

Appendix A - 1. Fish individual weight data.

	04.07.01		05.08.01		05.09.01		02.10.01		03.11.01	
	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1
	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)
	8.8	11.9	14.3	44.3	19.7	145.4	24.8	216.2	33.9	430.7
	9.5	12.1	14.5	45.9	20.2	109.8	26.5	266.7	30.2	399.0
	9.5	12.1	15.0	53.9	20.9	150.2	24.2	204.0	30.0	379.0
	10.0	12.1	15.5	50.9	19.2	106.9	24.6	211.8	30.8	373.5
	9.3	13.1	14.2	43.8	19.0	105.4	24.8	257.0	30.5	441.0
	10.0	15.4	15.1	52.9	19.7	113.7	23.4	201.1	30.1	392.0
	9.6	11.5	15.0	52.6	20.2	121.9	24.8	215.8	27.8	349.0
	9.3	12.7	14.5	42.7	20.4	142.9	25.4	223.7	29.4	368.5
	9.9	13.7	16.0	58.4	19.7	123.6	23.6	199.4	28.7	329.2
	10.1	12.3	14.6	47.3	18.9	107.0	24.4	216.2	32.3	450.3
	10.2	11.8	13.9	42.5	19.7	110.8	23.8	193.7	31.8	401.4
	10.0	13.6	14.1	42.2	20.5	115.5	26.2	252.5	32.9	431.9
	10.2	14.0	15.7	51.5	20.7	138.0	23.6	187.3	30.5	405.1
	10.0	13.1	15.4	51.9	20.1	133.7	26.0	263.2	28.6	340.5
	10.2	13.1	14.6	43.8	19.4	109.1	26.5	248.5	33.0	474.2
			15.2	54.7	18.4	99.0	24.5	206.7	32.1	413.2
			14.9	55.7	18.1	93.8	24.5	208.4	28.2	310.7
					18.4	102.2	25.7	224.8	29.7	373.6
					20.5	139.9	26.1	271.0	30.1	374.1
							23.6	195.5	29.0	334.9
							25.2	216.1		
mean	9.84	12.89	14.89	49.41	19.67	117.97	24.87	222.84	30.30	386.37
sd	0.42	1.04	0.59	5.31	0.83	17.27	1.00	26.07	1.71	43.66

Appendix 1. Fish individual weight data (continued).

	04.07.01		05.08.01		05.09.01		02.10.01		03.11.01	
	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2
	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)
	9.2	12.0	13.9	40.7	22.0	120.5	27.0	311.4	31.0	404.2
	9.3	11.5	14.0	43.0	19.5	105.9	23.4	180.0	30.5	358.7
	10.0	13.8	15.4	49.7	19.8	113.2	23.8	188.4	31.9	405.3
	10.5	13.6	15.0	50.4	19.2	108.1	26.1	230.2	32.1	433.2
	10.2	13.5	16.0	57.5	20.8	127.2	23.1	185.6	29.4	373.8
	9.5	13.3	14.5	40.2	20.4	130.5	27.6	298.4	30.3	358.2
	10.1	14.0	15.2	45.0	20.5	142.2	24.9	215.9	29.9	323.9
	10.2	14.4	15.2	48.6	19.3	112.2	27.6	318.0	33.5	524.0
	9.8	12.3	15.4	49.9	19.7	109.7	26.4	255.1	30.2	325.4
	9.7	12.2	16.8	66.1	20.3	125.4	25.9	259.0	34.0	465.2
	10.5	14.5	15.5	50.7	18.6	94.5	24.3	205.8	30.2	369.1
	9.9	12.6	14.0	41.3	21.2	153.7	24.9	225.9	28.5	306.1
	10.3	14.7	16.0	54.1	19.4	105.0	23.9	189.9	30.2	343.8
	9.8	13.3	15.9	51.4	18.5	102.7	23.8	199.6	29.0	313.0
	10.5	15.6	16.2	50.7	19.1	103.0	25.4	220.1	30.3	398.1
			15.5	57.0	21.1	152.6	25.2	229.5	34.5	506.3
					20.0	129.3	24.9	209.6	29.1	335.9
							25.4	269.8	33.2	439.0
							26.0	261.5	28.3	292.9
							26.4	253.0	30.2	381.6
mean	9.97	13.42	15.28	49.77	19.96	119.75	25.30	235.34	30.82	382.89
sd	0.42	1.14	0.84	6.92	0.96	17.65	1.33	41.74	1.81	64.75

Appendix 1. Fish individual weight data (continued).

	21.06.02		19.07.02		17.08.02		14.09.02		12.10.02		15.11.02	
	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1
	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)
	11.0	9.1	33.5	12.5	92.5	17.8	165.0	22.1	349.5	28.6	654.5	35.5
	10.0	9.0	28.5	12.2	100.0	17.6	168.5	22.3	295.5	28.0	570.5	34.6
	11.0	9.2	26.0	12.1	90.0	17.8	192.5	22.8	265.0	26.9	500.5	33.0
	12.5	9.5	33.5	12.4	99.0	18.9	147.0	21.0	265.5	26.3	472.0	33.0
	12.5	9.1	25.5	12.0	83.0	17.7	150.5	21.8	241.0	27.5	481.0	33.1
	15.5	9.1	27.5	12.0	83.5	17.0	194.5	23.6	304.5	28.9	546.0	34.2
	13.0	10.4	30.0	12.4	63.5	15.6	119.5	20.0	274.0	27.5	538.5	34.3
	15.0	8.6	25.5	12.4	71.0	16.6	162.5	22.3	300.0	28.0	560.0	35.6
	11.0	9.1	25.5	11.9	81.0	16.9	158.5	21.4	273.5	27.6	505.0	34.2
	13.0	8.4	20.5	10.6	82.0	17.2	171.5	23.3	309.0	28.7	421.0	32.5
	13.5	8.6	28.5	12.0	89.5	17.2	141.5	21.9	273.5	27.2	629.5	35.6
	13.5	8.9	47.0	14.0	84.0	17.6	123.5	21.0	331.5	29.4	501.5	34.2
	12.0	9.0	30.0	12.0	88.0	18.2	159.0	22.4	235.5	25.5	554.0	32.2
	11.5	8.9	32.0	12.5	95.5	18.4	155.0	22.2	286.0	27.7	544.0	34.6
	12.0	8.9	34.0	12.5	78.5	17.2	150.0	21.7	273.5	27.6	508.0	33.5
	13.5	9.0	36.0	13.0	96.5	18.4	149.5	21.1	228.5	26.0	541.5	35.4
	14.0	9.1	27.5	11.9								
	13.5	9.3	34.0	13.0								
	10.5	8.5	33.0	12.6								
	10.0	9.0	40.0	13.5								
mean	12.43	9.04	30.90	12.38	86.09	17.51	156.78	21.93	281.63	27.59	532.97	34.09
sd	1.57	0.42	5.90	0.69	9.96	0.80	20.21	0.91	32.97	1.06	57.43	1.12

Appendix 1. Fish individual weight data (continued).

	21.06.02		19.07.02		17.08.02		14.09.02		12.10.02		15.11.02	
	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2
	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)
	11.5	8.6	31.5	12.2	97.5	17.1	157.5	22.1	312.0	28.1	534.5	35.2
	10.0	8.5	34.5	13.2	109.5	18.2	166.0	23.4	302.5	27.4	527.0	34.5
	11.5	9.0	25.5	11.9	97.5	18.2	121.5	19.1	340.5	29.5	594.5	35.5
	12.0	9.1	30.5	12.0	112.0	18.8	174.0	22.1	297.5	28.6	487.5	32.4
	9.0	8.2	33.0	12.4	102.5	18.6	169.5	21.2	297.0	28.0	374.0	30.0
	10.5	8.7	25.5	11.2	82.0	16.5	167.0	22.7	295.5	28.5	481.0	33.5
	13.0	8.8	32.5	12.5	82.0	17.9	185.5	23.5	248.0	27.4	607.5	35.2
	11.0	8.3	34.5	12.2	87.0	18.2	200.0	23.5	291.0	28.0	416.0	31.2
	9.0	8.4	30.0	11.5	85.5	18.0	143.5	21.4	356.5	30.0	631.0	35.7
	13.0	8.5	32.0	12.6	102.0	18.8	122.0	20.5	304.5	27.2	552.0	33.5
	10.5	8.4	34.0	13.1	83.5	16.3	204.5	24.3	268.0	27.4	555.5	35.7
	10.0	8.7	36.0	13.3	94.0	18.0	201.5	24.9	308.5	28.6	568.5	35.9
	13.0	9.0	31.5	12.5	94.5	17.2	167.0	22.9	257.0	27.0	475.0	33.4
	11.0	8.3	34.0	13.2	85.0	18.1	201.5	23.5	205.5	23.5	418.0	33.4
	12.0	8.5	29.5	12.6	88.5	17.6	167.5	23.0	219.0	25.4	402.0	33.0
	11.0	9.1	33.0	12.3			144.0	22.4	342.0	30.0		
	10.5	8.1	33.5	12.6								
	11.5	9.1	34.5	12.3								
	11.5	9.0	36.5	13.0								
mean	11.13	8.65	32.21	12.45	93.53	17.83	168.28	22.53	290.31	27.79	508.27	33.87
sd	1.19	0.33	3.02	0.57	9.83	0.76	26.48	1.46	42.05	1.64	79.92	1.76

Appendix 1. Fish individual weight data (continued).

	27/02/03		24/03/03		24/04/03		23/05/03		19/06/03		18/07/03	
	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1
	Weight (g)	Length (cm)	weight (g)	Length (cm)	weight (g)	length (cm)	Weight (g)	length (cm)	Weight (g)	Length (cm)	weight (g)	Length (cm)
	9.1	7.9	60.6	16	84.2	16.2	194.6	23.2	246.4	25.1	293	26.5
	8.9	8.8	38.5	12.4	95	18.6	163.2	20.6	250	25.3	279.5	25.6
	6.7	7.5	25.9	11.8	106	19.1	185.2	22.5	271.5	26.1	219	21.5
	9.6	7.8	52.5	14.8	128.5	21.1	162.6	21.4	255.6	24.6	211	26.5
	11.2	9.3	53.4	14.5	111	17.5	182.8	22.4	244	24.6	196.5	22.1
	7.5	8.2	43.1	14.6	74	16.6	154.3	20.1	240.7	24.7	317.5	24.6
	10.2	8.7	45.9	14.4	110.5	18.5	128.1	20.2	200.3	22.6	290.5	25.4
	7	7.7	34.5	14.8	108	19.3	154.6	20.2	191.4	22.3	283.5	25.6
	7.5	7.8	41.8	14.6	121.5	19.2	183.5	23.1	233.2	24.2	232.5	22.2
	8	8.5	48.4	14.8	136	21.1	122.2	17.7	225.3	22.1	216.5	23.9
	11	9.6	42.6	13.8	146.5	21.2	205.2	22.1	243.7	24.2	280	22.5
	9.2	8.9	38.6	12.4	88	17.8	128.6	18.9	259.1	25.2	292.5	25.5
	6.9	7.9	41	13.4	109.5	18.8	139.9	20	236	23.5	244	23
	9.3	8.7	43.8	14.1	117	19.2	185.5	21.6	257.3	24.3	296	23.5
	9.1	9.1	33.9	13.1	94	16.8	179.6	22.2	240.4	24.2	223.5	20.4
	7.5	7.8	38.4	13.8	121.5	18.1	158.4	21.1	272.3	24.7	345	25.7
	8.8	8.5	52.1	14.8	116	16.6	184.3	23.3	221.9	24.3	216	22.6
	9.5	8.7	43.1	15.4	103	16.8	175.7	21.5	186.5	22.5	309.5	24.3
	9	8.9	31.4	12.7	86	16.7	136.2	20.6	245.9	24	277.5	24
	7.4	8.3	34.6	12.4	105.5	16.2	180.7	22.1	199.3	22.8	285	24.6
	8.9	9	27.3	10.6	94.5	16.7	172.3	21.5	174.6	22	305.5	26.7
	9.6	9.1	35.2	11.6	78.5	14.2	180.8	21.6	245.6	24.9	310.5	27.2
	8.5	8.9	33.4	12.4	87.5	18.3	174.6	22.3	247.8	24.1	320	26.1
	7.5	8.1	41.4	14	113	16.1	201.2	23.1	175.2	21.2	189	22.7
	7.1	8.1	46.7	13.8	74.5	13.4	174.9	21.7	243	24.4	249.5	24.6
	7.2	8	49.9	14.6	104	17.7	198.8	22.6	180.7	21.7	251.5	24.9
	6.9	7.9	39.7	14.2	113.5	15.2	153.2	21.3	185.9	23.2	335	26.5
	7	7.3	36.5	13.4	81	16.1	165.4	21.6	274.7	26.2	321	25.9
	7.9	8	30.8	13.2	116.5	18.2	162.1	21.5	257.6	25.2	212	22.5
	10.1	9.5	55.6	16.6	76.5	16.9	185.5	21.8	215.5	23.6	308.5	25.4
	7.9	8.6	34.8	12.6	105	15.7	119	19.7	248.3	24.2	298	24.7
	8.6	8.6	39.6	13.5	95.5	15.6	210.3	22.1	176.6	20.6	268	24.1
	8.9	8.5	27.9	12.2	101	15.5	132.8	20.3	270.9	25.5	284.5	25.2
	8.7	8.8	46	14.2	117.5	17.6	132.7	20.2	227.8	24.2	306	25.3
	8.4	8.7	43.8	14.3	102.5	17.8	167.8	21.6	249.7	25.1	238.5	24.1
	9.2	9.1	44.6	14.2	104.5	15.4	198.2	22.3	275.3	25.5	286.5	25.6
	7.4	8.2	40.8	13.8	80	14.5	158.8	21.3	281.8	25.5	293	25.8
	9.4	9.1	50.8	15	68	14.6	198.6	23.2	250.5	24.3	333.5	26.2
	7.3	8.2	48.3	13.8	134	17.6	148.1	20.6	225.6	24.1	308	26.6
	8.3	8.9	47.5	15.2	102.5	16.5	194.1	21.7	263.6	24.5	271	24.3
	7.6	8.4	44.8	13.8	89.5	18.4	116.4	17.2	189.7	22.6	265	24.6
	7.4	8.1	37.5	12.5	101.5	17.2	185.8	21.7	240	24.2	198	22.1
	8.4	8.9	30.9	12.4	100	16.6	140.1	19.6	182.3	22.1	249.5	24.6
	9.7	9.3	37.6	12.1	76.5	14.2	130.6	20.1	263.2	24.2	315.5	26.6
	11	9.5	42.3	13.2	84.5	15.3	178.8	21.2	204.2	22.6	240.5	24.2
	6.2	7.8	38.9	13.1	116	16.6	189.3	22.2	228.1	23.7	224.5	23.5
	7.5	8.6	41.1	13.6	91.5	16.8	183	22.9	276.1	25	239	24.5
	5.9	7.5	33	12.4	85	17.2	148.6	20.6	269.4	25.6	255	24.7
	9.3	9.1	47.8	13.5	133.5	18.2	118	19.5	290.1	25.2	250	24
	9.2	9.1	40.3	13.4	76.5	13.5	204.5	22.2	174.4	21.6	254.5	24.3
	5.6	6.5	35.7	13.8	106	17.2	166.9	22.4	254.6	24.8	291	25.7
	5.7	7	28.4	11.5	139.5	18.2	167.9	21.8	206.9	23.5	227.5	23.5

	5.1	7.1	36.8	12.2	103	16.2	171.5	21.2	184.4	22.5	250	24.6
	5.4	7.2	33.9	12.3	84	17.5	129.2	20.1	201.6	22.6	283	25
	4.9	6.5	36.4	12.8	90.5	16.2	143.1	20.6	271	24.9	276.5	24.9
	6.5	7.2	50.8	15.2	87	17.3	186.2	21.7	212.6	23.2	182.5	21.6
	4.3	7.2	32.3	11.8	118.5	17.1	211.5	23.2	232.5	24.1	239.5	24.4
	6.9	7.2	48.4	14.3	92.5	15.7	131.5	20.1	188.7	23.5	194	22.2
	12.6	10.1	27.6	10.9	115.5	17.4	144.3	20.2	224.8	23.3	255	23.2
	14.7	10.2	48.1	14.2	86	14.2	197.6	23.3	224.7	22.4	272	25.2
mean	8.20	8.36	40.62	13.51	101.48	17.00	166.32	21.31	231.85	23.88	266.01	24.46
sd	1.84	0.82	7.73	1.24	18.09	1.72	26.37	1.31	32.43	1.27	40.47	1.50

Appendix 1. Fish individual weight data (continued).

	27/03/03		24/04/03		23/05/03		19/06/03		18/07/03		21/8/2003	
	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2
	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)
	9.1	7.6	63.5	16.2	136.7	19.1	187.7	23.1	298	26.6	295.5	25
	11.6	8.6	60.5	15.5	88.4	17.6	190.4	22	256.8	25.2	274.5	26.9
	12.3	8.7	59	15.7	125.4	19.6	157.6	21.4	209	24.2	260	26.1
	11.5	9.5	69.5	15.8	142.5	20.6	167.4	22.4	297	26.6	282.5	25.6
	10	9	50.5	14.6	152.2	19.8	185.3	22.8	209	23.5	278	26.4
	15.7	10.2	59	14.4	89.9	18.3	155.5	21.2	227.5	23.8	329	28.6
	10.6	9	55.5	15.8	99.2	18.4	162	21.6	209.5	23.8	221.5	25
	12.8	9.3	52.5	13.5	112.2	19.6	158.1	21.6	223.5	23.6	195	23.7
	12.3	9.6	58.5	14.5	123.4	19.6	118.5	19.6	271	25.4	274.5	26.3
	13	10.2	47.5	13.9	116.7	19.1	160	21.4	198.5	23.5	222.5	24.8
	13.7	9.8	61	16.5	142.2	20.2	140.2	20.6	215.5	23.6	244.5	25.7
	16.2	11.2	39	13.7	120.1	19.2	199.2	22.6	211.5	22.9	278	26.4
	11.6	9.2	59.5	16.6	86.6	17.1	111.6	17.5	233.5	23.7	266	25.5
	12.2	9.5	43	13.6	93.2	17.6	161.1	20.4	208	23.2	334	28.4
	12.5	9.2	70.5	16.3	105.1	17.9	193.1	23.5	251	25.1	225.5	28.4
	12.1	9.2	73.5	16.2	98.5	18.7	178	22.5	226.5	23.6	338.5	28.5
	10.9	9.8	61	15.7	123.5	19.6	166.2	21.2	235	24.7	255.5	25
	11.4	9.6	56	15.2	88.6	16.4	180.6	21.9	239	24.6	292	27
	8.9	8.6	56	14.5	97.2	17.5	166.8	21.1	303	26.6	197.5	23.9
	9.8	9	58	14.3	147	20.3	131.7	19.4	171.5	23.1	266	25.5
	13.6	9.8	48	14.2	78.5	16.3	176.2	22.6	237	23.8	206	24.1
	12.3	9.2	63.5	15.2	104.5	18.2	161.7	19.6	250.5	25.2	217	25
	12.1	9.6	52.5	15.3	116.4	19.3	177	21.3	161	21.6	306	27.5
	14.1	9.8	54	15.5	102.4	18.4	218.1	23.1	218	23.6	249.5	25.3
	14.2	9.2	58	14.8	121	19.9	182.9	21	233	25.1	271.5	27
	12.2	9.8	49.5	13.2	134.4	19.8	156.2	21.6	189.5	22.1	284	26.9
	9.4	9.2	35	12.1	136.8	20.1	185.7	22.5	216.5	23.4	309	27.3
	12.6	9.2	48.5	13.4	107.4	17.4	170.9	22.1	224	23.6	358.5	28.7
	11.5	9.6	51.5	14.3	106.5	17.1	157.5	20.2	212	23.2	225.5	24.9
	15.4	10.2	67.5	15.1	118.8	18.9	182.8	22.6	242	24.1	284	27.3
	6.7	9.2	77.5	17.1	119.9	18.3	193.7	23.5	240.5	24.1	296	26.6
	9	8.6	49.5	15.3	119.4	17.2	154.3	21.3	188	22.2	407	30
	11	9.2	69.5	16.2	118.4	17.7	122	19.4	198.5	22.5	240.5	24.3
	11.1	9.3	61.5	15	131.2	19.7	127.4	18.7	236	24.6	231.5	25.3
	11.2	9.1	49.5	14.5	124.1	19.6	179.3	22.2	222	23	229	25.3
	12.4	9.4	78	17.1	116.6	18.7	171.2	22.3	176.5	23.1	318	28.6
	14.3	10.6	48	15.4	116.2	19.4	203.5	23.6	156	21.1	369.5	29.9
	9.9	9.1	61.5	15.6	104.2	16.9	142.5	21.1	186	22.8	326.5	28.7
	10.3	8.9	50	13.6	118.3	18.9	204.1	22.6	157.5	21	236.5	25.3

	10.6	9.6	40	12.5	76.8	13.6	162.2	21.7	190	23.3	199.5	23.6
	10.7	9.7	69	16.2	118.4	17.7	156	21.8	247.5	25.1	302.5	27.1
	12.6	9.7	47.5	14.6	83.2	16.1	209.6	23.7	209	23.2	311.5	28.1
	11.9	9.5	62.5	15.6	107.2	18.2	156.6	21.6	240.5	26.2	292	27.3
	10.3	9.6	50	13.7	103.5	18.3	134.4	20.3	151	20.2	338	28.2
	12.2	10.1	64.5	14.9	92.1	15.2	185.4	22.5	238.5	25.1	341	28.9
	11	9.1	52	13.6	134.4	20.1	138.5	20.9	247.5	25.2	379	30
	11.4	9.2	54	14.2	135.7	19.6	208.7	23.7	237	23	353.5	26.1
	12.1	9.9	60.5	14.8	96.3	16.8	157.9	21.7	221	22.6	271	26.9
	9.3	8.5	71.5	16.1	131.4	18.9	173.2	22.6	193	21.8	277.5	26.6
	13.9	10.2	53.5	14.2	111.2	19.1	188.9	22.9	161	22	227	25
	11	9.1	74.5	15.9	107.5	18.6	145.2	20.5	220	22.5	338	28
	14.6	10.2	60.5	14.6	138.2	20.7	196.2	23	254.5	22.3	331	27.6
	8.2	9.2	66	14.6	94.6	17.9	158.9	21.9	193.5	22.2	289.5	27.1
	13.8	10.2	58.5	15.1	88.6	15.7	149.6	21.2	223	24.2	228	24.6
	15.3	10.7	57.5	14.5	102.1	17.1	181.5	22.6	265.5	25.5	241.5	25.6
	11.6	9.5	68	16.2	108.3	18.3	169.4	21.9	196.8	22.1	237.5	25
	8.5	8.7	48.5	14.1	116.7	18.9	180.4	23.1	249.5	25.2	271.5	26.6
	11.5	8.8	47	13.6	109.2	18.8	117.9	20.1	218	22	336.5	27.6
	10.1	9.1	66.5	16.1	131.6	18.2	131.1	20.6	236.5	23	359	27.8
	10.60	9.10	79.50	17.50	96.40	17.10	170.50	22.10	209.00	24.00	308.00	27.60
mean	11.71	9.43	57.97	14.97	112.78	18.38	166.84	21.66	220.69	23.64	282.15	26.60
sd	1.93	0.60	9.88	1.14	17.95	1.41	24.49	1.29	33.45	1.42	50.17	1.62

Appendix 2. Crayfish individual weight data.

	07.07.01		04.08.01		01.09.01		01.10.01		13.11.01		16.12.01		31.01.02		07.07.01	
	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1
	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	Weight (g)	length (cm)	Weight (g)	length (cm)	Weight (g)	length (cm)	weight (g)		length (cm)
	7.5	5.8	11.6	17.4	14.1	25.6	16.1	38.6	16.0	36.8	18.0	48.5	17.4	55.0		7.5
	9.0	11.0	10.2	11.5	13.5	25.2	16.2	40.6	13.7	42.5	16.6	38.8	19.9	74.5		9.0
	9.7	10.6	10.9	15.1	14.2	27.0	15.0	33.8	17.1	43.6	17.0	45.2	17.6	53.0		9.7
	9.0	9.0	10.5	13.6	14.9	31.6	15.9	36.8	17.0	39.1	17.1	40.2	18.0	62.0		9.0
	9.0	7.8	11.4	16.9	13.8	26.0	16.1	38.6			17.5	42.3	18.0	55.0		9.0
	7.5	7.2	11.4	17.3	12.0	17.7	16.2	40.6					17.9	56.5		7.5
	8.5	8.2	10.5	14.4	13.4	22.5	15.0	33.8					19.4	63.5		8.5
	8.1	8.1	10.5	13.3			15.9	36.8					17.3	49.5		8.1
	9.2	9.7					13.9	27.6								9.2
	8.0	8.0														8.0
Mean	8.6	8.5	10.9	14.9	13.7	25.1	15.6	36.4	16.0	40.5	17.2	43.0	18.2	58.6	Mean	8.6
Stdv	0.8	1.6	0.5	2.1	0.9	4.2	0.8	4.1	1.6	3.1	0.5	3.9	0.9	7.9	Stdv	0.8
	07.07.01		04.08.01		01.09.01		01.10.01		13.11.01		16.12.01		31.01.02		07.07.01	
	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2
	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)
	10.1	12.9	12.7	19.8	15.5	33.2	12.1	30.4	17.0	54.0	18.0	58.9	19.4	73.2	10.1	12.9
	10.5	11.0	11.0	14.0	14.9	28.3	15.4	36.7	14.9	47.4	16.6	51.7	20.5	94.6	10.5	11.0
	9.0	11.1	10.4	13.0	14.2	25.2	18.3	56.3	15.9	51.3	17.7	55.9	18.0	64.9	9.0	11.1
	8.6	9.7	12.1	20.1	14.0	24.7	18.0	48.7	15.5	43.0	16.5	46.9	18.9	78.7	8.6	9.7
	8.0	8.4	11.2	16.0	15.3	29.4	14.6	32.0	15.0	45.2	16.6	49.3	17.1	53.4	8.0	8.4
	9.5	11.8			13.6	26.1			17.0	49.7			20.9	82.0	9.5	11.8
	8.0	7.4											16.1	49.5	8.0	7.4
	8.5	8.6													8.5	8.6
	9.8	11.1													9.8	11.1
	9.5	8.8													9.5	8.8
mean	9.2	10.1	11.5	16.6	14.6	27.8	15.7	40.8	15.9	48.4	17.1	52.5	18.7	70.9	9.2	10.1
sdv	0.9	1.8	0.9	3.3	0.8	3.2	2.6	11.2	0.9	4.0	0.7	4.9	1.8	16.1	0.9	1.8

Appendix 2. Crayfish individual weight data (continued).

	29.06.02		18.07.02		18.08.02		15.09.02		13.10.02		13.11.02		14.12.02		continued		
	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI	RI
	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	weight (g)
	6.6	6.3	5.2	5.0	6.3	6.5	7.7	14.3	6.6	8.9	8.2	18.0	28.2	36.3	13.8	12.0	13.9
	5.5	5.4	5.5	5.2	7.0	9.5	8.4	16.1	7.2	11.8	9.1	19.4	20.6	19.3	13.8	14.5	16.8
	5.3	4.7	5.6	5.3	6.3	7.5	7.6	12.8	7.6	12.0	9.0	21.1	21.1	34.9	14.1	22.4	17.1
	6.1	6.1	5.6	5.7	6.5	7.0	7.8	14.0	7.5	12.5	8.9	19.0	22.5	32.1	14.3	11.8	5.3
	5.3	5.5	6.4	6.3	6.5	8.0	7.6	12.9	8.2	15.0	8.5	14.1	18.8	16.4	11.5	14.1	4.7
	5.1	5.5	6.0	6.3	6.3	7.5	7.1	9.7	8.4	15.5	7.9	12.9	26.0	31.8	8.8	19.0	6.7
	6.0	5.6	6.2	6.7	7.3	10.5	7.8	13.3	8.2	15.7	9.1	21.7	22.3	22.2	16.3	10.6	7.2
	5.5	4.2	6.2	6.7	6.5	7.0	6.0	6.9	8.3	15.9	6.9	8.9	17.7	16.8	16.0	6.8	7.4
	5.8	5.4	6.2	6.8	6.9	9.0	7.6	12.2	8.7	18.0	8.5	17.2	18.4	21.4	16.1	16.3	7.9
	6.0	6.1	6.2	7.0	6.9	9.5	6.8	8.7	8.4	18.0	7.5	12.5	10.4	29.5	19.3	12.2	2.7
	5.9	5.8	6.6	7.6	6.3	7.0	6.0	7.7	8.8	19.8	7.4	12.2	19.0	16.8	21.1	20.2	2.7
	5.6	6.0	6.7	8.7	7.2	10.5	7.7	12.6			8.1	14.2	15.6	17.6	19.4	17.7	5.2
	5.6	5.8			6.8	8.0	7.2	11.3			2.3	11.9	18.8	21.9	1.8	22.6	8.1
	6.1	6.2			6.2	8.0	7.2	9.5			2.7	13.9	29.1	22.2	21.7	27.9	11.0
	5.5	5.2			6.2	7.5	7.4	11.7			8.7	18.3	15.3	6.8	16.0	14.7	10.9
	5.7	5.8			6.5	8.5	7.2	11.8			7.5	12.3	18.5	6.0	16.2	26.7	11.0
	4.9	4.0			7.2	11.0	6.7	8.0			8.9	16.6	24.7	8.7	17.2	24.6	8.9
	6.2	6.5			6.0	7.5	7.1	11.5			9.2	20.5	13.8	9.1	14.5	12.8	8.8
	5.8	6.0			6.3	8.5	5.5	5.1			8.7	17.1	8.9	9.8	20.0	24.5	16.0
	5.5	5.5			7.6	13.0	7.0	8.6			7.2	12.0	21.1	10.4	17.4	16.8	16.5
	5.5	6.0					7.4	11.8			8.4	16.3	15.8	3.4	13.6	12.9	16.1
	6.0	6.5					6.4	8.3			8.0	12.7	26.2	4.0	14.1	16.5	19.4
	5.2	4.4					7.6	12.7					23.0	6.4	8.0	22.5	21.4
	6.2	6.7					5.8	6.2					29.5	10.5	14.5	12.9	19.6
Mean	5.7	5.6	6.0	6.4	6.6	8.6	7.1	10.7	8.0	14.8	7.8	15.6					16.1
Stdv	0.4	0.7	0.5	1.1	0.4	1.7	0.7	2.8	0.7	3.2	1.8	3.5	5.5	10.1	4.4	5.6	5.6

Appendix 2. Crayfish individual weight data (continued).

	20.06.02		18.07.02		18.08.02		15.09.02		13.10.02		13.11.02		14.12.02				
	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R3	R4	R5	
	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	weight (g)	weight (g)	weight (g)	weight (g)	
	1.9	0.2	2.4	1.0	8.8	18.0	9.9	24.0	6.4	7.6	6.2	6.8	17.6	11.1	6.8	7.1	
	3.4	1.2	2.5	1.2	4.8	3.5	5.1	3.7	7.3	8.6	9.7	26.5	14.1	11.7	5.6	9.6	
	2.9	0.9	2.8	1.5	6.5	7.5	6.0	6.2	7.8	9.2	7.3	11.1	10.8	10.7	8.6	6.3	
	2.9	0.9	3.4	1.5	6.2	6.5	8.9	19.3	5.2	6.1	6.1	7.3	5.0	6.2	6.6	4.5	
	3.1	1.2	3.3	1.9	6.7	9.0	7.5	11.8	6.6	7.8	6.6	7.9	2.2	8.0	7.4	4.2	
	2.5	0.6	3.8	2.1	6.1	6.5	6.6	7.8	6.0	7.1	5.9	6.0	9.6	6.3	7.4	12.0	
	3.0	1.2	3.6	2.2	5.8	6.0	5.4	5.0	5.0	5.9	7.1	10.9	14.3	6.8	7.1	12.1	
	3.1	1.3	4.3	2.5	5.2	4.0	5.9	6.1	5.2	6.1	8.3	16.2	2.5	15.8	6.6	13.3	
	4.6	3.2	4.3	2.5	8.8	17.0	6.9	9.7	5.1	6.0	6.5	7.7	10.2	17.4	8.4	4.9	
	3.4	1.5	4.2	2.7	5.6	5.0	7.9	12.3	6.9	8.1	6.0	7.1	13.8	5.9	9.2	16.6	
	2.6	0.7	4.5	2.7	5.4	4.5	7.4	11.7	4.8	5.7	6.6	8.2	9.0	11.0	13.5	9.5	
	2.1	0.5	4.3	2.8	5.7	4.5	5.6	5.1	5.6	6.6	5.9	5.9	8.4	9.9	7.5	9.3	
	2.3	0.6	4.5	3.3	6.2	6.0	6.0	6.0	6.6	7.8	6.8	9.7	9.6	10.7	7.8	9.6	
	2.7	0.8	4.5	4.3	6.3	6.5	5.5	4.8	6.4	7.6	5.7	5.4	11.3	6.2	6.3	11.2	
	2.1	0.5	4.5	4.3	4.6	2.5	6.1	7.0	4.9	5.8	7.9	13.6	15.6	8.1	6.2	11.8	
	2.5	0.7	4.8	4.5	4.2	2.5	6.0	6.8	6.6	7.8	6.1	6.9	2.4	1.2	9.2	11.0	
	2.3	0.5	5.3	5.1	7.0	6.0	5.5	4.8	7.7	9.1	6.1	8.0	11.4	8.4	10.5	11.5	
	2.5	0.7	5.4	5.9	5.5	5.7	6.4	8.0	5.1	6.0	7.7	14.7	9.2	7.5	6.2	11.4	
	3.5	1.4	5.5	6.4	5.3	6.5	5.5	4.5	6.3	7.4	6.0	5.8	11.9	10.5	6.5	12.1	
			5.7	7.0	6.6	9.0	6.4	7.9	6.3	7.4	5.5	4.8	10.5	7.4	6.3	12.4	
			4.7	4.0			5.8	5.8	6.4	7.6	6.2	6.7	9.9	9.8	5.6	12.7	
			6.1	5.1			5.7	5.4	6.3	7.4	6.5	7.5	12.0	10.7	8.4	12.3	
			7.8	8.0			5.8	5.2	5.7	6.7	6.5	8.0	9.8	9.9	7.5	9.1	
			4.4	4.3			5.8	4.0	5.5	6.5	7.8	13.4	9.0	8.6	11.0	10.2	
			6.9	9.2			6.3	7.3	7.0	8.3	5.7	6.2	8.6	9.3	6.8	9.9	
			6.5	7.1			6.2	6.8	7.5	8.9	6.4	8.3	7.5	6.0	6.2	9.8	
			5.4	5.6			7.0	9.8	5.3	6.3	5.7	5.7	4.2	10.7	5.3	10.5	
			4.0				4.9	3.3	5.6	6.6	5.5	4.8	6.8	12.6	7.2	10.3	
							5.3	5.0	5.8	6.8	5.4	4.2	10.7	5.1	8.6	9.7	
							5.5	4.6	5.9	7.0	5.4	4.7	7.2	7.4	8.7	9.2	
							8.2	16.4			6.6	9.1	8.7	6.3	10.2	9.3	
							4.5	2.7			6.1	7.3	7.5	8.3	7.8	9.3	
							5.2	4.0			6.0	6.5	8.7	5.1	3.9	10.0	
							5.7	4.6			6.9	10.0	11.1	3.9	15.9	10.3	
							4.7	3.5			7.8	13.3	18.0	6.6	9.2	9.4	
							6.2	6.8					9.9	8.7	10.1	9.3	
							5.7	4.4					11.0	7.1	7.5	8.8	
							5.8	3.7					9.9	5.4	12.8	8.6	
							7.1	9.4					6.5	6.0	7.8	8.5	
							6.3	6.8					5.3	8.1	7.5	8.6	
							6.0	6.4					9.0	8.4	8.9	7.8	
							5.8	5.1					8.9	7.2	6.3	7.8	
							5.0	3.4					7.2	6.3	7.1	8.8	
																8.0	
																8.0	
																10.0	
																8.9	
Mean	2.8	1.0	4.6	4.0	6.1	6.8	6.2	7.1	6.1	7.2	6.5	8.7	9.5	8.3	8.0	8.9	
Stdev	0.6	0.6	1.3	2.2	1.2	4.1	1.1	4.3	0.9	1.0	0.9	4.3	3.5	3.0	2.3	2.3	

Appendix 2. Crayfish individual weight data (continued).

	24/03/03		23/04/03		21/05/03		18/06/03		16/07/03		24/8/2003	
	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R1
	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)
	8.9	14.3	10.5	24.6	12	35.6	14.5	65.7	13.1	70.1	13	61.6
	8.5	15.9	14.1	39	12.4	44.3	12.6	67.2	14.9	92.3	12.1	47.3
	8.4	12.8	11.6	26.3	11.3	29.3	12.1	48.8	15.3	84.6	15	84.1
	7.7	12.6	11.6	26.8	12.6	54	13.2	55	10.6	45.9	14.4	82.3
	8.6	13.4	11.5	30.4	12.7	54.9	15.2	85.3	13.1	59.9	14.3	80
	7.6	15.1	14.5	56.6	11.6	40.3	13.2	59.2	14.1	87.3	12.8	67.8
	8.9	21.4	10.9	27.9	12.2	42.8	15.3	93.2			14.6	92.1
	9.3	20.9	10.2	26.9	12.6	46.5	14.3	70.7			12.9	66.1
	8.7	18.6	12	35.2	13.1	55.5					16.5	136.7
	9.1	21.8	12.5	37.3	12.1	47.7					12	46.1
	9.1	22.3	11.1	23.4	12.2	43.2					14.8	101.3
	9.4	24.4	12.2	25.9	12.7	56.7					16.5	136.7
			13.5	44.9	12.6	50.7					12.5	55.3
			10.8	29.8	11.6	41.8					13.9	73.8
			11.2	27.9	13.6	56.8					12.5	53.4
											14.1	74.7
											12.8	63.7
Mean	8.7	17.8	11.9	32.2	12.4	46.7	13.8	68.1	13.5	73.4	13.8	77.8
Stdv	0.6	4.2	1.3	9.1	0.6	8.2	1.2	14.9	1.7	18.0	1.4	26.8

Appendix 2. Crayfish individual weight data.

	24/03/03		23/04/03		21/05/03		18/06/03		16/07/03		24/8/03	
	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2
	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)	length (cm)	weight (g)
	7.8	10.8	11.5	29.8	12.6	50.9	12.6	62.3	14.2	73.6	13.5	65.1
	8	11.1	11.8	24.4	10.2	27.5	11.2	50	14.4	95.8	14.9	90.2
	8.5	13.7	11.4	26.6	12.3	43.6	13.6	80.5	12.6	52.9	13.4	61.7
	9.1	13.6	10.2	19.7	11.5	40.5	11.7	63.9	12.8	81.1	13.9	71.1
	9.2	14.4	11.1	29.1	11.7	47.5	13.7	60.8	14.1	63.7	12	43.4
	9.3	14.3	10.7	27.5	10.9	37.7	11.1	46.8			13	62.9
	8.3	15.3	12.3	37.7	13.6	62.5	13.2	80			14.1	77
	8.9	18.8	13.7	52.1	14.7	79.3	12.6	62.9			16	120
	8.8	18.5	11.2	30.3	12	40.7					13.1	69.6
	8.2	16.3	13.2	53.6	11.6	44.1					15.3	105.7
	8.6	17.8	11.1	26.2	11.1	35.2					12.3	65.9
	9.3	24.5	10.8	22.7	14.2	60.5					15	89.6
	11.9	33.6									15.5	138.9
	11	30.5									12.8	72.6
											14.5	103.1
											12.5	58.4
											15	88.2
											13.6	79.4
											14.8	85.7
Mean	9.1	18.1	11.6	31.6	12.2	47.5	12.5	63.4	13.6	73.4	14.0	81.5
Stdv	1.1	6.9	1.0	10.9	1.4	14.1	1.0	12.1	0.8	16.4	1.2	23.1

Appendix 3. Mussel individual weight data.

Vesunio ambiguus				
	stocking weight (g)		post trial 1 weight (g)	
wetland	R1	R2	R1	R2
	17.79	17.58	22.7	17.8
	21.48	17.47	32.3	27.6
	23.76	17.04	17.3	22.9
	43.3	18.07	18	18.1
	30.88	21.23	22.3	20.5
	21.63	20.25	19.4	16.1
	34.88	20.18		22.3
	41.1	22.75		18.2
	36.58	27.98		
	20.99	18.2		
	20.76	21.02		
	15.52	15.42		
	26.6	29.21		
	17.89	19.73		
	18.57	44		
	18.71	21.27		
	22.3	19.41		
	19.86	43.6		
		22.45		
		15.84		
		18.45		
		17.49		
mean	25.14	22.21	22.00	20.44
stdv	8.50	7.77	5.50	3.72

Appendix 4. Frog count data.

Litoria fallax				
	19.11.01		19.11.01	
wetland	count	frog m ⁻²	count	frog m ⁻²
T1	0	0.00	3	0.83
T2	1	0.28	3	0.83
T3	0	0.00	1	0.28
mean	0.33	0.09	2.33	0.65
stdv	0.47	0.13	0.94	0.26
T4	1	0.28	6	1.67
T5	2	0.56	9	2.50
T6	1	0.28	7	1.95
mean	1.33	0.37	7.33	2.04
stdv	0.58	0.16	1.53	0.42
R1	35	9.73	48	13.35
R2	46	12.79	50	13.90
mean	40.50	11.26	49.00	13.62
stdv	7.78	2.16	1.41	0.39

Appendix 5. Wetland benthic invertebrate identification and density.

Wetland Benthic Invertebrate Identification and Density														
Wetland / year	T1 2001	T1 2002	T2- 2001	T2- 2002	T3 2001	T3 2002	T4 2001	T4 2002	T5 2001	T5 2002	T6 2001	T6 2002	R1-R2 2001	R1-R2 2002
Number of individuals per 0.09 m ² wetland surface area														
Acarina*	0	0	0	0	0	0	2	0	0	0	0	0	1	0
Araenae	0	0	0	0	0	0	0	0	1	1	0	0	0	1
Baetidae	0	0	0	0	0	0	0	2	0	0	0	0	1	0
Caenidae	0	0	0	0	0	0	0	0	0	0	1	0	2	0
Ceratopogonidae	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Chironomidae	1	2	4	0	2	0	1	0	23	0	1	0	3	1
Cladocera*	0	0	0	0	0	0	0	0	0	1	0	0	1	0
Coenagrionidae	0	0	0	0	0	0	0	0	1	0	0	0	3	0
Corixidae	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Culicidae	0	0	0	0	1	0	2	0	0	0	1	0	0	0
Dytiscidae	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Flatworms *	0	0	0	0	0	0	0	0	0	0	0	2	0	2
Formicidae	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Hebridae	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Hemicorduliidae	0	2	0	6	0	0	0	0	0	2	0	0	0	2
Hydrophilidae	0	2	0	1	0	0	0	0	0	0	0	0	0	1
Libellulidae	16	22	35	17	29	65	36	11	9	34	34	41	39	22
Lymnidae	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Mesovelidae	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Nepidae *	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Notonectidae	1	0	0	0	0	0	0	0	1	0	1	1	1	0
Oligochaete*	0	1	0	0	0	0	0	0	0	0	0	0	0	2
Planorbidae	3	13	0	14	0	2	1	9	0	11	0	0	6	21
Pleidae	0	0	1	0	0	0	1	0	0	0	0	0	1	0
Richardsonidae	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Stratiomyidae	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Tabanidae	0	3	1	0	0	0	2	4	0	1	0	4	1	0
Terre Hemiptera	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Veliidae	1	0	0	0	0	0	0	0	0	0	1	0	0	0

Appendix 6. Wetland canopy surface area data calculations at stocking

Wetland	Fresh weight planted (g)	Plant dry weight - expressed as % of total plant fresh weight	Above ground dry weight: expressed as % of total plant dry weight	Above ground surface area per above ground dry weight (cm ² g ⁻¹)	m ² above ground SA	above ground SA (m ²) per wetland SA (m ²)
T1	402.83	10.19	46.46	4.33	0.083	0.023
T2	417.99				0.086	0.024
T3	465.72				0.096	0.027
mean	428.85				0.088	0.025
stdv	32.82				0.007	0.002
T4	451.19	22.39	57.03	4.66	0.268	0.075
T5	450.62				0.268	0.075
T6	431.01				0.256	0.071
mean	444.27				0.264	0.074
stdv	11.49				0.007	0.002
R1	362.60	22.39	57.03	4.66	0.216	0.020
R2	466.43				0.277	0.026
mean	414.52				0.247	0.023
stdv	73.42				0.044	0.004
R1	7501.74	19.91	77.95	3.87	4.504	0.419
R2	7285.70				4.375	0.407
mean	7393.72				4.439	0.413
stdv	152.76				0.092	0.009

Appendix 7. Wetland harvest plant sub-sample data

Species	Above ground dry weight harvest (g)	cm ² measured	cm ² g ⁻¹ above ground
<i>Schoenoplectus validus</i>	4.67	18.12	3.88
	5.02	19.78	3.94
	4.93	18.54	3.76
	4.66	18.78	4.03
	4.62	19.45	4.21
	3.46	14.91	4.31
	4.85	20.32	4.19
	4.59	17.81	3.88
	4.86	21.68	4.46
	3.15	12.82	4.07
	4.75	17.77	3.74
	4.79	16.96	3.54
	4.41	18.30	4.15
	5.04	19.71	3.91
	3.65	16.35	4.48
mean	4.50	18.09	4.04
stdv	0.59	2.21	0.27
<i>Baumea articulata</i>	3.62	16.11	4.45
	3.67	17.14	4.67
	4.51	21.29	4.72
	4.35	21.92	5.04
	4.15	21.58	5.20
	4.01	20.37	5.08
	4.03	20.63	5.12
	4.27	21.39	5.01
	3.99	19.55	4.90
	4.77	24.04	5.04
	3.33	17.22	5.17
	4.61	23.56	5.11
	4.50	25.70	5.71
	3.81	21.64	5.68
	4.01	23.34	5.82
column mean	4.11	21.03	5.11
stdv	0.40	2.68	0.38
<i>Schoenoplectus validus *</i>	46.90	181.52	3.87
	41.46	163.76	3.95
	45.91	171.70	3.74
	43.50	169.64	3.90
	42.56	175.36	4.12
	38.13	160.90	4.22
	43.93	187.13	4.26
	44.02	203.37	4.62
	40.18	180.42	4.49
	44.24	201.73	4.56
	44.91	211.53	4.71
	44.17	210.25	4.76
	49.14	236.85	4.82
	53.03	220.07	4.15
	37.86	193.07	5.10
mean	44.00	191.15	4.35

stdv	3.93	22.28	0.41
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Appendix 8. Wetland canopy surface area data at harvest

	Above ground dry weight harvest (g)	Above ground surface area per above ground dry weight ($\text{cm}^2 \text{g}^{-1}$)	wetland surface area (m^2)	total canopy SA (m^2)	canopy surface area (m^2 above ground / m^2 wetland)
t1	277.0	4.04	3.59	1.12	0.31
t2	389.5			1.57	0.44
t3	651.5			2.63	0.73
mean	439.3			1.77	0.49
stdv	192.2	.	.	0.78	0.22
t4	1148.5	5.11	3.59	5.87	1.636
t5	1032.0			5.28	1.470
t6	1060.5			5.42	1.511
mean	1080.3			5.53	1.539
stdv	60.7	.	.	0.31	0.087
r1	43656.4	4.35	10.75	189.91	17.67
r2	46014.2			200.16	18.62
mean	44835.3			195.09	18.15
stdv	1667.2			.	.

Appendix 9. Wetland canopy surface area data.

wetland	Wetland canopy surface area (m ²) per square meter wetland surface area.	
	stocking	harvest
T1	0.023	0.311
T2	0.024	0.438
T3	0.027	0.733
mean	0.025	0.494
stdv	0.002	0.216
n = 3		
T4	0.075	1.252
T5	0.075	1.125
T6	0.071	1.156
mean	0.074	1.178
stdv	0.002	0.066
n = 3		
R1	0.439	17.671
R2	0.433	18.625
mean	0.436	18.148
stdv	0.009	0.675
n = 2		

Appendix 10. Plant biomass data

wetland	planting density g m ⁻²		plant harvest density g m ⁻²	
	fresh weight	dry weight	fresh weight	dry weight
T1	112.2	11.4	649.8	123.2
T2	116.4	11.9	1070.4	193.5
T3	129.7	13.2	1691.2	316.1
mean	119.5	12.2	1137.1	211.0
stdv	9.1	0.9	523.9	97.6
sum	358.4	36.5	3411.4	632.9
T4	125.7	28.1	2613.5	599.9
T5	125.5	28.1	2526.4	549.7
T6	120.1	26.9	2543.8	568.2
mean	123.8	27.7	2561.3	572.6
stdv	3.2	0.7	46.1	25.4
sum	371.3	83.1	7683.8	1717.8
R1	731.6	146.5	40429.2	7389.9
R2	721.1	140.0	40957.1	7835.6
mean	726.3	143.2	40693.1	7612.7
stdv	7.4	4.6	373.2	315.2
sum	1452.7	286.5	81386.3	15225.5

Appendix 11. Wetland water surface level photosynthetically active radiation.

table	planting	harvest
wetland	Average WPAR (as % APAR)	Average WPAR (as % APAR)
t1	115.57	93.95
t2	112.98	91.58
t3	115.39	87.59
treatment mean	114.65	91.04
stdv	1.45	3.21
t4	115.11	66.02
t5	115.06	65.03
t6	111.63	63.95
treatment mean	113.93	65.00
stdv	1.99	1.04
r1	103.28	30.17
r2	104.90	21.52
treatment mean	104.09	25.85
stdv	1.15	6.12

Appendix 12. Wetland plant photosynthetic rate.

trial I	date	16.06.01	09.07.01	08.07.01	03.09.01	11.10.01	23.11.01	21.12.01
sample	WETLAND							
A	T1	1.36	2.97	2.37	1.40	3.35	1.86	1.07
B		1.72	2.45	1.21	2.29	2.52	3.85	1.58
C		2.43	2.11	1.74	1.42	2.30	1.34	0.91
D		2.68	2.05	2.16	1.79	2.28	1.85	0.70
E		2.54	1.80	*	2.54	3.12	1.37	2.68
mean		2.15	2.28	1.87	1.89	2.71	2.05	1.39
tip compensation mean		6.89	7.30	6.00	6.06	8.71	6.59	4.45
stdv		0.57	0.45	0.51	0.51	0.49	1.03	0.79
A	T2	1.72	1.82	1.01	1.69	3.49	2.26	1.42
B		2.84	2.41	2.17	1.58	5.10	3.18	0.68
C		1.24	2.01	2.12	2.26	2.87	2.01	1.47
D		1.51	0.83	2.18	1.43	1.46	3.54	1.57
E		0.24	0.96	1.83	1.78	3.34	3.17	1.73
mean		1.51	1.61	1.86	1.75	3.25	2.83	1.37
tip compensation mean		4.85	5.15	5.97	5.61	10.43	9.09	4.41
stdv		0.94	0.68	0.50	0.31	1.31	0.66	0.41
A	T3	2.41	2.53	2.30	1.94	2.95	0.72	0.93
B		2.58	1.14	1.88	1.53	1.97	2.94	0.98
C		1.74	1.46	1.45	1.61	3.96	2.47	1.94
D		2.46	0.83	2.55	3.14	2.58	0.66	1.70
E		1.88	2.88	1.79	1.53	2.60	1.35	2.18
mean		2.21	1.77	1.99	1.95	2.81	1.63	1.55
tip compensation mean		7.10	5.67	6.40	6.26	9.02	5.22	4.96
stdv		0.38	0.89	0.43	0.69	0.73	1.03	0.57
A	T4	1.94	1.97	1.52	0.07	2.22	1.75	1.01
B		2.14	1.39	2.33	2.01	3.43	1.23	1.53
C		1.97	1.62	1.94	1.43	2.08	1.31	1.30
D		1.23	0.68	1.95	1.69	2.49	1.28	1.30
E		1.99	0.75	1.65	1.10	2.56		1.32
mean		1.85	1.28	1.88	1.26	2.56	1.39	1.29
tip compensation mean		5.95	4.11	6.03	4.04	8.20	4.47	4.15
stdv		0.36	0.56	0.31	0.74	0.53	0.24	0.19
A	T5	1.50	1.40	1.44	*	1.75	1.66	*
B		1.49	1.99	1.75	0.91	2.33	0.74	1.28
C		1.85	1.49	2.83	1.26	1.44	1.24	1.78
D		1.83	1.31	1.90	1.31	2.41	1.02	1.22
E		1.63	1.50	2.49	1.75	2.14	1.45	1.20
mean		1.66	1.54	2.08	1.31	2.01	1.22	1.37

tip compensation mean		5.33	4.93	6.68	4.20	6.46	3.92	4.40
stdv		0.17	0.26	0.57	0.34	0.41	0.36	0.28

Appendix 12. Wetland plant photosynthetic rate (continued)

trial I	date	16.06.01	09.07.01	08.07.01	03.09.01	11.10.01	23.11.01	21.12.01
WETLAND								
A	T6	1.80	1.63	1.72	1.72	1.38	1.30	1.01
B		1.57	1.35	1.53	1.47	1.17	1.24	1.28
C		1.63	1.15	1.60	1.55	2.05	0.48	1.20
D		1.99	1.11	2.27	1.30	2.70	1.24	1.22
E		1.99	1.36	1.34	1.57	2.03	1.58	
mean		1.80	1.32	1.69	1.52	1.87	1.17	1.18
tip compensation mean		5.76	4.24	5.43	4.88	5.99	3.75	3.78
stdv		0.20	0.21	0.35	0.15	0.61	0.41	0.12
A	R1	3.61	1.95	2.71	2.88	3.51	3.96	**
B		2.88	2.10	2.96	2.73	4.28	3.80	
C		2.36	2.84	2.29	1.91	2.95	3.20	
D		2.40	2.15	2.60	2.98	3.40	2.60	
E		2.17	2.25	2.08	1.83	3.63	1.64	
average		2.68	2.26	2.53	2.47	3.55	3.04	
tip compensation		9.87	8.30	9.30	9.07	13.07	11.18	
stdv		5.08	4.28	4.79	4.67	6.73	5.76	
A	R2	2.59	2.82	2.16	1.47	3.97	1.49	**
B		2.81	1.69	2.52	3.54	3.67	1.35	
C		2.51	1.82	3.50	2.55	4.04	3.41	
D		3.14	2.62	2.97	1.65	3.80	2.71	
E		2.58	1.95	2.65	3.42	4.30	3.05	
average		2.73	2.18	2.76	2.53	3.96	2.40	
tip compensation		10.03	8.02	10.15	9.29	14.55	8.83	
stdv		5.16	4.13	5.23	4.78	7.49	4.55	

Appendix 12. Wetland plant photosynthetic rate (continued)

trial 2	date	27.06.02	23.07.02	01.09.02	01.10.02	29.10.02	21.11.02
sample	WETLAND						
A	T1	1.50	2.29	1.85	2.75	2.66	1.91
B		3.40	1.78	2.15	3.03	1.36	1.21
C		2.02	1.90	1.96	2.31	2.68	0.93
D		2.62	2.28	2.19	2.81	2.29	1.50
E		1.54	2.76	2.12	2.37	3.56	1.40
average		2.22	2.20	2.05	2.65	2.51	1.39
tip compensation		5.60	5.56	5.19	6.70	6.34	3.51
stdv		0.80	0.39	0.14	0.31	0.79	0.36
A	T2	3.38	2.26	1.41	2.04	2.25	1.52
B		3.95	2.54	1.77	4.22	2.08	1.36
C		2.65	1.25	2.23	3.65	1.88	1.64
D		2.87	1.90	1.71	3.66	2.42	1.66
E		2.47	1.80	2.18	3.06	3.05	1.17
average		3.06	1.95	1.86	3.33	2.34	1.47
tip compensation		7.74	4.93	4.70	8.40	5.90	3.71
stdv		0.60	0.49	0.34	0.83	0.45	0.21
A	T3	3.80	1.75	2.39	2.27	3.87	2.77
B		2.20	1.39	2.23	3.06	2.96	2.33
C		2.30	2.20	2.09	3.22	2.48	1.62
D		3.84	1.97	1.39	3.04	2.99	1.60
E		3.45	2.08	1.89	3.63	2.10	1.97
average		3.12	1.88	2.00	3.04	2.88	2.06
tip compensation		7.88	4.74	5.05	7.69	7.28	5.20
stdv		0.81	0.32	0.39	0.49	0.66	0.50
A	T4	2.46	1.62	2.28	2.27	2.41	1.47
B		1.86	1.78	2.65	3.07	1.87	1.60
C		1.67	2.13	2.59	3.14	2.18	0.14
D		2.55	2.04	2.02	2.40	2.01	0.84
E		1.78	2.16	1.60	2.76	2.17	0.63
average		2.06	1.95	2.23	2.73	2.13	0.94
tip compensation		5.21	4.92	5.63	6.89	5.38	2.36
stdv		0.41	0.24	0.43	0.39	0.20	0.60
A	T5	2.77	2.46	1.86	4.40	1.72	1.22
B		1.87	*	2.21	2.12	4.24	1.68
C		1.58	2.92	1.60	2.72	2.00	1.82
D		2.11	2.49	1.38	2.28	1.54	2.78
E		2.03	1.94	2.05	2.72	1.94	1.57
average		2.07	2.45	1.82	2.85	2.29	1.81
tip compensation		5.23	6.20	4.60	7.19	5.78	4.58
stdv		0.44	0.40	0.33	0.91	1.11	0.58

* chamber malfunction ** instrument broken

Appendix 12. Wetland plant photosynthetic rate (continued)

trial 2	date	27.06.02	23.07.02	01.09.02	01.10.02	29.10.02	21.11.02
	WETLAND						
A	T6	1.84	1.80	2.00	2.99	2.39	1.22
B		2.01	2.35	1.95	2.61	2.56	1.24
C		1.62	3.11	1.80	2.61	2.07	1.04
D		2.01	1.87	1.66	2.90	2.03	1.31
E		1.94	1.90	2.07	2.98	1.99	1.21
average		1.88	2.21	1.90	2.82	2.21	1.20
tip compensation		4.76	5.57	4.79	7.12	5.58	3.04
stdv		0.16	0.55	0.17	0.19	0.25	0.10
A	R1	1.65	2.37	2.17	3.28	3.42	1.97
B		1.93	2.56	2.36	3.00	3.03	2.00
C		2.05	2.50	2.53	2.75	3.68	2.18
D		2.83	1.68	2.00	2.31	3.80	2.23
E		1.81	2.85	2.75	2.24	3.23	1.56
average		2.05	2.39	2.36	2.72	3.43	1.99
tip compensation		5.77	6.72	6.63	7.63	9.64	5.58
stdv		2.63	3.06	3.02	3.47	4.39	2.54
A	R2	2.64	2.49	2.30	2.61	2.62	2.43
B		1.77	1.83	3.23	2.42	3.79	2.35
C		2.05	2.43	2.08	2.27	2.37	1.70
D		2.03	1.92	2.22	3.34	3.06	2.25
E		2.52	2.19	2.03	3.15	2.59	1.82
average		2.20	2.17	2.37	2.76	2.89	2.11
tip compensation		6.18	6.10	6.66	7.75	8.11	5.93
stdv		2.82	2.78	3.03	3.53	3.69	2.70

Appendix 13. Wetland photosynthetic rate.

wetland	trial 1 mean CO ₂ absorption (μmol m ⁻² sec ⁻¹)	trial 2 mean CO ₂ absorption (μmol m ⁻² sec ⁻¹)	trial 1 - trial 2 mean	wetland canopy surface area (m ²)	mean wetland CO ₂ assimilation (g hr ⁻¹)
T1	6.57	5.64	6.07	1.12	1.08
T2	6.50	5.98	6.22	1.57	1.55
T3	6.38	6.32	6.96	2.63	2.90
mean	6.48	5.98	6.23	1.77	1.84
stdv	0.10	0.34	0.22	0.78	0.95
T4	7.51	6.17	6.79	5.87	6.31
T5	7.30	6.67	6.96	5.28	5.82
T6	6.87	6.16	6.49	5.42	5.57
mean	7.23	6.33	6.78	5.53	5.90
stdv	0.32	0.30	0.31	0.31	0.38
R1	10.13	7.44	8.79	189.96	264.47
R2	10.14	7.27	8.71	200.22	276.15
mean	10.14	7.35	8.75	195.09	270.31
stdv	0.01	0.12	0.07	7.25	8.26

Appendix 14. Wetland *in-situ* electrochemistry

Wetland <i>In-situ</i> Electrochemical Water Quality				
	ph	do (mg L ⁻¹)	tds (mg L ⁻¹)	tmp (° C)
Trials 1 and 2				
wetland				
R1	8.1	6.5	702.4	27.0
R2	8.0	6.2	739.0	27.1
range	7.2 - 9.5	3.8 - 9.0	159.5 - 1684.2	19.2 - 33.1
mean	8.1	6.3	720.7	27.1
stdv	0.1	0.2	25.9	0.1
T1	8.3	8.5	828.4	23.7
T2	8.2	7.5	845.2	23.2
T3	8.5	8.8	749.0	23.4
range	6.8 - 7.6	2.3 - 13.2	139.5 - 2240.8	12.3 - 32.8
mean	8.4	8.3	807.5	23.4
stdv	0.2	0.7	51.4	0.2
T4	7.9	7.4	871.9	23.6
T5	7.9	7.9	837.1	23.3
T6	7.8	6.8	839.6	23.4
range	6.8 - 9.3	3.1 - 12.4	136.8 - 2407.5	12.5 - 32.6
mean	7.9	7.4	849.5	23.4
stdv	0.1	0.6	19.4	0.2
Trial 3				
R1	7.5	6.4	246.9	24.7
R2	7.6	5.4	313.4	26.2
range	6.8 - 8.3	4.6 - 10.1	147.2 - 444.4	8.6 - 32.1
mean	7.5	5.9	280.1	25.4
stdv	0.1	0.7	47.0	1.0

Appendix 15. Wetland nutrient water quality

total nitrogen (ug L ⁻¹)									
	01.08.01	16.08.01	29.08.01	18.09.01	15.10.01	18.06.02	05.08.02	28.09.02	23.11.02
tap water	25.0	12.0	6.5	8.5	10.0	8.0	1360.0	511.0	812.0
T1	18.5	9.5	10.5	6.0	242.5	690.0	990.0	574.0	515.0
T2	16.0	28.5	13.0	9.0	477.5	730.0	1110.0	471.0	881.0
T3	21.0	61.5	12.5	25.5	506.3	860.0	721.0	817.0	498.0
treatment mean	18.5	33.2	12.0	13.5	408.8	760.0	940.3	620.7	631.3
stdv	2.0	21.5	1.1	8.6	118.2	72.6	162.6	145.1	176.7
T4	11.5	12.5	8.5	4.0	383.0	680.0	347.0	556.0	213.0
T5	62.5	41.5	21.5	11.0	302.5	700.0	990.0	527.0	498.0
T6	11.5	9.5	7.5	7.5	361.0	680.0	1050.0	575.0	325.0
treatment mean	28.5	21.2	12.5	7.5	348.8	686.7	795.7	552.7	345.3
stdv	24.0	14.4	6.4	2.9	34.0	9.4	318.2	19.7	117.2
R1	9.5	59.5	465.0	796.5	2850.0	3656.5	790.0	1050.0	458.0
R2	13.5	28.5	612.5	1240.5	3203.0	4131.0	810.0	1231.0	677.0
culture wetlands mean	11.5	44.0	538.8	1018.5	3026.5	3893.8	800.0	1140.5	567.5
stdv	2.0	15.5	73.8	222.0	176.5	237.3	10.0	90.5	109.5
oxidized nitrogen (ug L ⁻¹)									
	01.08.01	16.08.01	29.08.01	18.09.01	15.10.01	18.06.02	05.08.02	28.09.02	23.11.02
T1	4.5	10.0	6.5	5.5	7.0	450.0	59.0	2.0	298.0
T2	9.0	5.0	6.0	3.0	9.5	470.0	207.0	3.0	256.0
T3	6.0	4.0	7.5	8.0	5.0	470.0	246.0	18.0	327.0
treatment mean	6.5	6.3	6.7	5.5	7.2	463.3	170.7	7.7	293.7
stdv	1.9	2.6	0.6	2.0	1.8	9.4	80.5	7.3	29.1
T4	8.0	6.5	6.0	2.5	5.0	1030.0	156.0	0.0	268.0
T5	10.5	6.5	8.0	13.5	4.0	1180.0	167.0	0.0	316.0
T6	9.5	2.5	3.0	8.0	4.0	960.0	49.0	0.0	268.0
treatment mean	9.3	5.2	5.7	8.0	4.3	1056.7	124.0	0.0	284.0
stdv	1.0	1.9	2.1	4.5	0.5	91.8	53.2	0.0	22.6
R1	7.7	16.0	537.5	1172.5	3147.0	3971.5	280.0	38.0	149.0
R2	3.7	36.5	450.0	753.5	2800.0	3525.0	590.0	73.0	162.0
culture wetlands mean	5.7	26.3	493.8	963.0	2973.5	3748.3	435.0	55.5	155.5
stdv	2.0	10.3	43.8	209.5	173.5	223.3	155.0	17.5	6.5
ammonium (ug L ⁻¹)									
	01.08.01	16.08.01	29.08.01	18.09.01	15.10.01	18.06.02	05.08.02	28.09.02	23.11.02
T1	2.5	0.0	1.5	2.0	2.5	23.0	164.0	3.0	83.0
T2	0.0	0.0	2.0	2.5	4.5	19.0	165.0	4.0	153.0
T3	0.0	0.0	2.5	2.0	4.0	17.0	162.0	4.0	151.0
treatment mean	0.8	0.0	2.0	2.2	3.7	19.7	163.7	3.7	129.0

stdv	1.2	0.0	0.4	0.2	0.8	2.5	1.2	0.5	32.5
T4	0.0	4.0	2.0	2.0	3.0	15.0	160.0	6.0	207.0
T5	0.0	2.0	2.0	2.0	3.0	20.0	166.0	3.0	148.0
T6	0.0	9.5	2.0	2.0	2.5	21.0	151.0	3.0	155.0
treatment mean	0.0	5.2	2.0	2.0	2.8	18.7	159.0	4.0	170.0
stdv	0.0	3.2	0.0	0.0	0.2	2.6	6.2	1.4	26.3
R1	5.0	12.5	75.0	68.0	56.0	159.5	690.0	142.0	13.0
R2	7.5	23.0	15.0	43.0	50.0	131.5	610.0	127.0	11.0
culture wetlands mean	6.3	17.8	45.0	55.5	53.0	145.5	650.0	134.5	12.0
stdv	1.3	5.3	30.0	12.5	3.0	14.0	40.0	7.5	1.0
total phosphorus ($\mu\text{g L}^{-1}$)									
	01.08.01	16.08.01	29.08.01	18.09.01	15.10.01	18.06.02	05.08.02	28.09.02	23.11.02
tap water	16.0	0.0	50.5	13.5	0.0	5.0	86.0	148.0	19.0
T1	67.0	119.0	70.5	52.5	4.5	148.0	278.0	9.0	110.0
T2	50.0	82.5	73.0	217.5	13.0	136.0	286.0	12.0	121.0
T3	33.0	70.0	101.5	166.5	6.5	125.0	193.0	14.0	103.0
treatment mean	50.0	90.5	81.7	145.5	8.0	136.3	252.3	11.7	111.3
stdv	13.9	20.8	14.1	69.0	3.6	9.4	42.1	2.1	7.4
T4	9.5	78.5	49.5	175.0	5.5	207.0	201.0	9.0	63.0
T5	88.0	143.5	87.0	84.0	5.0	154.0	201.0	9.0	43.0
T6	47.5	30.5	76.0	77.5	8.5	109.0	201.0	11.0	62.0
treatment mean	48.3	84.2	70.8	112.2	6.3	156.7	201.0	9.7	56.0
stdv	32.1	46.3	15.7	44.5	1.5	40.1	0.0	0.9	9.2
R1	33.0	212.0	712.0	887.5	1450.0	560.5	167.0	216.0	11.1
R2	0.0	255.0	474.0	750.0	1284.0	321.0	108.0	262.0	16.0
culture wetlands mean	16.5	233.5	593.0	818.8	1367.0	440.8	137.5	239.0	13.6
stdv	16.5	21.5	119.0	68.8	83.0	119.8	29.5	23.0	2.4
filterable reactive phosphorus ($\mu\text{g L}^{-1}$)									
	01.08.01	16.08.01	29.08.01	18.09.01	15.10.01	18.06.02	05.08.02	28.09.02	23.11.02
T1	0.5	0.5	0.5	1.5	0.5	36.0	12.0	3.0	15.0
T2	1.0	0.0	0.0	1.5	0.0	46.0	8.0	3.0	21.0
T3	0.0	0.0	0.5	1.0	0.0	70.0	10.0	5.0	12.0
treatment mean	0.5	0.2	0.3	1.3	0.2	50.7	10.0	3.7	16.0
stdv	0.4	0.2	0.2	0.2	0.2	14.3	1.6	0.9	3.7
T4	7.0	0.0	0.0	0.0	1.0	48.0	11.0	3.0	21.0
T5	1.0	1.0	0.5	0.0	0.0	66.0	9.0	6.0	12.0
T6	9.0	0.0	0.0	1.0	4.5	51.0	18.0	4.0	12.0
treatment mean	5.7	0.3	0.2	0.3	1.8	55.0	12.7	4.3	15.0
stdv	3.4	0.5	0.2	0.5	1.9	7.9	3.9	1.2	4.2

R1	14.0	3.0	0.0	4.5	15.0	269.0	49.0	137.0	4.0
R2	2.0	2.5	1.5	7.0	84.0	475.0	65.0	145.0	5.0
culture wetlands mean	8.0	2.8	0.8	5.8	49.5	372.0	57.0	141.0	4.5
stdv	6.0	0.3	0.8	1.3	34.5	103.0	8.0	4.0	0.5
suspended solids (mg L ⁻¹)									
	01.08.01	16.08.01	29.08.01	18.09.01	15.10.01	18.06.02	05.08.02	28.09.02	23.11.02
tap water	0.4	0.3	0.5	0.5	0.2	0.2	0.4	0.3	0.4
T1	1.6	2.2	1.9	0.8	0.9	1.2	1.5	1.7	1.2
T2	2.1	2.6	1.2	1.4	1.2	1.7	1.4	1.3	1.4
T3	3.8	1.9	1.3	1.5	1.3	1.2	1.3	1.0	1.4
treatment mean	2.5	2.2	1.5	1.3	1.1	1.4	1.4	1.3	1.3
stdv	0.9	0.3	0.3	0.3	0.2	0.2	0.1	0.3	0.1
T4	2.2	1.5	1.2	1.2	1.1	1.3	1.6	1.6	1.3
T5	3.3	1.7	1.3	1.2	1.1	1.6	1.3	1.2	1.0
T6	2.6	1.6	2.0	0.9	1.6	1.1	1.2	1.1	0.9
treatment mean	2.7	1.6	1.5	1.1	1.3	1.3	1.4	1.3	1.1
stdv	0.4	0.1	0.4	0.1	0.2	0.2	0.2	0.2	0.2
R1	0.7	0.7	1.4	1.3	1.4	0.4	1.2	1.5	1.6
R2	0.3	0.7	1.4	1.3	1.5	0.3	1.3	1.2	1.2
culture wetlands mean	0.5	0.7	1.4	1.3	1.4	0.3	1.2	1.4	1.4
stdv	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.2

Appendix 16. Hydrology

Trials 1-2								
wetland								
	tap water	rain input (L)	Wastewater input (L)	total influent water (L)	evapo-transpiration (L)	discharge (L)	wetland residual (L)	error (L)
R1	36934.5	7868.3	0.0	44802.8	29186.3	10746.6	3870.7	999.2
R2	40036.5	7868.3	0.0	47904.8	32282.9	10752.0	3870.7	999.2
sum	76971.0	15736.6	0.0	92707.6	61469.2	21498.6	7741.4	1998.4
mean	38485.5	7868.3	0.0	46353.8	30734.6	10749.3	3870.7	999.2
stdv	2193.4	0.0	0.0	2193.4	2189.6	3.8	0.0	0.0
T1	1678.7	2632.3	2877.6	7188.6	4026.8	2161.8	1115.1	-115.1
T2	1732.7	2632.3	2877.6	7242.6	4451.3	1919.0	998.2	-125.9
T3	1479.1	2632.3	2877.6	6989.0	4014.3	2079.1	1007.2	-111.5
sum	4890.4	7896.9	8632.8	21420.1	12492.4	6159.9	3120.4	-352.5
mean	1630.1	2632.3	2877.6	7140.0	4164.1	2053.3	1040.1	-117.5
stdv	133.6	0.0	0.0	133.6	248.8	123.4	65.1	7.5
T4	1423.3	2632.3	2877.6	6933.2	4021.4	2030.5	1007.2	-125.9
T5	1603.2	2632.3	2877.6	7113.1	4248.1	1992.7	1007.2	-134.9
T6	1795.6	2632.3	2877.6	7305.5	4400.9	2041.3	989.2	-125.9
sum	4822.1	7896.9	8632.8	21351.8	12670.4	6064.5	3003.5	-386.7
mean	1607.4	2632.3	2877.6	7117.3	4223.5	2021.5	1001.2	-128.9
stdv	186.2	0.0	0.0	186.2	190.9	25.5	10.4	5.2
Trial 3								
	tap water (L)	rain input (L)		total influent	evapo-transpiration (L)	discharge (L)	wetland residual (L)	error (L)
R1	24392.5	2100.0	0.0	26492.50	14539.4	6745.6	3117.5	2090.0
R2	33744.3	1470.6	0.0	35214.9	23875.8	7611.0	2687.5	1040.6
sum	58136.75	3570.60	0.0	61707.35	38415.13	7611.00	5805.00	3130.60
mean	29068.38	1785.30	0.0	30853.68	19207.56	7178.31	2902.50	1565.30
stdv	6612.69	445.05	0.0	6167.63	6601.81	611.91	304.06	742.04

Appendix 17. Fish feed sub-sample data

Sample	fresh weight (g)	dry weight (g)	% dry weight	TC mgg ⁻¹	TN mgg ⁻¹	TP mgg ⁻¹
Trial 1						
1	22.4	21.8	97.5	455.5	86.5	13.8
2	14.3	13.9	97.2	444.7	84.6	15.1
3	20.6	20.1	97.3	446.8	82.9	15.8
mean	19.1	18.6	97.3	449.0	84.7	14.9
stdv	4.2	4.1	0.1	5.7	1.8	1.0
Trial 2						
1	25.7	25.1	97.6	429.2	81.3	12.7
2	21.0	20.4	97.2	434.3	81.3	12.3
3	17.4	17.0	97.3	430.7	77.3	12.7
mean	21.4	20.8	97.4	431.4	80.0	12.6
stdv	4.2	4.1	0.2	2.6	2.3	0.2

Appendix 18. Fish stocking sub-sample data including CNP concentration.

Activity	fresh weight (g)	dry weight (g)	% dry weight	Carbon mgg^{-1}	Nitrogen mgg^{-1}	Phosphorus mgg^{-1}
trial 1 stocking						
A	12.1	3.4	28.1	506.0	104.9	15.8
B	13.1	3.7	28.2	501.0	108.5	16.1
C	14.0	4.2	30.0	475.0	54.5	4.3
D	12.2	3.8	31.2	.	.	.
mean	12.9	3.8	29.4	494.0	89.3	12.1
stdv	0.9	0.3	1.5	16.6	30.2	6.8
trial 1 harvest						
R1	323.8	99.4	30.7	460.0	29.8	3.4
R1	404.2	126.8	31.4	437.0	42.6	6.1
R2	306.1	94.8	31.0	480.0	40.2	6.9
R2	345.7	107.5	31.1	482.0	39.4	5.4
mean	345.0	107.1	31.0	464.8	38.0	5.4
stdv	42.7	14.1	0.3	21.0	5.6	1.5
trial 2 stocking						
A	9.4	2.2	23.8	383.0	106.0	31.9
B	11.2	2.7	24.3	393.0	96.0	28.5
C	10.5	2.4	22.9	379.0	101.0	27.8
D	10.2	2.4	23.9	399.0	101.0	26.8
E	10.4	2.6	24.9	394.0	102.0	26.0
F	12.9	3.4	26.4	405.0	93.8	25.6
mean	11.0	2.7	24.5	394.0	98.8	26.9
stdv	1.2	0.4	1.2	9.7	4.4	2.3
trial 2 harvest						
R1	400.3	128.2	32.0	794.6	156.4	25.8
R1	420.8	136.8	32.5	784.4	122.0	29.7
R1	499.5	178.4	35.7	805.2	149.2	29.2
R2	453.6	155.1	34.2	797.6	158.7	30.6
R2	547.3	180.7	33.0	823.3	146.7	26.2
mean	464.3	155.8	33.5	801.0	146.6	28.3
stdv	59.6	23.7	1.5	14.5	14.6	2.2

Appendix 19. Fish stocking and harvest CNP mass balance

Fish Carbon Nitrogen Phosphorus Mass Balance							
tank	# of fish	Fish mean individual fresh weight (g)	Crop fresh weight (g)	Crop dry weight(g)	Input / sequestered TC (g)	Input / sequestered TN (g)	Input / sequestered TP (g)
1.0	40.0	12.8	513.1	150.7	74.4	13.5	1.8
2.0	40.0	13.4	536.9	157.7	77.9	14.1	1.9
mean	40.0	13.1	525.0	154.2	76.2	13.8	1.9
stdv	0.0	0.3	11.9	3.5	1.7	0.3	0.0
1.0	38.0	388.6	14766.4	4582.8	2129.8	174.1	25.0
2.0	38.0	382.9	14549.6	4515.5	2098.6	171.6	24.6
mean	38.0	385.7	14658.0	4549.1	2114.2	172.9	24.8
stdv	0.0	2.9	108.4	33.6	15.6	1.3	0.2
1.0	20.0	12.4	248.0	60.7	23.8	9.3	3.7
2.0	19.0	11.1	210.9	51.6	20.2	7.9	3.1
mean	19.5	11.8	229.5	56.1	22.0	8.6	3.4
stdv	0.5	0.7	18.6	4.5	1.8	0.7	0.3
1.0	16.0	533.0	8528.0	2856.2	2287.79	418.70	80.81
2.0	15.0	508.3	7624.5	2553.6	2045.41	374.34	72.25
mean	15.5	520.7	8076.3	2704.9	2166.6	396.5	76.5
stdv	0.5	12.4	451.8	151.3	121.2	22.2	4.3

Appendix 20. Crayfish stocking and harvest data, including CNP concentrations

			fresh weight (g)	dry weight (g)	% dry weight	Carbon mgg ⁻¹	Nitrogen mgg ⁻¹	Phosphorus mgg ⁻¹
trial 1	stocking		8.9	2.3	25.8	358.3	71.5	9.3
			7.8	1.9	24.4	374.0	68.0	16.9
			7.2	2.0	27.8	370.7	70.9	8.0
			8.2	2.2	26.8			
			8.1	2.3	28.4			
			9.7	2.9	29.9			
			8.3	2.3	27.3			
mean			8.3	2.3	27.2	367.7	70.1	11.4
stdv			0.8	0.3	1.8	8.3	1.9	4.8
trial 1	harvest	r1	58.6	16.6	28.3	356.0	77.3	13.3
			52.1	16.4	31.5	349.0	69.7	12.2
			51.1	16.4	32.1	345.0	72.4	11.7
		r2	49.3	13.5	27.4	369.0	71.4	12.6
			49.2	12.4	25.2	350.0	69.3	12.9
			44.7	11.9	26.6			
mean			50.8	14.5	28.5	353.8	72.0	12.5
stdv			4.6	2.2	2.7	9.4	3.2	0.6
trial 2	harvest	r1	23.5	5.9	25.22	346.4	79.4	11.8
			17.2	4.3	25.33	348.5	78.0	12.9
			17.6	4.4	24.97	338.8	78.7	10.9
			18.8	5.4	28.80	355.0	79.1	12.2
			15.7	4.2	26.46	362.4	77.8	12.2
		r2	16.0	3.6	22.49	323.9	73.9	13.1
			26.0	6.6	25.43	315.4	73.4	12.0
			12.4	3.0	24.38	301.8	66.8	12.7
			14.0	3.4	24.05	320.3	69.4	12.6
			11.7	2.7	23.13	329.5	76.2	12.3
mean			17.3	4.4	25.0	334.2	75.3	12.3
stdv			4.6	1.3	1.8	19.2	4.4	0.6

Appendix 21. Crayfish CNP mass balance

Crayfish Carbon Nitrogen Phosphorus Mass Balance						
System	number of crayfish	crop weight (g)	crop dry weight (g)	Input / sequestered TC (g)	Input / sequestered TN (g)	Input / sequestered TP (g)
R1	10.0	85.3	23.2	8.5	1.6	0.3
R2	10.0	100.9	27.4	10.1	1.9	0.3
sum		186.2	50.6	18.6	3.5	0.6
mean		93.1	25.3	9.3	1.8	0.3
stdv		11.0	3.0	1.1	0.2	0.0
R1	8.0	469.0	133.7	47.3	9.6	1.7
R2	7.0	496.3	141.5	50.1	10.2	1.8
sum		965.3	275.3	97.4	19.8	3.4
mean		482.7	137.6	48.7	9.9	1.7
stdv		19.3	5.5	1.9	0.4	0.1
R1	121.0	1938.6	485.1	162.1	36.5	6.0
R2	176.0	1564.6	391.5	130.9	29.5	4.8
sum		3503.2	876.7	293.0	66.0	10.8
mean		1751.6	438.3	146.5	33.0	5.4
stdv		264.5	66.2	22.1	5.0	0.8

Appendix 22. Mussel sub-sample data, including CNP concentrations

mussel	fresh weight (g)	meat fresh weight	% meat	meat dry weight (g)	meat dw- % of total fw	Carbon mgg^{-1}	Nitrogen mgg^{-1}	Phosphorus mgg^{-1}
1.0	58.6	18.7	32.0	3.9	6.7	401.0	42.6	9.4
1.0	41.4	13.0	31.4	2.5	5.9	390.0	17.5	8.9
1.0	60.0	21.7	36.1	4.9	8.1	.	.	.
1.0	48.6	15.6	32.1	3.1	6.4	.	.	.
1.0	58.1	20.5	35.3	4.8	8.3	.	.	.
mean	53.3	17.9	33.4	3.8	7.1	395.5	30.0	9.2
stdv	8.1	3.6	2.2	1.1	1.1	7.8	17.8	0.4
n = 5						N = 2		

Appendix 23. Soil input core dry weight and sub-sample CNP concentrations

core	core soil dry weight (g)	Carbon mgg^{-1}	Nitrogen mgg^{-1}	Phosphorus mgg^{-1}
A	3.23	301.28	13.06	0.57
B	3.65	294.96	13.18	0.62
C	4.30	320.23	13.05	0.59
D	3.73	315.92	13.39	0.58
E	4.03	294.65	16.82	0.61
F	3.31	293.65	17.41	0.63
mean	3.71	303.45	14.48	0.60
stdv	0.38	10.70	1.87	0.02

Appendix 24 . Harvest soil core dry weight and CNP concentration

Wetland	dry weight soil from core (g)	dry weight soil in wetland (g)	concentration total carbon mg g-1	concentration total nitrogen mg g-1	concentration total phosphorus mg g-1
T1	4.5	229.1	233.41	4.67	1.17
T1	5.1	259.7	207.12	4.08	1.15
mean	4.8	244.4	220.27	4.37	1.16
stdv	0.4	21.6	18.59	0.42	0.01
T2	4.4	225.4	429.31	4.88	0.94
T2	5.4	276.2	330.76	6.00	0.96
mean	4.9	250.8	380.04	5.44	0.95
stdv	0.7	35.9	69.69	0.79	0.01
T3	4.6	232.3	303.73	4.93	0.86
T3	5.1	259.7	287.77	5.09	1.09
mean	4.8	246.0	295.75	5.01	0.98
stdv	0.4	19.4	11.29	0.11	0.16
T4	4.5	228.0	289.53	8.84	1.11
T4	5.3	267.2	320.01	5.95	1.13
mean	4.9	247.6	304.77	7.39	1.12
stdv	0.5	27.7	21.55	2.04	0.01
T5	4.3	218.6	249.46	5.04	0.98
T5	5.6	285.6	207.93	2.68	1.06
mean	5.0	252.1	228.70	3.86	1.02
stdv	0.9	47.4	29.37	1.66	0.06
T6	4.7	240.9	254.53	13.14	1.21
T6	5.1	258.2	273.22	14.61	1.12
mean	4.9	249.6	263.88	13.87	1.17
stdv	0.2	12.2	13.22	1.04	0.06
RI	17.8	2711.0	292.20	18.01	3.22
RI	26.4	4011.2	290.65	18.49	17.73
mean	22.1	3361.1	291.43	18.25	10.48
stdv	6.0	919.4	1.10	0.34	10.26
R2	29.3	4461.9	254.68	15.67	9.77
R2	18.9	2874.9	249.42	15.97	2.53
mean	24.1	3668.4	252.05	15.82	6.15
stdv	7.4	1122.2	3.72	0.21	5.12

Appendix 25. Wetland soil sequestration mass balance

Wetland Soil Sequestration Mass Balance			
wetland	total carbon (g)	total nitrogen (g)	total phosphorus (g)
T1	53.8	1.1	0.28
T2	95.3	1.4	0.24
T3	72.8	1.2	0.24
mean	73.97	1.22	0.25
stdv	16.95	0.12	0.02
T4	75.5	1.8	0.28
T5	57.7	1.0	0.26
T6	65.9	3.5	0.29
mean	66.32	2.09	0.28
stdv	7.28	1.03	0.01
R1	979.5	61.3	35.2
R2	924.6	58.0	22.6
mean	952.07	59.69	28.88
stdv	38.80	2.34	8.94

Appendix 26 Wetland plant sub-sample data CNP concentration at the time of planting

Plant Species	sample	fraction	carbon mg g ⁻¹	nitrogen mg g ⁻²	phosphorus mg g ⁻³
<i>Schoenoplectus validus</i>	A	shoot	373.10	9.52	3.09
T1 - T3		root	292.00	14.60	3.64
	B	shoot	375.22	8.13	2.84
		root	350.94	13.80	3.91
	C	shoot	355.13	9.29	3.22
		root	392.15	7.60	2.41
	D	shoot	368.48	8.82	3.86
		root	293.37	12.40	2.25
	E	shoot	366.70	10.48	3.32
		root	217.30	9.38	2.58
		shoot mean	367.73	9.25	3.27
		shoot stdv	7.83	0.87	0.38
		root mean	309.15	11.56	2.96
		root stdv	66.36	2.97	0.76
		total plant	338.44	10.40	3.11
		total plant stdv	54.20	2.40	0.59

<i>Baumea articulata</i>	A	shoot	392.69	7.47	0.61
T4-T6 and R2-R2		root	410.37	8.22	0.51
	B	shoot	405.42	8.63	0.98
		root	438.53	7.27	0.37
	C	shoot	399.69	7.36	0.66
		root	422.13	8.90	0.53
	D	shoot	402.32	7.71	0.78
		root	412.06	10.93	0.74
	E	shoot	402.00	8.25	0.91
		root	436.47	8.25	0.72
		shoot mean	400.42	7.88	0.79
		shoot stdv	4.78	0.54	0.16
		root mean	423.91	8.71	0.57
		root stdv	13.21	1.37	0.16
		total plant	412.17	8.30	0.68
		total plant stdv	15.52	1.07	0.19
<i>Schoenoplectus</i>	A	shoot	437.80	4.12	0.14
R1-R2 - supplement planting		root	386.81	7.48	0.59
	B	shoot	435.82	4.03	0.12
		root	407.22	7.76	0.36
	C	shoot	440.28	3.73	0.16
		root	413.13	8.08	0.33
	D	shoot	444.72	2.99	0.29
		root	411.91	7.81	0.18
	E	shoot	442.20	3.63	0.19
		root	387.20	8.46	0.52
		shoot mean	440.16	3.70	0.18
		shoot stdv	3.51	0.45	0.07
		root mean	401.25	7.92	0.40
		root stdv	13.19	0.37	0.16
		total plant	420.71	5.81	0.29
		total plant stdv	22.44	2.26	0.16

Appendix 27. Wetland planting CNP input mass balance

wetland		Fresh weight (g)	Dry weight (g)	Total carbon (g)	Total nitrogen (g)	Total phosphorus (g)
T1	above ground	209.4	19.1	7.0	0.18	0.06
	below ground	193.5	21.7	6.7	0.25	0.06
	total plant	402.8	41.0	13.7	0.43	0.13
T2	above ground	217.2	19.8	7.3	0.18	0.06
	below ground	200.8	22.5	6.9	0.26	0.07
	total plant	418.0	42.6	14.2	0.44	0.13
T3	above ground	242.0	22.0	8.1	0.20	0.07

	below ground	223.7	25.0	7.7	0.29	0.07
	total plant	465.7	47.5	15.8	0.49	0.15
T1-T3	total plant sum	1286.5	131.1	43.8	1.36	0.40
	mean	428.8	43.7	14.6	0.45	0.13
	stdv	32.8	3.3	1.1	0.03	0.01
	above ground sum	668.6	60.9	22.4	0.56	0.20
	mean	222.9	20.3	7.5	0.19	0.07
	stdv	17.5	63.6	20.8	0.68	0.01
	below ground sum	617.9	69.2	21.4	0.80	0.20
	mean	206.0	23.1	7.1	0.27	0.07
	stdv	15.8	1.8	0.5	0.02	0.01
T4	above ground	200.8	57.6	25.4	0.21	0.01
	below ground	250.4	43.6	17.5	0.35	0.01
	total plant	451.2	101.0	42.8	0.56	0.02
T5	above ground	111.3	57.5	25.3	0.21	0.01
	below ground	250.0	43.5	17.5	0.34	0.01
	total plant	450.6	100.9	42.8	0.56	0.02
T6	above ground	106.5	55.0	24.2	0.20	0.01
	below ground	239.2	41.6	16.7	0.33	0.01
	total plant	431.0	96.5	40.9	0.53	0.02
T4-T6	total plant sum	1332.8	298.4	126.6	1.65	0.05
	mean	444.3	99.5	42.2	0.55	0.02
	stdv	11.5	2.6	1.1	0.01	0.00
	above ground sum	418.6	170.2	74.9	0.63	0.03
	mean	139.5	56.7	25.0	0.21	0.01
	stdv	3.4	139.8	58.8	0.83	0.00
	below ground sum	739.5	128.7	51.6	1.02	0.02
	mean	246.5	42.9	17.2	0.34	0.01
	stdv	6.4	1.1	0.4	0.01	0.00
R1	shoot	161.4	46.3	20.4	0.17	0.01
R1	root	201.2	35.0	14.1	0.28	0.01
R1	total plant	362.6	81.2	34.4	0.45	0.02
R2	shoot	115.2	59.6	26.2	0.22	0.01
R2	root	258.8	45.0	18.1	0.36	0.01
R2	total plant	466.4	104.4	44.3	0.58	0.02
R1*	shoot	5408.0	1164.3	466.2	9.2	0.92
R1*	root	2234.8	339.9	144.1	3.0	0.19
R1*	total plant	7501.7	1493.6	615.6	12.4	0.43
R2*	shoot	5252.3	1091.5	437.1	8.6	0.86
R2*	root	2170.4	318.7	135.1	2.8	0.18
R2*	total plant	7285.7	1400.3	577.2	11.6	0.41
	* supplemental planting					
R1-R2	total plant sum	15616.5	3079.5	1271.5	25.0	0.88
	mean	7808.2	1539.8	635.8	12.5	0.44
	stdv	9870.1	1915.0	787.8	16.3	0.56

	above-ground sum	10936.9	2361.7	949.9	18.2	1.80
	mean	2734.2	590.4	237.5	4.5	0.45
	stdv	7342.4	1520.2	605.8	12.3	1.25
	below ground sum	4865.2	738.7	311.3	6.4	0.40
	mean	1216.3	184.7	77.8	1.6	0.10
	stdv	2789.7	409.1	174.7	3.6	0.25

Appendix 28. Wetland plant cores data taken at harvest

Wetland	sample	wetland shoot - fresh weight	wetland shoot - dry weight	shoot dry weight as % shoot fresh weight	Root - core fresh weight	Root - core dry weight	core root dry weight as % root fresh weight	wetland root - fresh weight	wetland root - dry weight
T1	A	1171.7	277.0	23.6	42.2	6.0	14.2	2145.5	305.3
	B				3.5	0.5	14.4	176.8	25.4
	mean				22.8	3.3	14.3	1161.1	165.4
	stdv				27.4	3.9	0.1	1392.1	197.9
T2	A	1804.0	398.5	22.1	66.4	10.0	15.1	3378.8	508.8
	B				13.7	2.0	14.6	698.4	101.8
	mean				40.1	6.0	14.8	2038.6	305.3
	stdv				37.2	5.7	0.3	1895.3	287.8
T3	A	3028.8	651.5	21.5	106.3	17.0	16.0	5409.9	865.0
	B				13.3	2.0	15.1	675.3	101.8
	mean				59.8	9.5	15.5	3042.6	483.4
	stdv				65.8	10.6	0.7	3347.9	539.7
T1-T3									
	mean	2001.5	442.3	22.4	40.9	6.3	14.9	2080.8	318.0
	stdv	944.2	191.1	1.1	39.6	6.3	0.6	2014.1	320.9
T4	A	3653.0	1148.5	31.4	128.3	22.5	17.5	6527.4	1144.9
	B				96.9	17.0	17.5	4931.8	865.0
	mean				112.6	19.8	17.5	5729.6	1005.0
	stdv				22.2	3.9	0.0	1128.3	197.9
T5	A	3540.3	1032.0	29.2	90.6	15.5	17.1	4612.4	788.7
	B				126.7	21.5	17.0	6446.8	1094.0
	mean				108.7	18.5	17.0	5529.6	941.4
	stdv				25.5	4.2	0.1	1297.1	215.9
T6	A	3493.1	1060.5	30.4	109.7	18.5	16.9	5580.1	941.4
	B				112.0	20.0	17.9	5698.2	1017.7
	mean				110.8	19.3	17.4	5639.2	979.5
	stdv				1.6	1.1	0.7	83.5	54.0
T4-T6									
	mean	3562.1	1080.3	30.3	110.7	19.2	17.3	5632.8	975.3
	stdv	82.2	60.7	1.1	15.2	2.7	0.4	774.9	136.2

R1*	A	181160.9	44112.7	24.4	1749.8	245.5	14.0	266173.1	37343.7
	B	182359.9	43200.1	23.7	1574.7	225.0	14.3	239534.2	34225.4
mean		181760.4	43656.4	24.0	1662.3	235.3	14.2	252853.7	35784.6
stdv		847.8	645.4	0.5	123.8	14.5	0.2	18836.6	2205.0
R2*	A	204076.1	50957.8	25.0	1794.5	282.0	15.7	272964.6	42895.8
	B	179242.7	41070.5	22.9	1474.5	220.5	15.0	224293.5	33540.9
mean		191659.4	46014.2	23.9	1634.5	251.3	15.3	248629.1	38218.4
stdv		17559.9	6991.4	1.5	226.3	43.5	0.5	34415.7	6614.9
R1-R2*									
mean		186709.908	44835.276	23.981	1648.390	243.250	14.747	250741.352	37001.462
stdv		11648.446	4276.104	0.883	149.772	28.031	0.754	22782.320	4263.912
Culture wetlands above ground core data found in sub appendix									

Sub appendix 28 A. Culture wetlands above ground core data

		core above ground fw	core above ground dw *	% DW
R1	A	1190.9	290	24.4
	B	1198.8	284	23.7
mean		1194.9	287	24.0
stdv		5.6	4.2	0.5
R2	A	1341.6	335	25.0
	B	1178.4	270	22.9
mean		1260.0	303	23.9
stdv		115.4	46.0	1.5
* scale sensitivity 1 g				

Appendix 29. Wetland harvest sub-sample CNP

Wetland	sample	fraction		total carbon mg g ⁻¹	total nitrogen mg g ⁻¹	total phosphorus mg g ⁻¹	
T1	A	above ground	<i>Schoenoplectus validus</i>	424.44	6.12	0.52	
		B		425.06	5.99	0.53	
	A	below ground		416.16	6.11	1.01	
		sample not returned from lab					
	B	above ground mean		424.75	6.05	0.53	
		stdv		0.44	0.10	0.01	
	below ground mean	416.16		6.11	1.01		
		stdv		0.00	0.00	0.00	
	T2	A		above ground	403.77	7.79	0.89
				B	407.33	7.51	0.90
A		below ground	401.47	5.78	0.87		
		B	413.60	6.95	1.38		
above ground mean		405.55	7.65	0.89			
		stdv	2.52	0.20	0.01		
below ground mean		407.54	6.37	1.13			
		stdv	8.58	0.83	0.36		
T3	A	above ground	405.50	8.31	0.72		
		B	406.36	7.88	0.72		
	A	below ground	393.76	7.67	0.79		
		B	427.87	11.55	1.54		
	above ground mean	405.93	8.09	0.72			
		stdv	0.61	0.31	0.00		
	below ground mean	410.82	9.61	1.16			
		stdv	24.12	2.74	0.53		
T4	A	above ground	<i>Baumea articulata</i>	424.39	4.98	0.29	
		B		430.04	4.81	0.28	
	A	below ground		233.41	4.67	0.40	
		B		207.12	4.08	0.52	
	above ground mean	427.22		4.89	0.28		
		stdv		4.00	0.13	0.01	

		below ground mean	220.27	4.37	0.46
		stdv	18.59	0.42	0.08
T5	A	above ground	421.69	4.58	0.31
	B		426.50	4.39	0.27
	A	below ground	429.31	4.88	0.68
	B		330.76	6.00	0.58
		above ground mean	424.10	4.48	0.29
		stdv	3.40	0.13	0.03
		below ground mean	380.04	5.44	0.63
		stdv	69.69	0.79	0.07
T6	A	above ground	427.66	5.05	0.30
	B		432.90	4.43	0.32
	A	below ground	303.73	4.93	0.70
	B		287.77	5.09	0.75
		above ground mean	430.28	4.74	0.31
		stdv	3.71	0.43	0.01
		below ground mean	295.75	5.01	0.72
		stdv	11.29	0.11	0.04
R1	A	above ground	427.55	13.52	1.24
	B		430.52	13.01	1.16
	A	below ground	289.53	10.34	1.99
	B		320.01	8.45	1.70
		above ground mean	429.04	13.26	1.20
		stdv	2.10	0.36	0.05
		below ground mean	304.77	9.39	1.84
		stdv	21.55	1.33	0.20
R2	A	above ground	426.97	14.06	1.92
	B		439.53	14.59	1.46
	A	below ground	249.46	9.54	2.13
	B		207.93	7.18	1.12
		above ground mean	433.25	14.32	1.69
		stdv	8.88	0.37	0.33
		below ground mean	228.70	8.36	1.63
		stdv	29.37	1.66	0.71

Schoenoplectus validus

Appendix 30. Wetland plant bound CNP at harvest

Wetland	sample	Fresh weight (g)	Dry weight (g)	Total carbon (g)	Total nitrogen (g)	Total phosphorus (g)
T1	above ground	1171.7	277.0	117.7	1.7	0.15
	below ground	1161.1	165.4	68.8	1.0	0.17
	sum	2332.8	442.4	186.5	2.7	0.31
T2	above ground	1804.0	398.5	158.0	3.0	0.35
	below ground	2038.6	305.3	124.4	1.9	0.35
	sum	3842.6	694.8	282.4	4.9	0.69
T3	above ground	3028.8	651.5	264.5	5.3	0.47
	below ground	3042.6	483.4	198.6	4.6	0.56
	sum	6071.4	1134.9	463.1	9.9	1.03
T1-T3	above ground mean	2001.5	439.3	180.0	3.3	0.32
	stdv	944.2	192.2	75.9	1.8	0.16
	below ground mean	2080.8	318.0	130.6	2.5	0.36
	stdv	941.5	159.4	65.1	1.9	0.20
T4	above ground	3653.0	1148.5	490.7	5.6	0.32
	below ground	5729.6	1005.0	221.4	4.4	0.46
	sum	9382.6	2153.5	712.0	10.0	0.78
T5	above ground	3540.3	1032.0	437.7	4.6	0.30
	below ground	5529.6	941.4	357.8	5.1	0.59
	sum	9069.9	1973.4	795.4	9.7	0.89
T6	above ground	3493.1	1060.5	456.3	5.0	0.33
	below ground	5639.2	979.5	289.7	4.9	0.71
	sum	9132.3	2040.0	746.0	9.9	1.03
T4-T6	above ground mean	3562.1	1080.3	461.5	5.1	0.32
	stdv	82.2	60.7	26.9	0.5	0.02
	below ground mean	5632.8	975.3	289.6	4.8	0.59
	stdv	100.2	32.0	68.2	0.4	0.12
R1	above ground	181760.4	43656.4	18730.3	578.9	52.4
	below ground	252853.7	35784.6	10906.1	336.0	65.8
	sum	434614.1	79441.0	29636.4	914.9	118.2
R2	above ground	191659.4	46014.2	19935.7	658.9	77.8
	below ground	248629.1	38218.4	8740.5	319.5	62.3
	sum	440288.5	84232.6	28676.2	978.4	140.1
R1-R2	above ground mean	186709.9	44835.3	19333.0	618.9	65.1
	stdv	6999.7	1667.2	852.3	56.6	17.9
	below ground mean	250741.4	37001.5	9823.3	327.8	64.1
	stdv	2987.2	1721.0	1531.3	11.7	2.5

Appendix 31. Algae sub-sample CNP concentrations

wetland	sample	total carbon mg g ⁻¹	total nitrogen mg g ⁻¹	total phosphorus mg g ⁻¹
		mg/g	mg/g	mg/g
T1	A	254.53	131.35	0.55
	B	273.22	146.11	0.58
T2	A	292.20	180.09	0.65
	B	290.65	184.94	0.64
T3	A	254.68	156.71	0.73
	B	249.42	159.72	0.71
mean		269.12	159.82	0.64
stdv		19.09	20.25	0.07
T4	A	301.28	130.60	0.71
	B	294.96	131.77	0.71
T5	A	320.23	130.45	0.40
	B	315.92	133.91	0.40
T6	A	294.65	168.20	0.60
	B	293.65	174.07	0.60
mean		303.45	144.83	0.57
stdv		11.72	20.49	0.14

Appendix 32. Algae bound CNP at harvest

wetland	dry weight algae harvested (g)	wetland total carbon (g)	wetland total nitrogen (g)	wetland total phosphorus (g)
T1	1061.0	280.0	147.2	0.6
T2	648.0	163.3	102.5	0.5
T3	467.0	117.7	18.6	0.0
mean	725.3	187.0	89.4	0.4
sum	2176.0	561.0	268.3	1.1
stdv	304.5	83.7	65.3	0.3
T4	202.5	60.4	26.6	0.1
T5	175.0	55.7	23.1	0.1
T6	200.5	59.0	34.3	0.1
mean	192.7	58.3	28.0	0.1
sum	578.0	175.0	84.0	0.3
stdv	15.3	2.4	5.7	0.0

Appendix 33. Wetland water CNP mass balance

wetland	tap water (L)	total nitrogen (g)	total phosphorus (g)
tap water influent			
R1	36934.5	12.6	1.6
R2	40036.5	13.3	1.7
mean	38485.5	13.0	1.7
stdv	2193.4	0.5	0.1
sum	76971.0	25.9	3.3
T1	1678.7	0.8	0.04
T2	1732.7	0.8	0.04
T3	1479.1	0.8	0.04
mean	1630.1	0.8	0.0
stdv	179.3	0.0	0.0
sum	4890.4	2.4	0.1
T4	1423.3	0.7	0.03
T5	1603.2	0.5	0.04
T6	1795.6	0.6	0.04
mean	1607.4	0.6	0.0
stdv	136.1	0.1	0.0
sum	4822.1	1.7	0.1
R1-R2 effluent (to basin)			
basin	4233.0	13.2	8.3
R1-R2 effluent (T1-T6 influent)			
T1	2877.6	3.8	1.4
T2	2877.6	3.8	1.4
T3	2877.6	3.8	1.4
sum	8632.8	11.3	4.2
T4	2877.6	3.8	1.4
T5	2877.6	3.8	1.4
T6	2877.6	3.8	1.4
sum	8632.8	11.3	4.2
T1-T6 effluent			
T1	2162.0	0.8	0.2
T2	1919.0	0.7	0.2
T3	2079.0	0.7	0.2
mean	2053.3	0.7	0.2

stdv	123.5	0.0	0.0
sum	6160.0	2.2	0.6
T4	2031.0	0.6	0.2
T5	1993.0	0.7	0.2
T6	2041.0	0.8	0.2
mean	2021.7	0.7	0.2
stdv	25.3	0.1	0.0
sum	6065.0	2.0	0.5

Appendix 34 - Initial culture system design and planning

At the project's conception the experimentation was to proceed at the Stanwell power plant located in Queensland, Australia. The technologies were designed to use

Aquaculture Raceway

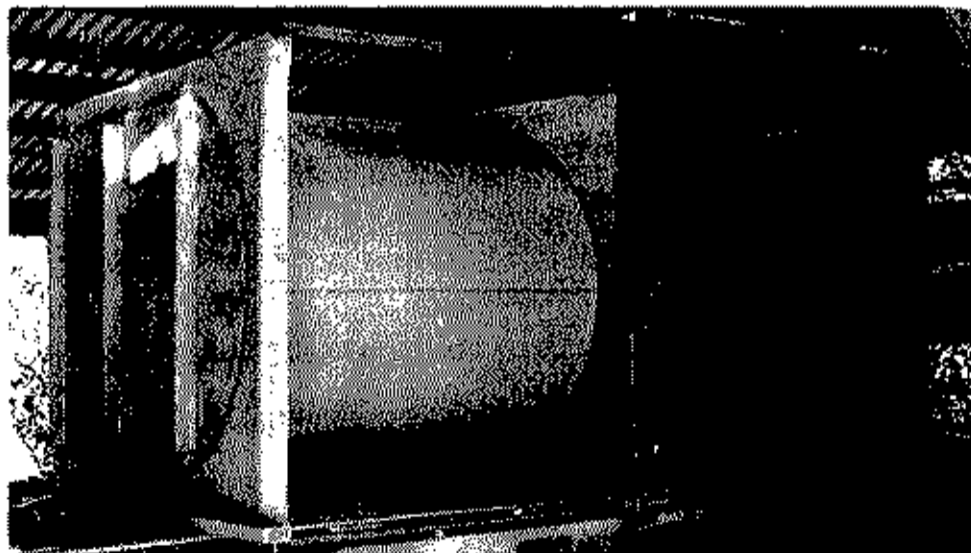
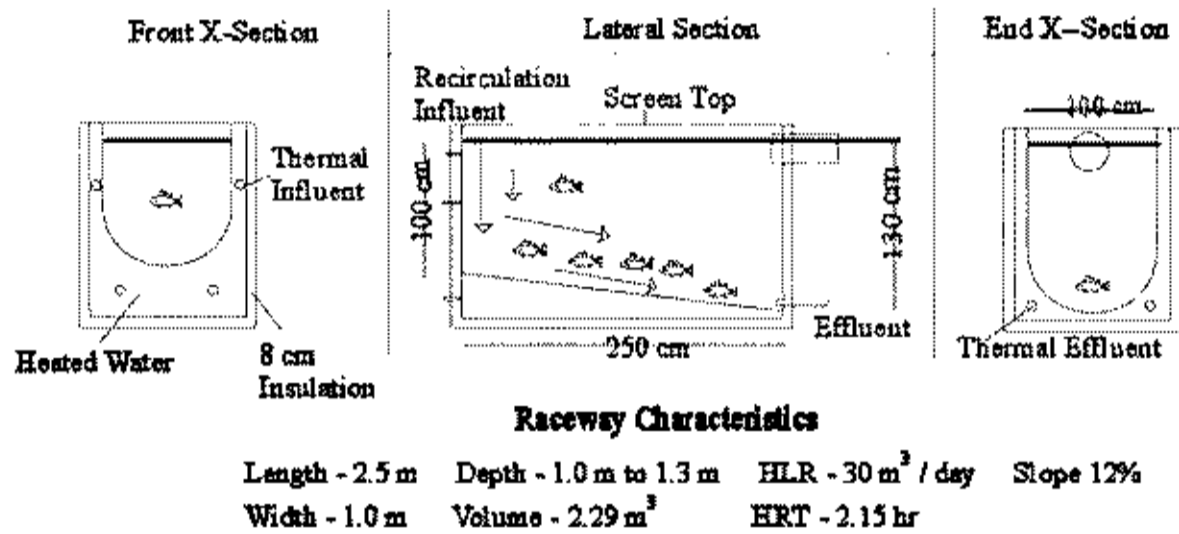


Plate 2.4. Original culture raceway design.

large volumes of wastewater, hydrating three aquaculture raceways (plate 2.4) in a flow-through system.

However, six months later the logistics of incorporating the project at the intended site proved too expensive and problematic as reported by Stanwell environmental officers. A new site was negotiated, resulting in a 200-m² plot opened to the project at Central Queensland University, city of Rockhampton, Queensland, Australia (23° 24' S / 150° 30' E). Negotiations restricted the experiment to a small land area without pipeline access to power station cooling pond wastewater. Using what was deemed to be excessive amounts of fresh tap water (in replacement of power plant waste water) to produce a comparatively low quantity of fish was determined not only to be wasteful, but too expensive (as the water needed to be paid for and heated by an external electrical source). Therefore a change from flow-through to a recirculating hydrology required a total re-design of the system. Raceways were chosen initially as the tank design because *Lates calcarifer* (barramundi) culture in raceways had been attempted successfully. A prototype raceway was constructed and patched into the university aquaculture system and trialed from July 1-27 2000, successfully housing three 400.0 g barramundi. Fish were fed twice a day and it was observed that debris did not accumulate on the bottom of the raceway thus supporting the efficacy of the design.

However, raceways require high length to width/depth ratios in order to reach the velocities needed to keep solids from settling on the bottom, and the original raceway design had to be scaled down disproportionately to meet new land area restrictions, with decreases in length and to a lesser degree depth, but not width. Low length /depth to width ratios are not conducive to laminar flow from a single influent point and given a set hydraulic loading rate, a reduction in velocity and increased water turbulence can be expected as a design decreases length to width/depth ratios. A one-

meter width (used in the original) was considered the minimum for barramundi culture. The resulting raceway design that fit physically and hydrologically within the land area allocated at the new experimental site would have required impractical modifications to over-come the hydraulic problems described above. The original culture raceway was custom fashioned from fiberglass (plate 2.4) and was abandoned prior to completion.

Appendix 2. Individual sample metal concentration.

Sample Tissue Metal Concentration									
	As ug kg ⁻¹	Cd ug kg ⁻¹	Cu mg kg ⁻¹	Hg ug kg ⁻¹		As ug kg ⁻¹	Cd ug kg ⁻¹	Cu mg kg ⁻¹	Hg ug kg ⁻¹
fish	326	11	9.7	84	plant AG	261	140	3.9	44
0 %	413	1	2.5	20	0 %	320	140	4.3	31
	616	24	4.1	12		296	94	1.9	60
	542	18	1.0	26		383	137	5.3	26
	527	134	28.9	17		451	119	4.6	22
mean	485	38	9	32	mean	342	126	4	37
stdv	115	55	11	30	stdv	75	20	1	16
fish	494	0	16.4	49	plant AG	321	93	2.6	21
50 %	498	62	5.0	29	50 %	305	59	3.3	110
	525	3	1.9	34		212	348	3.3	238
	654	10	6.0	35		243	105	2.2	34
	501	11	0.8	25		348	159	11.8	185
mean	534	17	6	34	mean	286	153	5	118
stdv	68	26	6	9	stdv	57	115	4	94
fish	534	0	14.9	74	plant AG	367	107	2.8	40
100 %	627	21	4.4	28	100 %	833	182	5.7	23
	535	25	1.3	15		362	108	4.2	28
	582	0	1.2	32		349	131	2.0	54
	454	4	2.5	30		mean	478	132	4
mean	546	10	5	36	stdv	237	35	2	14
stdv	64	12	6	22					
crayfish	301	-9	32.7	83	plant BG	528	412	25.6	65
0 %	194	26	33.8	89	0 %	441	318	19.2	45
	198	66	35.5	58		403	370	23.2	58
	190	96	25.7	85		454	540	22.8	65
	mean	221	45	32		79	468	346	26.1
stdv	54	46	4	14	mean	459	397	23	63
					stdv	46	87	3	14
crayfish	207	11	37.9	66	plant BG	398	325	23.6	57
50 %	411	82	17.8	85	50 %	978	310	28.9	135
	162	81	26.1	79		778	717	41.0	104
	174	16	17.4	65		458	453	30.3	71
	mean	238	47	25		74	531	441	31.0
stdv	117	39	10	10	mean	629	449	31	86
					stdv	243	163	6	33
crayfish	83	18	32.9	58	plant BG	562	420	37.2	34
100 %	122	45	29.2	77	100 %	1261	975	43.2	82
	60	32	12.1	124		599	434	26.0	76
	201	25	41.5	65		794	483	32.2	67
	44	18	12.5	127		mean	804	578	35
mean	102	27	26	90	stdv	321	266	7	21
stdv	62	11	13	33					

Appendix 3. *Cherax quadricarinatus* growth and sample individual fresh and dry weights

Date	28/03/03	28/04/03	27/05/03	23/06/03							
	Weight (g)	Weight (g)	Weight (g)	Weight (g)	dry weight (g)	tail dry weight (g)	% dry weight	% tail meat	food consumed	Fresh weight gained (g)	FCR
0.00											
T1	12.80	21.00	35.20	50.74	13.85	1.31	0.27	9.46	100.9	37.94	2.66
T6	13.70	16.20	21.50	22.83	6.01	0.62	0.26	10.32	100.9	9.13	11.05
T9	10.30	27.90	28.00	37.20	9.93	0.99	0.27	9.97	101.7	26.90	3.78
T11	25.80	28.00	42.00	44.79	11.29	1.12	0.25	9.92	102.1	18.99	5.38
T12	11.40	18.10	18.50						55.6 *		
mean	14.80	22.24	29.04	38.89	10.27	1.01	0.26	9.92	101.4	23.24	5.72
stdv	6.29	5.49	9.68	12.06	3.27	0.29	0.01	0.35	0.6	12.20	3.73
0.50											
T3	15.70	16.30	26.50	28.89	7.89	0.80	0.27	10.14	101.1	13.19	7.66
T5	11.20	20.20	36.00	55.17	14.51	1.60	0.26	11.03	101.6	43.97	2.31
T7	12.70	21.20	30.50						61.4*		
T13	11.60	18.70	20.00	28.89	7.74	0.82	0.27	10.59	102.1	17.29	5.91
T15	10.70	21.80	23.00	30.35	7.86	0.80	0.26	10.18	101.5	19.65	5.20
mean	12.38	19.64	27.20	35.83	9.50	1.01	0.27	10.48	101.6	23.53	5.27
stdv	2.00	2.21	6.29	12.92	3.34	0.40	0.01	0.42	0.4	13.89	2.23
1.00											
T2	30.20	50.60	54.00	54.18	13.76	1.34	0.25	9.74	100.8	23.98	4.20
T4	14.10	23.10	33.00	35.87	10.01	1.01	0.28	10.09	102.5	21.77	4.71
T8	18.60		28.00	28.55	7.53	0.85	0.26	11.29	101.7	9.95	10.22
T10	19.30	20.00	30.00	30.49	7.93	0.82	0.26	10.34	101.5	11.19	9.07
T14	12.40	12.90	19.50	20.65	5.43	0.51	0.26	9.39	101.6	8.25	12.32
mean	18.92	26.65	32.90	33.95	8.93	0.91	0.26	10.17	101.6	15.03	8.11
stdv	6.95	16.53	12.82	12.56	3.15	0.30	0.01	0.72	0.6	7.28	3.53
* not included in mean and stdv											

Appendix 4. *Baumea articulata* individual fresh and dry weight, sub-divided in to root and shoot values.

	planting)		harvest									
	fresh weight (g)	dry weight (g)	fresh weight (g)	dry weight (g)	fresh weight roots (g)	fresh weight shoot (g)	Dry weight (g) shoot	Dry weight (g) Roots	Dry weight (g) plant shed	growth rate % spd d-1	survival	
0.00												
T1	96.6	20.0	117.5	22.0	44.5	73.0	9.2	10.4	2.3	0.11	100	
T6	130.2	27.0	189.0	38.3	70.0	119.0	18.8	18.3	1.2	0.40	100	
T9	87.0	18.0	162.5	31.8	63.5	99.0	17.5	14.3	0.0	0.64	100	
T11	78.2	16.2	126.5	22.4	60.0	66.5	15.3	7.1	0.0	0.37	100	
T12	68.2	14.1	51.5	10.5	27.0	24.5	6.0	2.6	1.9	ng	100	
mean	92.0	19.1	129.4	25.0	53.0	76.4	13.4	63.0	1.1	0.38	100	
stdv	23.8	4.9	52.1	10.6	17.3	35.8	5.5	30.3	1.1	0.22	0	
0.50												
T3	121.6	25.2	127.0	27.4	39.0	88.0	16.9	10.0	0.5	0.10	100	
T5	109.4	22.6	99.0	24.1	47.5	51.5	12.3	10.5	1.3	0.07	100	
T7	73.4	15.2	46.0	11.6	22.5	23.5	5.9	2.4	3.3	ng	100	
T13	65.1	13.5	102.5	22.3	36.5	66.0	9.0	12.9	0.4	0.56	100	
T15	76.1	15.8	77.5	17.6	28.0	49.5	6.7	10.0	0.9	0.12	100	
mean	89.1	18.4	90.4	20.6	34.7	55.7	10.1	45.6	1.3	0.21	100	
stdv	24.8	5.1	30.4	6.2	9.7	23.7	4.5	19.2	1.2	0.23	0	
1.00												
T2	108.3	22.4	0.0	3.8	0.0	0.0	0.0	0.0	3.8	ng	0	
T4	80.1	16.6	97.5	18.9	50.5	47.0	11.8	5.9	1.3	0.15	100	
T8	86.8	18.0	65.0	14.9	20.0	45.0	5.7	6.8	2.4	ng	100	
T10	70.3	14.6	121.5	22.7	46.5	75.0	12.8	9.9	0.0	0.50	100	
T14	81.2	16.8	240.5	48.9	97.5	143.0	25.1	23.7	0.0	1.21	100	
mean	85.3	17.7	104.9	26.3	42.9	62.0	11.1	9.3	1.5	0.62	80	
stdv	14.1	2.9	88.5	15.3	36.8	52.6	9.4	8.8	1.6	0.54	45	

ng = negative growth

Appendix 5. Planting fresh and dry weight sub sampling.

	plant fresh weight (g)	plant dry weight (g)	% dw
1	97.42	19.4	0.20
2	98.86	23.1	0.23
3	100.1	20.0	0.20
4	100.56	22.5	0.22
5	101.52	19.7	0.19
6	101.8	20.5	0.20
7	102.12	21.2	0.21
8	102.64	19.8	0.19
9	103.98	21.1	0.20
10	105.4	22.8	0.22
mean	101.44	21.01	0.21
stdv	2.35	1.38	0.01

Appendix 6. Replicate water use over the experiment.

Replicate Water Use (L)															
	date	25/03/03	28/03/03	01/04/03	07/04/03	11/04/03	14/04/03	17/04/03	21/04/03	25/04/03	29/04/03	02/05/03	05/05/03	06/05/03	10/05/03*
0 %															
R1		60	15	10	15	10	10	10	10	3	7	2		11	9
R6		60	15	10	15	10	10	10	10	0	6	3		9	7
R9		60	15	10	15	10	10	10	10	6	10	5		13	11
R11		60	15	10	15	10	10	10	10	7	10	6		13	10
R12		60	15	10	15	10	10	10	10	3	10	4		10	11
Sum		300	75	50	75	50	50	50	50	19	43	21		56	48
mean		60	15	10	15	10	10	10	10	4	9	4		11	10
stdv		0	0	0	0	0	0	0	0	3	2	2		2	2
50 %															
R3		60	15	10	15	10	10	10	10	3	8	8		11	7
R5		60	15	10	15	10	10	10	10	3	8	5	31	3	7
R7		60	15	10	15	10	10	10	10	4	7	6		9	7
R13		60	15	10	15	10	10	10	10	2	10	5		10	7
R15		60	15	10	15	10	10	10	10	4	9	6		12	8
Sum		300	75	50	75	50	50	50	50	15	43	29	31	44	36
mean		60	15	10	15	10	10	10	10	3	9	6	31	9	7
stdv		0	0	0	0	0	0	0	0	1	1	1		3	0
100%															
R2		60	15	10	15	10	10	10	10	2	8	6		11	12
R4		60	15	10	15	10	10	10	10	5	10	6		9	9
R8		60	15	10	15	10	10	10	10	2	7	4		10	10
R10		60	15	10	15	10	10	10	10	2	9	4		13	10
R14		60	15	10	15	10	10	10	10	9	11	7		15	10
Sum		300	75	50	75	50	50	50	50	20	45	28		58	51
mean		60	15	10	15	10	10	10	10	4	9	6		12	10
stdv		0	0	0	0	0	0	0	0	3	2	1		2	1

* system leak

Appendix C - 1. Fish fresh weight and dry weight at stocking and harvest; and post culture fillet sample dry weight.

	6/5/2003- stocking	7/29/2003 - harvest				
	weight (g)	FW weight	dry weight fillet (g)	dry weight body(g)	fish dry weight (g)	% dry weight
cage 1	63.5	89.7	6.9	18.5	25.4	28.3
	54	96.1	6.6	18.4	25	26.0
	43.9	131	10.1	26.1	36.2	27.6
	51.5	115.1	8.9	21.4	30.3	26.3
	57.5	108.3	8.9	21.3	30.2	27.9
	56	57.2				
	60	71.5				
	77.5	78.2				
	61.5	66.4				
	42.5					
mean	56.79	90.39	8.28	21.14	29.42	27.24
stdv	10.08	24.49	1.48	3.13	4.56	1.01
cage 2	37	98.1	8	19.6	27.6	28.1
	64	82.3	6.6	16.4	23	27.9
	44	132.8	10.3	25.7	36	27.1
	48	93.9	7.4	19	26.4	28.1
	53.5	90.5	7	19.4	26.4	29.2
	53	81.2				
	52	62.8				
	54.5	40.1				
	52.5	71.4				
	68	72.1				
mean	52.65	82.52	7.86	20.02	27.88	28.10
stdv	8.89	24.46	1.46	3.43	4.85	0.73
cage 3	60.5	123.1	9.2	24.3	33.5	27.2
	62	87.8	6.6	17.2	23.8	27.1
	58.5	91.1	7.1	15.2	22.3	24.5
	60	75.7	6	12.6	18.6	24.6
	46	106.3	8.5	21.1	29.6	27.8
	45	101.4				
	60	133				
	60.5	104.9				
	54	115.9				
	51	53.07				
mean	55.75	99.227	7.48	18.08	25.56	26.24
stdv	6.36	23.47	1.33	4.66	5.95	1.59
CQU	44.5	51.2	2.8	10.1	54	25.2
	57	65	3.5	14.3	68.5	27.4
	49	55.6	3.1	11.5	58.7	26.3
	55.5	66.1	4.4	14.1	70.5	28
	66	74.8	4.3	15	79.1	25.8

	69	77.9				
	71.5	84.9				
	75.5	84.3				
	50	58.7				
	53	63.4				
mean	59.10	68.19	3.62	13.00	66.16	26.54
stdv	10.65	11.79	0.71	2.10	9.94	1.15

Appendix 2. Metal concentration of dry weight fish tissue samples post harvest.

Sample	Cu mg/kg	As ug/kg	Cd ug/kg	Hg ug/kg
C1F1	16.0	2209	2995	657
C1F2	15.1	1479	2911	558
C1F3	22.0	3047	4035	411
C1F4	10.8	311	2521	583
C1F5	20.0	2573	4150	453
mean	16.8	1924.0	3322.3	532.4
stdv	3.9	955.3	649.6	89.2
C2F1	7.9	255	2072	254
C2F2	6.7	115	1341	394
C2F3	5.1	716	1155	244
C2F4	4.5	78	520	331
C2F5	14.2	670	832	288
mean	7.7	366.9	1184.0	302.1
stdv	3.5	273.1	525.4	54.9
C3F1	5.2	127	1149	262
C3F2	4.8	162	1338	315
C3F3	8.2	729	1491	279
C3F4	3.1	532	2181	210
C3F5	5.0	562	3450	228
mean	5.3	422.3	1921.8	258.8
stdv	1.6	237.1	839.7	37.3
U1F1	3.5	462	2581	274
U1F2	4.2	232	864	195
U1F3	6.9	1300	1753	255
U1F4	10.7	1412	2596	265
U1F5	7.0	1012	1644	232
mean	6.5	883.3	1887.5	244.5
stdv	2.5	462.8	649.4	28.3

Appendix D - 1. Manutec hydroponic nutrient composition

Manutec

GARDEN CARE PRODUCTS

PART 1

ANALYSIS	%W/W
Nitrogen (N) as Nitrate	6.2
Nitrogen (N) as Ammonium	1.4
TOTAL NITROGEN (N)	7.6
Phosphorus (P) as Water Soluble	3.1
TOTAL PHOSPHORUS (P)	3.1
Potassium (K) as Nitrate	18.2
TOTAL POTASSIUM (K)	18.2
Sulphur (S) as Sulphates	4.5
Magnesium (Mg) as Sulphate	3.5
Iron (Fe) as Chelate	0.34
Manganese (Mn) as Sulphate	0.08
Zinc (Zn) as Sulphate	0.04
Copper (Cu) as Sulphate	0.03
Boron (B) as Sodium Borate	0.003
Molybdenum (Mo) as Molybdate	0.001

PART 2

ANALYSIS	%W/W
Calcium (Ca) as Nitrate	19.0
Nitrogen (N) as Nitrate	15.5

CONCENTRATION OF THE DILUTED SOLUTION WHEN 2 PARTS DISSOLVED AT RECOMMENDED RATES

ELEMENT	CONCENTRATION (PPM)
TOTAL NITROGEN (N)	215.0
TOTAL PHOSPHORUS (P)	37.0
TOTAL POTASSIUM (K)	218.0
Calcium (Ca)	152.0
Sulphur (S)	54.0
Magnesium (Mg)	42.0
Iron (Fe)	4.08
Manganese (Mn)	0.96
Zinc (Zn)	0.48
Copper (Cu)	0.36
Boron (B)	0.036
Molybdenum (Mo)	0.012

NOTE: PPM = PARTS PER MILLION
PPM = % x 10,000

Appendix 3. Electrochemical water quality (Trial C)

Date	treat- rep	Time	Oxy	TDS	pH	Temp
27/6/2003	0-1	14:25:21	6.2	1160	6.72	18.4
27/6/2003	0-2	14:28:46	6.32	1187	7.38	18.1
27/6/2003	0-3	14:32:14	5.75	1268	7.31	18.3
27/6/2003	0-4	14:33:44	5.96	1267	7.18	18.1
27/6/2003	0-5	14:36:51	5.84	1197	7.26	19.4
27/6/2003	100-1	14:26:09	6.67	2840	7.09	17.9
27/6/2003	100-2	14:30:22	6.23	3220	7.36	18.6
27/6/2003	100-3	14:31:20	6.13	3320	7.53	18.5
27/6/2003	100-4	14:33:01	5.87	3020	7.26	18.2
27/6/2003	100-5	14:35:21	5.42	3710	7.36	18.9
27/6/2003	50-1	14:27:02	6.59	2360	7.29	17.7
27/6/2003	50-2	14:29:37	6.01	2030	7.31	18.3
27/6/2003	50-3	14:27:52	6.93	2280	7.42	18.1
27/6/2003	50-4	14:36:03	5.71	2340	7.35	19.2
27/6/2003	50-5	14:34:38	5.63	2310	7.23	18.6
11/7/2003	0-1	12:51:08	6.59	1216	4.28	20.2
11/7/2003	0-2	12:54:12	7.03	1192	4.61	20.1
11/7/2003	0-3	12:56:57	6.78	1194	4.36	20.3
11/7/2003	0-4	12:58:17	6.87	1241	4.57	20.2
11/7/2003	0-5	13:01:19	6.67	1275	4.12	21.2
11/7/2003	100-1	12:51:57	7.02	2840	4.52	19.8
11/7/2003	100-2	12:55:37	7.05	3240	4.32	20.7
11/7/2003	100-3	12:56:17	6.79	3180	4.71	20.6
11/7/2003	100-4	12:57:36	7.01	2920	4.4	20.2
11/7/2003	100-5	12:59:44	6.6	3580	4.74	20.7
11/7/2003	50-1	12:52:43	6.82	2310	4.47	19.4
11/7/2003	50-2	12:54:56	6.79	1960	4.62	20.3
11/7/2003	50-3	12:53:30	7.3	2220	4.67	19.9
11/7/2003	50-4	13:00:31	6.41	2270	4.69	21
11/7/2003	50-5	12:59:02	6.82	2250	4.61	20.4
27/7/2003	0-1	15:28:32	8.24	1359	7.42	11.9
27/7/2003	0-2	15:31:48	8.15	1318	7.9	12.4
27/7/2003	0-3	15:35:02	8.14	1342	7.86	12.5
27/7/2003	0-4	15:36:31	8.27	1385	7.9	12.4
27/7/2003	0-5	15:39:38	7.52	1426	7.63	14.3
27/7/2003	100-1	15:29:15	8.41	3380	7.51	11.7
27/7/2003	100-2	15:33:24	7.51	4310	7.65	13.4
27/7/2003	100-3	15:34:19	7.88	3510	7.95	12.8
27/7/2003	100-4	15:35:47	8.14	3240	7.69	12.3
27/7/2003	100-5	15:38:12	7.6	3950	7.92	13.7
27/7/2003	50-1	15:30:03	8.42	2570	7.63	11.6
27/7/2003	50-2	15:32:33	8.39	2070	7.85	12.6
27/7/2003	50-3	15:30:52	8.21	2450	7.78	12.1
27/7/2003	50-4	15:38:54	7.44	2500	7.99	14.1
27/7/2003	50-5	15:37:21	7.93	2460	7.87	13.1
9/8/2003	0-1	13:35:13	6.14	748	7.68	22.3
9/8/2003	0-2	13:38:27	6.67	1464	8.09	22

9/8/2003	0-3	13:41:14	6.39	1415	8.14	22.2
9/8/2003	0-4	13:42:37	6.12	1530	8.11	22
9/8/2003	0-5	13:45:36	6.42	1530	7.99	23.3
9/8/2003	100-1	13:36:00	6.67	3890	7.8	21.9
9/8/2003	100-2	13:39:44	6.58	5300	7.91	22.8
9/8/2003	100-3	13:40:29	6.13	4000	8.19	22.6
9/8/2003	100-4	13:41:54	6.54	3610	7.98	22
9/8/2003	100-5	13:44:09	6.05	4350	8.11	22.7
9/8/2003	50-1	13:36:48	6.31	2900	7.93	21.7
9/8/2003	50-2	13:39:08	6.38	2290	8.04	22.1
9/8/2003	50-3	13:37:39	6.5	2740	8.07	21.9
9/8/2003	50-4	13:44:54	5.97	2740	8.11	22.9
9/8/2003	50-5	13:43:26	6.53	2660	8.08	22.4