Report on Seagrass Monitoring in Komodo National Park

July 2002 – July 2003




Report from The Nature Conservancy, Southeast Asia Center for Marine Protected Areas in collaboration with Komodo National Park authority
October 2004

The Nature Conservancy
SAVING THE LAST GREAT PLACES ON EARTH

TAMAN NASIONAL KOMODO

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Compiled by: Mirza Pedju
TNC Southeast Asia Center for Marine Protected Areas

Bali Office
Jalan Pengembak No 2, DPS-Bali 80228,Indonesia
Tel+62-361-287272; Fax+62-361-270737
www.tnc-seacmpa.org; ww.nature.org

Komodo Field Office
Kampung Ujung, Labuan Bajo – NTT, Indonesia
Tel+62-385-41214, Fax+62-385-41225
www.komodonationalpark.org

Table of Contents

List of Tables and Figures

Introduction

Komodo National Park (KNP) is a World Heritage Site and known for its Komodo dragons (*Varanus komodoensis*). Located in Nusa Tenggara Timur Province (NTT) – Indonesia, KNP covers 603 km^2 of land and 1,214 km^2 of marine area (Figure 1). Upon the request from the Ministry of Forestry – Directorate General for Forest Protection and Nature Conservation (PHKA), The Nature Conservancy South East Asia Center for Marine Protected Areas (TNC – SEACMPA) presently provides assistance for KNP's coastal and marine conservation management.

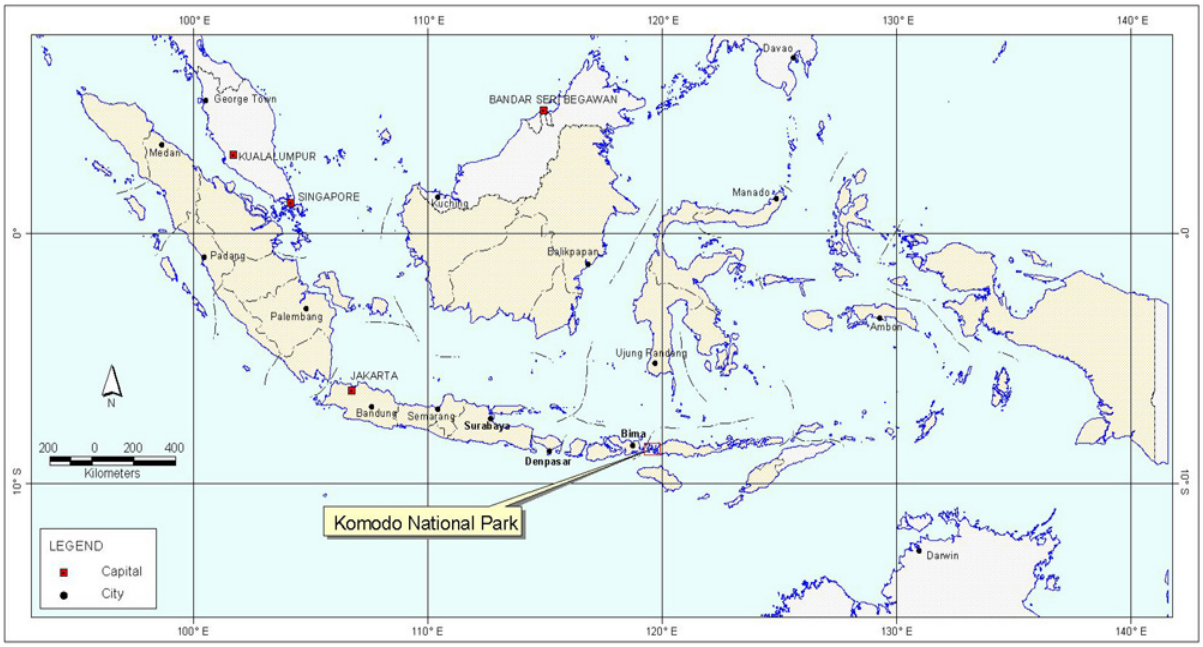


Figure 1. Map of Indonesia with location of Komodo National Park.

Marine biodiversity in Komodo National Park includes 1000 species of fishes, 260 species of reef-building corals, 70 species of sponges, 2 species of turtles, resident manta rays populations, and 18 species of whales and dolphins. Seagrass communities are also found in the Park. These highly productive systems are important nutrient traps and they stabilize the sandy bottoms of bays and lagoons. Furthermore, they are an important shelter for young fish and invertebrates, and they are a food source for dugongs that are occasionally spotted in the Park, sea turtles, molluscs and sea urchins.

It is known that seagrass beds are found mostly in the Northern area of the Park, but their spatial distribution has not been properly assessed. Given the importance of seagrasses there is a need to assess their spatial distribution, species composition and condition. A better understanding of seagrass will help to timely identify threats and to take conservation action where needed. Therefore a seagrass monitoring program was developed in cooperation with *SeagrassNet* and *Seagrass Watch*.

Materials and Methods

The seagrass monitoring program was initiated after a training program that took place in July 2002. This report briefly summarize the progress of the seagrass monitoring program conducted in the period of July 2002 – July 2003. For more detail, see appendices.

SeagrassNet
SeagrassNet is a thorough seagrass monitoring approach that provides observers with comprehensive data on species composition and condition. The approach requires considerable time and effort, both in the field and in laboratory. Hence, spatial coverage is traded off against more detailed information per unit sampling effort. This monitoring technique can only be implemented by well–trained scientists and Park monitoring personnel. SeagrassNet sites are being set up around the world.

Five monitoring session were conducted at two *SeagrassNet* sites at Seraya Kecil and Papagaran (Appendix 1 and 2) in the period 2002 - 2003. Seraya Kecil island is located outside the Park, whereas Papagaran island is located inside the Park.

SeagrassWatch
Seagrass Watch is a seagrass monitoring approach that was designed to allow rapid assessment of seagrass community by both scientists and the general public. This method is relatively easy to implement and may be used to provide general information of seagrass distribution in a large area. Hence, detailed information is traded off against a higher spatial coverage per unit sampling effort.

Four seagrass watch monitoring sites established were established, two at Seraya Kecil island, and two at Papagaran island (Appendix 1 and Appendix 2). Similar to *SeagrassNet*, five monitoring sessions were conducted at each site between July 2002 to July 2003.

Results and Discussion

SeagrassNet

Raw data for observation results is available in Appendix 7.

Averages of observations made at these two monitoring sites were tabulated (Table 1). Trends of average percentage cover of the two sites were calculated and then compared (Seraya Kecil vs Papagaran; Figure 2), similarly comparisons were made within each site for the average percentage cover per species observed (Figure 3, and Figure 4).

The average percentage cover of seagrass bed inside the Park (i.e. Papagaran site) was higher than that in Seraya Kecil island (located outside the Park). The percentage cover of seagrass in both Seraya Kecil and Papagaran decreased between July – October 2002, and started to increase after January 2003, it peaked in April in the same year, before started to decrease again in July.

Enhalus acoroides was the dominant species that contributed to the percentage cover at both sites. At, Papagaran, *E.acoroides* and *Thalassia hemprichii* made up the majority of the species cover, while other species such as: *Halophila ovalis* and *Cymodocea rotundata* were also present but not significant on the seagrass meadow observed. At Seraya Kecil more species were observed i.e. 7 species compared to only 4 species on Papagaran. Similarly, at Seraya Kecil, both *E.acoroides* and *T. hemprichii* were the dominant species that made up the total seagrass percentage cover.

Seagrass Watch

Averages of observations made on 33 quadrants per site were tabulated (Table 2). Averages of seagrass cover at Seraya Kecil and Papagaran island were compared (Figure 5and Figure 6 respectively), as well as the average per spesies cover on two sites at Seraya Kecil(Figure 7 and Figure 8) and two sites on Papagaran (Figure 9 and Figure 10). Raw data on Seagrass watch monitoring sites is available in Appendix 8.

On Serarya Kecil, similar trends were observed with SeagrassNet sites. That is seagrass percentage cover was decreasing between July 2002 to January 2003 before it started to increase and peaked in April 2003. Then, seagrass cover began to decrease again from April to July 2003..

Table 1. Averages of observations for 12 quadrants per transect line (shallow, middle, and deep) at two SeagrasNet sites: Seraya Kecil and Papagaran between July 2002 – July 2003.

Period	Site	location	canopy	coverage	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc
Jul-02	seraya kecil	shallow	37.75	69.17	0.00	0.25	33.75	26.17	0.00	0.00	0.67	8.33	0.00
		mid	36.83	57.96	0.17	0.08	30.33	16.04	0.17	0.00	2.46	8.63	0.00
		deep	6.96	18.21	0.00	1.04	2.25	10.79	0.00	0.00	2.58	1.54	0.00
Jul-02	seraya kecil	Average	27.18	48.44	0.06	0.46	22.11	17.67	0.06	0.00	1.90	6.17	0.00
Oct-02	seraya kecil	shallow	33.58	93.25	0.08	1.25	64.83	24.83	0.00	0.00	0.67	1.58	0.00
		mid	22.00	53.33	0.00	0.00	15.17	21.25	0.00	0.00	4.75	12.17	0.00
		deep	8.17	23.50	0.00	0.00	2.33	13.58	0.08	0.00	6.00	1.50	0.00
Oct-02	seraya kecil	average	21.25	56.69	0.03	0.42	27.44	19.89	0.03	0.00	3.81	5.08	0.00
Jan-03	seraya kecil	shallow	21.42	40.00	0.00	0.33	18.75	12.92	0.00	0.00	1.33	6.67	0.00
		mid	38.08	67.25	0.42	0.75	7.50	38.83	0.00	0.00	5.58	14.17	0.00
		deep	13.42	38.08	0.00	3.33	2.83	22.75	0.42	0.00	5.75	3.00	0.00
Jan-03	seraya kecil	average	24.31	48.44	0.14	1.47	9.69	24.83	0.14	0.00	4.22	7.94	0.00
Apr-03	seraya kecil	shallow	44.67	52.92	0.75	1.17	33.83	10.75	0.17	0.00	0.33	5.92	0.00
		mid	31.92	64.42	0.00	0.08	28.00	24.17	0.00	0.00	3.42	8.75	0.00
		deep	10.17	22.33	0.25	0.08	3.42	14.00	0.00	0.00	3.17	1.42	0.00
Apr-03	seraya kecil	average	28.92	46.56	0.33	0.44	21.75	16.31	0.06	0.00	2.31	5.36	0.00
Jul-03	seraya kecil	shallow	47.33	60.17	0.00	0.08	27.42	25.42	0.00	0.00	0.17	7.08	0.00
		mid	17.00	67.92	0.00	0.25	10.42	36.25	0.00	0.00	6.58	14.42	0.00
		deep	15.17	43.25	0.17	0.00	8.08	20.75	0.25	0.00	10.92	3.08	0.00
Jul-03	seraya kecil	average	26.50	57.11	0.06	0.11	15.31	27.47	0.08	0.00	5.89	8.19	0.00
Jul-02	Papagaran	shallow	48.33	57.17	0.00	0.00	47.25	9.50	0.00	0.00	0.00	0.42	0.00
		mid	67.58	59.00	0.00	0.00	59.00	0.00	0.00	0.00	0.00	0.00	0.00
		deep	29.36	69.83	0.00	0.00	36.75	33.08	0.00	0.00	0.00	0.00	0.00
Jul-02	Papagaran	average	48.43	62.00	0.00	0.00	47.67	14.19	0.00	0.00	0.00	0.14	0.00
Oct-02	Papagaran	shallow	42.67	73.75	0.00	0.00	68.92	0.25	0.00	0.00	1.67	2.92	0.00
		mid	63.75	66.75	0.00	0.00	66.75	0.00	0.00	0.00	0.00	0.00	0.00
		deep	25.08	85.17	0.00	0.00	60.17	25.00	0.00	0.00	0.00	0.00	0.00
Oct-02	Papagaran	average	43.83	75.22	0.00	0.00	65.28	8.42	0.00	0.00	0.56	0.97	0.00
Jan-03	Papagaran	shallow	36.00	45.42	0.00	0.00	40.58	1.50	0.00	0.00	0.83	2.50	0.00
		mid	66.75	24.25	0.00	0.00	24.25	0.00	0.00	0.00	0.00	0.00	0.00
		deep	28.08	70.42	0.00	0.00	59.42	11.00	0.00	0.00	0.00	0.00	0.00
Jan-03	Papagaran	average	43.61	46.69	0.00	0.00	41.42	4.17	0.00	0.00	0.28	0.83	0.00
Apr-03	Papagaran	shallow	48.75	64.17	0.00	0.00	59.83	2.17	0.00	0.00	0.50	1.67	0.00
		mid	79.25	30.00	0.00	0.00	25.92	4.08	0.00	0.00	0.00	0.00	0.00
		deep	30.00	81.92	0.00	0.00	46.17	35.75	0.00	0.00	0.00	0.00	0.00
Apr-03	Papagaran	average	52.67	58.69	0.00	0.00	43.97	14.00	0.00	0.00	0.17	0.56	0.00
Jul-03	Papagaran	shallow	45.75	62.92	0.00	0.00	34.42	25.33	0.00	0.00	0.67	2.50	0.00
		mid	64.58	35.92	0.00	0.00	35.92	0.00	0.00	0.00	0.00	0.00	0.00
		deep	27.08	69.33	0.00	0.17	35.67	33.50	0.00	0.00	0.00	0.00	0.00
Jul-03	Papagaran	average	45.81	56.06	0.00	0.06	35.33	19.61	0.00	0.00	0.22	0.83	0.00

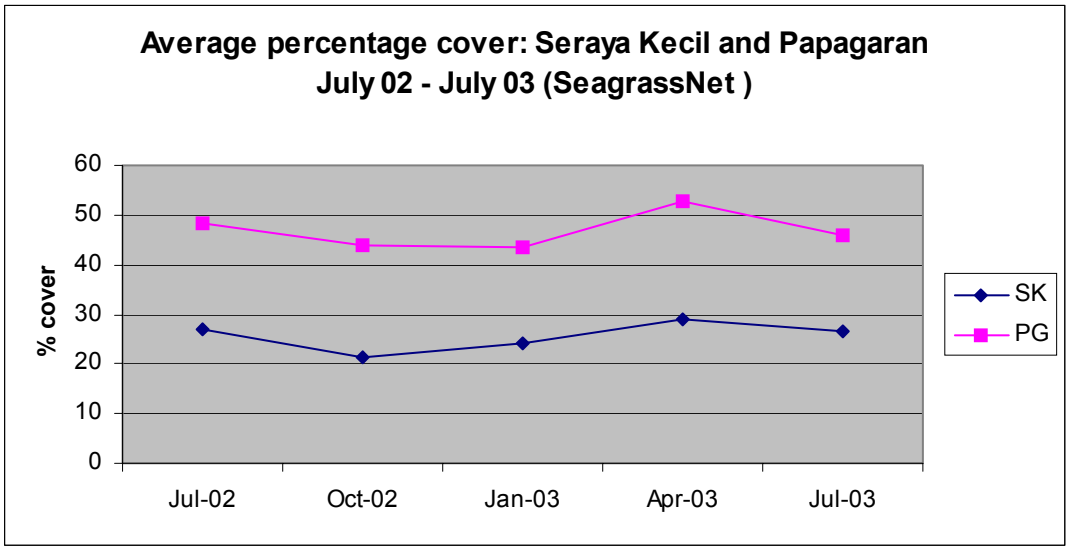


Figure 2. Seagrass average percentage cover between July 02 - July 03 at two SeagrassNet sites: Seraya Kecil (SK) and Papagaran (PG).

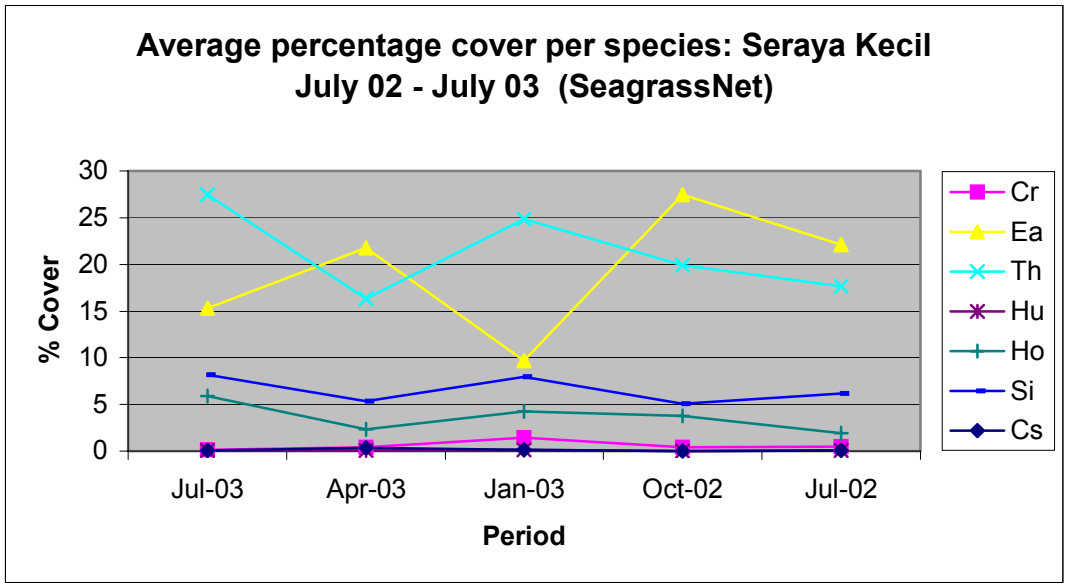


Figure 3 Seagrass species average percentage cover between July 02 – July 03 at SeagrasNet site on Seraya Kecil.

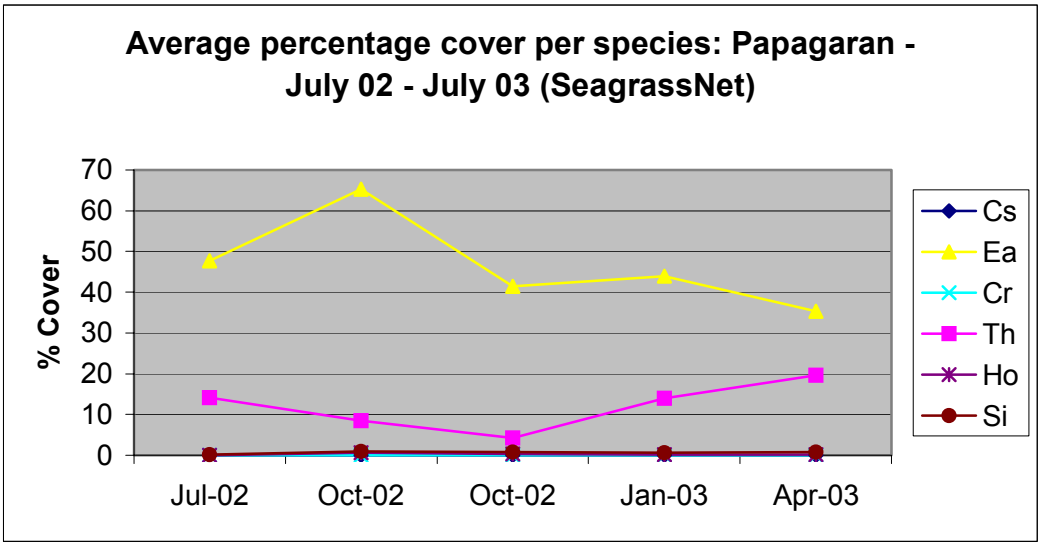


Figure 4 Seagrass species average percentage cover between July 02 – July 03 at SeagrassNet site on Papagaran.

Table 2. Seagrass Watch Average species cover and total percentage cover at each location between July 02 – July 03. (Average is based on observations of 33 quadrants per site)

Site: 1=Seraya Kecil1;2=Seraya Kecil 2; 3=Papagaran 1; 4=Papagaran 4.

DATE	Site	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
Jul-02	1	0.33	2.85	23.7	16.15	0.24	0	1.03	5.24	0	49.55	31.62	5.45
Jul-02	2	0	0.36	10.58	45.44	0.73	0.89	0.98	1.47	0	70.18	8.47	7.7
Jul-02	3	0	0	38.7	21	0	0	0	0	0	59.7	24.15	4.36
Jul-02	4	0	0	30.55	19.36	0	0	0	0	0	49.91	36.39	4.03
Oct-02	1	1.33	0.64	17.82	12.91	0	0	1.94	6.27	0	40.91	19.21	1.52
Oct-02	2	0.3	3.06	4.21	50.91	3.45	0.18	1.03	0.94	0	64.09	7.18	3.42
Oct-02	3	0.48	0.36	35.45	23.42	0	0	0	0.21	0	59.94	20.55	1.12
Oct-02	4	0	0	45.58	12.76	0	0	0	0.3	0	58.64	37.33	1.64
Jan-03	1	0.12	0.03	17	14.67	0.09	0	2	4.24	0	38.15	17.88	0.91
Jan-03	2	0	5.48	5.76	31.48	5.24	0	2.52	2.79	0	53.27	6.5	6.82
Jan-03	3	0	0.03	32	16.48	0	0	0	0	0	48.52	21.79	13.18
Jan-03	4	0	0	42.21	1.12	0	0	0	0	0	43.33	20.24	2.98
Apr-03	1	0.18	0.12	24.67	26.91	0	0	2.27	5.21	0	59.36	19.45	6.36
Apr-03	2	3	1.88	17.48	52.61	1.76	1.94	0.91	3.7	0	83.27	15	6.39
Apr-03	3	0	0	56.97	22.36	0	0	0	0	0	79.33	39.45	2.12
Apr-03	4	0	0	41.06	5.06	0	0	0	0	0	46.12	46.06	1
Jul-03	1	0.36	0.88	21.88	14.39	0.18	0	4.18	5.97	0	47.85	29.03	3.67
Jul-03	2	0.61	2.42	3.12	68.21	1.64	0.97	1	0.36	0	78.33	9.24	1.42
Jul-03	3	0	0	39.82	40.79	0	0	0	0	0	80.61	37.33	0.97
Jul-03	4	0	0	28	22.88	0	0	0	0	0	50.88	39.67	1.21

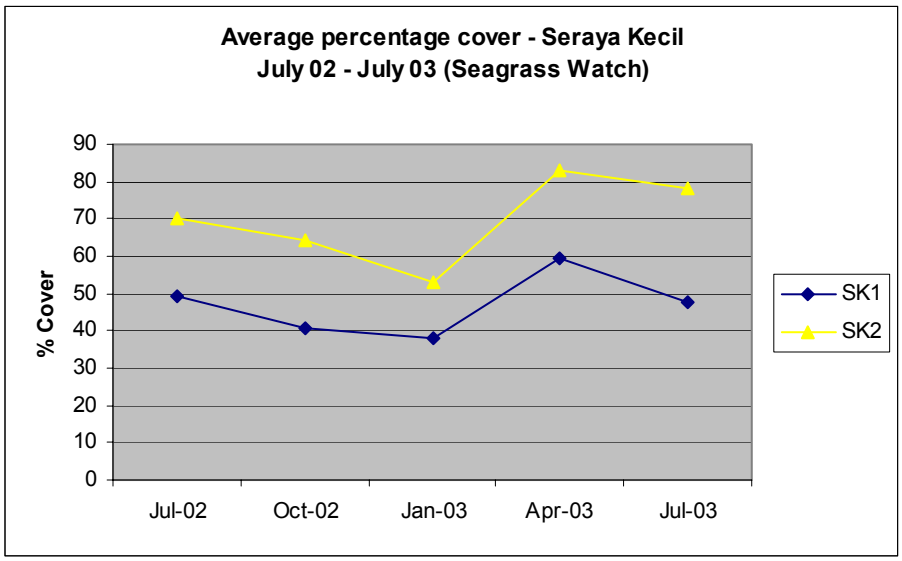


Figure 5 Seagrass average percentage cover at two Seagrass Watch sites on Seraya Kecil.

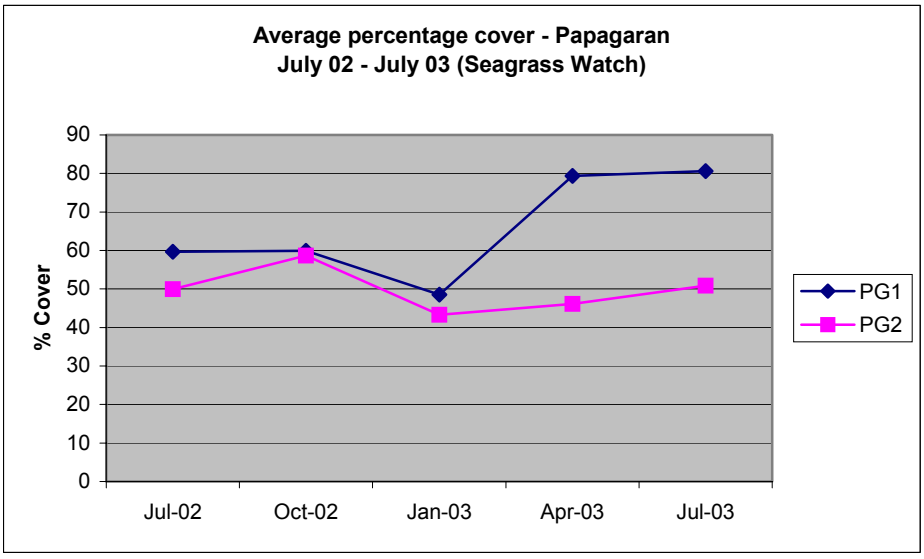


Figure 6. Seagrass average percentage cover at two Seagrass Watch sites on Papagaran.

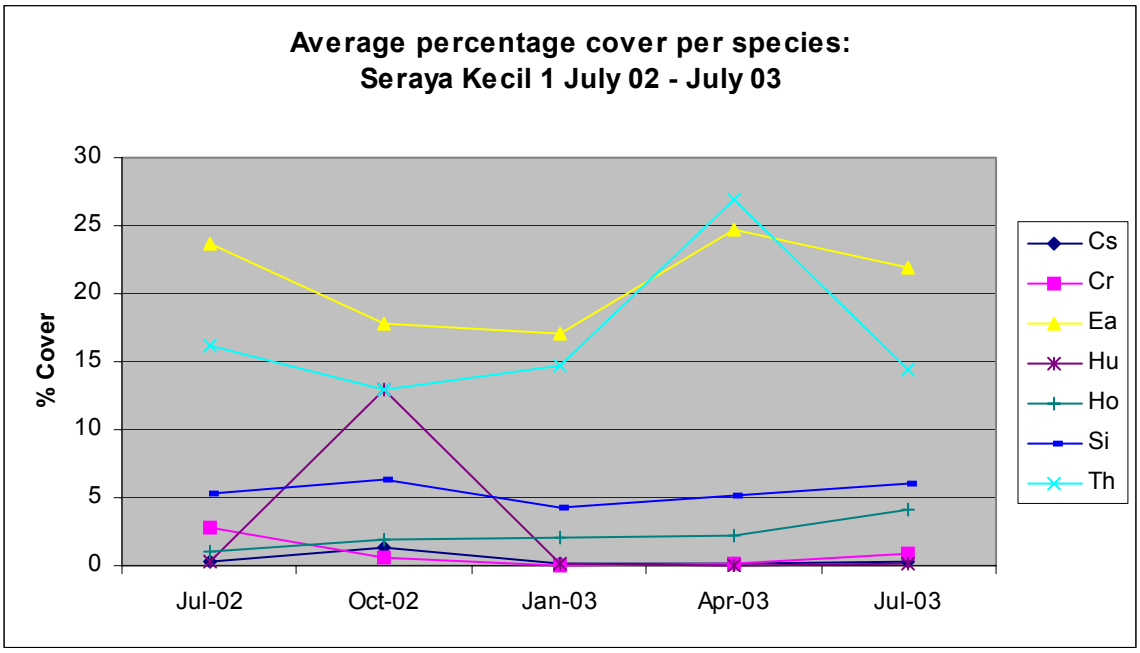


Figure 7. Seagrass average percentage cover per species at Seagrass Watch site on Seraya Kecil site no 1.

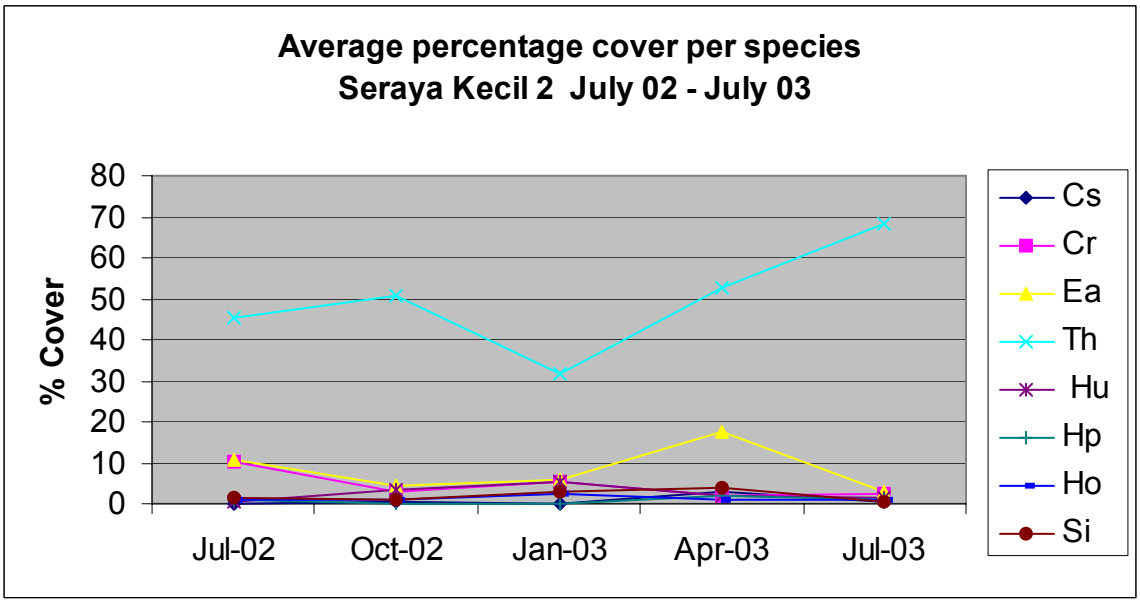


Figure 8. Seagrass average percentage cover per species at Seagrass Watch site on Seraya Kecil site no 2.

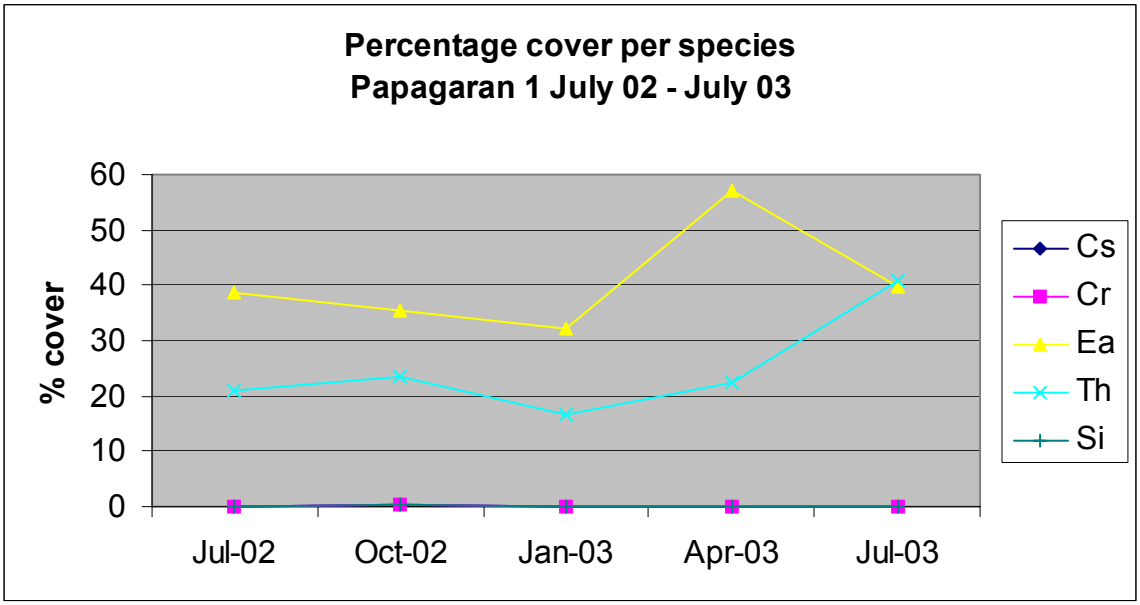


Figure 9. Seagrass average percentage cover per species at Seagrass Watch site on Papagaran site no 1.

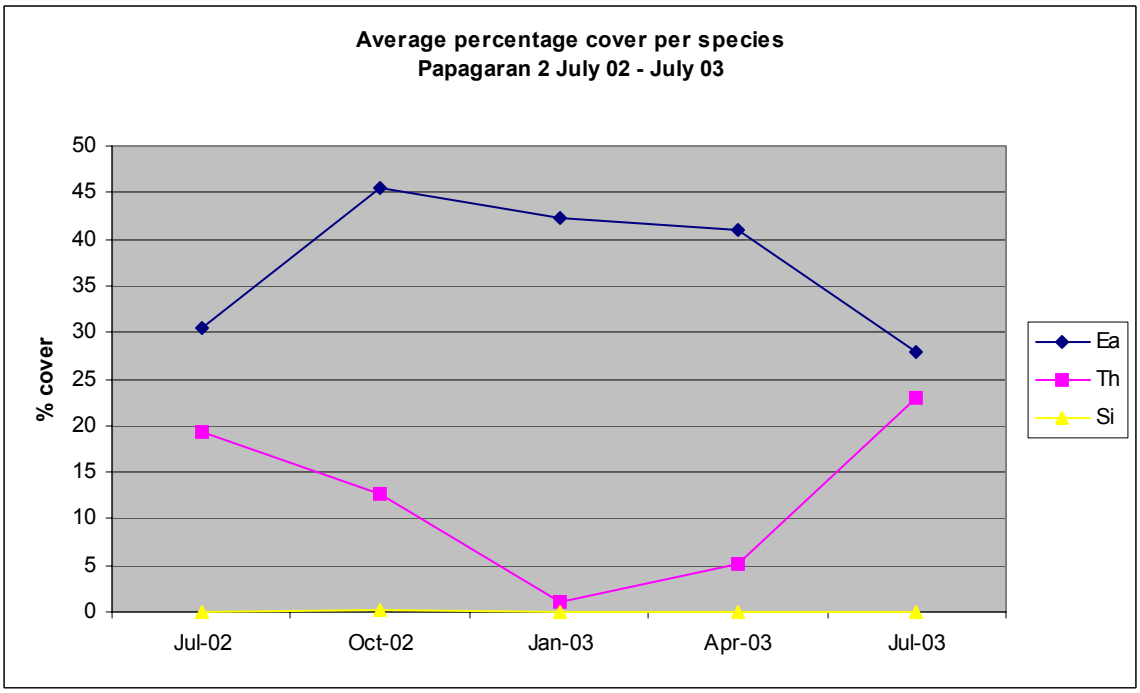


Figure 10. Seagrass average percentage cover per species at Seagrass Watch site on Seraya Kecil site no 2.

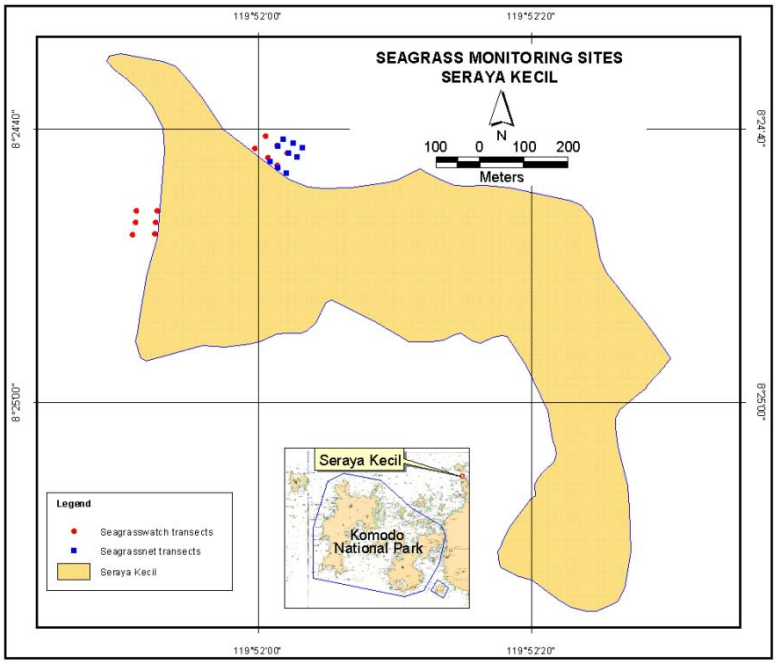
Appendix 1. Monitoring Sites – Seraya Kecil

SeagrassNet

No	Code of Location	Latitude	Longitude
1	IK161AC	824716	11952024
2	IK161AL	824708	11952014
3	IK161AR	824724	11952087
4	IK161BC	824697	11952086
5	IK161BL	824689	11952024
6	IK161BR	824702	11952047
7	IK161CC	824687	11952042
8	IK161CL	824680	11952030
9	IK161CR	824691	11952054

Seagrass Watch

No	Location	No of Transect	Start		End	
			Lat	Long	Lat	Lon
1	SK1	1	824697	11951990	824677	11952009
		2	824703	11952013	824684	11952020
		3	824715	11952012	824694	11952028
2	SK 2	1	824796	11951880	824797	11951853
		2	824782	11951881	824761	11951854
		3	824769	11951883	824768	11951857



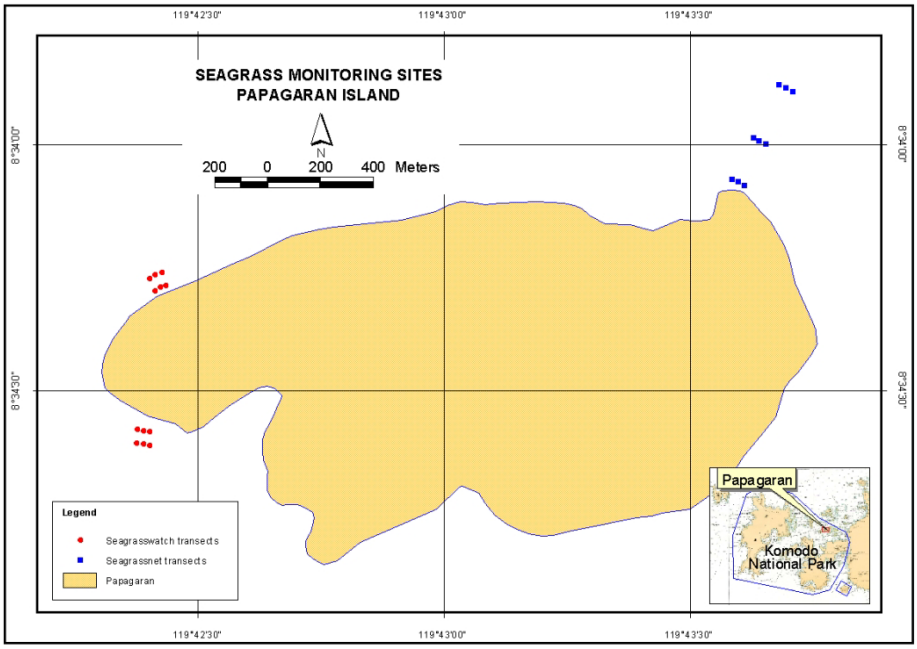
Appendix 2. Monitoring Sites - Papagaran

SeagrassNet

No	Code of Location	Latitude	Longitude
1	IK162AC	834078	11943599
2	IK162AL	834072	11943585
3	IK162AR	834068	11943606
4	IK162BC	833991	11943640
5	IK162BL	833991	11943633
6	IK162BR	834000	11943653
7	IK162CC	833886	11943695
8	IK162CL	833879	11943681
9	IK162CR	833896	11943711

Seagrass Watch

No	Location	No of Transect	Start		End	
			Lat	Long	Lat	Lon
1	PG1	1	834296	11951880	834271	11942398
		2	834291	11942422	834266	11942412
		3	834288	11942433	834261	11942426
2	PG2	1	834587	11942402	834614	11942402
		2	834583	11942394	834611	11942389
		3	834582	11942361	834609	11942375



Appendix 3. List of Materials

All materials required for both *SeagrassNet* and *Seagrass Watch* monitoring, except the drying oven and electric weighing scale, were supplied free of charge by Fred Short and Len McKenzie for KNP, TNC, and WWF – Nusra. For complete list of monitoring materials and procedures please refer to:

1. Short, F., McKenzie, L.J, Coles, R.g. and Vidler, K.P. 2002. *SeagrassNet Manual for Scientific Monitoring of Seagrass Habitat*. (QDPI, QFS, Cairns). 56pp
2. McKenzie, L.J and Campbell, S.J. 2002. *Seagrass Watch: Western Pacific Manual for Community (citizen) Monitoring of Seagrass Habitat.* (QFS, NFC, Cairns). 43pp

In addition the following materials were also used to assist the seagrass monitoring training in KNP:

1. 2 seat sea kayak
2. SCUBA dive set (for biomass sample extraction)
3. Snorkel sets
4. LCD beamer and a 2 X 3 m screen for presentations
5. Basic First Aid kit
6. Diver safety sausages (as surface marker buoys)
7. Satellite phone (ACeS) and hand-held radios

Appendix 4. List of Seagrass Species in KNP

The following seagrass species were found in Komodo National Park:

1. *Enhalus acoroides (Ea)*
2. *Thalassia hemprichii (Th)*
3. *Cymodocea serrulata (Cs)*
4. *Cymodocea rotundata (Cr)*
5. *Halodule uninervis (Hu)*
6. *Halophila minor (Hm)*
7. *Halophila ovalis (Ho)*
8. *Syringodium isoetifolium (Si)*
9. *Thalassodendron ciliatum (Tc)*

Appendix 5. Monitoring Team

Name	Organization
Aganto Seno	Komodo National Park
Andi Xevi	Komodo National Park
Nurlaila Arafah Ivon	Komodo National Park
Andreas Muljadi	TNC – KFO, Monitoring coordinator
Purwanto	TNC – KFO, Monitoring Officer
Siti Maryam Yakob	TNC – KFO, Community Awareness and Education Assistant

Appendix 6. Contacts

The Nature Conservancy – Southeast Asia Center for Marine Protected Areas
Dr. Peter. J. Mous, Science, Training and Partnerships Manager, pmous@attglobal.net
Mirza Pedju, Program Officer – Science and Training, mpedju@tnc.orgt
Jl Pengembak No 2, Sanur – Denpasar, Bali 80228, Indonesia
Tel +62 (361) 287272; Fax +62 (361) 287272

The Nature Conservancy – Komodo Field Office (TNC – KFO)
Johannes Subijanto, Project Leader (jsubijanto@tnc.org)
Andreas Muljadi, Monitoring Coordinator, (amuljadi@tnc.org)
Kampung Ujung, Labuan Bajo – Nusa Tenggara Timur, Indonesia
Tel +62 (385) 41214; Fax +62(385) 41328

Balai Taman Nasional Komodo (Komodo National Park)
Dr. Mattheus Halim, Head of Komodo National Park, Mh_halim@hotmail.com
Labuan Bajo, Flores Barat – NTT, NTT 86554, Indonesia
Tel. +62-385-41004, 41005, Fax: +62-385-41006

SeagrassNet,
Fred Short. PhD, fred.short@unh.edu
Jackson Estuarine Laboratory
85 Adams Point Road, Durham NH 03824 USA
Tel. +1-603-862-2175/659-3313, Fax +1-603-862-1101

SeagrassWatch
Len McKenzie, Senior Research Scientist, len.mckenzie@dpi.qld.gov.au
Dr. Stuart Campbell, Fisheries Research Scientist, Stuart.Campbell@dpi.qld.gov.au
Juanita Bité, PhD candidate, Juanita.Bite@dpi.qld.gov.au
Dept of Primary Industries, Queensland
Northern Fisheries Centre, PO Box 5396, Cairns, Qld 4870 Australia
Tel. +61-7-40350113, fax +61-7-40341401

Web resources
The Nature Conservancy: www.nature.org
Komodo National Park: www.komodonationalpark.org
SeagrassNet: www.seagrassnet.org
SeagrassWatch: www.reef.crc.org.au/aboutreef/coastal/seagrasswatch.html

Appendix 7 Raw data: Seagrass Net

SeagrassNet data. Date: 1 = Jul 02;2=Oct 02; 3=Jan03;4=Apr03;5=Jul03. Location 1=Seraya Kecil;2=Papagran.

Date	Location	Station	Quadrat	SEDIMEN	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	Sediment	Salinity
1	1	1	1		0	0	40	25	0	0	0	10	0	75	39	3	35
1	1	1	2		0	0	30	18	0	0	0	7	0	55	45	3	35
1	1	1	3		0	0	34	33	0	0	0	8	0	75	31	3	35
1	1	1	4		0	0	40	25	0	0	0	15	0	80	38	3	35
1	1	1	5		0	0	45	20	0	0	0	10	0	75	37	3	35
1	1	1	6		0	0	20	50	0	0	0	10	0	80	41	3	35
1	1	1	7		0	0	24	20	0	0	0	6	0	50	40	3	35
1	1	1	8		0	0	37	20	0	0	0	8	0	65	41	3	35
1	1	1	9		0	0	27	15	0	0	0	8	0	50	42	3	35
1	1	1	10		0	0	33	34	0	0	0	8	0	75	19	3	35
1	1	1	11		0	2	35	30	0	0	8	0	0	75	39	3	35
1	1	1	12		0	1	40	24	0	0	0	10	0	75	41	3	35
1	1	2	1		0	0	25	15	0	0	5	5	0	50	33	3	35.5
1	1	2	2		0	0	35	25	0	0	0	5	0	65	32	3	35.5
1	1	2	3		0	0	30	20	0	0	0.5	5	0	55.5	35	3	35.5
1	1	2	4		1	0	15	7.5	2	0	8	0.5	0	35	26	3	35.5
1	1	2	5		0	0	30	18	0	0	2	10	0	60	40	3	35.5
1	1	2	6		1	0	26	15	0	0	1	12	0	55	36	3	35.5
1	1	2	7		0	0	31	15	0	0	2	7	0	55	43	3	35.5
1	1	2	8		0	0	35	10	0	0	1	4	0	50	36	3	35.5
1	1	2	9		0	0	35	14	0	0	1	10	0	60	42	3	35.5
1	1	2	10		0	0	30	19	0	0	1	20	0	70	38	3	35.5
1	1	2	11		0	0	22	18	0	0	5	10	0	55	38	3	35.5
1	1	2	12		0	1	50	16	0	0	3	15	0	85	43	3	35.5
1	1	3	1		0	0	0	0	0	0	7	0	0	7	5	3	35
1	1	3	2		0	0	0	0.5	0	0		0	0	0.5	6	3	35
1	1	3	3		0	0	0	10	0	0	5	0	0	15	6	3	35
1	1	3	4		0	5	7	17	0	0	6	0	0	35	9	3	35

Date	Location	Station	Quadrat	SEDIMEN	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	Sediment	Salinity
1	1	3	5		0	3	4	10	0	0	2	1	0	20	7	3	35
1	1	3	6		0	0	10	49	0	0	1	15	0	75	13	3	35
1	1	3	7		0	3	6	6	0	0	6	2	0	23	7.5	3	35
1	1	3	8		0	0.5	0	4	0	0	2	0.5	0	7	8	3	35
1	1	3	9		0	0	0	3	0	0	0	0	0	3	6	3	35
1	1	3	10		0	0	0	5	0	0	0	0	0	5	6	3	35
1	1	3	11		0	0	0	4	0	0	1	0	0	5	5	3	35
1	1	3	12		0	1	0	21	0	0	1	0	0	23	5	3	35
2	1	1	1		0		87	5	0	0	0	5	0	97	47	2	36
2	1	1	2		0	2	87	8	0	0	0	0	0	97	34	2	36
2	1	1	3		1	2	87	5	0	0	3	0	0	98	45	2	36
2	1	1	4		0	1	87	5	0	0	0	2	0	95	43	2	36
2	1	1	5		0	1	92	4	0	0	0	1	0	98	42	2	36
2	1	1	6		0	1	30	60	0	0	0	4	0	95	17	2	36
2	1	1	7		0	0	46	50	0	0	0	1	0	97	18	2	36
2	1	1	8		0	0	74	5	0	0	0	1	0	80	41	2	36
2	1	1	9		0	0	54	40	0	0	0	1	0	95	37	2	36
2	1	1	10		0	2	64	25	0	0	0	1	0	92	42	2	36
2	1	1	11		0	1	40	52	0	0	0	2	0	95	20	2	36
2	1	1	12		0	5	30	39	0	0	5	1	0	80	17	2	36
2	1	2	1		0	0	20	20	0	0	5	5	0	50	15	7	36
2	1	2	2		0	0	10	40	0	0	5	35	0	90	20	7	36
2	1	2	3		0	0	10	20	0	0	5	15	0	50	15	7	36
2	1	2	4		0	0	10	15	0	0	5	5	0	35	13	7	36
2	1	2	5		0	0	40	25	0	0	0	30	0	95	37	7	36
2	1	2	6		0	0	25	10	0	0	0	10	0	45	41	7	36
2	1	2	7		0	0	13	50	0	0	7	20	0	90	34	7	36
2	1	2	8		0	0	20	10	0	0	3	7	0	40	30	7	36
2	1	2	9		0	0	15	10	0	0	3	7	0	35	28	7	36
2	1	2	10		0	0	15	30	0	0	8	12	0	65	12	7	36

Date	Location	Station	Quadrat	SEDIMEN	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	Sediment	Salinity
2	1	2	11		0	0	0	15	0	0	10	0	0	25	8	7	36
2	1	2	12		0	0	4	10	0	0	6	0	0	20	11	7	36
2	1	3	1		0	0	0	7	0	0	3	0	0	10	9	7	36
2	1	3	2		0	0	0	12	0	0	5	0	0	17	6	7	36
2	1	3	3		0	0	0	12	0	0	8	0	0	20	8	7	36
2	1	3	4		0	0	5	15	0	0	10	0	0	30	9	7	36
2	1	3	5		0	0	5	18	0	0	7	0	0	30	9	7	36
2	1	3	6		0	0	13	43	0	0	7	17	0	80	12	7	36
2	1	3	7		0	0	1	16	0	0	12	1	0	30	7	7	36
2	1	3	8		0	0	0	4	0	0	2	0	0	6	10	7	36
2	1	3	9		0	0	0	20	1	0	7	0	0	28	12	7	36
2	1	3	10		0	0	0	2	0	0	0	0	0	2	5	7	36
2	1	3	11		0	0	0	1	0	0	3	0	0	4	5	7	36
2	1	3	12		0	0	0	3	0	0	2	0	0	5	6	7	36
3	1	1	1		0	0	15	7	0	0	0	3	0	25	18	3	35
3	1	1	2		0	0	20	10	0	0	0	10	0	40	20	3	35
3	1	1	3		0	0	40	10	0	0	0	5	0	55	26	3	35
3	1	1	4		0	0	25	20	0	0	0	5	0	50	29	3	35
3	1	1	5		0	0	15	25	0	0	0	0	0	40	8	3	35
3	1	1	6		0	0	40	30	0	0	0	20	0	90	45	3	35
3	1	1	7		0	0	20	20	0	0	0	30	0	70	18	3	35
3	1	1	8		0	0	20	23	0	0	0	2	0	45	10	3	35
3	1	1	9		0	0	7	3	0	0	0	5	0	15	21	3	35
3	1	1	10		0	0	4	1	0	0	0	0	0	5	17	3	35
3	1	1	11		0	2	4	1	0	0	3	0	0	10	20	3	35
3	1	1	12		0	2	15	5	0	0	13	0	0	35	25	3	35
3	1	2	1		0	7	5	13	0	0	10	0	0	35	14	3	35
3	1	2	2		5	0	4	13	0	0	3	5	0	30	50	3	35
3	1	2	3		0	2	0	18	0	0	7	0	0	27	13	3	35
3	1	2	4		0	0	10	25	0	0	5	15	0	55	35	3	35

Date	Location	Station	Quadrat	SEDIMEN	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	Sediment	Salinity
3	1	2	5		0	0	10	58	0	0	7	20	0	95	52	3	35
3	1	2	6		0	0	7	23	0	0	5	20	0	55	41	3	35
3	1	2	7		0	0	15	45	0	0	0	25	0	85	46	3	35
3	1	2	8		0	0	5	50	0	0	15	20	0	90	35	3	35
3	1	2	9		0	0	7	50	0	0	3	20	0	80	61	3	35
3	1	2	10		0	0	5	63	0	0	2	20	0	90	42	3	35
3	1	2	11		0	0	15	35	0	0	5	15	0	70	35	3	35
3	1	2	12		0	0	7	73	0	0	5	10	0	95	33	3	35
3	1	3	1		0	7	0	46	0	0	7	0	0	60	7	3	35
3	1	3	2		0	25	3	25	0	0	7	0	0	60	27	3	35
3	1	3	3		0	5	4	26	0	0	10	5	0	50	24	3	35
3	1	3	4		0	0	7	56	5	0	5	20	0	93	8	3	35
3	1	3	5		0	0	7	27	0	0	5	6	0	45	34	3	35
3	1	3	6		0	0	7	16	0	0	7	5	0	35	30	3	35
3	1	3	7		0	3	0	4	0	0	3	0	0	10	7	3	35
3	1	3	8		0	0	5	20	0	0	5	0	0	30	6	3	35
3	1	3	9		0	0	1	21	0	0	5	0	0	27	5	3	35
3	1	3	10		0	0	0	10	0	0	5	0	0	15	3	3	35
3	1	3	11		0	0	0	10	0	0	5	0	0	15	3	3	35
3	1	3	12		0	0	0	12	0	0	5	0	0	17	7	3	35
4	1	1	1		0	0	19	4	2	0	0	0	0	25	43	3	35
4	1	1	2		0	1	21	5	0	0	3	10	0	40	56	3	35
4	1	1	3		0	0	37	10	0	0	0	3	0	50	33	3	35
4	1	1	4		2	0	58	10	0	0	0	15	0	85	60	3	35
4	1	1	5		0	0	32	3	0	0	0	10	0	45	55	3	35
4	1	1	6		2	5	50	15	0	0	0	3	0	75	34	3	35
4	1	1	7		0	2	27	10	0	0	1	10	0	50	36	3	35
4	1	1	8		0	0	12	7	0	0	0	1	0	20	42	3	35
4	1	1	9		0	1	34	20	0	0	0	5	0	60	32	3	35
4	1	1	10		1	2	27	10	0	0	0	0	0	40	32	3	35

Date	Location	Station	Quadrat	SEDIMEN	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	Sediment	Salinity
4	1	1	11		2	0	34	10	0	0	0	4	0	50	40	3	35
4	1	1	12		2	3	55	25	0	0	0	10	0	95	73	3	35
4	1	2	1		0	0	30	34	0	0	1	15	0	80	18	6	35
4	1	2	2		0	0	20	33	0	0	2	10	0	65	14	6	35
4	1	2	3		0	1	1	10	0	0	5	0	0	17	8	6	35
4	1	2	4		0	0	5	11	0	0	3	1	0	20	12	6	35
4	1	2	5		0	0	38	30	0	0	4	13	0	85	39	6	35
4	1	2	6		0	0	35	25	0	0	5	15	0	80	53	6	35
4	1	2	7		0	0	40	27	0	0	1	10	0	78	55	6	35
4	1	2	8		0	0	48	30	0	0	2	15	0	95	49	6	35
4	1	2	9		0	0	47	30	0	0	3	10	0	90	42	6	35
4	1	2	10		0	0	42	30	0	0	3	8	0	83	49	6	35
4	1	2	11		0	0	27	25	0	0	5	8	0	65	40	6	35
4	1	2	12		0	0	3	5	0	0	7	0	0	15	4	6	35
4	1	3	1		0	0	0	1	0	0	4	0	0	5	8	3	35
4	1	3	2		0	0	0	1	0	0	0	0	0	1	11	3	35
4	1	3	3		0	0	2	22	0	0	0	1	0	25	13	3	35
4	1	3	4		0	0	2	15	0	0	3	0	0	20	9	3	35
4	1	3	5		0	0	10	40	0	0	3	7	0	60	12	3	35
4	1	3	6		3	0	20	41	0	0	0	6	0	70	17	3	35
4	1	3	7		0	1	2	20	0	0	4	3	0	30	12	3	35
4	1	3	8		0	0	0	8	0	0	0	0	0	8	12	3	35
4	1	3	9		0	0	0	0	0	0	2	0	0	2	3	3	35
4	1	3	10		0	0	5	2	0	0	8	0	0	15	5	3	35
4	1	3	11		0	0	0	8	0	0	6	0	0	14	8	3	35
4	1	3	12		0	0	0	10	0	0	8	0	0	18	12	3	35
5	1	1	1		0	0	53	40	0	0	0	4	0	97	56	3	34
5	1	1	2		0	0	40	40	0	0	0	10	0	90	47	3	34
5	1	1	3		0	0	40	20	0	0	0	10	0	70	50	3	34
5	1	1	4		0	0	20	20	0	0	0	20	0	60	62	3	34

Date	Location	Station	Quadrat	SEDIMEN	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	Sediment	Salinity
5	1	1	5		0	0	31	30	0	0	0	4	0	65	62	3	34
5	1	1	6		0	0	23	35	0	0	0	2	0	60	20	3	34
5	1	1	7		0	0	20	30	0	0	0	5	0	55	25	3	34
5	1	1	8		0	0	20	30	0	0	0	15	0	65	19	3	34
5	1	1	9		0	0	20	25	0	0	0	5	0	50	18	3	34
5	1	1	10		0	0	15	18	0	0	2	0	0	35	54	3	34
5	1	1	11		0	1	32	12	0	0	0	10	0	55	75	3	34
5	1	1	12		0	0	15	5	0	0	0	0	0	20	80	3	34
5	1	2	1		0	0	5	28	0	0	12	15	0	60	15	3	34
5	1	2	2		0	3	5	13	0	0	9	10	0	40	16	3	34
5	1	2	3		0	0	5	17	0	0	5	3	0	30	17	3	34
5	1	2	4		0	0	4	23	0	0	3	5	0	35	13	3	34
5	1	2	5		0	0	15	50	0	0	5	25	0	95	21	3	34
5	1	2	6		0	0	7	61	0	0	7	20	0	95	16	3	34
5	1	2	7		0	0	7	36	0	0	7	15	0	65	14	3	34
5	1	2	8		0	0	20	52	0	0	3	20	0	95	21	3	34
5	1	2	9		0	0	15	47	0	0	3	25	0	90	15	3	34
5	1	2	10		0	0	15	28	0	0	7	15	0	65	20	3	34
5	1	2	11		0	0	15	25	0	0	10	10	0	60	15	3	34
5	1	2	12		0	0	12	55	0	0	8	10	0	85	21	3	34
5	1	3	1		0	0	15	40	0	0	3	10	0	68	18	3	34
5	1	3	2		0	0	20	25	0	0	2	8	0	55	14	3	34
5	1	3	3		0	0	2	9	0	0	7	0	0	18	12	3	34
5	1	3	4		1	0	40	30	0	0	4	10	0	85	64	3	34
5	1	3	5		0	0	10	31	0	0	6	8	0	55	21	3	34
5	1	3	6		1	0	2	32	3	0	2	0	0	40	10	3	34
5	1	3	7		0	0	5	24	0	0	15	1	0	45	9	3	34
5	1	3	8		0	0	0	16	0	0	12	0	0	28	10	3	34
5	1	3	9		0	0	2	14	0	0	19	0	0	35	6	3	34
5	1	3	10		0	0	0	8	0	0	12	0	0	20	5	3	34

Date	Location	Station	Quadrat	SEDIMEN	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	Sediment	Salinity
5	1	3	11		0	0	0	8	0	0	14	0	0	22	6	3	34
5	1	3	12		0	0	1	12	0	0	35	0	0	48	7	3	34
1	2	1	1		0	0	80	0	0	0	0	0	0	80	58	2	36
1	2	1	2		0	0	75	0	0	0	0	0	0	75	42	2	36
1	2	1	3		0	0	60	0	0	0	0	0	0	60	60	2	36
1	2	1	4		0	0	50	0	0	0	0	0	0	50	47	2	36
1	2	1	5		0	0	60	1	0	0	0	0	0	61	60	2	36
1	2	1	6		0	0	47	3	0	0	0	0	0	50	40	2	36
1	2	1	7		0	0	15	10	0	0	0	0	0	25	48	2	36
1	2	1	8		0	0	65	10	0	0	0	0	0	75	65	2	36
1	2	1	9		0	0	35	20	0	0	0	5	0	60	30	2	36
1	2	1	10		0	0	15	25	0	0	0	0	0	40	30	2	36
1	2	1	11		0	0	25	25	0	0	0	0	0	50	40	2	36
1	2	1	12		0	0	40	20	0	0	0	0	0	60	60	2	36
1	2	2	1		0	0	35	0	0	0	0	0	0	35	46	6	36
1	2	2	2		0	0	42	0	0	0	0	0	0	42	40	6	36
1	2	2	3		0	0	47	0	0	0	0	0	0	47	37	6	36
1	2	2	4		0	0	72	0	0	0	0	0	0	72	54	6	36
1	2	2	5		0	0	55	0	0	0	0	0	0	55	66	6	36
1	2	2	6		0	0	40	0	0	0	0	0	0	40	89	6	36
1	2	2	7		0	0	72	0	0	0	0	0	0	72	91	6	36
1	2	2	8		0	0	35	0	0	0	0	0	0	35	79	6	36
1	2	2	9		0	0	75	0	0	0	0	0	0	75	76	6	36
1	2	2	10		0	0	75	0	0	0	0	0	0	75	74	6	36
1	2	2	11		0	0	90	0	0	0	0	0	0	90	74	6	36
1	2	2	12		0	0	70	0	0	0	0	0	0	70	85	6	36
1	2	3	1		0	0	35	50	0	0	0	0	0	85	17	2	35
1	2	3	2		0	0	20	40	0	0	0	0	0	60	15	2	35
1	2	3	3		0	0	45	35	0	0	0	0	0	80	25.7	2	35
1	2	3	4		0	0	55	30	0	0	0	0	0	85	39.7	2	35

Date	Location	Station	Quadrat	SEDIMEN	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	Sediment	Salinity
1	2	3	5		0	0	58	10	0	0	0	0	0	68	41.7	2	35
1	2	3	6		0	0	40	45	0	0	0	0	0	85	21.0	2	35
1	2	3	7		0	0	10	55	0	0	0	0	0	65	16.0	2	35
1	2	3	8		0	0	20	50	0	0	0	0	0	70	15.3	2	35
1	2	3	9		0	0	65	25	0	0	0	0	0	90	46.7	2	35
1	2	3	10		0	0	40	15	0	0	0	0	0	55	48.0	2	35
1	2	3	11		0	0	40	40	0	0	0	0	0	80	35.7	2	35
1	2	3	12		0	0	13	2	0	0	0	0	0	15	30.7	2	35
2	2	1	1		0	0	90	0	0	0	0	0	0	90	35	2	36
2	2	1	2		0	0	70	0	0	0	0	0	0	70	46	2	36
2	2	1	3		0	0	70	0	0	0	7	3	0	80	42	2	36
2	2	1	4		0	0	79	0	0	0	5	1	0	85	43	2	36
2	2	1	5		0	0	76	0	0	0	4	0	0	80	38	2	36
2	2	1	6		0	0	58	3	0	0	4	0	0	65	48	2	36
2	2	1	7		0	0	65	0	0	0	0	0	0	65	44	2	36
2	2	1	8		0	0	45	0	0	0	0	0	0	45	49	2	36
2	2	1	9		0	0	70	0	0	0	0	0	0	70	34	2	36
2	2	1	10		0	0	77	0	0	0	0	3	0	80	41	2	36
2	2	1	11		0	0	67	0	0	0	0	3	0	70	44	2	36
2	2	1	12		0	0	60	0	0	0	0	25	0	85	48	2	36
2	2	2	1		0	0	95	0	0	0	0	0	0	95	48	2	36
2	2	2	2		0	0	92	0	0	0	0	0	0	92	51	2	36
2	2	2	3		0	0	55	0	0	0	0	0	0	55	58	2	36
2	2	2	4		0	0	70	0	0	0	0	0	0	70	58	2	36
2	2	2	5		0	0	50	0	0	0	0	0	0	50	63	2	36
2	2	2	6		0	0	35	0	0	0	0	0	0	35	65	2	36
2	2	2	7		0	0	85	0	0	0	0	0	0	85	68	2	36
2	2	2	8		0	0	45	0	0	0	0	0	0	45	66	2	36
2	2	2	9		0	0	90	0	0	0	0	0	0	90	63	2	36
2	2	2	10		0	0	30	0	0	0	0	0	0	30	72	2	36

Date	Location	Station	Quadrat	SEDIMEN	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	Sediment	Salinity
2	2	2	11		0	0	75	0	0	0	0	0	0	75	72	2	36
2	2	2	12		0	0	79	0	0	0	0	0	0	79	81	2	36
2	2	3	1		0	0	20	50	0	0	0	0	0	70	9	2	36
2	2	3	2		0	0	15	80	0	0	0	0	0	95	9	2	36
2	2	3	3		0	0	45	15	0	0	0	0	0	60	26	2	36
2	2	3	4		0	0	90	5	0	0	0	0	0	95	25	2	36
2	2	3	5		0	0	37	60	0	0	0	0	0	97	12	2	36
2	2	3	6		0	0	85	10	0	0	0	0	0	95	27	2	36
2	2	3	7		0	0	57	40	0	0	0	0	0	97	25	2	36
2	2	3	8		0	0	85	10	0	0	0	0	0	95	45	2	36
2	2	3	9		0	0	70	10	0	0	0	0	0	80	31	2	36
2	2	3	10		0	0	75	5	0	0	0	0	0	80	30	2	36
2	2	3	11		0	0	55	5	0	0	0	0	0	60	26	2	36
2	2	3	12		0	0	88	10	0	0	0	0	0	98	36	2	36
3	2	1	1		0	0	53	0	0	0	0	2	0	55	40	6	35
3	2	1	2		0	0	65	0	0	0	0	0	0	65	26	6	35
3	2	1	3		0	0	50	0	0	0	5	0	0	55	38	6	35
3	2	1	4		0	0	37	0	0	0	0	3	0	40	30	6	35
3	2	1	5		0	0	37	3	0	0	5	0	0	45	32	6	35
3	2	1	6		0	0	35	10	0	0	0	0	0	45	29	6	35
3	2	1	7		0	0	30	0	0	0	0	0	0	30	31	6	35
3	2	1	8		0	0	25	0	0	0	0	5	0	30	28	6	35
3	2	1	9		0	0	30	0	0	0	0	0	0	30	30	6	35
3	2	1	10		0	0	45	0	0	0	0	0	0	45	49	6	35
3	2	1	11		0	0	45	5	0	0	0	10	0	60	54	6	35
3	2	1	12		0	0	35	0	0	0	0	10	0	45	45	6	35
3	2	2	1		0	0	28	0	0	0	0	0	0	28	66	6	35
3	2	2	2		0	0	28	0	0	0	0	0	0	28	69	6	35
3	2	2	3		0	0	20	0	0	0	0	0	0	20	48	6	35
3	2	2	4		0	0	15	0	0	0	0	0	0	15	71	6	35

Date	Location	Station	Quadrat	SEDIMEN	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	Sediment	Salinity
3	2	2	5		0	0	28	0	0	0	0	0	0	28	66	6	35
3	2	2	6		0	0	27	0	0	0	0	0	0	27	69	6	35
3	2	2	7		0	0	30	0	0	0	0	0	0	30	92	6	35
3	2	2	8		0	0	26	0	0	0	0	0	0	26	46	6	35
3	2	2	9		0	0	27	0	0	0	0	0	0	27	89	6	35
3	2	2	10		0	0	17	0	0	0	0	0	0	17	65	6	35
3	2	2	11		0	0	25	0	0	0	0	0	0	25	69	6	35
3	2	2	12		0	0	20	0	0	0	0	0	0	20	51	6	35
3	2	3	1		0	0	60	5	0	0	0	0	0	65	19	2	35
3	2	3	2		0	0	45	20	0	0	0	0	0	65	22	2	35
3	2	3	3		0	0	50	10	0	0	0	0	0	60	23	2	35
3	2	3	4		0	0	35	25	0	0	0	0	0	60	28	2	35
3	2	3	5		0	0	55	30	0	0	0	0	0	85	38	2	35
3	2	3	6		0	0	95	0	0	0	0	0	0	95	46	2	35
3	2	3	7		0	0	40	0	0	0	0	0	0	40	23	2	35
3	2	3	8		0	0	85	0	0	0	0	0	0	85	46	2	35
3	2	3	9		0	0	8	2	0	0	0	0	0	10	6	2	35
3	2	3	10		0	0	75	20	0	0	0	0	0	95	46	2	35
3	2	3	11		0	0	75	15	0	0	0	0	0	90	17	2	35
3	2	3	12		0	0	90	5	0	0	0	0	0	95	23	2	35
4	2	1	1		0	0	65	0	0	0	0	0	0	65	34	6	35
4	2	1	2		0	0	57	0	0	0	0	3	0	60	50	6	35
4	2	1	3		0	0	45	0	0	0	0	0	0	45	59	6	35
4	2	1	4		0	0	70	0	0	0	0	10	0	80	44	6	35
4	2	1	5		0	0	78	0	0	0	2	5	0	85	43	6	35
4	2	1	6		0	0	87	1	0	0	2	0	0	90	51	6	35
4	2	1	7		0	0	63	0	0	0	2	0	0	65	63	6	35
4	2	1	8		0	0	85	5	0	0	0	0	0	90	52	6	35
4	2	1	9		0	0	35	10	0	0	0	0	0	45	49	6	35
4	2	1	10		0	0	33	5	0	0	0	2	0	40	41	6	35

Date	Location	Station	Quadrat	SEDIMEN	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	Sediment	Salinity
4	2	1	11		0	0	48	2	0	0	0	0	0	50	46	6	35
4	2	1	12		0	0	52	3	0	0	0	0	0	55	53	6	35
4	2	2	1		0	0	25	5	0	0	0	0	0	30	75	7	35
4	2	2	2		0	0	30	0	0	0	0	0	0	30	87	7	35
4	2	2	3		0	0	20	5	0	0	0	0	0	25	75	7	35
4	2	2	4		0	0	30	5	0	0	0	0	0	35	83	7	35
4	2	2	5		0	0	22	8	0	0	0	0	0	30	79	7	35
4	2	2	6		0	0	25	0	0	0	0	0	0	25	82	7	35
4	2	2	7		0	0	20	0	0	0	0	0	0	20	87	7	35
4	2	2	8		0	0	25	5	0	0	0	0	0	30	83	7	35
4	2	2	9		0	0	43	7	0	0	0	0	0	50	85	7	35
4	2	2	10		0	0	27	8	0	0	0	0	0	35	77	7	35
4	2	2	11		0	0	20	0	0	0	0	0	0	20	75	7	35
4	2	2	12		0	0	24	6	0	0	0	0	0	30	63	7	35
4	2	3	1		0	0	25	70	0	0	0	0	0	95	17	7	35
4	2	3	2		0	0	50	46	0	0	0	0	0	96	38	7	35
4	2	3	3		0	0	17	23	0	0	0	0	0	40	17	7	35
4	2	3	4		0	0	23	72	0	0	0	0	0	95	16	7	35
4	2	3	5		0	0	85	10	0	0	0	0	0	95	38	7	35
4	2	3	6		0	0	85	5	0	0	0	0	0	90	49	7	35
4	2	3	7		0	0	12	83	0	0	0	0	0	95	15	7	35
4	2	3	8		0	0	35	52	0	0	0	0	0	87	13	7	35
4	2	3	9		0	0	30	15	0	0	0	0	0	45	40	7	35
4	2	3	10		0	0	55	20	0	0	0	0	0	75	36	7	35
4	2	3	11		0	0	77	13	0	0	0	0	0	90	39	7	35
4	2	3	12		0	0	60	20	0	0	0	0	0	80	42	7	35
5	2	1	1		0	0	80	15	0	0	0	0	0	95	57	6	35
5	2	1	2		0	0	15	24	0	0	1	0	0	40	64	6	35
5	2	1	3		0	0	70	25	0	0	0	0	0	95	65	6	35
5	2	1	4		0	0	10	40	0	0	0	5	0	55	51	6	35

Date	Location	Station	Quadrat	SEDIMEN	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	Sediment	Salinity
5	2	1	5		0	0	25	30	0	0	0	5	0	60	21	6	35
5	2	1	6		0	0	30	35	0	0	0	15	0	80	23	6	35
5	2	1	7		0	0	13	30	0	0	2	0	0	45	22	6	35
5	2	1	8		0	0	20	30	0	0	5	5	0	60	21	6	35
5	2	1	9		0	0	25	15	0	0	0	0	0	40	37	6	35
5	2	1	10		0	0	60	20	0	0	0	0	0	80	55	6	35
5	2	1	11		0	0	25	15	0	0	0	0	0	40	68	6	35
5	2	1	12		0	0	40	25	0	0	0	0	0	65	65	6	35
5	2	2	1		0	0	40	0	0	0	0	0	0	40	72	6	35
5	2	2	2		0	0	80	0	0	0	0	0	0	80	55	6	35
5	2	2	3		0	0	20	0	0	0	0	0	0	20	58	6	35
5	2	2	4		0	0	35	0	0	0	0	0	0	35	85	6	35
5	2	2	5		0	0	30	0	0	0	0	0	0	30	55	6	35
5	2	2	6		0	0	35	0	0	0	0	0	0	35	65	6	35
5	2	2	7		0	0	23	0	0	0	0	0	0	23	71	6	35
5	2	2	8		0	0	45	0	0	0	0	0	0	45	75	6	35
5	2	2	9		0	0	23	0	0	0	0	0	0	23	50	6	35
5	2	2	10		0	0	25	0	0	0	0	0	0	25	68	6	35
5	2	2	11		0	0	35	0	0	0	0	0	0	35	62	6	35
5	2	2	12		0	0	40	0	0	0	0	0	0	40	59	6	35
5	2	3	1		0	0	15	70	0	0	0	0	0	85	29	7	35
5	2	3	2		0	2	15	53	0	0	0	0	0	70	16	7	35
5	2	3	3		0	0	30	45	0	0	0	0	0	75	29	7	35
5	2	3	4		0	0	80	15	0	0	0	0	0	95	32	7	35
5	2	3	5		0	0	35	45	0	0	0	0	0	80	27	7	35
5	2	3	6		0	0	50	15	0	0	0	0	0	65	31	7	35
5	2	3	7		0	0	60	30	0	0	0	0	0	90	28	7	35
5	2	3	8		0	0	40	45	0	0	0	0	0	85	28	7	35
5	2	3	9		0	0	30	40	0	0	0	0	0	70	30	7	35
5	2	3	10		0	0	15	25	0	0	0	0	0	40	27	7	35

Date	Location	Station	Quadrat	SEDIMEN	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	Sediment	Salinity
5	2	3	11		0	0	3	4	0	0	0	0	0	7	18	7	35
5	2	3	12		0	0	55	15	0	0	0	0	0	70	30	7	35

Appendix 8 Raw Data: Seagrass Watch.

Note- Period: 1 = Jul 02; 2=Oct 02; 3=Jan03; 4=Apr 03; 5=Jul03. Location: 1=Seraya Kecil 1; 2= Seraya Kecil 2; 3=Papagaran 1; 4=Papagaran 2.Quadrat: 1=0m;2=5m;3=10m=4=15m;5=20m; 6= 25m; 7=30m ;8=35m ; 9=40m;10=45m;11=50m. Sediment: 1=mud;2=coarse sand;3=fine sand;4=shell;5=rubble;6=mud+coarse dand;7=coarse sand+shell; 8=coarse sand+rubble; 9=coarse sand+coral;10=fine sand+shell.

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
1	1	1	1	3	2	5	0	35	20	0	0	0	10	0	70	33	10
1	1	1	2	7	6	0	0	55	5	0	0	0	15	0	75	39	5
1	1	1	3	7	6	0	0	18	22	0	0	0	5	0	45	45	5
1	1	1	4	2	1	0	0	63	5	0	0	0	2	0	70	55	5
1	1	1	5	2	1	0	0	42	5	0	0	1	2	0	50	45	10
1	1	1	6	2	1	0	7	8	8	0	0	0	5	0	28	45	2
1	1	1	7	2	1	0	0	28	2	0	0	0	0	0	30	45	20
1	1	1	8	2	1	0	7	21	7	0	0	0	0	0	35	30	20
1	1	1	9	2	1	0	4	33	20	0	0	2	6	0	65	46	5
1	1	1	10	8	7	0	4	2	18	0	0	4	2	0	30	12.5	0
1	1	1	11	9	8	6	0	0	3	0	0	4	0	0	13	8	0
1	1	2	1	10	9	0	2	40	20	0	0	0	5	0	67	50	3
1	1	2	2	10	9	0	1	30	30	0	0	0	10	0	71	41	3
1	1	2	3	10	9	0	2	38	20	0	0	0	10	0	70	43	2
1	1	2	4	10	9	0	1	35	13	0	0	0	1	0	50	48	5
1	1	2	5	10	9	0	15	22	20	0	0	0	8	0	65	45	3
1	1	2	6	10	9	0	4	21	15	0	0	0	0	0	40	30	3
1	1	2	7	10	9	0	0	27	12	0	0	3	8	0	50	57	8
1	1	2	8	10	9	0	1	15	8	0	0	2	3	0	29	39	17
1	1	2	9	10	9	0	2	36	22	0	0	2	8	0	70	29	8
1	1	2	10	10	9	0	2	0	6	0	0	4	0	0	12	7.5	2
1	1	2	11	10	9	0	6	0	6	0	0	0	3	0	15	8.5	5
1	1	3	1	7	6	0	6	6	34	0	0	4	0	0	50	8	5
1	1	3	2	7	6	0	2	5	32	0	0	3	3	0	45	9	3

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
1	1	3	3	7	6	0	0	47	3	0	0	0	10	0	60	40	2
1	1	3	4	7	6	0	0	28	5	0	0	2	10	0	45	35	3
1	1	3	5	7	6	0	0	40	10	0	0	3	12	0	65	45	8
1	1	3	6	7	6	0	0	35	15	0	0	0	10	0	60	30	3
1	1	3	7	7	6	0	0	30	15	0	0	0	15	0	60	30	2
1	1	3	8	7	6	0	5	0	18	2	0	0	0	0	25	10	2
1	1	3	9	7	6	0	5	0	35	0	0	0	0	0	40	12	4
1	1	3	10	7	6	0	12	10	35	3	0	0	5	0	65	13	1
1	1	3	11	7	6	0	6	12	44	3	0	0	5	0	70	10	6
1	2	1	1	10	9	0	3	0	67	0	0	0	0	0	70	9	30
1	2	1	2	10	9	0	30	0	60	0	0	0	0	0	90	10.4	0
1	2	1	3	10	9	0	50	6	7	0	0	2	0	0	65	3.8	0
1	2	1	4	10	9	0	39	0	25	0	0	1	0	0	65	5.4	1
1	2	1	5	10	9	0	28	7	20	0	0	0	0	0	55	8.2	1
1	2	1	6	10	9	0	15	4	26	0	0	0	0	0	45	8	0
1	2	1	7	10	9	0	9	7	59	4	0	1	0	0	80	8.5	5
1	2	1	8	10	9	0	9	2	51	4	3	1	0	0	70	10.1	3
1	2	1	9	10	9	0	20	6	28	4	1	1	0	0	60	6	10
1	2	1	10	10	9	0	20	7	41	3	1	3	0	0	75	8	8
1	2	1	11	10	9	0	15	8	22	4	10	6	0	0	65	8.1	10
1	2	2	1	10	9	0	1	5	79	0	0	0	5	0	90	13	3
1	2	2	2	10	9	0	5	2	75	0	0	0	8	0	90	15	3
1	2	2	3	10	9	0	10	7	50	0	0	0	8	0	75	11	0
1	2	2	4	10	9	0	8	7	49	0	0	1	0	0	65	6	20
1	2	2	5	10	9	0	12	7	51	0	0	5	0	0	75	8	12
1	2	2	6	10	9	0	3	8	60	1	2	1	0	0	75	7	12
1	2	2	7	10	9	0	0	8	60	2	3	2	0	0	75	6	10
1	2	2	8	10	9	0	5	25	34	2	3	1	0	0	70	6	7
1	2	2	9	10	9	0	5	20	47	0	2	1	0	0	75	8	6
1	2	2	10	10	9	0	2	5	63	0	4	0.5	0.5	0	75	12	2

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
1	2	2	11	10	9	0	4	6	67.5	0	0.5	0	2	0	80	13	2
1	2	3	1	10	9	0	0	20	70	0	0	0	0	0	90	12	20
1	2	3	2	10	9	0	0	30	55	0	0	0	0	0	85	14	20
1	2	3	3	10	9	0	0.5	5	74	0	0	0.5	0	0	80	12	15
1	2	3	4	3	2	0	0.5	20	69.5	0	0	0	0	0	90	6	10
1	2	3	5	10	9	0	10	7	29.5	0	0	0.5	0	0	47	5	3
1	2	3	6	3	2	0	5	25	33	0	0	3	9	0	75	6	12
1	2	3	7	10	9	0	3	35	50	0	0	0	2	0	90	6	3
1	2	3	8	10	9	0	3	27	38	0	0	0	2	0	70	6	2
1	2	3	9	10	9	0	10	9	10	0	0	0	6	0	35	7	8
1	2	3	10	3	2	0	5	20	27	0	0	0	5	0	57	6	13
1	2	3	11	10	9	0	3	4	2	0	0	2	1	0	12	9	3
1	4	1	1	7	6	0	0	44	30	0	0	0	0	0	74	72	5
1	4	1	2	7	6	0	0	60	22	0	0	0	0	0	82	80	0
1	4	1	3	7	6	0	0	35	5	0	0	0	0	0	40	32	0
1	4	1	4	7	6	0	0	35	5	0	0	0	0	0	40	36	0
1	4	1	5	7	6	0	0	25	15	0	0	0	0	0	40	28	4
1	4	1	6	7	6	0	0	35	10	0	0	0	0	0	45	39	2
1	4	1	7	7	6	0	0	30	5	0	0	0	0	0	35	47	10
1	4	1	8	7	6	0	0	30	5	0	0	0	0	0	35	32	2
1	4	1	9	7	6	0	0	25	20	0	0	0	0	0	45	60	0
1	4	1	10	7	6	0	0	35	25	0	0	0	0	0	60	58	0
1	4	1	11	7	6	0	0	25	15	0	0	0	0	0	40	30	0
1	4	2	1	7	6	0	0	30	5	0	0	0	0	0	35	33	0
1	4	2	2	7	6	0	0	25	5	0	0	0	0	0	30	30	0
1	4	2	3	7	6	0	0	5	25	0	0	0	0	0	30	17	0
1	4	2	4	7	6	0	0	40	15	0	0	0	0	0	55	27	2
1	4	2	5	7	6	0	0	33	7	0	0	0	0	0	40	23	0
1	4	2	6	7	6	0	0	25	20	0	0	0	0	0	45	45	30
1	4	2	7	7	6	0	0	20	30	0	0	0	0	0	50	18	20

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
1	4	2	8	7	6	0	0	40	5	0	0	0	0	0	45	51	20
1	4	2	9	7	6	0	0	40	10	0	0	0	0	0	50	18	20
1	4	2	10	7	6	0	0	30	25	0	0	0	0	0	55	44	10
1	4	2	11	7	6	0	0	20	40	0	0	0	0	0	60	19	8
1	4	3	1	7	6	0	0	45	15	0	0	0	0	0	60	37	0
1	4	3	2	7	6	0	0	40	10	0	0	0	0	0	50	45	0
1	4	3	3	7	6	0	0	20	25	0	0	0	0	0	45	23	0
1	4	3	4	7	6	0	0	10	10	0	0	0	0	0	20	30	0
1	4	3	5	7	6	0	0	38	7	0	0	0	0	0	45	40	0
1	4	3	6	7	6	0	0	25	35	0	0	0	0	0	60	24	0
1	4	3	7	7	6	0	0	30	15	0	0	0	0	0	45	62	0
1	4	3	8	7	6	0	0	40	35	0	0	0	0	0	75	30	0
1	4	3	9	7	6	0	0	40	25	0	0	0	0	0	65	35	0
1	4	3	10	7	6	0	0	3	80	0	0	0	0	0	83	22	0
1	4	3	11	7	6	0	0	30	38	0	0	0	0	0	68	14	0
1	3	1	1	10	9	0	0	50	30	0	0	0	0	0	80	32	0
1	3	1	2	10	9	0	0	15	25	0	0	0	0	0	40	19	5
1	3	1	3	10	9	0	0	25	20	0	0	0	0	0	45	27	5
1	3	1	4	10	9	0	0	60	20	0	0	0	0	0	80	28	0
1	3	1	5	10	9	0	0	30	10	0	0	0	0	0	40	30	0
1	3	1	6	10	9	0	0	45	20	0	0	0	0	0	65	32	0
1	3	1	7	10	9	0	0	30	10	0	0	0	0	0	40	32	20
1	3	1	8	10	9	0	0	35	20	0	0	0	0	0	55	32	0
1	3	1	9	10	9	0	0	40	55	0	0	0	0	0	95	18	10
1	3	1	10	10	9	0	0	15	10	0	0	0	0	0	25	30	10
1	3	1	11	10	9	0	0	25	30	0	0	0	0	0	55	20	5
1	3	2	1	10	9	0	0	0	0	0	0	0	0	0	0		0
1	3	2	2	10	9	0	0	75	5	0	0	0	0	0	80	26	5
1	3	2	3	10	9	0	0	60	5	0	0	0	0	0	65	28	2
1	3	2	4	10	9	0	0	50	15	0	0	0	0	0	65	35	3

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
1	3	2	5	10	9	0	0	65	10	0	0	0	0	0	75	37	0
1	3	2	6	10	9	0	0	57	8	0	0	0	0	0	65	27	15
1	3	2	7	10	9	0	0	20	35	0	0	0	0	0	55	12	5
1	3	2	8	10	9	0	0	30	25	0	0	0	0	0	55	29	4
1	3	2	9	10	9	0	0	25	30	0	0	0	0	0	55	10	8
1	3	2	10	10	9	0	0	20	45	0	0	0	0	0	65	11	3
1	3	2	11	10	9	0	0	25	35	0	0	0	0	0	60	9	0
1	3	3	1	10	9	0	0	30	0	0	0	0	0	0	30	27	0
1	3	3	2	10	9	0	0	70	5	0	0	0	0	0	75	30	2
1	3	3	3	10	9	0	0	65	5	0	0	0	0	0	70	29	8
1	3	3	4	10	9	0	0	60	15	0	0	0	0	0	75	23	10
1	3	3	5	10	9	0	0	30	25	0	0	0	0	0	55	14	4
1	3	3	6	10	9	0	0	45	20	0	0	0	0	0	65	33	6
1	3	3	7	10	9	0	0	25	35	0	0	0	0	0	60	11	2
1	3	3	8	10	9	0	0	30	45	0	0	0	0	0	75	8	8
1	3	3	9	10	9	0	0	45	20	0	0	0	0	0	65	38	0
1	3	3	10	10	9	0	0	40	35	0	0	0	0	0	75	32	2
1	3	3	11	10	9	0	0	40	25	0	0	0	0	0	65	28	2
2	3	1	1	7	6	0	0	60	2	0	0	0	0	0	62	35	0
2	3	1	2	7	6	0	0	90	5	0	0	0	0	0	95	35	1
2	3	1	3	7	6	0	0	15	5	0	0	0	0	0	20	25	1
2	3	1	4	7	6	0	0	94	1	0	0	0	0	0	95	28	0
2	3	1	5	7	6	0	0	6	2	0	0	0	0	0	8	34	0
2	3	1	6	7	6	0	0	45	50	0	0	0	0	0	95	12	1
2	3	1	7	7	6	0	0	30	60	0	0	0	0	0	90	12	2
2	3	1	8	7	6	0	0	20	30	0	0	0	0	0	50	11	0
2	3	1	9	7	6	0	0	30	60	0	0	0	0	0	90	12	0
2	3	1	10	7	6	0	0	20	60	0	0	0	0	0	80	12	1
2	3	1	11	7	6	0	0	35	45	0	0	0	0	0	80	11	0
2	3	2	1	10	9	0	0	50	10	0	0	0	0	0	60	23	0

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
2	3	2	2	10	9	0	0	30	3	0	0	0	0	0	33	25	3
2	3	2	3	10	9	0	0	42	3	0	0	0	0	0	45	22	3
2	3	2	4	10	9	1	0	24	5	0	0	0	0	0	30	15	2
2	3	2	5	10	9	0	0	70	10	0	0	0	0	0	80	29	3
2	3	2	6	10	9	0	1	30	34	0	0	0	0	0	65	8	2
2	3	2	7	10	9	0	0	40	20	0	0	0	0	0	60	23	4
2	3	2	8	10	9	0	1	22	20	0	0	0	2	0	45	18	2
2	3	2	9	10	9	0	0	49	20	0	0	0	1	0	70	21	3
2	3	2	10	10	9	0	0	45	38	0	0	0	2	0	85	13	3
2	3	2	11	10	9	0	0	33	30	0	0	0	2	0	65	22	1
2	3	3	1	2	1	0	0	5	40	0	0	0	0	0	45	27	0
2	3	3	2	2	1	0	0	15	35	0	0	0	0	0	50	27	5
2	3	3	3	2	1	10	0	40	20	0	0	0	0	0	70	29	0
2	3	3	4	2	1	0	5	40	20	0	0	0	0	0	65	27	0
2	3	3	5	2	1	0	0	30	15	0	0	0	0	0	45	24	0
2	3	3	6	2	1	0	0	25	20	0	0	0	0	0	45	15	0
2	3	3	7	2	1	5	0	25	20	0	0	0	0	0	50	19	0
2	3	3	8	2	1	0	0	25	20	0	0	0	0	0	45	23	0
2	3	3	9	2	1	0	5	30	20	0	0	0	0	0	55	15	0
2	3	3	10	2	1	0	0	30	30	0	0	0	0	0	60	12	0
2	3	3	11	2	1	0	0	25	20	0	0	0	0	0	45	14	0
2	4	1	1	7	6	0	0	40	0	0	0	0	0	0	40	45	1
2	4	1	2	7	6	0	0	65	0	0	0	0	0	0	65	43	1
2	4	1	3	2	1	0	0	60	20	0	0	0	0	0	80	45	1
2	4	1	4	2	1	0	0	45	5	0	0	0	0	0	50	39	1
2	4	1	5	2	1	0	0	25	40	0	0	0	0	0	65	13	10
2	4	1	6	2	1	0	0	25	65	0	0	0	0	0	90	14	10
2	4	1	7	2	1	0	0	55	0	0	0	0	0	0	55	45	0
2	4	1	8	2	1	0	0	80	10	0	0	0	0	0	90	65	1
2	4	1	9	2	1	0	0	25	15	0	0	0	0	0	40	65	0

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
2	4	1	10	2	1	0	0	85	10	0	0	0	0	0	95	62	0
2	4	1	11	2	1	0	0	30	20	0	0	0	0	0	50	38	0
2	4	2	1	3	2	0	0	55	15	0	0	0	0	0	70	53	1
2	4	2	2	10	9	0	0	75	5	0	0	0	0	0	80	53	2
2	4	2	3	10	9	0	0	67	3	0	0	0	0	0	70	49	5
2	4	2	4	10	9	0	0	37	3	0	0	0	0	0	40	34	4
2	4	2	5	10	9	0	0	75	10	0	0	0	0	0	85	46	5
2	4	2	6	10	9	0	0	70	5	0	0	0	0	0	75	34	4
2	4	2	7	10	9	0	0	10	15	0	0	0	0	0	25	12	0
2	4	2	8	10	9	0	0	30	5	0	0	0	0	0	35	34	1
2	4	2	9	10	9	0	0	70	10	0	0	0	0	0	80	66	1
2	4	2	10	10	9	0	0	25	5	0	0	0	0	0	30	30	0
2	4	2	11	10	9	0	0	55	10	0	0	0	0	0	65	26	1
2	4	3	1	2	1	0	0	60	10	0	0	0	0	0	70	32	0
2	4	3	2	2	1	0	0	30	5	0	0	0	0	0	35	37	0
2	4	3	3	2	1	0	0	30	15	0	0	0	0	0	45	28	0
2	4	3	4	2	1	0	0	25	5	0	0	0	0	0	30	32	0
2	4	3	5	2	1	0	0	70	25	0	0	0	0	0	95	29	0
2	4	3	6	2	1	0	0	30	20	0	0	0	10	0	60	31	0
2	4	3	7	2	1	0	0	30	15	0	0	0	0	0	45	27	4
2	4	3	8	2	1	0	0	50	10	0	0	0	0	0	60	37	1
2	4	3	9	2	1	0	0	30	15	0	0	0	0	0	45	25	0
2	4	3	10	2	1	0	0	35	10	0	0	0	0	0	45	20	0
2	4	3	11	2	1	0	0	10	20	0	0	0	0	0	30	23	0
2	1	1	1	7	6	0	0	90	5	0	0	0	0	0	95	46	1
2	1	1	2	7	6	0	0	70	0	0	0	0	0	0	70	45	5
2	1	1	3	7	6	0	0	15	5	0	0	0	0	0	20	49	2
2	1	1	4	7	6	0	0	5	0	0	0	0	0	0	5	52	30
2	1	1	5	7	6	0	0	15	5	0	0	0	0	0	20	39	3
2	1	1	6	7	6	0	0	35	40	0	0	3	2	0	80	12	3

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
2	1	1	7	7	6	0	0	0	4	0	0	1	0	0	5	7	0
2	1	1	8	7	6	2	0	0	8	0	0	5	0	0	15	8	0
2	1	1	9	7	6	0	0	0	27	0	0	8	0	0	35	9	0
2	1	1	10	7	6	0	0	0	15	0	0	5	0	0	20	8	0
2	1	1	11	7	6	0	0	0	15	0	0	5	0	0	20	9	0
2	1	2	1	8	7	0	0	19	10	0	0	0	1	0	30	22	0
2	1	2	2	5	4	0	0	20	5	0	0	0	0	0	25	33	2
2	1	2	3	7	6	0	1	17	10	0	0	2	10	0	40	37	1
2	1	2	4	7	6	0	1	20	26	0	0	1	12	0	60	8	1
2	1	2	5	7	6	0	2	12	25	0	0	4	7	0	50	11	1
2	1	2	6	7	6	0	6	15	50	0	0	4	0	0	75	10	0
2	1	2	7	7	6	1	8	17	43	0	0	3	8	0	80	12	1
2	1	2	8	7	6	0	0	30	51	0	0	2	7	0	90	14	0
2	1	2	9	7	6	0	0	1	1	0	0	3	0	0	5	2	0
2	1	2	10	3	2	0	0	0	3	0	0	1	0	0	4	6	0
2	1	2	11	3	2	0	3	1	5	0	0	3	0	0	12	5	0
2	1	3	1	10	9	5	0	50	10	0	0	0	5	0	70	13	0
2	1	3	2	10	9	10	0	25	10	0	0	0	15	0	60	14	0
2	1	3	3	10	9	5	0	20	10	0	0	0	35	0	70	13	0
2	1	3	4	10	9	0	0	20	5	0	0	0	30	0	55	13	0
2	1	3	5	10	9	5	0	10	5	0	0	0	15	0	35	12	0
2	1	3	6	10	9	6	0	8	0	0	0	3	10	0	27	9	0
2	1	3	7	10	9	5	0	40	10	0	0	0	30	0	85	35	0
2	1	3	8	10	9	5	0	10	5	0	0	5	10	0	35	24	0
2	1	3	9	10	9	0	0	3	1	0	0	1	0	0	5	21	0
2	1	3	10	10	9	0	0	10	10	0	0	0	5	0	25	17	0
2	1	3	11	10	9	0	0	10	7	0	0	5	5	0	27	19	0
2	2	1	1	7	6	0	0	0	80	5	5	0	0	0	90	5	10
2	2	1	2	7	6	0	5	0	87	0	0	0	0	0	92	8	1
2	2	1	3	7	6	0	20	0	75	0	0	0	0	0	95	10	1

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
2	2	1	4	7	6	0	5	1	74	0	0	0	0	0	80	5	4
2	2	1	5	7	6	0	5	0	85	0	0	0	0	0	90	5	5
2	2	1	6	7	6	0	3	0	87	0	0	0	0	0	90	7	6
2	2	1	7	7	6	0	8	2	77	0	0	0	0	0	87	7	7
2	2	1	8	7	6	0	4	2	74	0	0	0	0	0	80	6	5
2	2	1	9	7	6	0	3	2	60	0	0	0	0	0	65	5	10
2	2	1	10	7	6	0	3	1	60	1	0	0	0	0	65	6	3
2	2	1	11	7	6	0	7	2	50	0	1	0	0	0	60	4	1
2	2	2	1	10	9	0	8	0	46	1	0	0	0	0	55	5	2
2	2	2	2	10	9	0	4	15	67	0	0	0	10	0	96	18	5
2	2	2	3	10	9	0	7	8	68	0	0	0	12	0	95	11	1
2	2	2	4	10	9	0	5	3	60	2	0	0	0	0	70	4	3
2	2	2	5	10	9	0	3	7	35	2	0	3	0	0	50	3	4
2	2	2	6	10	9	0	3	10	47	5	0	0	0	0	65	6	6
2	2	2	7	10	9	0	4	10	22	6	0	3	0	0	45	6	2
2	2	2	8	10	9	0	2	7	61	5	0	0	0	0	75	4	6
2	2	2	9	10	9	0	2	13	37	6	0	2	0	0	60	5	8
2	2	2	10	10	9	0	0	9	30	4	0	2	0	0	45	5	1
2	2	2	11	10	9	0	0	12	38	6	0	4	0	0	60	3	0
2	2	3	1	6	5	5	0	0	30	5	0	5	0	0	45	8	0
2	2	3	2	6	5	5	0	3	25	2	0	0	0	0	35	10	1
2	2	3	3	6	5	0	0	5	15	5	0	5	0	0	30	9	0
2	2	3	4	6	5	0	0	5	35	15	0	0	0	0	55	9	1
2	2	3	5	6	5	0	0	3	50	7	0	0	0	0	60	9	0
2	2	3	6	6	5	0	0	3	20	7	0	0	0	0	30	13	10
2	2	3	7	6	5	0	0	3	52	5	0	5	0	0	65	13	1
2	2	3	8	6	5	0	0	3	40	5	0	0	2	0	50	7.5	1
2	2	3	9	6	5	0	0	4	27	6	0	3	0	0	40	5.5	0
2	2	3	10	6	5	0	0	5	33	13	0	2	2	0	55	9	0
2	2	3	11	6	5	0	0	1	33	1	0	0	5	0	40	6	8

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
3	1	1	1	3	2	0	0	3	30	0	0	2	0	0	35	12	1
3	1	1	2	3	2	0	0	60	0	0	0	0	5	0	65	37	3
3	1	1	3	3	2	0	0	53	5	0	0	1	1	0	60	33	0
3	1	1	4	9	8	0	0	1	0	0	0	0	0	0	1	27	0
3	1	1	5	9	8	0	0	4	0	0	0	0	0	0	4	17	5
3	1	1	6	3	2	0	0	19	5	0	0	1	0	0	25	38	0
3	1	1	7	3	2	1	0	5	30	0	0	1	3	0	40	38	0
3	1	1	8	3	2	1	0	5	52	0	0	7	0	0	65	8	1
3	1	1	9	3	2	1	0	0	18	1	0	5	0	0	25	4	0
3	1	1	10	3	2	0	0	0	2	0	0	1	0	0	3	7	0
3	1	1	11	3	2	0	0	0	3	0	0	0	0	0	3	7	0
3	1	2	1	3	2	0	0	38	2	0	0	0	0	0	40	38	0
3	1	2	2	3	2	0	0	25	0	0	0	0	5	0	30	11	0
3	1	2	3	3	2	0	0	25	0	0	0	0	0	0	25	37	0
3	1	2	4	3	2	0	0	22	7	0	0	1	5	0	35	22	0
3	1	2	5	3	2	0	0	5	35	0	0	0	15	0	55	7	0
3	1	2	6	3	2	0	0	10	15	0	0	7	13	0	45	9	2
3	1	2	7	3	2	0	0	5	23	2	0	10	0	0	40	8	2
3	1	2	8	9	8	0	0	0	1	0	0	0	0	0	1	13	1
3	1	2	9	9	8	0	0	0	1	0	0	0	0	0	1	6	0.5
3	1	2	10	9	8	0	0	0	0	0	0	1	0	0	1	2	0.5
3	1	2	11	3	2	0	0	0	3	0	0	2	0	0	5	4	0
3	1	3	1	7	6	0	0	52	8	0	0	1	4	0	65	27	1
3	1	3	2	7	6	0	1	76	10	0	0	0	8	0	95	42	3
3	1	3	3	7	6	0	0	38	30	0	0	0	12	0	80	32	5
3	1	3	4	7	6	0	0	15	27	0	0	1	7	0	50	12	0
3	1	3	5	7	6	1	0	5	15	0	0	8	1	0	30	18	1
3	1	3	6	7	6	0	0	0	0	0	0	0	0	0	0	0	0
3	1	3	7	7	6	0	0	15	46	0	0	5	4	0	70	12	1
3	1	3	8	7	6	0	0	15	25	0	0	3	2	0	45	12	0

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
3	1	3	9	7	6	0	0	20	24	0	0	1	20	0	65	16	3
3	1	3	10	7	6	0	0	20	37	0	0	3	20	0	80	18	0
3	1	3	11	7	6	0	0	25	30	0	0	5	15	0	75	16	0
3	2	1	1	10	9	0	13	0	25	2	0	0	0	0	40	6.5	1
3	2	1	2	10	9	0	25	0	35	0	0	0	0	0	60	8	0
3	2	1	3	10	9	0	20	3	47	0	0	0	0	0	70	7	0
3	2	1	4	10	9	0	10	0	30	0	0	0	0	0	40	8	0
3	2	1	5	10	9	0	15	0	25	0	0	0	0	0	40	5	0
3	2	1	6	10	9	0	20	5	30	0	0	0	0	0	55	7	0
3	2	1	7	10	9	0	25	3	22	0	0	0	0	0	50	7	0
3	2	1	8	10	9	0	7	5	8	0	0	0	0	0	20	6	0
3	2	1	9	10	9	0	7	5	18	0	0	0	0	0	30	6	0
3	2	1	10	10	9	0	10	2	8	10	0	0	0	0	30	3	0
3	2	1	11	10	9	0	5	5	3	15	0	0	0	0	28	5	0
3	2	2	1	3	2	0	10	0	20	5	0	5	0	0	40	13	0
3	2	2	2	3	2	0	0	15	50	0	0	0	20	0	85	10	5
3	2	2	3	3	2	0	0	25	30	10	0	5	20	0	90	13	5
3	2	2	4	3	2	0	0	15	70	7	0	3	0	0	95	13	10
3	2	2	5	3	2	0	0	7	15	3	0	0	0	0	25	4	0
3	2	2	6	3	2	0	0	2	30	0	0	3	0	0	35	5	15
3	2	2	7	3	2	0	4	10	18	5	0	8	0	0	45	5	20
3	2	2	8	3	2	0	0	3	17	15	0	5	0	0	40	5	15
3	2	2	9	3	2	0	0	7	21	16	0	1	0	0	45	2	15
3	2	2	10	3	2	0	0	1	38	5	0	1	0	0	45	5	2
3	2	2	11	3	2	0	0	2	23	5	0	10	0	0	40	3	0
3	2	3	1	6	5	0	0	0	55	25	0	0	0	0	80	6	10
3	2	3	2	6	5	0	5	2	53	0	0	0	25	0	85	10	10
3	2	3	3	3	2	0	0	10	85	0	0	0	0	0	95	8	15
3	2	3	4	3	2	0	0	7	18	5	0	10	0	0	40	10	25
3	2	3	5	3	2	0	0	5	65	0	0	0	0	0	70	10	35

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
3	2	3	6	3	2	0	0	7	31	2	0	0	0	0	40	9	30
3	2	3	7	3	2	0	2	5	21	7	0	0	0	0	35	4	2
3	2	3	8	3	2	0	0	7	29	4	0	5	0	0	45	2	5
3	2	3	9	3	2	0	0	7	23	15	0	12	3	0	60	4	0
3	2	3	10	3	2	0	0	10	16	12	0	15	17	0	70	3	0
3	2	3	11	3	2	0	3	15	60	5	0	0	7	0	90	2	5
3	3	1	1	1	0	0	0	20	10	0	0	0	0	0	30	20	7
3	3	1	2	3	2	0	0	25	10	0	0	0	0	0	35	35	5
3	3	1	3	3	2	0	0	28	7	0	0	0	0	0	35	29	3
3	3	1	4	3	2	0	0	15	15	0	0	0	0	0	30	9	2
3	3	1	5	3	2	0	0	25	5	0	0	0	0	0	30	23	1
3	3	1	6	3	2	0	0	38	7	0	0	0	0	0	45	21	15
3	3	1	7	3	2	0	0	40	5	0	0	0	0	0	45	18	10
3	3	1	8	3	2	0	0	48	12	0	0	0	0	0	60	25	7
3	3	1	9	3	2	0	0	15	30	0	0	0	0	0	45	7	10
3	3	1	10	3	2	0	0	17	33	0	0	0	0	0	50	5	7
3	3	1	11	3	2	0	0	30	25	0	0	0	0	0	55	22	15
3	3	2	1	7	6	0	0	20	5	0	0	0	0	0	25	23	20
3	3	2	2	7	6	0	0	25	5	0	0	0	0	0	30	21	15
3	3	2	3	7	6	0	0	35	25	0	0	0	0	0	60	33	5
3	3	2	4	7	6	0	0	40	30	0	0	0	0	0	70	21	40
3	3	2	5	7	6	0	0	30	5	0	0	0	0	0	35	29	25
3	3	2	6	7	6	0	0	40	20	0	0	0	0	0	60	24	15
3	3	2	7	7	6	0	0	20	15	0	0	0	0	0	35	22	20
3	3	2	8	7	6	0	0	30	15	0	0	0	0	0	45	17	20
3	3	2	9	7	6	0	0	25	15	0	0	0	0	0	40	15	15
3	3	2	10	7	6	0	0	43	7	0	0	0	0	0	50	34	35
3	3	2	11	7	6	0	0	35	20	0	0	0	0	0	55	19	30
3	3	3	1	2	1	0	0	40	8	0	0	0	0	0	48	19	3
3	3	3	2	7	6	0	0	32	23	0	0	0	0	0	55	27	10

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
3	3	3	3	2	1	0	0	28	12	0	0	0	0	0	40	25	10
3	3	3	4	2	1	0	0	65	10	0	0	0	0	0	75	24	5
3	3	3	5	2	1	0	0	77	8	0	0	0	0	0	85	28	5
3	3	3	6	3	2	0	0	60	18	0	0	0	0	0	78	23	15
3	3	3	7	3	2	0	0	42	25	0	0	0	0	0	67	30	20
3	3	3	8	2	1	0	0	21	7	0	0	0	0	0	28	19	18
3	3	3	9	3	2	0	0	10	40	0	0	0	0	0	50	11	8
3	3	3	10	2	1	0	0	12	33	0	0	0	0	0	45	12	7
3	3	3	11	3	2	0	1	25	39	0	0	0	0	0	65	29	12
3	4	1	1	7	6	0	0	55	0	0	0	0	0	0	55	44	55
3	4	1	2	7	6	0	0	45	10	0	0	0	0	0	55	22	1
3	4	1	3	7	6	0	0	55	5	0	0	0	0	0	60	26	0
3	4	1	4	7	6	0	0	13	2	0	0	0	0	0	15	24	0
3	4	1	5	7	6	0	0	30	5	0	0	0	0	0	35	28	0
3	4	1	6	7	6	0	0	55	0	0	0	0	0	0	55	45	0.5
3	4	1	7	7	6	0	0	70	0	0	0	0	0	0	70	40	0.5
3	4	1	8	7	6	0	0	45	0	0	0	0	0	0	45	25	0
3	4	1	9	7	6	0	0	35	0	0	0	0	0	0	35	39	1
3	4	1	10	7	6	0	0	30	0	0	0	0	0	0	30	28	1
3	4	1	11	7	6	0	0	35	0	0	0	0	0	0	35	33	0.5
3	4	2	1	3	2	0	0	45	0	0	0	0	0	0	45	28	0
3	4	2	2	3	2	0	0	80	0	0	0	0	0	0	80	18	0
3	4	2	3	3	2	0	0	35	0	0	0	0	0	0	35	13	0
3	4	2	4	3	2	0	0	45	0	0	0	0	0	0	45	18	0
3	4	2	5	3	2	0	0	35	0	0	0	0	0	0	35	15	1
3	4	2	6	3	2	0	0	30	5	0	0	0	0	0	35	13	3
3	4	2	7	3	2	0	0	25	5	0	0	0	0	0	30	13	0
3	4	2	8	3	2	0	0	25	5	0	0	0	0	0	30	11	10
3	4	2	9	3	2	0	0	25	0	0	0	0	0	0	25	9	10
3	4	2	10	3	2	0	0	45	0	0	0	0	0	0	45	13	5

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
3	4	2	11	3	2	0	0	60	0	0	0	0	0	0	60	14	0
3	4	3	1	3	2	0	0	60	0	0	0	0	0	0	60	18	0
3	4	3	2	3	2	0	0	45	0	0	0	0	0	0	45	15	0
3	4	3	3	3	2	0	0	55	0	0	0	0	0	0	55	16	0
3	4	3	4	3	2	0	0	40	0	0	0	0	0	0	40	12	5
3	4	3	5	3	2	0	0	50	0	0	0	0	0	0	50	7	0
3	4	3	6	3	2	0	0	45	0	0	0	0	0	0	45	10	0
3	4	3	7	3	2	0	0	30	0	0	0	0	0	0	30	13	0
3	4	3	8	3	2	0	0	25	0	0	0	0	0	0	25	11	5
3	4	3	9	3	2	0	0	40	0	0	0	0	0	0	40	14	0
3	4	3	10	3	2	0	0	60	0	0	0	0	0	0	60	19	0
3	4	3	11	3	2	0	0	25	0	0	0	0	0	0	25	14	0
4	1	1	1	10	9	0	0	47	20	0	0	0	8	0	75	35	20
4	1	1	2	3	2	0	0	45	23	0	0	0	12	0	80	30	8
4	1	1	3	2	1	0	0	31	20	0	0	1	3	0	55	25	5
4	1	1	4	2	1	0	0	54	5	0	0	0	1	0	60	35	20
4	1	1	5	10	9	0	0	48	15	0	0	5	2	0	70	25	7
4	1	1	6	9	8	0	0	7	1	0	0	0	0	0	8	23	25
4	1	1	7	5	4	0	0	6	0	0	0	0	0	0	6	38	45
4	1	1	8	2	1	0	1	35	40	0	0	1	3	0	80	20	10
4	1	1	9	2	1	0	1	10	38	0	0	4	2	0	55	12	2
4	1	1	10	2	1	0	1	3	29	0	0	3	0	0	36	13	1
4	1	1	11	10	9	0	1	1	6	0	0	2	0	0	10	8	0
4	1	2	1	7	6	0	0	40	30	0	0	0	8	0	78	24	2
4	1	2	2	2	1	0	0	42	20	0	0	0	3	0	65	31	7
4	1	2	3	2	1	0	0	20	29	0	0	3	8	0	60	13	4
4	1	2	4	7	6	0	0	21	50	0	0	2	7	0	80	18	3
4	1	2	5	2	1	0	0	12	43	0	0	3	2	0	60	9	4
4	1	2	6	2	1	0	0	5	41	0	0	2	2	0	50	8	1
4	1	2	7	2	1	1	0	10	53	0	0	2	12	0	78	10	2

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
4	1	2	8	2	1	0	0	10	47	0	0	1	2	0	60	15	1
4	1	2	9	2	1	0	0	8	16	0	0	10	1	0	35	10	0
4	1	2	10	2	1	1	0	19	12	0	0	8	0	0	40	8	0
4	1	2	11	2	1	0	0	4	35	0	0	5	1	0	45	7	0
4	1	3	1	2	1	0	0	25	13	0	0	0	2	0	40	30	5
4	1	3	2	2	1	0	0	40	28	0	0	1	6	0	75	22	7
4	1	3	3	2	1	1	0	30	37	0	0	2	10	0	80	11	2
4	1	3	4	2	1	0	0	40	27	0	0	0	8	0	75	23	1
4	1	3	5	2	1	0	0	33	30	0	0	2	15	0	80	24	5
4	1	3	6	2	1	0	0	38	36	0	0	1	15	0	90	32	5
4	1	3	7	2	1	1	0	35	28	0	0	1	15	0	80	31	2
4	1	3	8	2	1	0	0	40	28	0	0	2	8	0	78	22	5
4	1	3	9	2	1	1	0	25	27	0	0	5	12	0	70	11	3
4	1	3	10	2	1	1	0	15	28	0	0	3	3	0	50	11	5
4	1	3	11	7	6	0	0	15	33	0	0	6	1	0	55	8	3
4	2	1	1	2	1	1	3	5	80	1	0	0	5	0	95	14	10
4	2	1	2	2	1	0	0	15	59	1	0	0	0	0	75	13	20
4	2	1	3	2	1	2	0	20	63	0	0	0	0	0	85	12	13
4	2	1	4	2	1	4	1	5	80	0	0	0	0	0	90	21	7
4	2	1	5	3	2	5	5	78	0	0	0	0	0	0	88	18	5
4	2	1	6	2	1	3	1	3	63	0	0	0	0	0	70	8	2
4	2	1	7	2	1	5	3	5	62	0	0	0	0	0	75	9	8
4	2	1	8	3	2	3	2	10	64	1	0	0	0	0	80	14	3
4	2	1	9	3	2	5	3	15	60	2	0	0	0	0	85	10	7
4	2	1	10	3	2	2	2	15	47	2	6	0	1	0	75	11	2
4	2	1	11	3	2	5	2	7	34	2	5	0	0	0	55	14	5
4	2	2	1	2	1	5	5	20	58	0	10	0	0	0	98	17	5
4	2	2	2	3	2	5	2	30	50	0	2	0	10	0	99	14	5
4	2	2	3	3	2	5	0	30	52	0	0	0	10	0	97	20	2
4	2	2	4	3	2	10	0	25	50	0	2	0	8	0	95	17	5

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
4	2	2	5	3	2	8	5	15	58	2	0	2	0	0	90	16	2
4	2	2	6	3	2	5	2	12	50	4	5	2	0	0	80	12	5
4	2	2	7	3	2	5	0	10	35	4	8	3	0	0	65	12	15
4	2	2	8	3	2	3	0	10	34	0	7	1	0	0	55	13	3
4	2	2	9	3	2	4	0	20	51	0	2	0	1	0	78	11	3
4	2	2	10	3	2	2	1	10	64	0	2	1	0	0	80	10	8
4	2	2	11	3	2	4	0	25	41	0	2	3	0	0	75	20	5
4	2	3	1	3	2	0	0	18	55	10	0	0	5	0	88	22	7
4	2	3	2	2	1	0	0	25	62	0	2	0	10	0	99	20	5
4	2	3	3	3	2	0	1	12	70	2	1	1	3	0	90	14	6
4	2	3	4	3	2	1	0	15	49	1	0	1	8	0	75	18	10
4	2	3	5	3	2	0	3	15	60	5	0	1	6	0	90	14	2
4	2	3	6	3	2	3	1	15	70	0	8	1	0	0	98	16	5
4	2	3	7	3	2	0	0	7	23	15	0	12	3	0	60	14	5
4	2	3	8	3	2	2	2	25	45	5	0	1	10	0	90	19	4
4	2	3	9	3	2	0	2	20	50	0	1	0	15	0	88	14	5
4	2	3	10	3	2	1	8	30	37	0	1	0	18	0	95	18	10
4	2	3	11	3	2	1	8	10	60	1	0	1	9	0	90	20	12
4	3	1	1	2	1	0	0	65	0	0	0	0	0	0	65	36	0
4	3	1	2	2	1	0	0	80	5	0	0	0	0	0	85	30	0
4	3	1	3	2	1	0	0	70	10	0	0	0	0	0	80	65	0
4	3	1	4	2	1	0	0	85	10	0	0	0	0	0	95	69	0
4	3	1	5	2	1	0	0	65	15	0	0	0	0	0	80	48	0
4	3	1	6	7	6	0	0	60	15	0	0	0	0	0	75	64	25
4	3	1	7	2	1	0	0	65	0	0	0	0	0	0	65	54	25
4	3	1	8	2	1	0	0	35	25	0	0	0	0	0	60	33	0
4	3	1	9	2	1	0	0	90	5	0	0	0	0	0	95	40	0
4	3	1	10	2	1	0	0	50	45	0	0	0	0	0	95	47	0
4	3	1	11	2	1	0	0	75	20	0	0	0	0	0	95	47	0
4	3	2	1	7	6	0	0	90	5	0	0	0	0	0	95	49	0

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
4	3	2	2	7	6	0	0	70	10	0	0	0	0	0	80	74	0
4	3	2	3	7	6	0	0	65	15	0	0	0	0	0	80	25	5
4	3	2	4	4	3	0	0	65	10	0	0	0	0	0	75	25	0
4	3	2	5	7	6	0	0	60	5	0	0	0	0	0	65	46	0
4	3	2	6	4	3	0	0	55	5	0	0	0	0	0	60	15	15
4	3	2	7	7	6	0	0	70	5	0	0	0	0	0	75	56	0
4	3	2	8	7	6	0	0	80	0	0	0	0	0	0	80	55	0
4	3	2	9	7	6	0	0	40	45	0	0	0	0	0	85	17	0
4	3	2	10	7	6	0	0	25	60	0	0	0	0	0	85	16	0
4	3	2	11	7	6	0	0	45	40	0	0	0	0	0	85	39	0
4	3	3	1	7	6	0	0	40	0	0	0	0	0	0	40	38	0
4	3	3	2	7	6	0	0	70	20	0	0	0	0	0	90	53	0
4	3	3	3	7	6	0	0	40	58	0	0	0	0	0	98	18	0
4	3	3	4	7	6	0	0	25	70	0	0	0	0	0	95	19	0
4	3	3	5	7	6	0	0	75	20	0	0	0	0	0	95	55	0
4	3	3	6	7	6	0	0	65	30	0	0	0	0	0	95	37	0
4	3	3	7	7	6	0	0	45	50	0	0	0	0	0	95	22	0
4	3	3	8	7	6	0	0	35	55	0	0	0	0	0	90	19	0
4	3	3	9	7	6	0	0	30	55	0	0	0	0	0	85	15	0
4	3	3	10	7	6	0	0	30	20	0	0	0	0	0	50	42	0
4	3	3	11	7	6	0	0	20	10	0	0	0	0	0	30	34	0
4	4	1	1	6	5	0	0	60	5	0	0	0	0	0	65	29	0
4	4	1	2	6	5	0	0	57	3	0	0	0	0	0	60	26	0
4	4	1	3	6	5	0	0	30	5	0	0	0	0	0	35	12	0
4	4	1	4	6	5	0	0	40	0	0	0	0	0	0	40	40	25
4	4	1	5	6	5	0	0	30	15	0	0	0	0	0	45	31	1
4	4	1	6	6	5	0	0	50	10	0	0	0	0	0	60	46	1
4	4	1	7	6	5	0	0	50	5	0	0	0	0	0	55	36	1
4	4	1	8	6	5	0	0	55	2	0	0	0	0	0	57	19	1
4	4	1	9	6	5	0	0	38	2	0	0	0	0	0	40	25	0.5

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
4	4	1	10	6	5	0	0	30	0	0	0	0	0	0	30	15	0
4	4	1	11	6	5	0	0	75	5	0	0	0	0	0	80	20	0
4	4	2	1	7	6	0	0	45	0	0	0	0	0	0	45	63	0
4	4	2	2	7	6	0	0	70	0	0	0	0	0	0	70	69	0
4	4	2	3	7	6	0	0	40	0	0	0	0	0	0	40	69	0
4	4	2	4	7	6	0	0	20	0	0	0	0	0	0	20	43	0.5
4	4	2	5	7	6	0	0	55	10	0	0	0	0	0	65	60	0.5
4	4	2	6	7	6	0	0	15	5	0	0	0	0	0	20	51	0
4	4	2	7	7	6	0	0	30	5	0	0	0	0	0	35	65	0
4	4	2	8	7	6	0	0	20	10	0	0	0	0	0	30	43	0.5
4	4	2	9	7	6	0	0	25	0	0	0	0	0	0	25	48	0
4	4	2	10	7	6	0	0	15	5	0	0	0	0	0	20	66	0
4	4	2	11	7	6	0	0	30	5	0	0	0	0	0	35	44	0
4	4	3	1	7	6	0	0	80	0	0	0	0	0	0	80	61	0
4	4	3	2	7	6	0	0	85	0	0	0	0	0	0	85	78	0
4	4	3	3	7	6	0	0	20	5	0	0	0	0	0	25	68	0.5
4	4	3	4	7	6	0	0	30	0	0	0	0	0	0	30	41	0.5
4	4	3	5	7	6	0	0	25	40	0	0	0	0	0	65	21	0
4	4	3	6	7	6	0	0	25	5	0	0	0	0	0	30	60	0
4	4	3	7	7	6	0	0	60	5	0	0	0	0	0	65	65	0
4	4	3	8	7	6	0	0	40	5	0	0	0	0	0	45	63	0
4	4	3	9	7	6	0	0	25	5	0	0	0	0	0	30	43	0.5
4	4	3	10	7	6	0	0	40	5	0	0	0	0	0	45	40	0
4	4	3	11	7	6	0	0	45	5	0	0	0	0	0	50	60	0.5
5	1	1	1	2	1	0	0	60	0	0	0	0	30	0	90	50	5
5	1	1	2	2	1	0	0	60	0	0	0	0	0	0	60	35	5
5	1	1	3	2	1	0	0	25	0	0	0	0	0	0	25	45	0
5	1	1	4	2	1	0	0	20	0	0	0	0	0	0	20	75	40
5	1	1	5	2	1	0	0	15	10	0	0	5	0	0	30	25	2
5	1	1	6	2	1	0	0	45	5	0	0	5	25	0	80	38	1

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
5	1	1	7	2	1	0	0	12	5	0	0	13	5	0	35	38	1
5	1	1	8	2	1	0	0	11	10	1	0	8	0	0	30	13	0
5	1	1	9	2	1	0	0	2	3	0	0	10	0	0	15	4	0
5	1	1	10	2	1	0	0	6	4	0	0	10	0	0	20	5	0
5	1	1	11	2	1	0	0	0	2	0	0	0	0	0	2	7	0
5	1	2	1	3	2	0	0	10	0	0	0	0	0	0	10	33	0
5	1	2	2	2	1	0	0	15	5	0	0	0	0	0	20	40	5
5	1	2	3	2	1	2	0	10	5	0	0	0	0	0	17	23	5
5	1	2	4	2	1	0	0	5	7	0	0	5	13	0	30	49	3
5	1	2	5	2	1	0	15	10	25	0	0	5	25	0	80	31	2
5	1	2	6	2	1	0	5	7	16	0	0	10	7	0	45	27	2
5	1	2	7	2	1	0	0	2	6	0	0	7	0	0	15	11	7
5	1	2	8	2	1	0	5	0	18	0	0	17	0	0	40	10	2
5	1	2	9	2	1	0	0	3	10	0	0	7	0	0	20	9	2
5	1	2	10	2	1	0	0	15	30	0	0	15	0	0	60	8	0
5	1	2	11	2	1	0	0	5	10	5	0	10	0	0	30	7	0
5	1	3	1	2	1	0	0	62	25	0	0	0	8	0	95	51	5
5	1	3	2	2	1	0	0	66	15	0	0	0	14	0	95	64	6
5	1	3	3	2	1	0	0	44	34	0	0	1	6	0	85	61	4
5	1	3	4	2	1	0	0	46	20	0	0	1	8	0	75	22	15
5	1	3	5	2	1	1	0	31	20	0	0	1	12	0	65	40	1
5	1	3	6	2	1	1	1	15	29	0	0	1	8	0	55	24	5
5	1	3	7	2	1	1	0	20	45	0	0	2	7	0	75	11	1
5	1	3	8	2	1	1	1	35	41	0	0	2	5	0	85	18	1
5	1	3	9	3	2	5	2	10	16	0	0	1	6	0	40	12	1
5	1	3	10	3	2	0	0	30	15	0	0	1	4	0	50	51	0
5	1	3	11	3	2	1	0	25	44	0	0	1	14	0	85	21	0
5	2	1	1	7	6	0	0	3	80	5	0	2	0	0	90	6	0
5	2	1	2	7	6	0	0	5	90	0	0	0	0	0	95	8	0
5	2	1	3	3	2	0	0	0	95	0	0	0	0	0	95	11	0

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
5	2	1	4	7	6	0	0	2	68	0	0	0	0	0	70	5	0
5	2	1	5	7	6	0	5	2	88	0	0	0	0	0	95	7	0
5	2	1	6	7	6	0	3	2	85	0	0	0	0	0	90	7	0
5	2	1	7	3	2	0	3	3	87	0	0	0	0	0	93	8	0
5	2	1	8	7	6	0	3	4	55	5	0	3	0	0	70	8	0
5	2	1	9	7	6	0	4	3	75	10	3	0	0	0	95	7	0
5	2	1	10	7	6	0	0	3	77	7	0	3	0	0	90	6	2
5	2	1	11	3	2	0	0	2	84	5	2	2	0	0	95	6	0
5	2	2	1	7	6	2	0	1	69	0	0	0	3	0	75	20	0
5	2	2	2	7	6	1	0	1	72	0	1	0	5	0	80	27	0
5	2	2	3	7	6	1	7	0	77	0	0	0	0	0	85	15	0
5	2	2	4	7	6	0	20	1	53	0	1	0	0	0	75	9	0
5	2	2	5	7	6	15	0	1	53	0	1	0	0	0	70	10	0
5	2	2	6	7	6	0	0	10	50	0	5	0	0	0	65	9	0
5	2	2	7	7	6	1	5	5	29	0	10	0	0	0	50	7	0
5	2	2	8	7	6	0	5	7	30	0	3	0	0	0	45	8	0
5	2	2	9	7	6	0	5	7	24	0	2	2	0	0	40	7	10
5	2	2	10	7	6	0	10	4	24	0	3	4	0	0	45	9	6
5	2	2	11	7	6	0	10	5	48	0	1	1	0	0	65	12	15
5	2	3	1	7	6	0	0	2	90	3	0	0	0	0	95	8	0
5	2	3	2	7	6	0	0	4	91	0	0	0	0	0	95	5	0
5	2	3	3	7	6	0	0	2	80	5	0	5	0	0	92	8	0
5	2	3	4	7	6	0	0	2	90	3	0	0	0	0	95	7	0
5	2	3	5	7	6	0	0	5	88	2	0	0	0	0	95	9	2
5	2	3	6	7	6	0	0	4	86	5	0	0	0	0	95	11	0
5	2	3	7	7	6	0	0	2	84	4	0	5	0	0	95	10	0
5	2	3	8	7	6	0	0	3	89	0	0	3	0	0	95	10	0
5	2	3	9	7	6	0	0	3	57	0	0	3	2	0	65	11	2
5	2	3	10	7	6	0	0	5	83	0	0	0	2	0	90	14	3
5	2	3	11	7	6	0	0	0	0	0	0	0	0	0	0	0	7

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
5	3	1	1	2	1	0	0	45	40	0	0	0	0	0	85	52	0
5	3	1	2	2	1	0	0	40	15	0	0	0	0	0	55	51	0
5	3	1	3	2	1	0	0	40	50	0	0	0	0	0	90	28	0
5	3	1	4	2	1	0	0	50	45	0	0	0	0	0	95	49	0
5	3	1	5	2	1	0	0	35	55	0	0	0	0	0	90	25	0
5	3	1	6	2	1	0	0	20	45	0	0	0	0	0	65	21	0
5	3	1	7	7	6	0	0	40	48	0	0	0	0	0	88	28	0
5	3	1	8	7	6	0	0	25	55	0	0	0	0	0	80	33	0
5	3	1	9	7	6	0	0	20	60	0	0	0	0	0	80	20	2
5	3	1	10	7	6	0	0	25	63	0	0	0	0	0	88	27	0
5	3	1	11	7	6	0	0	25	45	0	0	0	0	0	70	23	0
5	3	2	1	2	1	0	0	40	35	0	0	0	0	0	75	41	3
5	3	2	2	2	1	0	0	50	30	0	0	0	0	0	80	55	1
5	3	2	3	2	1	0	0	60	25	0	0	0	0	0	85	51	0
5	3	2	4	2	1	0	0	45	20	0	0	0	0	0	65	44	2
5	3	2	5	2	1	0	0	50	40	0	0	0	0	0	90	61	0
5	3	2	6	7	6	0	0	50	40	0	0	0	0	0	90	55	0
5	3	2	7	7	6	0	0	50	45	0	0	0	0	0	95	51	1
5	3	2	8	7	6	0	0	20	75	0	0	0	0	0	95	30	0
5	3	2	9	7	6	0	0	15	70	0	0	0	0	0	85	21	1
5	3	2	10	7	6	0	0	20	60	0	0	0	0	0	80	23	1
5	3	2	11	8	7	0	0	30	55	0	0	0	0	0	85	28	0
5	3	3	1	7	6	0	0	65	15	0	0	0	0	0	80	53	0
5	3	3	2	7	6	0	0	67	15	0	0	0	0	0	82	49	0
5	3	3	3	7	6	0	0	65	15	0	0	0	0	0	80	39	1
5	3	3	4	7	6	0	0	55	10	0	0	0	0	0	65	42	0
5	3	3	5	7	6	0	0	42	40	0	0	0	0	0	82	49	1
5	3	3	6	7	6	0	0	40	50	0	0	0	0	0	90	27	0
5	3	3	7	7	6	0	0	30	35	0	0	0	0	0	65	22	3
5	3	3	8	7	6	0	0	30	50	0	0	0	0	0	80	23	5

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
5	3	3	9	7	6	0	0	40	40	0	0	0	0	0	80	55	5
5	3	3	10	8	7	0	0	20	35	0	0	0	0	0	55	18	4
5	3	3	11	2	1	0	0	65	25	0	0	0	0	0	90	38	2
5	4	1	1	3	2	0	0	40	25	0	0	0	0	0	65	60	7
5	4	1	2	3	2	0	0	18	7	0	0	0	0	0	25	60	0
5	4	1	3	3	2	0	0	50	5	0	0	0	0	0	55	63	3
5	4	1	4	3	2	0	0	25	15	0	0	0	0	0	40	48	0
5	4	1	5	3	2	0	0	28	17	0	0	0	0	0	45	62	1
5	4	1	6	3	2	0	0	22	8	0	0	0	0	0	30	58	5
5	4	1	7	3	2	0	0	5	25	0	0	0	0	0	30	17	7
5	4	1	8	3	2	0	0	15	20	0	0	0	0	0	35	21	1
5	4	1	9	3	2	0	0	20	45	0	0	0	0	0	65	23	0
5	4	1	10	3	2	0	0	27	8	0	0	0	0	0	35	85	0
5	4	1	11	3	2	0	0	35	19	0	0	0	0	0	54	63	0
5	4	2	1	7	6	0	0	35	0	0	0	0	0	0	35	46	0
5	4	2	2	7	6	0	0	50	5	0	0	0	0	0	55	46	0
5	4	2	3	7	6	0	0	28	7	0	0	0	0	0	35	56	0
5	4	2	4	7	6	0	0	15	15	0	0	0	0	0	30	47	1
5	4	2	5	7	6	0	0	23	7	0	0	0	0	0	30	35	0
5	4	2	6	7	6	0	0	25	5	0	0	0	0	0	30	37	2
5	4	2	7	7	6	0	0	15	20	0	0	0	0	0	35	35	3
5	4	2	8	7	6	0	0	28	2	0	0	0	0	0	30	20	1
5	4	2	9	7	6	0	0	35	5	0	0	0	0	0	40	44	2
5	4	2	10	7	6	0	0	20	10	0	0	0	0	0	30	29	1
5	4	2	11	7	6	0	0	10	10	0	0	0	0	0	20	27	1
5	4	3	1	7	6	0	0	70	15	0	0	0	0	0	85	53	0
5	4	3	2	7	6	0	0	25	10	0	0	0	0	0	35	48	0
5	4	3	3	7	6	0	0	35	15	0	0	0	0	0	50	44	0
5	4	3	4	7	6	0	0	30	50	0	0	0	0	0	80	26	0
5	4	3	5	7	6	0	0	25	60	0	0	0	0	0	85	20	1

Period	Location	TRANSECT	QUADRAT	SEDIMENT	SEDIMENT	%Cs	%Cr	%Ea	%Th	%Hu	%Hp	%Ho	%Si	%Tc	Total %	Canopy	% Algae
5	4	3	6	7	6	0	0	30	60	0	0	0	0	0	90	30	0
5	4	3	7	7	6	0	0	15	45	0	0	0	0	0	60	20	2
5	4	3	8	7	6	0	0	50	40	0	0	0	0	0	90	22	1
5	4	3	9	7	6	0	0	25	60	0	0	0	0	0	85	28	1
5	4	3	10	7	6	0	0	20	60	0	0	0	0	0	80	21	0
5	4	3	11	7	6	0	0	30	60	0	0	0	0	0	90	15	0