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## Appendix 1. Water Quality Data

### A. Pinrang

Station	Ph	DO	Cond	Turb	Temp	Salt	TDS	NO3	NH4
0	7.41	3.23	32.4	163.3	29	0.1	0.2	0.54	0.47
1	7.4	3.19	23.2	116.6	28.7	0.1	0.2	0.54	0.5
2	7.37	3.6	0.15	152.2	28.7	1.2	1.4	0.53	0.48
3	7.35	3.59	1.08	150	28.6	1.6	2.7	0.54	0.57
4	7.42	3.4	1.3	100.7	29	9.1	15.7	0.54	0.49
5	7.7	3.36	1.32	100.1	29.3	9.3	12.5	0.54	0.49
6	7.8	3.33	1.64	90.7	29.4	14	22.3	0.54	0.52
7	7.98	3.5	3.22	61.5	30	20	31.2	0.53	0.49
8	8	3.54	3.06	39.2	30.3	20.1	31.1	0.54	0.53
9	8.02	3.56	4.33	12	31.2	27.7	46.1	0.54	0.47
10	8.01	3.59	4.35	12	30.7	30.9	27.3	0.54	0.48
11	8	3.56	4.64	37.6	30.6	26.4	41.8	0.54	0.46
12	7.98	3.49	3.75	48.7	30.3	25.5	42.1	0.58	0.46
13	7.91	3.34	2.27	142.3	29.6	13.7	21	0.51	0.48
14	7.76	3.35	2.07	118	29.4	12.9	21.1	0.54	0.43
15	7.63	3.04	1.17	105.51	29.2	6.1	9.9	0.52	0.45
16	7.79	3.19	2.14	105.2	29.9	16.5	27.4	0.52	0.43
17	8	3.51	2.34	57.1	31.1	15.9	25.5	0.51	0.44
18	8	3.49	4.06	6.5	32.7	26.9	43	0.51	0.44
19	8.02	3.56	4.49	1.7	31.9	30	48.8	0.52	0.45
20	8.04	3.67	4.52	1.9	32.1	30.3	49.2	0.51	0.47

## B. Pangkep

Station	pH	DO	Cond	Turb	Temp	Salt	TDS	NO3	NH4
0	7.97	3.47	3.49	7.3	28.4	22.4	35.1	0.56	0.6
1	7.96	3.56	3.46	8.2	28.8	22.6	35.4	0.59	0.53
2	7.97	3.61	3.53	8.9	29	23.2	36.4	0.57	0.57
3	7.98	3.67	4.07	8.5	29	26.5	42.2	0.61	0.54
4	8	3.92	7.77	7	30.1	25.5	40.5	0.59	0.58
5	8	4.32	2.74	18.3	30.4	17.8	26.9	0.59	0.51
6	7.99	4.14	3.2	21.5	30.8	20.7	32.4	0.61	0.61
7	8	4	4.39	19.1	31	29.5	47.4	0.59	0.6
8	8	3.52	4.45	3.3	31.6	29.8	48.2	0.6	0.53
9	8.05	3.85	4.24	1.5	31	28.2	45.3	0.57	0.49
10	8.06	4.07	4.28	7	31	28.5	45.9	0.54	0.52
11	8.06	4.21	4.29	7.8	30	28.6	46	0.55	0.5
12	8.03	3.9	4.29	11.7	30	28.7	46.1	0.56	0.52
13	8.01	3.72	4.26	12.4	29.7	28.5	45.7	0.55	0.51
14	8.00'	3.07	4.26	8.9	29	28.6	45.9	0.55	0.52
15	7.95	3.32	4.23	15.8	29	28.3	45.3	0.55	0.47
16	8	3.62	4.21	20	30	28.1	45	0.55	0.45
17	7.98	3.64	4.23	4	30.4	28.1	45.2	0.54	0.45
18	8.07	4.07	4.22	26.2	30.8	28.2	45.1	0.53	0.48
19	8.08	3.94	4.21	13.3	32	28.1	45.1	0.54	0.43
20	8.08	3.75	4.26	2.6	32.2	28.4	45.7	0.52	0.45

### C. Makassar

Station	Ph	DO	Cond	Turb	Temp	Salt	TDS	NO3	NH4
0	7.62	3.6	1.87	7.1	29.2	11.5	17.3	0.58	0.48
1	7.74	4.11	2.12	7.5	30	13	19.7	0.58	0.52
2	7.73	3.73	2.5	11.7	30	15.7	24	0.57	0.48
3	7.52	3.36	1.89	7.7	31.2	11.5	17.4	0.6	0.56
4	7.48	3.28	1.72	6.8	31	10.4	15.8	0.59	0.49
5	7.67	3.66	2.21	7.9	31.3	13.7	20.8	0.59	0.49
6	7.59	3.55	1.97	6.9	31.1	12.2	19.5	0.59	0.55
7	7.75	3.52	2.52	5.4	32	15.1	23.1	0.59	0.56
8	7.97	4.05	3.75	5.4	32	24.2	38	0.6	0.57
9	7.96	4.05	3.82	3.7	32.5	25.7	4.03	0.63	0.59
10	8.04	4.5	3.81	5.6	31	24.1	38.1	0.63	0.54
11	8.09	4.48	4.35	3.4	31.4	27.3	43.2	0.63	0.55
12	8	4.16	3.9	5	31	25.9	40	0.61	0.6
13	8.08	4.92	4.08	2.6	30	26.9	42.8	0.57	0.45
14	7.87	3.96	3.25	17.4	29	21.2	33	0.58	0.47
15	7.8	3.68	31.3	47.3	29.6	20.3	31.5	0.57	0.5
16	8.11	5.33	4.04	6.2	31	26.7	42.7	0.57	0.45
17	7.77	3.38	3.15	5.3	31.4	20.3	31.6	0.61	0.54
18	7.96	3.81	3.86	3	32.2	24.7	29.1	0.61	0.61
19	8.07	4.69	4.13	4.5	32.5	27.3	43.5	0.61	0.56
20	8.08	4.61	4.15	4.8	32.6	27.6	44.3	0.59	0.57



#### D. Takalar

Station	Ph	DO	Cond	Turb	Temp	Salt	TDS	NO3	NH4
0	7.61	3.43	4.38	17.51	29	29.2	47.1	0.57	0.52
1	7.59	2.34	4.37	16.2	29	29.2	47.1	0.57	0.58
2	7.4	2.43	4.47	13.8	29.1	29.2	47.2	0.57	0.53
3	7.62	2.56	4.34	15.3	30	29.2	47.2	0.57	0.56
4	7.97	3.56	4.47	4.6	31.1	30.1	48.5	0.43	0.41
5	7.97	3.06	4.52	2.2	31.4	30.5	49.5	0.48	0.47
6	8	3.52	4.49	2.2	31.4	30.1	48.7	0.47	0.43
7	7.98	3.56	4.46	2.8	32.3	29.9	48.4	0.47	0.4
8	7.97	3.5	4.5	3.8	31.9	30.1	48.9	0.47	0.4
9	7.99	3.55	4.5	1.3	31.8	30.1	48.9	0.48	0.43
10	7.97	3.29	4.47	1	32.1	30	48.6	0.48	0.43
11	7.94	3.38	4.54	3.7	32	30.4	49.3	0.47	0.45
12	7.98	3.45	4.54	1.2	32.2	30.4	49.5	0.48	0.46
13	7.89	3.45	4.48	11	32.2	30.1	48.7	0.48	0.46
14	7.91	3.37	4.43	10.3	29	29.9	48.5	0.45	0.36
15	7.65	2.73	4.4	13	29.2	29.4	47.5	0.56	0.54
16	7.86	3.56	4.42	13.5	30	30	48.5	0.43	0.36
17	7.66	2.98	44.2	22.7	32.1	29.6	48.4	0.53	0.54
18	7.76	3.2	4.45	7.2	32.7	29.9	48.4	0.53	0.54
19	7.81	3.53	4.46	6.3	32.6	29.9	48.3	0.54	0.42
20	8	3.51	4.4.9	1	32.3	30.1	48.8	0.53	0.43

### E. Bulukumba

Station	Ph	DO	Cond	Turb	Temp	Salt	TDS	NO3	NH4
0	8.07	3.9	3.02	21.3	28.7	19.1	29.3	0.56	0.41
1	8.04	3.91	2.94	26.1	28.9	18.8	29.1	0.56	0.42
2	7.88	3.53	4.11	34.4	29.1	27.3	43.6	0.57	0.58
3	7.17	2.62	7.92	55	29.3	28.4	27.8	0.59	0.56
4	8.04	3.65	4.23	4.5	30.2	28.2	45.4	0.59	0.37
5	8.05	3.86	3.75	20.6	30.2	24.1	38.3	0.6	0.62
6	8	3.53	4.14	7.2	31.5	25.2	40.3	0.6	0.59
7	8	3.31	4.62	0.8	32	30.9	50.4	0.57	0.57
8	7.99	3.44	4.63	2	32	31	50.6	0.54	0.48
9	8.01	3.41	4.63	2	32	31	50.7	0.57	0.45
10	8.8	3.36	4.36	0.38	31.3	31	5.07	0.52	0.44
11	8.01	3.44	4.37	3	31.3	28.7	4.55	0.51	0.49
12	8.02	3.55	4.37	7.08	31.6	29.2	47.4	0.52	0.51
13	7.99	3.45	4.43	35.1	32	29.6	47.9	0.52	0.53
14	8	3.52	4.16	43.3	30	27.6	44.1	0.59	0.42
15	8.03	3.6	3.18	39.5	30	22.4	35.2	0.67	0.45
16	7.99	3.41	3	55.5	32.3	19.2	29.8	0.54	0.52
17	8.04	3.58	3.49	14.9	32.1	22.5	35.5	0.55	0.44
18	8.03	3.57	4.24	3.4	31.7	28.3	45	0.58	0.46
19	8.01	3.61	4.55	2.7	32.2	30.5	49.7	0.54	0.59
20	8.01	3.41	4.64	2	32.5	31.1	50.5	0.53	0.46

## F. Bone

Station	pH	DO	Cond	Turb	Temp	Salt	TDS	NO3	NH4
0	7.56	2.44	2.07	13.1	28	12.7	19.5	0.54	0.48
1	7.56	2.93	2.1	12.8	28.2	13	19.8	0.53	0.43
2	7.57	2.48	2.14	13.2	29	13.1	20.1	0.53	0.53
3	7.66	2.88	2.42	38.2	29	15.1	23.2	0.56	0.5
4	7.71	3.14	2.45	29.4	30	15.3	23.5	0.56	0.45
5	7.74	3.08	3.1	11.5	30.1	19.3	30.1	0.6	0.61
6	7.76	3.08	3.07	10.3	30.2	22.3	30.8	0.59	0.6
7	7.92	3.33	3.53	7.8	30.4	24.6	40.2	0.61	0.58
8	7.19	3.6	4.21	5.3	31	28.2	45	0.57	0.54
9	7.92	3.49	3.96	5.9	31	26	41.6	0.58	0.51
10	7.89	3.29	3.83	6.6	30.7	25	40.2	0.58	0.53
11	7.87	3.17	3.77	7.5	30	22.7	36.7	0.57	0.58
12	7.73	2.86	2.86	15.2	30.1	18.2	28.2	0.56	0.5
13	7.64	2.82	2.34	15.9	29.5	14.5	22.3	0.58	0.45
14	7.6	2.61	2.2	13.4	29	13.5	20.6	0.64	0.42
15	7.58	2.56	2.17	13.8	29	12.4	20.5	0.54	0.48
16	7.61	2.74	2.38	13.1	30	14.9	23	0.53	0.48
17	7.88	3.7	3.49	14.7	30.1	22.6	45.7	0.53	0.45
18	8	4.19	4.25	22.8	30.2	28.2	45.5	0.54	0.45
19	8.03	4.36	6.51	5.8	31.7	30	48.9	0.6	0.62
20	8.04	4.14	4.62	4.3	31.9	31.4	51.5	0.6	0.61

## G. Palopo

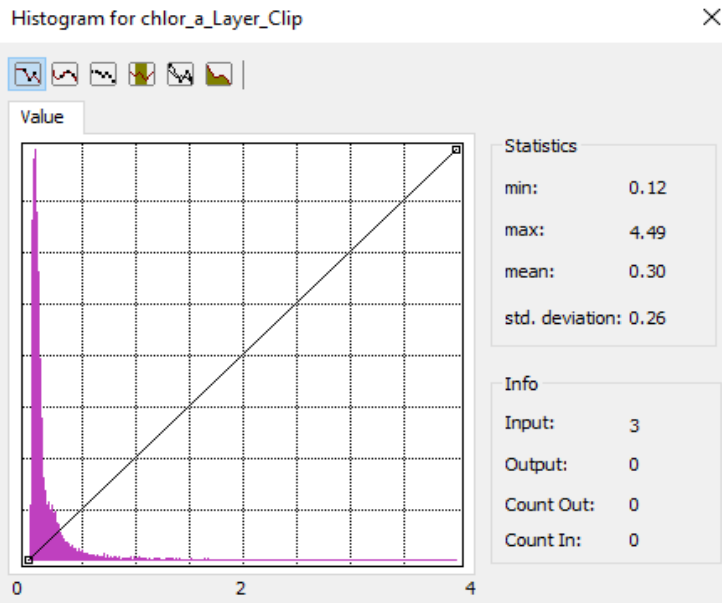
Station	Ph	DO	Cond	Turb	Temp	Salt	TDS	NO3	NH4
0	7.5	2.5	2.32	48.3	29	13.8	21.1	0.61	0.64
1	7.6	2.58	2.62	38.8	29	18.2	28.4	0.63	0.47
2	7.84	2.92	4.32	50	29	28.8	46.5	0.63	0.45
3	7.83	2.73	4.16	34.5	30.1	27.7	44.5	0.61	0.51
4	7.9	3.07	4.4	29.7	30	29.4	47.6	0.59	0.54
5	7.92	3.13	4.38	27.1	30.1	29.3	47.3	0.5	0.47
6	7.99	3.37	4.47	3.5	31.3	29.9	48.5	0.58	0.54
7	7.96	3.37	4.36	2.2	30.8	29	46.7	0.58	0.56
8	7.8	2.67	3.86	8.9	31.2	25.5	40.8	0.57	0.46
9	7.96	3.43	4.19	3.6	31.3	28	4.49	0.6	0.46
10	7.97	3.44	4.35	3.8	31.1	29.1	46.7	0.53	0.4
11	7.96	3.4	4.38	4.1	31.1	29.3	47.3	0.6	0.49
12	7.98	3.42	4.46	3.3	30.6	29.9	48.3	0.57	0.47
13	7.96	3.28	4.55	20.5	30.4	30.6	49.6	0.59	0.44
14	7.90	3.05	4.45	39.4	29	29.8	48.1	0.63	0.46
15	7.9	3.06	4.45	46.7	29	29.9	48.4	0.64	0.46
16	7.94	3.09	4.49	29.1	31.6	30.1	48.8	0.62	0.45
17	8.01	3.57	4.55	4.8	31.5	30.5	49.6	0.6	0.47
18	7.97	3.41	4.42	4.5	31.7	29.9	48.4	0.62	0.48
19	7.96	3.34	4.45	4.2	31.7	29.8	48.2	0.62	0.49
20	7.92	3.36	4.27	5.8	31.6	28.5	45.8	0.6	0.47

## H. Malili

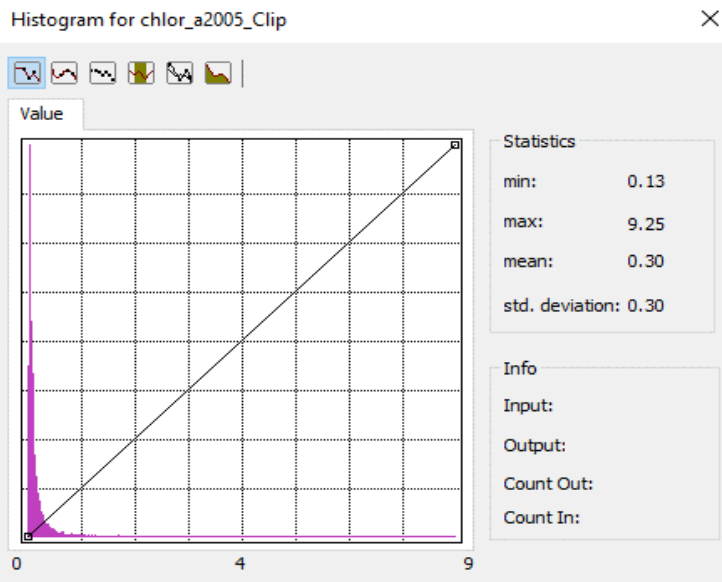
Station	Ph	DO	Cond	Turb	Temp	Salt	TDS	NO3	NH4
0	7.71	3.1	2.19	5	28.00	13	19.5	0.58	0.49
1	7.7	3.06	2.34	3.6	28.70	14.8	22.9	0.58	0.49
2	7.77	3.1	2.05	5.5	29.00	12.6	19.2	0.57	0.57
3	7.74	3.2	2.13	3.7	30.00	13.2	20.3	0.58	0.57
4	7.76	3.15	2.1	3.4	30.40	12.9	19.9	0.57	0.57
5	7.78	3.15	2.25	3.3	31.00	13.9	21.3	0.59	0.59
6	7.93	3.55	4.15	0.5	31.00	27.8	45	0.59	0.57
7	7.88	3.5	2.78	0.8	32.00	24.9	39.5	0.59	0.57
8	7.97	3.58	4.27	0.5	32.00	28.2	45.8	0.6	0.57
9	7.97	3.54	4.11	0.2	32.00	27.2	43.7	0.6	0.45
10	7.94	3.47	3.66	0.8	31.00	24.7	39.9	0.6	0.48
11	7.93	3.38	3.77	1.3	31.00	24.9	39.6	0.59	0.48
12	7.83	3.22	2.72	2	30.80	17.1	27.5	0.6	0.46
13	7.81	3.2	2.22	2.7	30.70	17.7	20.9	0.58	0.53
14	7.81	3.14	2.66	2.5	30.00	17.6	26.9	0.6	0.48
15	7.82	3.21	2.81	2.3	30.00	17.5	27.5	0.6	0.43
16	7.97	3.65	4.29	0.2	30.00	28.5	46.7	0.6	0.48
17	7.97	3.69	4.29	0.1	31.50	28.1	45.4	0.58	0.53
18	7.98	3.65	4.39	0.1	31.60	29.5	47.2	0.6	0.53
19	7.98	3.68	4.4	0.1	32.00	29.3	47.3	0.6	0.53
20	7.95	3.62	4.25	0.5	32.00	28.3	45.6	0.6	0.51

## Appendix 2. Ocean Color Chlorophyll-a Concentration Histograms

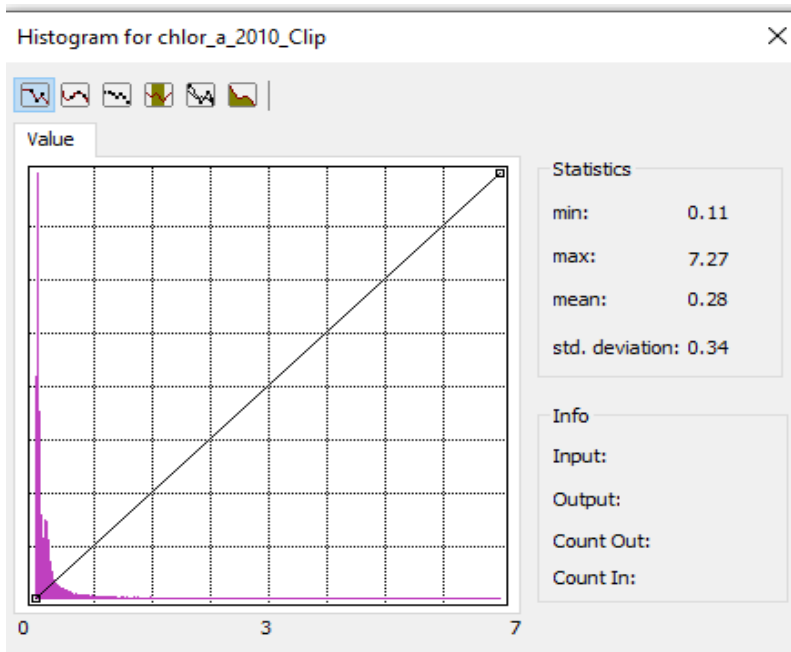
### Chlorophyll-a concentration histogram for 2002



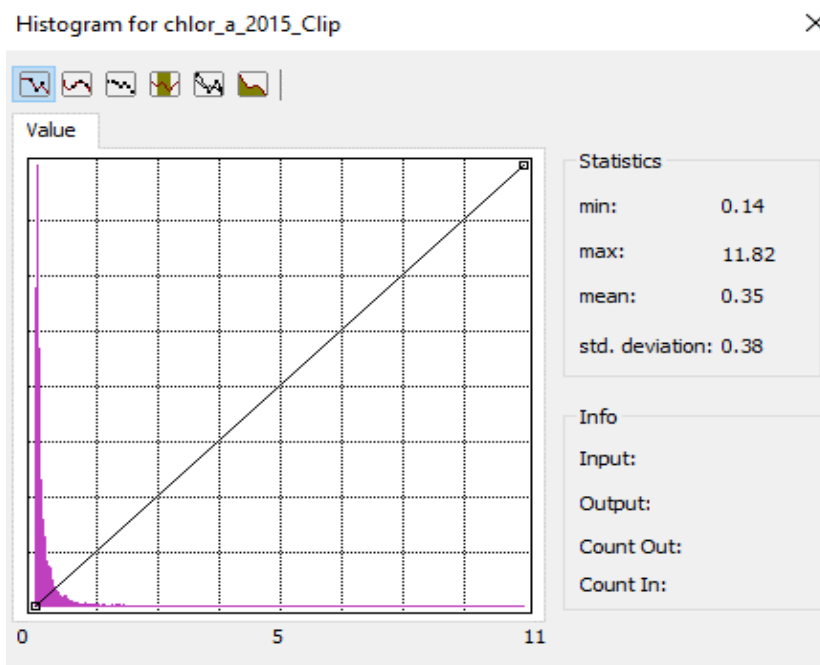
### Chlorophyll-a concentration histogram for 2005



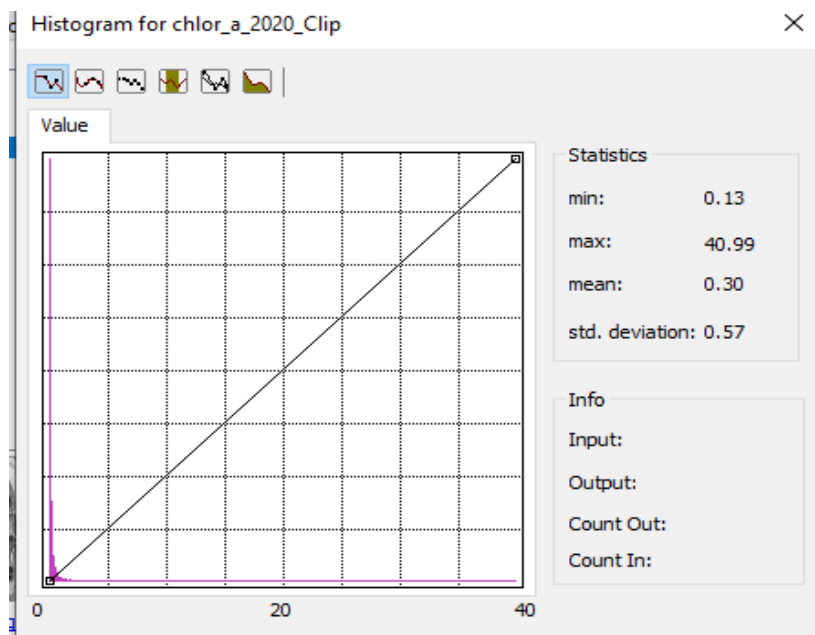
### Chlorophyll-a concentration histogram for 2010



### Chlorophyll-a concentration histogram for 2015



## Chlorophyl-a concentration histogram for 2020





### Appendix 3. Sampling Station Coordinates

#### A. Pinrang

Station	Latitude	Longitude
Pin0	3°41'27.54"S	119°26'58.08"E
Pin1	3°41'25.68"S	119°26'54.90"E
Pin2	3°41'24.42"S	119°26'51.36"E
Pin3	3°41'21.60"S	119°26'49.68"E
Pin4	3°41'15.18"S	119°26'44.64"E
Pin5	3°41'1.26"S	119°26'35.94"E
Pin6	3°40'47.16"S	119°26'28.02"E
Pin7	3°40'32.58"S	119°26'21.24"E
Pin8	3°40'3.30"S	119°26'5.04"E
Pin9	3°41'24.42"S	119°25'19.80"E
Pin10	3°41'24.42"S	119°25'51.90"E
Pin11	3°41'24.36"S	119°26'7.74"E
Pin12	3°41'24.42"S	119°26'23.34"E
Pin13	3°41'24.42"S	119°26'39.36"E
Pin14	3°41'24.30"S	119°26'47.64"E
Pin15	3°41'27.12"S	119°26'49.32"E
Pin16	3°41'34.38"S	119°26'44.88"E
Pin17	3°41'47.64"S	119°26'35.04"E
Pin18	3°42'0.60"S	119°26'24.72"E
Pin19	3°42'13.14"S	119°26'13.92"E
Pin20	3°42'36.72"S	119°25'51.72"E

B. Pangkep

Station	Latitude	Longitude
Pkp0	4°52'52.77"S	119°31'2.32"E
Pkp1	4°52'51.69"S	119°30'59.26"E
Pkp2	4°52'50.62"S	119°30'56.20"E
Pkp3	4°52'48.32"S	119°30'53.91"E
Pkp4	4°52'42.55"S	119°30'48.19"E
Pkp5	4°52'31.02"S	119°30'36.75"E
Pkp6	4°52'19.49"S	119°30'25.31"E
Pkp7	4°52'7.96"S	119°30'13.87"E
Pkp8	4°51'44.90"S	119°29'50.98"E
Pkp9	4°52'51.13"S	119°29'23.75"E
Pkp10	4°52'50.95"S	119°29'56.19"E
Pkp11	4°52'50.86"S	119°30'12.41"E
Pkp12	4°52'50.77"S	119°30'28.63"E
Pkp13	4°52'50.68"S	119°30'44.84"E
Pkp14	4°52'50.64"S	119°30'52.95"E
Pkp15	4°52'53.51"S	119°30'54.71"E
Pkp16	4°53'0.75"S	119°30'51.00"E
Pkp17	4°53'15.21"S	119°30'43.58"E
Pkp18	4°53'29.68"S	119°30'36.16"E
Pkp19	4°53'44.14"S	119°30'28.74"E
Pkp20	4°54'13.07"S	119°30'13.89"E

C. Makassar

Station	Latitude	Longitude
Tal0	5° 5'57.96"S	119°26'55.74"E
Tal1	5° 5'55.61"S	119°26'53.63"E
Tal2	5° 5'53.86"S	119°26'51.20"E
Tal3	5° 5'50.65"S	119°26'50.57"E
Tal4	5° 5'42.71"S	119°26'48.88"E
Tal5	5° 5'26.59"S	119°26'45.57"E
Tal6	5° 5'11.19"S	119°26'42.16"E
Tal7	5° 4'54.89"S	119°26'38.75"E
Tal8	5° 4'22.52"S	119°26'32.16"E
Tal9	5° 4'55.60"S	119°25'37.75"E
Tal10	5° 5'16.13"S	119°26'4.14"E
Tal11	5° 5'26.42"S	119°26'16.73"E
Tal12	5° 5'36.65"S	119°26'29.35"E
Tal13	5° 5'46.74"S	119°26'42.27"E
Tal14	5° 5'51.65"S	119°26'48.58"E
Tal15	5° 5'53.44"S	119°26'47.93"E
Tal16	5° 5'51.95"S	119°26'39.89"E
Tal17	5° 5'49.19"S	119°26'23.97"E
Tal18	5° 5'46.30"S	119°26'7.93"E
Tal19	5° 5'43.49"S	119°25'51.95"E
Tal20	5° 5'38.18"S	119°25'19.17"E

D. Takalar

Station	Latitude	Longitude
Tak0	5°32'14.16"S	119°26'10.92"E
Tak1	5°32'16.68"S	119°26'8.34"E
Tak2	5°32'18.12"S	119°26'5.04"E
Tak3	5°32'15.06"S	119°26'3.66"E
Tak4	5°32'7.80"S	119°25'59.76"E
Tak5	5°31'52.86"S	119°25'53.28"E
Tak6	5°31'37.86"S	119°25'46.44"E
Tak7	5°31'23.04"S	119°25'39.00"E
Tak8	5°30'53.64"S	119°25'24.60"E
Tak9	5°31'37.74"S	119°24'40.02"E
Tak10	5°31'51.72"S	119°25'9.48"E
Tak11	5°31'58.80"S	119°25'24.48"E
Tak12	5°32'5.82"S	119°25'39.54"E
Tak13	5°32'13.08"S	119°25'54.48"E
Tak14	5°32'16.74"S	119°26'1.86"E
Tak15	5°32'19.14"S	119°26'1.92"E
Tak16	5°32'20.70"S	119°25'53.82"E
Tak17	5°32'24.60"S	119°25'37.92"E
Tak18	5°32'28.86"S	119°25'21.96"E
Tak19	5°32'33.12"S	119°25'5.88"E
Tak20	5°32'42.30"S	119°24'34.20"E

E. Bulukumba

Station	Latitude	Longitude
Blk0	5°32'8.82"S	120°14'27.36"E
Blk1	5°32'12.06"S	120°14'27.00"E
Blk2	5°32'15.36"S	120°14'26.82"E
Blk3	5°32'17.64"S	120°14'24.42"E
Blk4	5°32'24.60"S	120°14'19.92"E
Blk5	5°32'38.64"S	120°14'11.40"E
Blk6	5°32'52.50"S	120°14'2.52"E
Blk7	5°33'6.54"S	120°13'53.88"E
Blk8	5°33'33.96"S	120°13'35.04"E
Blk9	5°33'48.00"S	120°14'38.82"E
Blk10	5°33'15.66"S	120°14'34.38"E
Blk11	5°32'59.28"S	120°14'32.10"E
Blk12	5°32'42.96"S	120°14'29.94"E
Blk13	5°32'26.70"S	120°14'28.20"E
Blk14	5°32'18.60"S	120°14'27.30"E
Blk15	5°32'17.16"S	120°14'29.64"E
Blk16	5°32'23.34"S	120°14'35.16"E
Blk17	5°32'34.80"S	120°14'47.04"E
Blk18	5°32'45.54"S	120°14'59.64"E
Blk19	5°32'56.40"S	120°15'12.36"E
Blk20	5°33'18.42"S	120°15'37.44"E

F. Bone

Station	Latitude	Longitude
Bon0	4°22'27.96"S	120°21'57.48"E
Bon1	4°22'30.00"S	120°22'0.24"E
Bon2	4°22'32.04"S	120°22'3.00"E
Bon3	4°22'35.28"S	120°22'3.78"E
Bon4	4°22'43.32"S	120°22'6.24"E
Bon5	4°22'58.50"S	120°22'12.12"E
Bon6	4°23'13.38"S	120°22'18.90"E
Bon7	4°23'28.68"S	120°22'24.84"E
Bon8	4°23'59.34"S	120°22'36.96"E
Bon9	4°23'24.60"S	120°23'20.58"E
Bon10	4°23'5.58"S	120°22'53.88"E
Bon11	4°22'56.46"S	120°22'40.02"E
Bon12	4°22'47.28"S	120°22'26.34"E
Bon13	4°22'38.58"S	120°22'12.36"E
Bon14	4°22'34.02"S	120°22'5.70"E
Bon15	4°22'31.44"S	120°22'6.24"E
Bon16	4°22'31.14"S	120°22'14.58"E
Bon17	4°22'29.70"S	120°22'30.90"E
Bon18	4°22'29.46"S	120°22'47.34"E
Bon19	4°22'29.46"S	120°23'4.14"E
Bon20	4°22'28.56"S	120°23'37.02"E

G. Palopo

Station	Latitude	Longitude
Pal0	2°57'7.86"S	120°13'46.26"E
Pal1	2°57'10.98"S	120°13'47.40"E
Pal2	2°57'14.10"S	120°13'48.66"E
Pal3	2°57'17.04"S	120°13'47.04"E
Pal4	2°57'24.90"S	120°13'45.12"E
Pal5	2°57'40.86"S	120°13'41.88"E
Pal6	2°57'56.88"S	120°13'38.52"E
Pal7	2°58'13.44"S	120°13'36.12"E
Pal8	2°58'45.78"S	120°13'29.46"E
Pal9	2°58'42.00"S	120°14'23.94"E
Pal10	2°58'11.22"S	120°14'11.82"E
Pal11	2°57'55.68"S	120°14'5.52"E
Pal12	2°57'40.26"S	120°13'59.16"E
Pal13	2°57'25.02"S	120°13'53.04"E
Pal14	2°57'17.22"S	120°13'49.98"E
Pal15	2°57'14.82"S	120°13'51.96"E
Pal16	2°57'19.26"S	120°13'58.80"E
Pal17	2°57'28.98"S	120°14'11.94"E
Pal18	2°57'37.74"S	120°14'25.68"E
Pal19	2°57'46.92"S	120°14'39.36"E
Pal20	2°58'4.74"S	120°15'7.26"E

H. Malili

Station	Latitude	Longitude
Mal0	2°40'25.68"S	121° 1'44.58"E
Mal1	2°40'28.80"S	121° 1'43.14"E
Mal2	2°40'31.80"S	121° 1'41.64"E
Mal3	2°40'33.18"S	121° 1'38.22"E
Mal4	2°40'37.92"S	121° 1'31.56"E
Mal5	2°40'46.74"S	121° 1'17.64"E
Mal6	2°40'55.14"S	121° 1'3.60"E
Mal7	2°41'3.78"S	121° 0'49.56"E
Mal8	2°41'21.06"S	121° 0'21.60"E
Mal9	2°41'56.76"S	121° 1'1.20"E
Mal10	2°41'27.06"S	121° 1'15.42"E
Mal11	2°41'12.12"S	121° 1'22.50"E
Mal12	2°40'57.18"S	121° 1'29.64"E
Mal13	2°40'42.24"S	121° 1'36.72"E
Mal14	2°40'34.80"S	121° 1'40.20"E
Mal15	2°40'35.16"S	121° 1'42.42"E
Mal16	2°40'43.32"S	121° 1'43.32"E
Mal17	2°40'59.64"S	121° 1'45.48"E
Mal18	2°41'16.26"S	121° 1'47.34"E
Mal19	2°41'32.70"S	121° 1'49.62"E
Mal20	2°42'5.16"S	121° 1'54.06"E



Appendix 4. Seaweed Classification Ground-Truthing Stations

No.	KT		KR	
	S	E	S	E
1	5° 34' 09"	119° 30' 44"	5° 34' 05."	119° 30' 38."
2	5° 34' 20"	119° 30' 53"	5° 34' 25."	119° 30' 49"
3	5° 34' 29"	119° 31' 17"	5° 34' 28."	119° 30' 57"
4	5° 38' 54"	119° 33' 20"	5° 38' 39."	119° 33' 07"
5	5° 38' 19"	119° 39' 06"	5° 39' 07."	119° 33' 42"
6	5° 42' 13"	119° 44' 33"	5° 39' 17."	119° 34' 05"
7	5° 40' 33"	119° 50' 18"	5° 40' 21."	119° 37' 52"
8	5° 42' 28"	119° 42' 32"	5° 41' 38."	119° 40' 09"
9	5° 42' 28"	119° 44' 34"	5° 42' 22."	119° 44' 21"
10	5° 41' 51"	119° 48' 08"	5° 41' 49."	119° 48' 07"
11	5° 32' 53"	119° 55' 45"	5° 32' 51."	119° 55' 55"
12	5° 32' 47"	119° 56' 27"	5° 32' 56."	119° 56' 25"
13	5° 32' 56"	119° 56' 33"	5° 33' 09."	119° 56' 47"
14	5° 33' 03"	119° 56' 41"	5° 33' 17"	119° 56' 50"
15	5° 33' 16"	119° 57' 35"	5° 33' 21"	119° 57' 47"
16	5° 33' 31"	119° 58' 14"	5° 33' 35."	119° 58' 33"
17	5° 34' 40"	119° 59' 14"	5° 33' 40."	119° 59' 24"
18	5° 33' 42"	119° 59' 57"	5° 33' 45."	119° 59' 55"
19	5° 33' 54"	120° 00' 30"	5° 34' 02."	120° 00' 31"
20	5° 34' 10"	120° 01' 01"	5° 34' 15."	120° 01' 05"
21	5° 35' 10"	120° 08' 02"	5° 35' 21."	120° 08' 02"
22	5° 35' 22"	120° 07' 37"	5° 35' 30."	120° 07' 30"
23	5° 35' 31"	120° 06' 50"	5° 35' 38."	120° 06' 53"
24	5° 35' 07"	120° 08' 35"	5° 35' 06."	120° 08' 44"
25	5° 35' 01"	120° 09' 00"	5° 34' 47."	120° 09' 04"
26	5° 35' 10"	120° 08' 02"	5° 35' 21."	120° 08' 02"
27	5° 33' 56"	120° 11' 02"	5° 32' 28."	120° 13' 19"
28	5° 32' 21"	120° 14' 21"	5° 32' 14."	120° 16' 03"
29	5° 31' 38"	120° 17' 58"	5° 35' 21."	120° 08' 02"
30	5° 30' 39"	120° 08' 02"	5° 31' 00."	120° 19' 30"

No.	JT		JR	
	S	E	S	E
1	5° 38' 13"	119° 32' 25"	5° 37' 05"	119° 32' 05"
2	5° 38' 28"	119° 32' 41"	5° 37' 52"	119° 31' 57"
3	5° 39' 34"	119° 34' 42"	5° 38' 13"	119° 32' 19"
4	5° 38' 22"	119° 35' 24"	5° 39' 00"	119° 33' 02"
5	5° 37' 56"	119° 36' 53"	5° 39' 27"	119° 34' 07"
6	5° 42' 52"	119° 42' 09"	5° 38' 56"	119° 35' 25"
7	5° 38' 59"	119° 51' 39"	5° 42' 39"	119° 42' 59"
8	5° 41' 11"	119° 48' 35"	5° 42' 24"	119° 47' 56"
9	5° 36' 16"	119° 52' 59"	5° 37' 11"	119° 52' 36"
10	5° 35' 40"	119° 54' 00"	5° 36' 26"	119° 53' 12"
11	5° 33' 07"	119° 55' 53"	5° 33' 04."	119° 55' 56"
12	5° 32' 59"	119° 56' 23"	5° 33' 01."	119° 56' 16"
13	5° 33' 05"	119° 56' 33"	5° 33' 11."	119° 56' 34"
14	5° 33' 23"	119° 56' 46"	5° 33' 20."	119° 56' 41"
15	5° 33' 44"	119° 57' 31"	5° 33' 40."	119° 57' 31"
16	5° 33' 58"	119° 58' 14"	5° 33' 58."	119° 58' 26"
17	5° 34' 03"	119° 59' 12"	5° 34' 01."	119° 59' 20"
18	5° 34' 08"	119° 59' 58"	5° 34' 12."	120° 00' 06"
19	5° 34' 35"	120° 00' 59"	5° 34' 47."	120° 01' 02"
20	5° 35' 45"	120° 06' 27"	5° 35' 35."	120° 06' 07"
21	5° 35' 49"	120° 08' 48"	5° 35' 21."	120° 08' 53"
22	5° 35' 34"	120° 10' 05"	5° 34' 24."	120° 10' 01"
23	5° 35' 10"	120° 08' 02"	5° 34' 21."	120° 10' 49"
24	5° 33' 51."	120° 12' 20"	5° 33' 52."	120° 12' 12"
25	5° 32' 49."	120° 13' 50"	5° 32' 41."	120° 14' 17"
26	5° 32' 36."	120° 16' 51"	5° 32' 36."	120° 16' 41"
27	5° 31' 05."	120° 19' 43"	5° 31' 10."	120° 19' 21"
28	5° 31' 42."	120° 21' 04"	5° 31' 09."	120° 19' 34"
29	5° 34' 11."	120° 22' 22"	5° 31' 05."	120° 19' 40"
30	5° 34' 52."	120° 22' 48"	5° 32' 31."	120° 16' 49"

Appendix 5. Statistical Analysis of Between-Site Differences in Chlorophyll-a Concentrations

A. Analysis of variance (ANOVA)

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
A	21	541.50	25.786	17.919
B	21	492.20	23.438	3.695
C	21	397.60	18.933	3.975
D	21	620.95	29.569	26.858
E	21	543.30	25.871	5.498
F	21	615.30	29.300	3.415
G	21	513.80	24.467	4.759
H	21	457.70	21.795	1.195

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	1899.5249	7	271.3607	32.2491	1.298E-27	2.06724
Within Groups	1346.3233	160	8.414521			
Total	3245.8482	167				

B. T-test matrix

	A	B	C	D	E	F	G
A							
B	*						
C	***	***					
D	*	***	***				
E	ns	***	***	**			
F	**	***	***	ns	***		
G	ns	ns	***	***	ns	***	
H	***	**	***	***	***	***	***

Notes: \* = significant (P < 0.05); \*\* very significant (P < 0.01); \*\*\* highly significant (P < 0.001); ns = not significant (P > 0.05)