

Seney National Wildlife Refuge Special water samples for DO analysis

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SENEY NATIONAL
WILDLIFE REFUGE

	<u>Walsh</u> <u>Creek</u>	<u>Ducy</u> <u>Creek</u>	<u>Marsh</u> <u>Creek</u>	<u>C - 3</u> <u>Marsh</u>	<u>C - 3</u> <u>Walsh</u>	<u>Driggs</u> <u>River</u>
<u>Dissolved Oxy (mg/l)</u>	5	3.8	1.2	5.7	3.5	7.8
<u>pH</u>	7.49	7.25	6.89	7.61	7.67	7.78
<u>Temp C</u>	10.3	11.8	11.5	14.8	12.4	14.6
<u>Conductivity</u>	172.8	194	384	179.9	186.1	136.7
<u>Alkalinity</u>	78	86	79	79	80	61
<u>Iron</u>	or	or	or	nr	1.07	0.804
<u>Color (FTU)</u>	164	236	1046	80	82	39

Sampled Sept 1999

Dissolved O₂ by wet chem method (Winkler)

Quality Data - Summary Inlet Streams to North Side of Refuge

	<u>Date</u>	<u>Clark Ditch</u>	<u>Holland Ditch</u>	<u>Driggs River</u>	<u>Walsh Creek</u>	<u>Ducy Creek</u>	<u>Marsh Creek</u>
	8/6/96	7.52	7.93	7.92	7.87		
	5/14/97	7.5	7.2	7.1	6.9		
	9/18/97	7.18	7.74	7.87	7.43		
	4/30/98	6.85	7.22	7.37	7.17		
	6/22/99	6.43	7.43	7.38	7.36	7.03	7.1
	9/16/99	ns	7.77	7.78	7.99	7.25	6.89
<u>Temperature C</u>	8/6/96	20.3	19.3	19.3	19.2		
	5/14/97	7.7	7.6	7.2	6.8		
	9/18/97	14.6	13.7	13.7	14.3		
	4/30/98	9.6	7.9	10.4	9.3		
	6/22/99	20.6	13.9	18	18.6	19.4	18.8
	9/19/99	ns	14.1	14.6	10.3	11.8	11.5
<u>Conductivity</u>	8/6/96	150	118	105	63		
	10/17/96	143	153	155	nr		
	5/14/97	100	85	72	59		
	9/18/97	126	171	132	144		
	4/30/98	118	144	120	103		
	6/22/99	170	140	129	142	161	260
	9/16/99	ns	160	137	173	194	384
<u>Alkalinity (mg/l)</u>	8/6/96	52	48	40	42		
	5/14/97	35	42	26	17		
	9/18/97	47	64	56	62		
	4/30/98	40	58	46	37		
	6/22/99	80	75	56	74	116	118
	9/19/99	ns	54	61	78	86	79
<u>Hardness (mg/l)</u>	8/6/97	60	59	42	48		
	5/14/97	50	38	69	22		
	9/18/97	60	nr	nr	72		
	4/30/98	52	68	56	41		
	6/22/99	76	70	57	76	128	134
<u>Iron (mg/l)</u>	8/6/96	or	or	or	0.66		
	5/14/97	5.3 *	1.65 *	1.8 *	nr		
	9/18/97	or	or	0.65	or		
	4/30/98	or	0.93	1.1	or		
	6/22/99					or	or
	9/19/99	ns	or	0.8	nr	Or	or
<u>Tannin (mg/l)</u>	8/6/96	6.5	2.9	4.1	3.2		
	9/18/97	3.5	1.1	0.5	1.3		
<u>Color (FTU)</u>	8/6/96	198	63	52	39		
	10/17/96	47	15	22	nr		
	5/14/97	57	20	56	17		
	9/18/97	67	22	15	33		
	4/30/98	61	21	1	22		
	6/22/99					106	172
	9/19/99	ns	68	39	164	236	1046

Note: Clark, Holland, Walsh, Ducy and Marsh sampled at M-28 bridges; Driggs at the Diversion ditch bridge
 nr = not run; or = over range of analytical method; * = sample diluted to approximate the iron level ns = not sampled

WATER QUALITY DATA UNITS 1 & 2 Sept 13,1999

<u>SAMPLE</u>	<u>pH</u>	<u>Temp C</u>	<u>Conductivity</u>	<u>Alkalinity</u>	<u>Hardness</u>	<u>Iron</u>	<u>Color</u>
<u>J I INLET</u>	7.13	15.2	174.1	62	68	ov range	37
<u>J - 1</u>	9.44	16.2	137	48	56	0.26	26
<u>I - 1</u>	9.36	16.6	111.6	35	42	0.27	1
<u>F - 1</u>	9.31	17.1	100.3	31	39	0.35	3
<u>H - 1</u>	9.46	15.6	118.2	44	46	0.18	10
<u>G - 1</u>	9.13	17.1	101.8	30	43	0.08	1
<u>E - D</u>	8.03	16.8	97.1	31	38	0.14	2
<u>C - 1</u>	8.09	17.6	110	29	42	0.07	10
<u>D - I</u>	9.43	16.9	82.1	35	nr	0.05	6
<u>B - 1</u>	9.17	16.7	78.2	33	nr	nr	5
<u>A - 1</u>	8.57	16.4	121.9	51	nr	0.67	18
<u>E - C</u>	9.45	16.3	95.4	43	nr	nr	5
<u>A - 2</u>	7.72	18.2	93.4	37	nr	0.33	9
<u>C - 2</u>	7.96	18.5	77.7	32	nr	nr	5
<u>M - 2</u>	8.24	18	80.2	34	nr	nr	8
<u>T - 2</u>	7.2	17.5	28.3	17	nr	0.29	8

SEN18.XLS

Unit 1 Pools: Selected Data 1995/96/97/98

pH	J-1 Ditch	J1-I1	I1-F1	F1-E1	H1-E1	E1-C1	C1-B1	B1-A1	A1	G1-D1	D1
May 95	6.7	6.9	6.8	6.6	8.4	7.1	7.2	7.2	6.9	8	7.3
June/July 95	7.5	7.7	7.4	7.7	8	7.7	7.9	7.9	7.4	7.9	7.3
August 95	7.3	nr	7.7	8.9	nr	nr	8.5	9.6	7.6	nr	9
Sept/Oct 95	7.2	7.9	8.4	8.3	8.5	8	7.7	7.6	7.6	8.1	7.7
May-96	6.9	6.8	6.8	7.1	6.7	nr	7.1	7.1	6.7	6.9	6.7
Aug-96	7.8	8.7	8.1	8.9	8.9	8.4	8.3	8.1	7.7	7.9	8.7
June-97	6.8	7.1	7.1	6.9	6.7	7.7	7.4	7.7	7.4	7.2	7.5
Sept-97	8	9	8.2	8.6	7.7	8.5	7.8	8.9	7.3	6.7	8.8
May-98	7.8	7.9	7.7	7.8	7.6	7.9	7.7	8.5	7.5	7.5	7.8
Temperature											
May 95	13.6	15.5	17.9	12.7	12.9	15.8	15.9	14.5	13.5	15.1	15
June/July 95	18.4	22	21	22	21.5	19	22	20	20	21	22.5
August 95	23.9	nr	24.5	26.7	nr	nr	29.9	27.4	26.1	nr	25.3
Sept/Oct 95	17.9	15.5	15	11.6	12.1	11.1	9.4	12.2	12.5	12	12.5
May-96	11.6	12.7	12.9	14.8	17.1	nr	19.1	15.1	15.1	18.3	15.9
Aug-96	20.1	21.4	22.1	21.8	22.6	22.7	22.7	23.4	23.2	22.5	22.3
June-97	16.7	19.9	21.3	21.1	22	24.8	24.3	22.9	23.8	22.6	22.5
Sept -97	17.2	14.4	14.5	14.8	13.1	12.8	13.8	13.8	13.8	13.7	14.3
May-98	10.1	14.2	15.7	16	18.5	22.1	21.1	18.3	20.2	18.5	19.8
Conductivity											
May 95	110	98	80	274*	105	104	106	84	95	87	72
June/July 95	172	130	121	119	128	111	132	101	116	106	84
August 95	185	151	121	125	nr	nr	113	97	113	nr	79
Sept/Oct 95	172	150	110	121	143	115	126	106	102	114	82
May-96	96	89	74	69	66	nr	62	53	54	54	44
Aug-96	134	162	160	149	137	146	136	128	126	179	108
June-97	174	138	108	104	125	91	101	81	91	75	65
Sept-97	158	129	132	116	145	105	109	84	92	110	65
May 98	153	112	85	81	106	84	76	69	72	58	54
Alkalinity											
May 95	34	28	150*	40	40	125*	43	28	37	26	23
June/July 95	73	58	60	52	56	54	58	45	60	46	32
August 95	84	nr	53	58	nr	nr	44	38	50	nr	30
Sept/Oct 95	70	66	52	47	56	46	49	42	40	46	31
May-96	30	38	25	26	24	nr	21	15	18	21	14
Aug-96	57	68	60	64	56	59	50	57	56	80	44
June-97	74	57	53	48	67	40	46	36	42	42	28
Sept-97	68	60	42	68	44	44	44	34	43	53	28
May 98	47	38	35	30	33	30	25	21	27	10	14
Turbidity											
June/July 95	57	33	56	52	10	6	6	9	10	7	0
August 95	83	nr	33	25	nr	nr	14	11	11	nr	22
Sept/Oct 95	85	23	20	22	0	2	0	5	27	4	0
May-96	13	26	20	19	10	nr	16	12	13	13	14
Aug-96	97	67	102	77	18	54	38	24	28	58	8
June-97	35	25	24	19	10	10	18	7	7	10	5
Sept-97	59	10	2	1	15	0	1	2	2	9	2
May 98	22	18	9	8	13	6	17	8	11	16	10
Iron											
May 95	1.68	0.87	1	0.57	0.53	0.31	0.52	0.3	0.31	0.94	0.24
June/July 95	1.3	0.98	1.2	1.2	0.5	0.31	0.34	0.51	0.56	0.85	0.28
August 95	1.3	nr	1.3	0.87	nr	nr	0.38	nr	nr	nr	0.23
Sept/Oct 95	>1.3	>1.3	0.44	0.28	0.13	0.1	0.16	0.18	0.28	0.22	0.09
May-96	1.01	1.05	1.08	1.01	nr	nr	nr	nr	nr	nr	nr
June-97	5.2	1.55	1.4	1.11	0.44	0.37	0.27	0.51	0.42	0.44	0.23
Sept-97	>1.3	0.31	0.25	0.25	0.64	0.48	0.16	0.25	0.36	0.44	0.09
May 98	1.3	1	0.52	0.83	0.78	0.17	0.26	0.19	0.34	0.45	0.18

* data suspect

nr = not run

Seney Refuge --Unit 2 and C-3 Pools Selected Data -- Comparison of Sampling Periods

	<u>A-2</u>	<u>C-2</u>	<u>M-2</u>	<u>T-2</u>	<u>C-3</u>
<u>pH</u>					
May-95	6.9	7.2	7.7	7.2	n r
June/July-95	7.8	7.5	6.7	7.1	8.2
Sept/Oct-95	7.9	7.8	7.7	7.3	8.1
May-96	6.9	6.7	6.8	6.9	6.9
Aug-96	7.5	7.9	7.7	7.5	8
June-97	7.2	7.9	7.5	7.6	6.9
Sept-97	7.8	7.8	7.8	7.1	8.4
May 98	7.8	7.7	7.7	7.3	7.6
<u>Temperature</u>					
May-95	15.9	15.9	17.4	16.1	n r
June/July-95	24	24	23	22.5	22
Sept/Oct-95	12	12	12	12.1	11.9
May-96	14.8	14.3	15.7	17.1	14.4
Aug-96	21.7	22.9	22.8	23.6	24.1
June-97	21.9	22	22.2	22.5	21.7
Sept-97	14.9	15.6	14.9	16.1	18.1
May 98	17.2	17.1	16.5	17.7	14.6
<u>Conductivity</u>					
May-95	62	63	54	35	nr
June/July-95	88	78	72	44	122
Sept/Oct-95	100	93	69	33	139
May-96	62	48	42	19	71
Aug-96	186	140	104	28	106
June-97	86	67	59	24	159
Sept-97	92	69	62	41	147
May 98	72	55	42	28	79
<u>Alkalinity</u>					
May-95	18	20	14	5	nr
June/July-95	40	41	30	28	40
Sept/Oct-95	46	36	27	8	56
May-96	21	12	16	4	28
Aug-96	82	64	36	5	44
June-97	39	27	26	5	76
Sept-97	41	36	32	7	68
May 98	20	14	10	2	26
<u>Turbidity</u>					
June/July-95	11	14	15	6	17
Sept/Oct-95	24	0	4	10	8
May-96	29	22	19	21	21
Aug-96	214	61	47	15	26
Jun97	26	16	17	22	14
Sept-97	16	9	12	21	0
May 98	17	11	10	17	6
<u>Iron</u>					
May-95	0.66	0.57	0.67	0	nr
June/July-95	1.14	0.63	0.95	0.23	0.48
Sept/Oct-95	0.83	0.11	0.33	0.07	0.55
June-97	1.68	0.31	1.11	0.49	1.39
Sept-97	0.47	0.28	0.3	0.16	0.36
May 98	0.92	0.46	0.46	0.21	0.47