142
6	3.63	7.70	12.74	.161	.142
9	3.63	7.70	12.75	.162	.142
12	3.63	7.70	12.75	.161	.142
15	3.63	7.71	12.75	.163	.142
18	3.63	7.71	12.75	.161	.143
21	3.63	7.72	12.66	.160	.143
24	3.64	7.72	12.46	.164	.143
27	3.64	7.73	12.47	.164	.144
30	3.66	7.73	12.45	.161	.144
33	3.69	7.74	12.34	.166	.145

Table D.1 Continued;

SEVEN BAYS

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	4.11	7.84	13.82	.145	.227
3	4.04	7.84	13.77	.145	.277
6	4.06	7.84	13.78	.149	.277
9	4.06	7.85	13.78	.149	.277
12	4.06	7.86	13.87	.150	.277
15	4.05	7.86	13.78	.150	.277
18	4.05	7.86	13.70	.150	.277
21	4.05	7.87	13.61	.150	.277
24	4.06	7.87	13.61	.148	.277
27	4.05	7.88	13.52	.148	.277
30	4.05	7.88	13.52	.148	.277
33	4.05	7.89	13.53	.149	.276

No data collected at Spring Canyon due to inclimate weather.

Table D.2 Water quality measurements taken with Hydrolab Surveyor II at Gifford, Porcupine Bay, Seven Bays, and Spring Canyon in February 1992.

GIFFORD

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	4.57	5.82	12.30	.002	.209
3	6.86	7.43	11.75	.152	.141
6	6.22	7.31	11.76	.151	.136
9	6.00	7.28	11.73	.151	.134
12	5.95	7.27	11.50	.151	.134
15	5.96	7.27	11.43	.151	.133
18	5.95	7.27	11.37	.151	.133
21	5.91	7.27	11.39	.152	.133
24	5.91	7.28	11.40	.152	.134
27	5.87	7.29	11.36	.153	.134
30	5.85	7.30	11.38	.150	.134
33	5.81	7.30	11.41	.149	.134

PORCUPINE

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	7.87	6.63	9.78	.003	.191
3	8.19	7.88	11.43	.101	.157
6	8.14	7.63	11.58	.101	.163
9	7.63	7.50	11.60	.099	.168
12	7.52	7.43	11.44	.101	.172
15	7.35	7.39	11.30	.100	.175
18	7.10	7.36	11.27	.101	.177
21	6.88	7.33	11.22	.100	.180
24	6.56	7.30	11.26	.106	.182
27	6.25	7.28	11.14	.110	.185
30					
33					

Table D.2 Continued;

SEVEN BAYS

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	6.91	7.34	12.04	.130	.152
3	6.61	7.41	11.96	.131	.149
6	6.54	7.38	11.90	.136	.148
9	6.14	7.37	11.96	.154	.147
12	5.83	7.37	11.91	.154	.147
15	5.72	7.36	11.80	.156	.148
18	5.71	7.37	11.81	.158	.148
21	5.62	7.37	11.81	.157	.148
24	5.61	7.38	11.74	.157	.149
27	5.62	7.38	11.68	.157	.149
30	5.59	7.40	11.69	.158	.150
33	5.59	7.40	11.70	.156	.150

SPRING CANYON

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	6.53	7.55	13.50	.151	.189
3	6.08	7.35	12.34	.152	.183
6	5.97	7.34	12.10	.153	.181
9	5.34	7.35	11.80	.154	.182
12	5.21	7.35	11.71	.154	.183
15	5.10	7.35	11.72	.153	.183
18	5.06	7.35	11.66	.153	.184
21	4.98	7.36	11.56	.155	.184
24	4.92	7.36	11.51	.154	.185
27	4.88	7.37	11.47	.155	.185
30	4.85	7.38	11.42	.153	.185
33	4.84	7.39	11.44	.154	.186

Table D.3 Water quality measurements taken with Hydrolab Surveyor II at Gifford, Porcupine Bay, Seven Bays, and Spring Canyon in March 1992.

GIFFORD

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	10.54	7.28	12.25	.172	.197
3	10.35	7.45	12.18	.171	.196
6	10.15	7.56	11.99	.171	.196
9	9.51	7.61	11.79	.170	.199
12	9.26	7.61	11.43	.169	.202
15	9.00	7.60	11.30	.168	.205
18	8.81	7.60	11.18	.170	.207
21	8.83	7.60	11.16	.168	.207
24	8.83	7.61	11.11	.170	.208
27	8.76	7.61	11.08	.171	.208
30					
33					

PORCUPINE

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	11.57	7.82	12.03	.127	.168
3	11.21	7.89	12.01	.126	.167
6	10.73	7.94	11.60	.126	.175
9	10.37	7.86	11.29	.127	.184
12	10.03	7.77	10.87	.125	.187
15	9.69	7.67	10.49	.126	.192
18	9.56	7.62	10.44	.125	.195
21	8.96	7.58	10.39	.124	.198
24	8.18	7.52	10.11	.122	.202
27	7.42	7.47	9.99	.126	.205
30					
33					

Table D.3 Continued;

SEVEN BAYS

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	9.48	7.25	12.22	.168	.152
3	9.48	7.48	12.12	.168	.148
6	9.19	4.59	11.94	.168	.149
9	8.94	7.62	11.66	.171	.152
12	8.67	7.62	11.56	.172	.154
15	8.49	7.62	11.42	.173	.156
18	8.12	7.61	11.29	.176	.158
21	7.95	7.60	11.19	.176	.160
24	7.73	7.59	11.15	.176	.162
27	7.64	7.59	11.09	.176	.163
30	7.60	7.58	11.15	.179	.164
33	7.58	7.59	11.06	.179	.165

SPRING CANYON

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	14.84	7.89	12.50	.168	.177
3	9.04	7.80	12.40	.174	.173
6	8.75	7.60	12.12	.173	.179
9	8.66	7.62	12.05	.172	.181
12	8.42	7.60	11.81	.173	.184
15	8.04	7.58	11.74	.175	.187
18	7.94	7.57	11.56	.175	.189
21	7.76	7.56	11.60	.173	.191
24	7.30	7.55	11.54	.174	.193
27	7.11	7.54	11.60	.173	.195
30	7.07	7.53	11.49	.175	.196
33	7.04	7.53	11.46	.175	.197

Table D.4 Water quality measurements taken with Hydrolab Surveyor II at Gifford, Porcupine Bay, Seven Bays, and Spring Canyon in April 1992.

No data collected in April due to hydrolab malfunction.

Table D.5 Water quality measurements taken with Hydrolab Surveyor II at Gifford, Porcupine Bay, Seven Bays, and Spring Canyon in May 1992.

GIFFORD

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	12.09	7.22	12.54	.125	.204
3	11.28	7.38	11.92	.123	.203
6	10.98	7.42	11.63	.120	.205
9	10.90	7.44	11.50	.122	.205
12	10.79	7.45	11.41	.120	.206
15	10.77	7.47	11.31	.120	.207
18	10.74	7.48	11.33	.119	.208
21	10.70	7.50	11.31	.119	.208
24	10.57	7.51	11.24	.118	.209
27	10.57	7.52	11.24	.118	.209
30	10.56	7.53	11.26	.119	.210
33	10.53	7.53	11.22	.118	.210

PORCUPINE

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	14.99	7.55	11.54	.109	.197
3	14.83	7.67	11.27	.111	.198
6	13.49	7.67	10.72	.111	.207
9	12.99	7.62	10.23	.111	.213
12	12.40	7.59	10.01	.111	.217
15	11.84	7.54	9.81	.109	.221
18	11.16	7.52	9.71	.109	.224
21					
24					
27					
30					
33					

Table D.5 Continued;

SEVEN BAYS

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	11.37	7.60	11.88	.131	.191
3	11.36	7.69	11.63	.131	.193
6	11.31	7.72	11.47	.130	.194
9	11.23	7.75	11.37	.130	.196
12	11.41	7.79	11.26	.131	.198
15	11.05	7.81	11.18	.131	.200
18	10.99	7.83	11.17	.131	.202
21	10.82	7.83	11.13	.132	.204
24	10.76	7.82	11.11	.132	.206
27	10 .31	7.79	11.05	.130	.208
30	10.25	7.78	10.99	.132	.209
33	10.13	7.77	11.00	.131	.211

SPRING CANYON

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	9.40	7.08	12.39	.139	.223
3	9.35	7.28	12.55	.136	.206
6	9.30	7.43	12.25	.136	.202
9	9.24	7.51	12.01	.137	.201
12	9.41	7.59	11.92	.136	.201
15	9.10	7.65	11.83	.137	.200
18	8.54	7.67	11.66	.138	.203
21	8.14	7.66	11.54	.140	.205
24	7.97	7.66	11.41	.139	.207
27	7.84	7.66	11.36	.139	.209
30	7.72	7.66	11.35	.137	.209
33	7.58	7.66	11.32	.137	.210

Table D.6 Water quality measurements taken with Hydrolab Surveyor II at Gifford, Porcupine Bay, Seven Bays, and Spring Canyon in June 1992.

No data collected in June due to hydrolab malfunction.

Table D.7 Water quality measurements taken with Hydrolab Surveyor II at Gifford, Porcupine Bay, Seven Bays, and Spring Canyon in July 1992.

No data collected in July due to hydrolab malfunction.

Table D.8 Water quality measurements taken with Hydrolab Surveyor II at Gifford, Porcupine Bay, Seven Bays, and Spring Canyon in August 1992.

No data collected at sites 2 & 4 due to hydrolab malfunction.

Table D.8 Continued;

SEVEN BAYS

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	21.72	7.50	12.23	.141	.182
3	22.08	7.70	11.14	.142	.177
6	22.09	7.83	10.63	.142	.174
9	22.10	7.87	10.54	.142	.174
12	21.65	7.84	10.58	.141	.176
15	21.08	7.82	10.41	.140	.181
18	20.51	7.79	10.30	.140	.183
21	20.20	7.74	10.13	.143	.187
24	19.46	7.69	10.03	.140	.191
27	19.26	7.66	10.00	.140	.193
30	19.14	7.64	9.47	.141	.195
33	18.69	7.61	9.40	.140	.198

SPRING CANYON

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	23.67	7.90	10.74	.146	.155
3	23.03	7.90	10.48	.147	.158
6	22.83	7.92	10.42	.147	.160
9	22.37	7.89	10.51	.146	.164
12	21.61	7.85	10.36	.146	.168
15	21.13	7.82	10.20	.144	.171
18	20.53	7.78	10.14	.145	.174
21	20.05	7.73	10.08	.143	.177
24	19.56	7.70	10.07	.144	.180
27	19.13	7.69	10.11	.144	.182
30	18.91	7.64	10.14	.144	.183
33	18.75	7.65	10.12	.142	.185

Table D.9 Water quality measurements taken with Hydrolab Surveyor II at Gifford, Porcupine Bay, Seven Bays, and Spring Canyon in September 1992.

No data collected at Gifford due to hydrolab malfunction.

PORCUPINE

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	18.64	7.61	10.70	.184	.160
3	18.67	7.63	9.90	.182	.164
6	18.44	7.63	9.66	.182	.168
9	18.39	7.63	9.47	.183	.170
12	18.34	7.62	9.22	.185	.172
15	18.32	7.62	9.09	.185	.174
18	18.19	7.63	9.08	.190	.175
21	18.18	7.64	9.04	.193	.176
24	17.76	7.62	8.65	.204	.178
27					
30					
33					

Table D.9 Continued;

No data collected at Seven Bays due to hydrolab malfunction.

SPRING CANYON

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	18.54	7.72	11.25	.142	.144
3	18.59	7.69	10.62	.142	.156
6	18.58	7.65	10.32	.142	.165
9	18.56	7.63	10.16	.142	.169
12	18.55	7.62	10.10	.143	.171
15	18.55	7.63	10.00	.142	.173
18	18.55	7.63	10.00	.142	.175
21	18.56	7.64	9.92	.141	.177
24	18.56	7.64	9.85	.142	.178
27	18.56	7.65	9.85	.140	.179
30	18.55	7.65	9.82	.141	.180
33	18.56	7.65	9.79	.141	.181

Table D.10 Water quality measurements taken with Hydrolab Surveyor II at Gifford, Porcupine Bay, Seven Bays, and Spring Canyon in October 1992.

GIFFORD

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	14.35	7.81	13.67	.153	.193
3	14.31	7.80	11.83	.153	.191
6	14.28	7.80	11.70	.153	.191
9	14.23	7.80	44.64	.153	.192
12	14.23	7.79	11.60	.153	.192
15	14.21	7.79	11.57	.154	.192
18	14.16	7.80	11.56	.154	.192
21	14.16	7.80	11.56	.153	.193
24	14.15	7.80	11.56	.153	.193
27	14.15	7.79	11.52	.153	..193
30	14.15	7.79	11.57	.153	.193
33	14.13	7.79	11.53	.152	.194

PORCUPINE

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	16.79	7.75	9.83	.200	.204
3	16.79	7.74	9.80	.200	.202
6	16.77	7.74	9.81	.199	.202
9	16.75	7.74	9.78	.199	.202
12	16.74	7.74	9.79	.198	.201
15	16.82	7.73	9.79	.200	.201
18	16.71	7.72	9.73	.201	.202
21	16.52	7.70	9.49	.211	.203
24	16.11	7.67	9.20	.231	.205
27	15.83	7.62	8.87	.237	.207
30	15.74	7.58	7.97	.237	.209
33	15.74	7.58	7.97	.237	.209

Table D.10 Continued;

SEVEN BAYS

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	16.65	8.37	11.01	.146	.146
3	16.80	8.08	10.62	.146	.167
6	16.81	8.00	10.61	.146	.175
9	16.81	7.93	10.49	.145	.180
12	16.82	7.87	10.42	.144	.184
15	16.80	7.85	10.43	.144	.186
18	16.79	7.83	10.36	.144	.187
21	16.77	7.82	10.37	.145	.189
24	16.76	7.81	10.41	.145	.190
27	16.75	7.82	10.46	.144	.190
30	16.72	7.82	10.50	.144	.191
33	16.63	7.81	10.46	.143	.191

SPRING CANYON

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	18.13	7.72	10.04	.143	.183
3	18.03	7.71	9.93	.142	.184
6	17.97	7.70	9.90	.141	.184
9	17.94	7.70	9.83	.141	.183
12	17.94	7.69	9.80	.140	.183
15	17.94	7.69	9.80	.140	.182
18	17.94	7.69	9.80	.140	.181
21	17.94	7.69	9.80	.139	.180
24	17.93	7.69	9.84	.140	.179
27	17.93	7.69	9.91	.140	.178
30	17.94	7.69	9.95	.139	.178
33	17.94	7.69	10.08	.138	.177

Table D.11 Water quality measurements taken with Hydrolab Surveyor II at Gifford, Porcupine Bay, Seven Bays, and Spring Canyon in November 1992.

GIFFORD

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	9.82	7.46	15.54	.164	.221
3	10.14	7.51	13.13	.165	.205
6	10.15	7.58	12.74	.165	.196
9	10.16	7.61	12.61	.166	.192
12	10.16	7.63	12.48	.165	.190
15	10.16	7.65	12.56	.164	.188
18	10.17	7.67	12.56	.164	.187
21	10.17	7.68	12.45	.165	.186
24	10.17	7.68	12.45	.163	.186
27	10.17	7.69	12.45	.162	.185
30	10.16	7.65	12.40	.164	.185
33	10.16	7.13	12.46	.164	.229

PORCUPINE

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0					
3	12.52	11.82	11.26	.208	.196
6	12.54	7.61	10.87	.208	.195
9	12.54	7.62	10.74	.209	.194
12	12.52	7.62	10.60	.209	.193
15	12.50	7.63	10.57	.207	.193
18	12.49	7.63	10.48	.208	.193
21	12.45	7.63	10.41	.209	.193
24	12.35	7.63	10.37	.208	.193
27	11.41	7.56	9.85	.211	.197
30	11.08	7.56	9.98	.211	.197
33					

Table D.11 Continued;

SEVEN BAYS

Depth (m)	Temp. (°C)	pH	D.O. (mg/L)	Conduct. mmho/cm	ORP (V)
0	12.76	7.64	11.58	.152	.191
3	12.93	7.64	11.21	.153	.190
6	12.97	7.64	11.17	.153	.189
9	12.94	7.65	11.13	.153	.188
12	12.96	7.65	11.09	.152	.188
15	12.95	7.66	11.09	.152	.187
18	12.95	7.66	11.04	.154	.187
21	12.93	7.66	11.06	.153	.187
24	12.94	7.67	11.05	.152	.187
27	12.92	7.67	11.01	.151	.187
30	12.89	7.67	11.04	.155	.187
33	12.89	7.67	11.00	.153	.187

No data collected at Spring Canyon due to hydrolab malfunction.

Table D.12 Water quality measurements taken with Hydrolab Surveyor II at Gifford, Porcupine Bay, Seven Bays, and Spring Canyon in December 1992.

No data collected at any site due to hydrolab malfunction.