

APPENDICES

APPENDIX I: Marine water quality data for the year of 2005

STN_NAME	MONTH	TEMP (°C)	Sal_ins (ppt)	Cond_ins (mS/cm)	DO_ins (mg/l)	Ph_ins	Ph_lab	Tur_lab (NTU)	TOC (mg/l)	NH3_N (mg/l)	NO3_N (mg/l)	TN (mg/l)	PO3 (mg/l)
KUALA SUNGAI JOHOR	1	31.14	30.11	51.25	7.21	7.75	8.00	<2	3.00	0.10	0.04	0.09	<0.03
KUALA SUNGAI JOHOR	4	30.91	30.67	52.756	6.13	6.88	7.9	<2	<1	0.05	0.05	0.11	<0.03
KUALA SUNGAI JOHOR	8	29.72	27.82	47.3	7.77	7.95	7.2	<2	2	<0.04	<0.04	<0.04	<0.03
KUALA SUNGAI JOHOR	10	29.91	25.44	43.82	7.01	7.89	8.00	<2	6.00	0.13	0.04	0.16	<0.03
KUALA SUNGAI MELAYU	1	30.24	22.31	36.41	6.71	7.58	7.36	<2	4.00	0.10	<0.04	0.80	0.14
KUALA SUNGAI MELAYU	4	31.05	25.77	45.259	9.18	7.82	7.9	<2	2	0.28	0.05	0.7	0.16
KUALA SUNGAI MELAYU	8	29.47	19.99	34.947	6.23	7.36	7.2	<2	3	0.08	<0.04	0.11	0.12
KUALA SUNGAI MELAYU	10	29.06	18.89	32.956	5.65	7.70	7.40	2.60	5.58	0.08	0.07	0.84	0.08
KUALA SUNGAI SEGGET	1	29.22	21.24	32.65	7.54	7.43	6.90	<2	7.00	0.15	<0.04	0.92	1.20
KUALA SUNGAI SEGGET	4	29.68	26.71	45.571	7.69	8.22	7.6	<2	-	-	-	1.16	0.21
KUALA SUNGAI SEGGET	7	28.91	15.24	27.029	8.72	7.57	6.6	3.5	8	0.05	<0.04	0.1	1.07
KUALA SUNGAI SEGGET	10	28.11	12.29	21.874	7.80	7.85	7.90	3.80	6.00	0.07	0.06	1.51	0.78
KUALA SUNGAI SKUDAI	1	29.84	20.22	35.43	6.32	7.46	7.20	<2	4.00	<0.04	<0.04	0.50	0.20
KUALA SUNGAI SKUDAI	4	30.92	25.86	45.286	9.83	7.93	7.9	<2	<1	0.19	<0.04	0.36	0.23
KUALA SUNGAI SKUDAI	7	29.61	23.87	41.14	5.75	7.34	7.1	<2	4	<0.04	<0.04	0.08	0.19
KUALA SUNGAI SKUDAI	10	28.24	15.03	26.35	3.36	7.72	7.20	5.90	5.13	0.06	0.07	1.23	0.05
KUALA SUNGAI TEBRAU	1	30.47	22.45	39.46	6.78	7.76	7.80	<2	3.00	<0.04	<0.04	0.10	0.07
KUALA SUNGAI TEBRAU	4	31.6	22.89	41.087	5.98	7.29	7.4	<2	2	0.3	0.09	0.08	0.09
KUALA SUNGAI TEBRAU	8	30.66	23.71	41.688	7.65	7.59	7.1	<2	3	<0.04	<0.04	<0.04	0.08
KUALA SUNGAI TEBRAU	10	30.43	21.90	38.684	6.63	7.89	7.80	<2	5.00	0.13	0.07	0.24	0.07
KUALA SUNGAI KIM-KIM	1	31.21	28.22	50.23	7.34	7.85	8.00	<2	<1	<0.04	<0.04	0.18	<0.03
KUALA SUNGAI KIM-KIM	4	30.79	30.68	52.643	6.27	7	7.9	<2	<1	0.07	0.06	0.16	<0.03
KUALA SUNGAI KIM-KIM	8	30	27.71	47.378	7.76	7.97	7.2	<2	2	<0.04	<0.04	<0.04	<0.03
KUALA SUNGAI KIM-KIM	10	29.98	25.47	43.92	7.07	7.85	7.90	<2	4.00	0.18	0.06	0.22	<0.03
KUALA SUNGAI BATU PAHAT	3	29.13	31.18	48.02	6.25	7.72	7.90	<2	7.00	<0.04	<0.04	0.05	<0.03
KUALA SUNGAI BATU PAHAT	6	29.61	24.65	42.36	7.22	7.07	7.9	<2	1	0.04	<0.04	0.34	<0.03
KUALA SUNGAI BATU PAHAT	9	29.38	30.77	50.42	6.57	7.78	7.30	<2	3.00	<0.04	0.04	3.10	<0.03
KUALA SUNGAI BATU PAHAT	12	28.68	20.72	33.240	6.75	7.17	6.30	<2	1.00	0.25	0.11	<1	<0.03
KUALA SUNGAI MUAR	3	29.03	27.43	42.91	6.21	7.79	7.90	<2	5.00	<0.04	<0.04	0.02	<0.03
KUALA SUNGAI MUAR	6	29.61	24.18	41.62	6.53	7.77	7.4	<2	3	<0.04	0.04	0.18	<0.03
KUALA SUNGAI MUAR	9	29.08	23.92	39.93	6.92	7.71	7.30	<2	2.00	<0.04	<0.04	1.40	<0.03
KUALA SUNGAI MUAR	12	28.94	19.47	31.44	6.72	6.97	7.30	<2	2.00	0.23	0.06	<1	<0.03

STN_NAME	MONTH	TEMP (°C)	Sal_ins (ppt)	Cond_ins (mS/cm)	DO_ins (mg/l)	Ph_ins	Ph_lab	Tur_lab (NTU)	TOC (mg/l)	NH3_N (mg/l)	NO3_N (mg/l)	TN (mg/l)	PO3 (mg/l)
KUALA SUNGAI MERSING	2	32.23	30.98	47.89	6.01	8.09	8.10	<2	7.00	<0.04	<0.04	0.14	<0.03
KUALA SUNGAI MERSING	5	30.53	26.14	43.96	7.08	7.99	7.4	<2	2	0.07	0.12	2.02	<0.03
KUALA SUNGAI MERSING	8	28.72	32.21	49.41	6.37	7.28	7.70	<2	<1	0.08	0.19	0.29	<0.03
KUALA SUNGAI MERSING	11	27.05	27.05	50.01	7.39	6.72	6.20	3.90	2.96	0.51	0.49	0.96	<0.03
KUALA SG.TEBRAU	3	31.29	28.92	50.411	6.25	8.00	7.4	<2	16	0.04	<0.01	0.50	0.14
KUALA SG.TEBRAU	6	31.76	22.17	40.03	7.57	7.04	7.5	<2	6	<0.04	<0.04	0.98	0.09
KUALA SG.SKUDAI	3	29.28	29.38	49.268	6.48	7.32	7.9	<2	18	0.12	<0.04	0.41	0.1
KUALA SG.SKUDAI	6	29.84	22.26	38.803	7.65	7.3	7.3	<2	3	<0.04	<0.04	0.02	0.12
KUALA SG.MELAYU	3	29.23	29.72	49.732	7.86	7.28	8.0	<2	17	0.67	0.04	0.92	0.68
KUALA SG.MELAYU	6	30.14	24.99	43.294	7.67	7.21	7.4	<2	7	<0.04	<0.04	<0.04	0.07
HADAPAN HSAJB	1	29.37	23.22	35.64	7.31	7.71	7.40	<2	3.00	0.18	0.06	0.81	0.40
HADAPAN HSAJB	4	30.33	26.18	45.296	8.49	8.43	8	<2	<1	0.41	0.25	1.5	0.25
HADAPAN HSAJB	7	29.53	18.39	32.448	6.91	7.45	7.1	<2	8	0.09	0.04	0.11	0.31
HADAPAN HSAJB	10	27.97	13.57	23.89	6.16	7.73	7.30	4.50	5.00	0.04	0.05	0.99	0.08
JETI TANJONG BELUNGKOR	2	29.05	32.05	49.21	6.40	7.61	7.80	<2	11.00	<0.04	<0.04	2.94	<0.03
JETI TANJONG BELUNGKOR	5	31.56	30.92	47.78	5.22	5.73	7.5	<2	3	0.12	0.08	0.92	<0.03
JETI TANJONG BELUNGKOR	8	28.85	28.70	44.58	6.44	7.38	7.30	<2	2.00	<0.04	<0.04	0.86	<0.03
JETI TANJONG BELUNGKOR	11	28.41	26.77	41.87	6.64	7.79	6.30	<2	NA	NA	NA	NA	NA
JETI TELUK JAWA	1	31.27	26.45	47.59	7.24	7.78	7.90	<2	3.00	<0.04	<0.04	0.40	0.10
JETI TELUK JAWA	4	32.11	25.94	46.392	6.33	7.42	7.5	<2	3	0.1	0.06	0.6	0.09
JETI TELUK JAWA	8	30.57	25.53	44.474	7.88	7.21	7.2	<2	3	<0.04	<0.04	<0.04	<0.030
JETI TELUK JAWA	10	30.27	21.57	38.01	7.93	7.93	7.90	2.00	5.00	0.15	0.07	0.25	0.11
PANTAI LIDO	1	29.74	21.42	36.22	6.12	7.62	7.30	<2	2.00	0.16	0.06	0.62	0.20
PANTAI LIDO	4	30.45	26.12	45.312	9.77	8.33	8.1	<2	1	0.46	0.58	1.08	0.23
PANTAI LIDO	7	29.6	20.21	35.387	5.95	7.59	7.1	<2	4	0.09	0.04	0.12	0.18
PANTAI LIDO	10	28.43	15.98	27.961	4.17	7.54	7.50	3.20	5.00	0.05	0.14	0.79	0.23
PANTAI STULANG LAUT	1	30.22	23.12	40.23	6.82	7.85	7.90	<2	4.00	<0.04	0.07	0.30	0.09
PANTAI STULANG LAUT	4	31.52	25.9	45.844	5.91	7.23	7.6	<2	2	0.04	0.08	0.65	0.13
PANTAI STULANG LAUT	8	30.88	23.33	41.255	7.61	7.59	7.1	<2	3	<0.04	<0.04	<0.04	0.07
PANTAI STULANG LAUT	10	30.63	22.38	39.55	6.76	8.00	8.20	<2	5.00	0.13	0.10	0.40	0.05
PANTAI TANJONG SETAPA	1	26.72	31.52	49.97	6.51	7.72	7.60	4.70	3.00	0.12	0.06	1.55	<0.03
PANTAI TANJONG SETAPA	4	30.04	32.96	50.5	6.2	7.96	8.2	<2	<1	<0.04	<0.04	1.86	<0.03
PANTAI TANJONG SETAPA	7	29.28	30.82	48.77	6.57	7.14	7.6	<2	4	0.05	<0.04	0.36	<0.03
PANTAI TANJONG SETAPA	10	30.62	27.81	50.026	6.78	7.91	7.70	12.00	5.00	0.14	0.04	1.11	<0.03

STN_NAME	MONTH	TEMP (°C)	Sal_ins (ppt)	Cond_ins (mS/cm)	DO_ins (mg/l)	Ph_ins	Ph_lab	Tur_lab (NTU)	TOC (mg/l)	NH3_N (mg/l)	NO3_N (mg/l)	TN (mg/l)	PO3 (mg/l)
PEL. PASIR GUDANG	1	31.12	27.75	49.86	7.52	7.86	8.00	<2	4.00	0.12	0.04	0.10	0.06
PEL. PASIR GUDANG	4	31.78	28.74	28.74	7.31	7.44	7.9	<2	2	0.06	0.06	0.07	0.09
PEL. PASIR GUDANG	8	30.56	26.45	45.91	7.61	7.33	7.3	<2	3	<0.04	<0.04	<0.04	<0.03
PEL. PASIR GUDANG	10	30.09	26.46	45.54	7.86	7.86	7.90	<2	4.00	0.16	0.05	0.16	0.04
PASIR GOGOK	2	28.87	32.07	49.24	6.15	7.72	7.70	2.10	12.00	<0.04	<0.04	1.93	<0.03
PASIR GOGOK	5	32.51	30.33	47.01	5.93	5.41	7.7	<2	1	0.11	0.07	1.2	<0.03
PASIR GOGOK	8	29.63	28.72	44.64	6.30	7.68	7.20	<2	1.00	<0.04	<0.04	<0.04	<0.03
PASIR GOGOK	11	29.43	28.42	44.22	6.44	7.63	8.10	<2	2.00	0.31	0.31	0.90	<0.03
TANJUNG SEPANG	3	29.98	32.87	50.40	6.11	8.09	8.20	<2	19.00	0.12	<0.14	0.13	<0.03
TANJUNG SEPANG	6	32.01	32.91	50.58	5.93	7.83	7.8	<2	5	<0.04	<0.04	0.07	<0.03
TANJUNG SEPANG	9	30.79	32.08	50.43	6.09	7.89	7.90	<2	3.00	0.08	0.06	0.11	<0.03
TANJUNG SEPANG	12	29.57	32.30	49.57	6.28	7.98	7.90	<2	3.00	0.15	0.04	<1	<0.03
TANJUNG PENGELIH	1	26.59	32.41	51.12	6.50	7.95	7.60	<2	4.00	0.08	0.07	1.77	<0.03
TANJUNG PENGELIH	4	29.86	33.45	51.16	6.15	7.97	8.2	<2	<1	<0.04	<0.04	1.09	<0.03
TANJUNG PENGELIH	7	30	31.01	47.83	6.27	6.82	7.6	<2	4	0.05	<0.04	0.44	<0.03
TANJUNG PENGELIH	10	28.98	28.63	50.26	6.72	7.84	7.70	4.00	5.00	0.16	0.04	0.99	<0.03
TANJUNG MERAK	1	26.96	31.41	49.94	6.49	7.91	7.60	2.10	4.00	0.10	0.08	1.12	<0.03
TANJUNG MERAK	4	29.52	33.52	51.23	5.9	8.02	8.1	<2	3	<0.04	<0.04	1.1	<0.03
TANJUNG MERAK	7	31.73	31.98	49.24	6.7	7.21	7.5	<2	5	<0.04	<0.04	0.4	<0.03
TANJUNG MERAK	10	29.32	27.17	49.93	6.82	7.78	7.70	4.20	5.00	0.13	0.04	1.21	<0.03
TANJUNG BUAI	2	29.95	30.70	47.40	6.21	7.64	7.70	<2	7.00	<0.04	<0.04	2.48	<0.03
TANJUNG BUAI	5	32.77	30.53	47.3	5.73	7.74	7.7	<2	4	0.09	0.08	0.81	<0.03
TANJUNG BUAI	8	30.73	27.53	43040.00	6.25	7.47	7.30	<2	1.00	<0.04	<0.04	0.18	<0.03
TANJUNG BUAI	11	29.18	24.76	39.07	6.58	7.63	7.90	<2	2.00	0.28	0.26	0.98	0.05
PANTAI KUKUP	3	29.30	33.57	51.30	6.08	7.86	8.00	<2	27.00	0.19	0.07	0.66	<0.03
PANTAI KUKUP	5	28.82	30.75	47.42	6.24	7.73	7.6	<2	3	0.04	<0.04	0.2	<0.03
PANTAI KUKUP	8	28.01	29.33	45.48	6.57	7.88	7.3	7.2	4	<0.04	<0.04	0.03	<0.03
PANTAI KUKUP	10	29.82	30.86	52.41	6.72	7.79	7.50	2.60	5.00	0.07	0.07	1.52	0.04
PANTAI SUNGAI LURUS	3	28.51	32.67	50.04	6.30	8.08	8.00	<2	6.00	<0.04	<0.04	0.07	<0.03
PANTAI SUNGAI LURUS	5	29.73	31.37	48.3	6.32	7.19	7.1	<2	4	0.04	<0.04	0.36	<0.03
PANTAI SUNGAI LURUS	9	29.72	31.02	49.73	6.83	7.99	7.40	<2	3.00	<0.04	0.04	1.50	<0.03
PANTAI SUNGAI LURUS	12	29.58	29.68	45.95	6.45	7.28	7.70	<2	3.00	0.24	0.03	<1	<0.03
PUNGGUR	1	27.31	32.18	51.49	6.31	7.91	7.80	<2	4.00	0.17	0.02	0.29	<0.03
PUNGGUR	5	28.54	30.5	47.06	6.23	7.69	7.1	3	3	0.04	<0.04	0.2	<0.03
PUNGGUR	8	28.83	29.13	45.17	6.38	7.16	7.3	6.4	5	<0.04	<0.04	0.04	<0.03
PUNGGUR	10	29.71	29.97	49.79	6.93	7.98	7.50	2.90	6.00	0.07	0.07	1.26	0.06

STN_NAME	MONTH	TEMP (°C)	Sal_ins (ppt)	Cond_ins (mS/cm)	DO_ins (mg/l)	Ph_ins	Ph_lab	Tur_lab (NTU)	TOC (mg/l)	NH3_N (mg/l)	NO3_N (mg/l)	TN (mg/l)	PO3 (mg/l)
PANTAI AIR PAPAN	2	31.61	32.37	49.77	5.98	8.05	8.10	<2	5.00	<0.04	<0.04	0.13	<0.03
PANTAI AIR PAPAN	5	32.43	32.21	51.31	6.32	7.59	7.7	<2	3	0.1	0.08	1.18	<0.03
PANTAI AIR PAPAN	8	30.47	33.49	51.24	6.08	7.81	7.60	<2	1.37	0.08	0.09	0.53	<0.03
PANTAI AIR PAPAN	10	29.71	29.07	45.13	6.33	7.61	7.90	8.10	2.61	0.31	0.29	1.01	<0.03
PANTAI DESARU	3	29.16	32.75	50.17	6.19	8.19	8.20	<2	19.00	0.15	<0.04	0.54	<0.03
PANTAI DESARU	6	30.98	33.82	51.72	6.04	7.7	7.8	<2	4	0.04	<0.04	0.1	<0.03
PANTAI DESARU	9	30.18	32.18	51.03	6.28	8.18	7.90	<2	2.00	0.09	0.06	0.23	<0.03
PANTAI DESARU	12	29.18	31.68	48.71	6.30	7.82	8.10	<2	3.00	0.18	0.08	<1	<0.03
PANTAI SRI PANTAI	1	28.32	24.07	40.47	6.61	7.89	7.80	<2	3.00	0.05	<0.04	0.06	<0.03
PANTAI SRI PANTAI	4	32.77	32.27	49.68	5.93	8.13	8.2	<2	<1	<0.04	<0.04	0.4	<0.03
PANTAI SRI PANTAI	7	30.28	32.26	52.28	6.66	6.5	7.7	<2	2	0.07	<0.04	0.12	<0.03
PANTAI SRI PANTAI	10	30.28	27.12	50.26	6.93	8.01	8.00	<2	5.00	0.14	0.04	0.79	<0.03
PANTAI TELUK GOREK	2	31.15	32.19	49.50	6.06	8.03	8.10	<2	6.00	<0.04	<0.04	0.17	<0.03
PANTAI TELUK GOREK	6	33.47	32.61	51.55	6.09	7.17	7.7	<2	3	0.09	0.19	1.1	<0.03
PANTAI TELUK GOREK	8	31.60	33.86	51.80	6.01	7.74	7.70	<2	2.42	0.11	0.07	0.47	<0.03
PANTAI TELUK GOREK	11	28.53	24.70	38.96	6.65	7.31	7.90	2.50	3.81	0.31	0.27	1.03	<0.03
PANTAI TELUK MAHKOTA	1	27.71	28.81	46.98	6.64	8.05	8.00	<2	3.00	0.04	<0.04	0.07	<0.03
PANTAI TELUK MAHKOTA	4	30.36	32.53	49.92	6.13	7.85	8.1	<2	3	<0.04	<0.04	0.21	<0.03
PANTAI TELUK MAHKOTA	7	28.91	32.47	52.5	6.81	6.85	7.9	<2	2	0.05	<0.04	0.09	<0.03
PANTAI TELUK MAHKOTA	10	29.72	26.32	47.99	6.98	7.98	7.90	3.50	6.00	0.14	0.05	0.48	<0.03
PANTAI TG.LEMAN	1	27.30	28.98	46.85	6.56	7.46	7.80	<2	4.00	0.04	<0.04	0.09	<0.03
PANTAI TG.LEMAN	4	30.72	32.76	50.25	6.12	8.13	8.2	<2	2	<0.04	<0.04	0.18	<0.03
PANTAI TG.LEMAN	7	28.95	32.27	52.23	6.25	7.07	7.75	<2	2	0.08	<0.04	0.12	<0.03
PANTAI TG.LEMAN	10	30.78	27.18	50.10	6.78	8.04	8.00	<2	5.00	0.14	0.04	0.37	<0.03
TANJUNG PENYUSUP	3	29.85	33.06	50.62	6.22	7.96	8.20	<2	21.00	0.17	<0.14	0.50	<0.03
TANJUNG PENYUSUP	6	33.18	32.84	50.5	5.84	7.75	7.7	<2	4	<0.04	<0.04	0.04	<0.03
TANJUNG PENYUSUP	9	29.29	32.95	49.80	5.99	7.93	7.80	<2	3.00	0.06	0.06	0.39	<0.03
TANJUNG PENYUSUP	12	29.91	31.95	49.12	6.19	7.91	8.00	<2	3.00	0.12	0.04	<1	<0.03
KG.TANJUNG KOPOK	3	29.57	31.01	51.985	6.39	7.92	7.9	<2	16	<0.04	<0.04	0.78	0.013
KG.TANJUNG KOPOK	6	30.94	27.05	47.173	7.26	7.22	6.9	<2	6	<0.04	<0.04	0.55	0.16
KG.PASIR PUTIH	3	30.09	30.12	51.128	6.07	7.95	7.8	<2	16	0.04	<0.04	1.32	0.079
KG.PASIR PUTIH	6	31.22	27.83	48.639	7.36	7.2	7.1	<2	5	<0.04	<0.04	0.59	0.19
J/K SULTAN ISKANDAR	3	31.07	29.51	51.12	6.07	7.92	7.6	<2	16	<0.04	<0.04	0.87	0.095
J/K SULTAN ISKANDAR	6	31.35	27.23	47.811	7.66	7.22	7.3	<2	5	<0.04	<0.04	0.58	0.07
KG.SENIBUNG	3	31.03	29.11	50.453	6.16	7.95	7.5	<2	15	<0.04	<0.04	0.46	0.12
KG.SENIBUNG	6	31.56	27.12	47.811	7.07	7.19	7.4	<2	7	<0.04	<0.04	0.81	0.08

STN_NAME	MONTH	TEMP (°C)	Sal_ins (ppt)	Cond_ins (mS/cm)	DO_ins (mg/l)	Ph_ins	Ph_lab	Tur_lab (NTU)	TOC (mg/l)	NH3_N (mg/l)	NO3_N (mg/l)	TN (mg/l)	PO3 (mg/l)
TANJUNG PUTRI	3	31.06	29.11	50.074	6.42	8.01	7.7	<2	16	<0.04	<0.04	0.66	0.12
TANJUNG PUTRI	6	31.36	25.64	45.304	6.02	7.35	7.5	<2	6	<0.04	<0.04	0.83	0.03
HADAPAN MPJB (W.F.CT)	3	28.48	27.87	46.293	9.07	7.72	7.9	<2	28	0.12	<0.04	0.85	0.28
HADAPAN MPJB (W.F.CT)	6	28.39	17.24	29.938	11.05	6.82	6.6	<2	6	<0.04	<0.04	0.06	0.17
TANJUNG DANGA	3	29.16	29.27	48.995	6.49	7.31	7.9	<2	15	0.09	<0.04	0.41	0.11
TANJUNG DANGA	6	29.64	24.54	42.195	7.78	7.17	7.4	<2	5	<0.04	<0.04	0.14	0.08
DEPAN PUSAT ISLAM	3	30.13	17.37	31.15	7.51	7.60	-	3.9	10	0.08	0.06	3.70	0.68
DEPAN PUSAT ISLAM	6	29.56	21.49	37.38	9.37	7.23	7.2	<2	5	0.07	0.04	0.04	0.46
TEBING RUNTUH	3	30.83	18.11	32.779	9.95	8.00	-	4.9	10	0.06	0.07	2.20	0.03
TEBING RUNTUH	6	30.08	26.54	45.656	7.41	7.21	7.5	<2	5	<0.04	<0.04	0.04	0.03
TANJUNG BUNGA	3	29.14	30.76	51.196	6.49	6.90	8.1	<2	17	0.12	<0.04	0.16	<0.03
TANJUNG BUNGA	6	29.93	27.24	46.61	7.54	7.24	7.5	<2	5	0.09	<0.04	<0.04	<0.03
TANJUNG KUPANG	3	29.42	31.17	52.79	7.46	7.22	8.1	<2	18	0.09	<0.04	0.13	<0.03
TANJUNG KUPANG	6	29.96	28.03	47.84	7.43	7.26	7.6	<2	5	<0.04	<0.04	<0.04	<0.03

STN_NAME	TSS (mg/l)	OG (mg/l)	TCC (MPN/100 ml)	E-coli (MPN/100 ml)	Cd (mg/l)	Cr (mg/l)	Hg (mg/l)	Pb (mg/l)	As (mg/l)	Ni (mg/l)	Cu (mg/l)	Fe (mg/l)	Zn (mg/l)	Mn (mg/l)
KUALA SUNGAI JOHOR	48.00	<1	120.00	80.00	<0.07	NA	<0.002	<0.06	<0.002	<0.06	<0.03	<0.09	<0.05	<0.06
KUALA SUNGAI JOHOR	66	<1	490	490	<0.07	NA	<0.002	0.29	<0.002	0.12	0.17	0.2	<0.05	<0.06
KUALA SUNGAI JOHOR	50	<1	840	840	<0.07	NA	<0.0008	<0.07	<0.0007	<0.06	0.21	<0.09	<0.05	<0.06
KUALA SUNGAI JOHOR	455.00	<1	43.00	23.00	<0.07	NA	0.001	0.15	<0.132	<0.06	<0.03	0.10	<0.05	<0.06
KUALA SUNGAI MELAYU	41.00	<1	160.00	120.00	<0.07	NA	<0.002	<0.06	<0.002	<0.06	0.09	<0.09	<0.05	<0.06
KUALA SUNGAI MELAYU	59	<1	70	23	<0.07	NA	<0.002	0.5	<0.002	0.18	0.14	<0.09	0.06	<0.06
KUALA SUNGAI MELAYU	34	<1	>240	>240	<0.07	NA	<0.001	0.06	0.001	<0.06	0.08	<0.09	<0.05	<0.06
KUALA SUNGAI MELAYU	370.00	<1	724.00	240.00	<0.07	NA	<0.002	<0.06	<0.002	<0.06	<0.03	0.10	<0.05	<0.06
KUALA SUNGAI SEGGET	134.00	<1	16000.00	4200.00	<0.07	NA	<0.002	<0.06	<0.002	0.09	0.07	<0.09	<0.05	<0.06
KUALA SUNGAI SEGGET	62	<1	9500	2300	<0.07	NA	<0.002	0.23	<0.002	0.14	0.14	0.12	<0.05	<0.06
KUALA SUNGAI SEGGET	45	1.2	>24000	3500	<0.07	NA	<0.001	<0.06	0.002	0.06	0.07	<0.09	<0.05	<0.06
KUALA SUNGAI SEGGET	160.00	<1	724.00	240.00	<0.07	NA	<0.002	<0.06	<0.002	<0.06	0.06	0.12	<0.05	<0.06
KUALA SUNGAI SKUDAI	52.00	<1	120.00	120.00	<0.07	-	<0.002	0.18	<0.002	<0.06	0.10	<0.09	<0.05	<0.06
KUALA SUNGAI SKUDAI	69	<1	540	240	<0.07	NA	<0.002	0.48	<0.002	0.12	0.13	0.2	0.06	<0.06
KUALA SUNGAI SKUDAI	30	<1	160	160	<0.07	NA	<0.001	<0.06	0.001	0.09	0.09	<0.09	<0.05	<0.06
KUALA SUNGAI SKUDAI	170.00	<1	724.00	240.00	<0.07	NA	<0.002	0.14	<0.002	<0.06	<0.03	0.10	<0.05	<0.06
KUALA SUNGAI TEBRAU	82.00	<1	>1600	>1600	<0.07	NA	<0.002	<0.06	<0.002	<0.06	<0.06	<0.09	<0.05	<0.06
KUALA SUNGAI TEBRAU	68	1	460	460	<0.07	NA	<0.002	0.49	<0.002	0.15	0.13	<0.09	0.05	<0.06
KUALA SUNGAI TEBRAU	41	1	>240	>240	<0.07	NA	<0.0008	0.11	<0.007	<0.06	0.16	<0.09	<0.05	<0.06
KUALA SUNGAI TEBRAU	410.00	<1	1300.00	23.00	<0.07	NA	0.001	<0.06	<0.132	<0.06	<0.03	0.20	<0.05	<0.06
KUALA SUNGAI KIM-KIM	62.00	<1	>1600	>1600	<0.07	NA	<0.002	<0.06	<0.002	<0.06	<0.03	<0.09	<0.05	<0.06
KUALA SUNGAI KIM-KIM	70	<1	4600	4600	<0.07	NA	<0.002	0.27	<0.002	0.2	0.16	<0.09	<0.05	<0.06
KUALA SUNGAI KIM-KIM	51	1.1	>2400	1600	<0.07	NA	<0.0008	<0.06	<0.0007	<0.06	0.18	<0.09	<0.05	<0.06
KUALA SUNGAI KIM-KIM	410.00	<1	4300.00	3500.00	<0.07	NA	0.001	0.09	<0.132	<0.06	<0.03	0.10	<0.05	<0.06
KUALA SUNGAI BATU PAHAT	140.00	1.10	17.00	17.00	<0.07	NA	<0.002	0.11	<0.001	<0.1	0.05	1.08	<0.05	<0.06
KUALA SUNGAI BATU PAHAT	246	<1	1.3	1.3	<0.07	NA	<0.002	0.2	0.001	<0.06	0.08	1.3	<0.05	0.34
KUALA SUNGAI BATU PAHAT	111.00	<1	>24	>24	<0.07	NA	<0.0008	<0.06	<0.132	0.22	<0.03	0.90	<0.05	<0.06
KUALA SUNGAI BATU PAHAT	50.00	1.00	5.40	2.20	<0.07	NA	<0.0008	<0.06	<0.0002	<0.06	<0.03	0.30	<0.05	0.19
KUALA SUNGAI MUAR	159.00	1.20	>2400	>2400	<0.07	NA	<0.002	0.23	<0.002	<0.06	0.05	1.26	0.66	<0.05
KUALA SUNGAI MUAR	117	<1	1300	1300	<0.07	NA	<0.002	0.34	0.003	0.11	0.06	0.9	<0.05	<0.06
KUALA SUNGAI MUAR	131.00	1.20	>2400	1600.00	<0.07	-	<0.0008	0.16	<0.132	0.15	<0.03	1.10	<0.05	<0.06
KUALA SUNGAI MUAR	80.00	<1	1600.00	240.00	<0.07	-	0.31	<0.06	0.001	<0.06	<0.03	0.30	<0.05	0.06

STN_NAME	TSS (mg/l)	OG (mg/l)	TCC (MPN/100 ml)	E-coli (MPN/100 ml)	Cd (mg/l)	Cr (mg/l)	Hg (mg/l)	Pb (mg/l)	As (mg/l)	Ni (mg/l)	Cu (mg/l)	Fe (mg/l)	Zn (mg/l)	Mn (mg/l)
KUALA SUNGAI MERSING	86.00	<1	23.00	23.00	<0.07	NA	<0.002	NA	<0.002	<0.06	0.10	0.70	0.44	<0.06
KUALA SUNGAI MERSING	61	<1	>240	>240	<0.07	NA	<0.002	<0.06	0.003	0.14	0.04	0.4	<0.05	<0.06
KUALA SUNGAI MERSING	50.00	1.00	>2400	920.00	<0.07	-	<0.0008	<0.06	<0.132	<0.06	0.06	<0.09	0.05	<0.06
KUALA SUNGAI MERSING	127.00	<1	33.00	23.00	<0.07	-	<0.0008	<0.06	0.0027	0.08	<0.03	0.63	<0.05	<0.06
KUALA SG.TEBRAU	67	<1	22	7.9	<0.07	NA	<0.002	0.09	0.002	0.09	0.06	0.13	<0.05	<0.06
KUALA SG.TEBRAU	45	<1	NA	NA	<0.07	NA	<0.002	0.27	0.002	<0.06	0.04	<0.09	<0.05	<0.06
KUALA SG.SKUDAI	45	<1	>24	2.4	<0.07	NA	<0.002	0.15	<0.002	<0.06	0.09	<0.09	<0.05	<0.06
KUALA SG.SKUDAI	153	<1	NA	NA	<0.07	NA	<0.002	0.19	0.001	<0.06	0.05	<0.09	<0.05	<0.06
KUALA SG.MELAYU	50	<1	>24000	2400	<0.07	NA	<0.002	0.07	0.002	<0.06	0.07	<0.09	<0.05	<0.06
KUALA SG.MELAYU	225	<1	NA	NA	<0.07	NA	<0.002	0.16	0.001	<0.06	0.05	<0.09	<0.05	<0.06
HADAPAN HSAJB	52.00	<1	9500.00	6200.00	<0.07	NA	<0.002	<0.06	<0.002	0.12	0.09	<0.09	<0.05	<0.06
HADAPAN HSAJB	61	<1	700	230	<0.07	NA	<0.002	0.57	<0.002	0.17	0.13	0.23	<0.05	<0.06
HADAPAN HSAJB	28	<1	16000	9200	<0.07	NA	<0.001	<0.06	0.002	0.08	0.08	<0.09	<0.05	<0.06
HADAPAN HSAJB	180.00	<1	724.00	240.00	<0.07	NA	0.00	<0.06	<0.002	<0.06	<0.03	0.13	<0.05	<0.06
JETI TANJONG BELUNGKOR	77.00	<1	>240	<240	<0.07	NA	<0.002	NA	<0.002	<0.06	0.10	0.50	0.48	<0.06
JETI TANJONG BELUNGKOR	69	<1	8.4	2.3	<0.07	NA	<0.002	<0.06	0.003	0.15	0.06	1.1	<0.05	<0.06
JETI TANJONG BELUNGKOR	40.00	<1	2.80	0.49	<0.07	NA	<0.0008	<0.06	<0.132	<0.06	<0.03	0.20	<0.05	<0.06
JETI TANJONG BELUNGKOR	NA	<1	3.50	0.33	<0.07	NA	<0.0008	<0.06	0.0015	<0.06	<0.03	0.10	<0.05	<0.06
JETI TELUK JAWA	52.00	<1	>2400	>2400	<0.07	NA	<0.002	<0.06	<0.002	<0.06	<0.06	<0.09	<0.05	<0.06
JETI TELUK JAWA	63	<1	4600	4600	<0.07	NA	<0.002	0.51	<0.002	0.18	0.14	<0.09	<0.05	<0.06
JETI TELUK JAWA	46	1	240	240	<0.07	NA	<0.0008	<0.06	<0.0007	<0.06	0.17	<0.09	0.16	<0.06
JETI TELUK JAWA	295.00	<1	>24000	9200.00	<0.07	NA	0.001	<0.06	<0.132	<0.06	<0.03	0.20	<0.05	<0.06
PANTAI LIDO	51.00	<1	>240	>240	<0.07	NA	<0.002	0.36	<0.002	<0.06	0.09	<0.09	<0.05	<0.06
PANTAI LIDO	69	<1	110	33	<0.07	NA	<0.002	0.52	<0.002	0.2	0.12	0.11	<0.05	<0.06
PANTAI LIDO	42	1	>2400	>2400	<0.07	NA	<0.001	0.06	0.002	<0.06	0.08	<0.09	<0.05	<0.060
PANTAI LIDO	240.00	1.40	724.00	92.00	<0.07	NA	<0.002	0.08	<0.002	<0.06	<0.03	0.12	<0.05	<0.06
PANTAI STULANG LAUT	72.00	<1	>16000	>16000	<0.07	NA	<0.002	<0.06	<0.002	<0.06	0.12	<0.09	<0.05	<0.06
PANTAI STULANG LAUT	64	<1	3100	3100	<0.07	NA	<0.002	0.29	<0.002	0.16	0.15	<0.09	0.06	<0.06
PANTAI STULANG LAUT	41	1	3500	3500	<0.07	NA	<0.0008	0.06	<0.0007	0.06	0.17	0.5	<0.05	<0.06
PANTAI STULANG LAUT	310.00	<1	>24000	16000.00	<0.07	NA	0.001	<0.06	<0.132	<0.06	0.06	0.10	<0.05	<0.06
PANTAI TANJONG SETAPA	249.00	1.00	1.30	1.30	<0.07	NA	<0.002	0.30	<0.002	<0.06	0.07	7.80	0.58	0.14
PANTAI TANJONG SETAPA	73	<1	9.2	5.4	<0.07	NA	<0.002	0.4	<0.002	0.18	0.16	0.36	0.05	<0.06
PANTAI TANJONG SETAPA	378	<1	0.79	0.23	<0.07	NA	<0.0008	0.1	0.003	0.11	0.12	4.05	0.05	0.09
PANTAI TANJONG SETAPA	600.00	<1	>24	2.40	<0.07	NA	<0.002	0.32	<0.002	<0.06	0.03	0.80	0.17	<0.06

STN_NAME	TSS (mg/l)	OG (mg/l)	TCC (MPN/100 ml)	E-coli (MPN/100 ml)	Cd (mg/l)	Cr (mg/l)	Hg (mg/l)	Pb (mg/l)	As (mg/l)	Ni (mg/l)	Cu (mg/l)	Fe (mg/l)	Zn (mg/l)	Mn (mg/l)
PEL. PASIR GUDANG	50.00	<1	>1200	680.00	<0.07	NA	<0.002	<0.06	<0.002	<0.06	<0.03	<0.09	<0.05	<0.06
PEL. PASIR GUDANG	68	<1	580	580	<0.07	NA	<0.002	0.35	<0.002	0.15	0.15	<0.09	<0.05	<0.06
PEL. PASIR GUDANG	58	1.2	350	350	<0.07	NA	<0.0008	<0.06	<0.0007	<0.06	0.18	<0.09	<0.05	<0.06
PEL. PASIR GUDANG	559.00	<1	>2400	350.00	<0.07	NA	0.001	<0.06	<0.132	<0.06	<0.03	0.20	<0.05	<0.06
PASIR GOGOK	81.00	<1	>240	>160	<0.07	NA	<0.002	NA	<0.002	<0.06	0.10	0.60	0.41	<0.06
PASIR GOGOK	67	<1	23	23	<0.07	NA	<0.002	<0.06	0.003	0.1	0.06	0.2	<0.05	<0.06
PASIR GOGOK	54.00	<1	4.90	2.30	<0.07	NA	<0.0008	<0.06	<0.132	<0.06	<0.03	0.30	<0.05	<0.06
PASIR GOGOK	100.00	<1	9.20	3.50	<0.07	NA	<0.0008	<0.06	0.0036	<0.06	<0.03	0.10	<0.05	<0.06
TANJUNG SEPANG	55.00	<1	1.10	0.33	<0.07	NA	<0.002	0.09	<0.002	<0.06	0.08	0.09	<0.05	<0.06
TANJUNG SEPANG	150	<1	16	16	<0.07	NA	<0.002	0.18	0.001	<0.06	0.09	0.2	<0.07	<0.06
TANJUNG SEPANG	92.00	<1	4.90	4.90	<0.07	NA	<0.0008	0.32	<0.132	0.17	<0.03	0.52	<0.05	<0.06
TANJUNG SEPANG	110.00	1.20	3.30	3.30	<0.07	NA	<0.0008	<0.06	0.0002	<0.06	<0.03	0.50	0.55	<0.06
TANJUNG PENGELIH	77.00	<1	0.33	0.23	<0.07	NA	<0.002	0.10	<0.002	<0.06	0.07	<0.09	0.50	<0.06
TANJUNG PENGELIH	51	<1	>24	9.2	<0.07	NA	<0.002	0.44	<0.002	0.18	0.17	<0.09	<0.05	<0.06
TANJUNG PENGELIH	72	<1	0.64	0.23	<0.07	NA	<0.0008	<0.02	0.001	0.11	0.11	0.11	<0.05	<0.06
TANJUNG PENGELIH	540.00	<1	>24	9.20	<0.07	NA	<0.002	0.23	<0.002	<0.06	0.04	0.30	<0.05	<0.06
TANJUNG MERAK	149.00	<1	5.40	3.50	<0.07	NA	<0.002	<0.06	<0.002	<0.06	0.05	0.40	0.28	<0.06
TANJUNG MERAK	57	<1	16	3.5	<0.07	NA	<0.002	0.37	<0.002	0.16	0.18	0.25	0.07	<0.06
TANJUNG MERAK	240	<1	3.5	2.4	<0.07	NA	<0.0008	0.14	0.003	<0.06	0.13	2.27	<0.05	0.06
TANJUNG MERAK	560.00	<1	>24	3.50	<0.07	NA	<0.002	0.26	<0.002	<0.06	0.03	0.20	<0.05	<0.06
TANJUNG BUAI	77.00	<1	2.50	2.50	<0.07	NA	<0.002	NA	<0.002	0.13	0.15	0.60	0.55	<0.06
TANJUNG BUAI	75	<1	43	23	<0.07	NA	<0.002	0.06	0.002	0.11	0.06	0.1	0.06	<0.06
TANJUNG BUAI	53.00	<1	9.50	2.30	<0.07	NA	<0.0008	<0.06	<0.132	<0.06	<0.03	0.30	<0.05	<0.06
TANJUNG BUAI	48.00	<1	0.79	0.23	<0.07	NA	<0.0008	<0.06	0.0012	<0.06	<0.03	<0.09	<0.05	<0.06
PANTAI KUKUP	54.00	<1	92.00	92.00	<0.07	NA	<0.002	0.12	<0.002	<0.06	0.09	0.30	<0.05	<0.06
PANTAI KUKUP	130	<1	9.2	>240	<0.07	NA	<0.002	0.09	0.007	0.08	0.05	2.5	0.12	0.06
PANTAI KUKUP	453	1	3.1	2.3	<0.07	NA	<0.0008	0.07	<0.0007	<0.06	0.19	7	0.44	0.29
PANTAI KUKUP	490.00	<1	0.23	0.23	<0.07	NA	<0.002	0.15	<0.002	<0.06	<0.03	1.10	<0.05	<0.06
PANTAI SUNGAI LURUS	249.00	<1	>240	11.00	<0.07	NA	<0.002	0.14	<0.002	<0.06	0.07	2.23	0.09	0.12
PANTAI SUNGAI LURUS	392	1.6	13	13	<0.07	NA	<0.002	0.35	0.003	<0.06	0.14	8	<0.05	0.25
PANTAI SUNGAI LURUS	266.00	1.20	2.40	2.40	<0.07	NA	<0.0008	0.16	<0.132	0.20	<0.03	3.30	0.23	<0.06
PANTAI SUNGAI LURUS	120.00	<1	28.00	14.00	<0.07	NA	<0.0008	<0.06	0.002	<0.06	0.03	0.70	<0.05	<0.06
PUNGGUR	130.00	1.60	3.30	0.33	<0.07	NA	<0.002	0.48	<0.002	<0.06	0.06	0.60	0.41	<0.06
PUNGGUR	130	<1	9.2	>240	<0.07	NA	<0.002	<0.06	0.004	0.09	0.05	3.1	0.08	0.06
PUNGGUR	401	1.2	0.49	0.49	<0.07	NA	<0.0008	0.14	0.001	0.06	0.23	6.4	2.3	0.2
PUNGGUR	480.00	<1	1.30	0.49	<0.07	NA	<0.002	0.44	<0.002	<0.06	<0.03	0.40	<0.05	<0.06

STN_NAME	TSS (mg/l)	OG (mg/l)	TCC (MPN/100 ml)	E-coli (MPN/100 ml)	Cd (mg/l)	Cr (mg/l)	Hg (mg/l)	Pb (mg/l)	As (mg/l)	Ni (mg/l)	Cu (mg/l)	Fe (mg/l)	Zn (mg/l)	Mn (mg/l)
PANTAI AIR PAPAN	64.00	<1	23.00	23.00	<0.07	NA	<0.002	NA	<0.002	<0.06	0.09	0.50	0.40	<0.06
PANTAI AIR PAPAN	63	<1	>240	160	<0.07	NA	<0.002	NA	0.002	0.12	0.06	<0.09	<0.05	<0.06
PANTAI AIR PAPAN	98.00	<1	>2400	>2400	<0.07	NA	<0.0008	<0.06	<0.132	<0.06	<0.03	<0.09	<0.05	<0.06
PANTAI AIR PAPAN	116.00	1.00	330.00	230.00	<0.07	NA	<0.0008	<0.06	0.0022	<0.06	<0.03	0.21	<0.05	<0.06
PANTAI DESARU	68.00	<1	1600.00	540.00	<0.07	NA	<0.002	0.21	0.002	0.11	0.13	0.22	<0.05	<0.06
PANTAI DESARU	100	<1	>2400	>2400	<0.07	NA	<0.002	0.26	0.001	<0.06	0.1	<0.09	0.23	<0.06
PANTAI DESARU	61.00	<1	0.58	0.31	<0.07	NA	<0.0008	0.19	<0.132	0.18	<0.03	0.10	<0.05	<0.06
PANTAI DESARU	70.00	1.00	3.30	2.30	<0.07	NA	0.0015	<0.06	0.0015	<0.06	<0.03	0.30	0.12	<0.06
PANTAI SRI PANTAI	123.00	1.70	5.40	3.50	<0.07	NA	<0.002	0.36	<0.002	<0.06	0.05	7.50	0.41	0.14
PANTAI SRI PANTAI	68	<1	>24	16	<0.07	NA	<0.002	0.29	<0.002	0.21	0.16	0.33	<0.05	<0.06
PANTAI SRI PANTAI	63	<1	35	35	<0.07	NA	<0.0008	0.09	0.001	0.07	0.14	0.25	<0.05	<0.06
PANTAI SRI PANTAI	580.00	<1	3.10	2.30	<0.07	NA	<0.0008	0.01	<0.132	<0.06	0.11	0.10	<0.05	<0.06
PANTAI TELUK GOREK	64.00	<1	23.00	23.00	<0.07	NA	<0.002	NA	<0.002	<0.06	0.10	0.50	0.26	<0.06
PANTAI TELUK GOREK	56	<1	>240	>240	<0.07	NA	<0.002	<0.06	0.002	0.08	0.06	<0.09	<0.05	<0.06
PANTAI TELUK GOREK	65.00	1.00	>2400	>2400	<0.07	NA	<0.0008	0.12	<0.132	<0.06	<0.03	0.10	0.05	<0.06
PANTAI TELUK GOREK	143.00	1.00	330.00	230.00	<0.07	NA	0.001	<0.06	0.0023	<0.06	<0.03	0.34	<0.05	<0.06
PANTAI TELUK MAHKOTA	97.00	1.00	17.00	2.00	<0.07	NA	<0.002	0.40	<0.002	<0.06	0.06	1.60	0.30	<0.06
PANTAI TELUK MAHKOTA	67	<1	2.4	0.79	<0.07	NA	<0.002	0.45	<0.002	0.11	0.16	0.19	0.05	<0.06
PANTAI TELUK MAHKOTA	58	<1	>24	>24	<0.07	NA	<0.0008	0.12	0	0.08	0.13	<0.09	0.05	<0.06
PANTAI TELUK MAHKOTA	660.00	<1	13.00	2.30	<0.07	NA	0.0008	0.29	<0.132	<0.06	<0.03	1.00	<0.05	<0.06
PANTAI TG.LEMAN	161.00	1.40	0.33	0.23	<0.07	NA	<0.002	0.40	<0.002	<0.06	0.05	1.60	0.32	<0.06
PANTAI TG.LEMAN	76	<1	2.4	0.79	<0.07	NA	<0.002	0.38	<0.002	0.12	0.15	0.46	<0.05	<0.06
PANTAI TG.LEMAN	66	<1	2.5	2.5	<0.07	NA	<0.0008	0.09	0.001	<0.06	0.14	0.17	<0.05	<0.06
PANTAI TG.LEMAN	460.00	<1	0.31	0.23	<0.07	NA	<0.0008	0.06	<0.132	<0.06	0.54	0.10	<0.05	<0.06
TANJUNG PENYUSUP	57.00	<1	1.80	0.95	<0.07	NA	<0.002	0.11	<0.002	<0.06	0.09	0.34	<0.05	<0.06
TANJUNG PENYUSUP	60	1	>24	>24	<0.07	NA	<0.002	0.11	0.002	<0.06	0.08	0.2	<0.05	<0.06
TANJUNG PENYUSUP	69.00	<1	31.00	23.00	<0.07	NA	<0.0008	0.15	<0.132	0.21	<0.03	0.57	<0.05	<0.06
TANJUNG PENYUSUP	60.00	1.20	3.30	3.30	<0.07	-	<0.0008	<0.06	0.0005	<0.06	<0.03	0.10	<0.05	<0.06
KG.TANJUNG KOPOK	43	<1	7.9	2.3	<0.07	*	<0.002	<0.06	<0.002	<0.06	0.051	0.09	<0.05	<0.06
KG.TANJUNG KOPOK	39	<1	-	-	<0.07	-	<0.002	1.21	0.001	<0.06	0.06	0.09	<0.05	<0.06
KG.PASIR PUTIH	48	<1	7	2.3	<0.07	-	<0.002	<0.06	<0.002	<0.06	0.053	<0.09	<0.05	<0.06
KG.PASIR PUTIH	39	<1	-	-	<0.07	-	<0.002	0.27	0.002	<0.06	0.04	0.09	<0.05	<0.06
J/K SULTAN ISKANDAR	54	<1	9.5	2.3	<0.07	-	<0.002	0.102	0.002	<0.06	0.066	<0.09	<0.05	<0.06
J/K SULTAN ISKANDAR	55	<1	2200	790	<0.07	-	<0.002	0.06	0.002	<0.06	0.04	<0.09	<0.05	<0.06
KG.SENIBUNG	58	<1	1.1	7.9	<0.07	-	<0.002	0.15	<0.002	<0.06	0.06	<0.09	<0.05	<0.06
KG.SENIBUNG	38	1	-	-	<0.07	-	<0.002	0.2	0.002	<0.06	0.04	<0.09	<0.05	<0.06

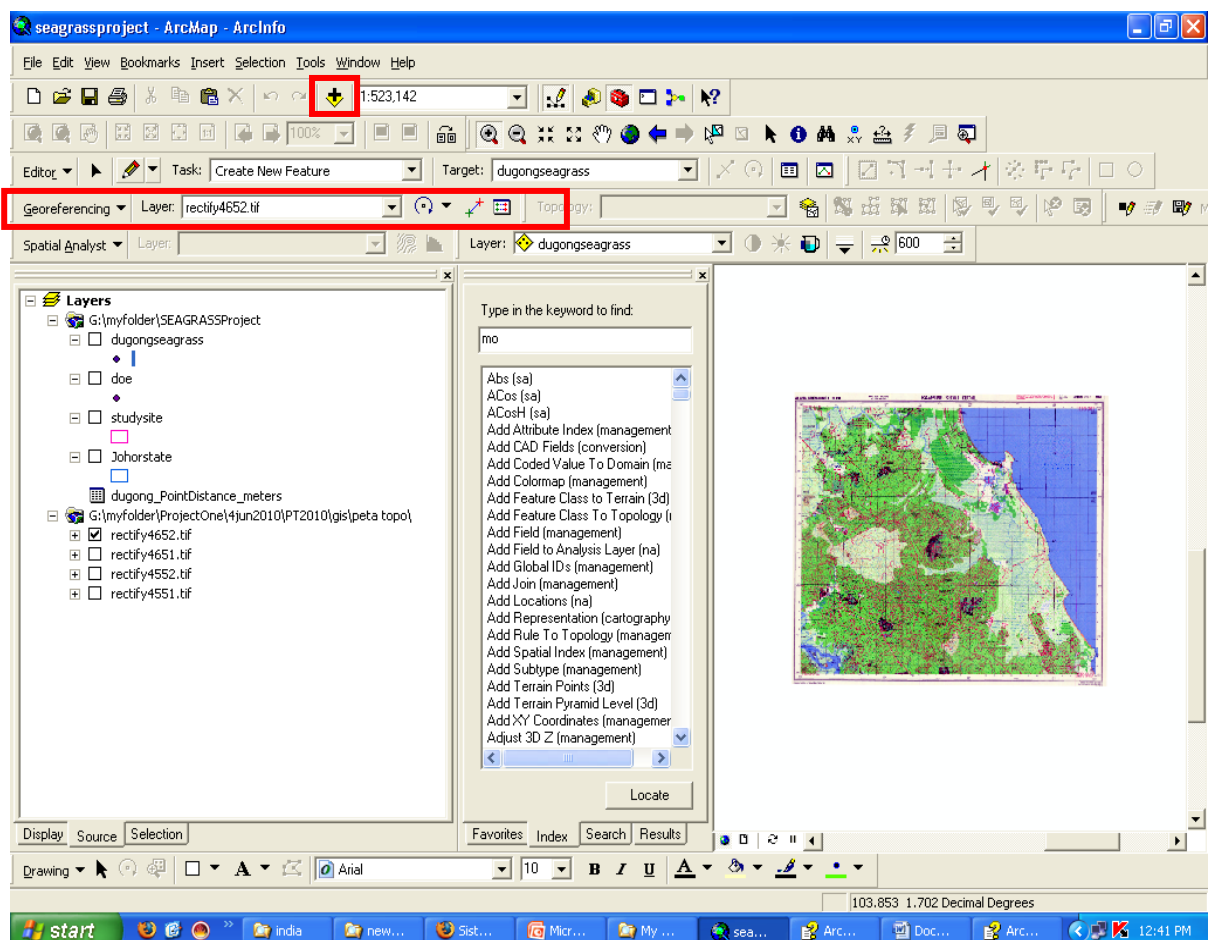
STN_NAME	TSS (mg/l)	OG (mg/l)	TCC (MPN/100 ml)	E-coli (MPN/100 ml)	Cd (mg/l)	Cr (mg/l)	Hg (mg/l)	Pb (mg/l)	As (mg/l)	Ni (mg/l)	Cu (mg/l)	Fe (mg/l)	Zn (mg/l)	Mn (mg/l)
TANJUNG PUTRI	64	<1	4.6	2.3	<0.07	-	<0.002	0.18	<0.002	<0.06	0.11	0.09	<0.05	<0.06
TANJUNG PUTRI	44	<1	-	-	<0.07	-	<0.002	0.12	0.001	0.06	0.03	<0.09	<0.05	<0.06
HADAPAN MPJB (W.F.CT)	71	<1	>2400	240	<0.07	-	<0.002	0.13	<0.002	<0.06	0.06	<0.09	<0.05	<0.06
HADAPAN MPJB (W.F.CT)	38	<1	>240000	24000	<0.07	-	<0.002	0.13	<0.002	<0.06	<0.06	<0.09	<0.05	<0.06
TANJUNG DANGA	51	<1	>24000	2400	<0.07	-	<0.002	0.11	<0.002	<0.06	0.07	<0.09	<0.05	<0.06
TANJUNG DANGA	196	<1	>24000	2400	<0.07	-	<0.002	0.28	0.002	<0.06	0.05	<0.09	<0.05	<0.06
DEPAN PUSAT ISLAM	16	<1	4300	3500	<0.07	<0.09	<0.002	<0.06	<0.002	<0.06	<0.03	<0.09	<0.05	<0.06
DEPAN PUSAT ISLAM	150	<1	-	-	<0.07	-	<0.002	0.19	0.002	<0.06	0.05	<0.09	<0.05	<0.06
TEBING RUNTUH	<5	<1	>24000	2400	<0.07	<0.09	<0.002	<0.06	<0.002	<0.06	<0.03	<0.09	<0.05	<0.06
TEBING RUNTUH	205	<1	-	-	<0.07	-	<0.002	0.14	0.001	<0.06	0.05	<0.09	<0.05	<0.06
TANJUNG BUNGA	47	<1	>2400	240	<0.07	-	<0.002	0.07	0.002	<0.06	0.08	<0.09	<0.05	<0.06
TANJUNG BUNGA	279	1.1	-	-	<0.07	-	<0.002	<0.06	0.001	<0.06	0.05	<0.09	<0.05	<0.06
TANJUNG KUPANG	46	<1	>2400	240	<0.07	-	<0.002	<0.06	<0.002	<0.06	0.04	<0.09	<0.05	<0.06
TANJUNG KUPANG	159	<1	-	-	<0.07	-	<0.002	<0.06	0.0004	<0.06	0.05	<0.09	<0.05	<0.06

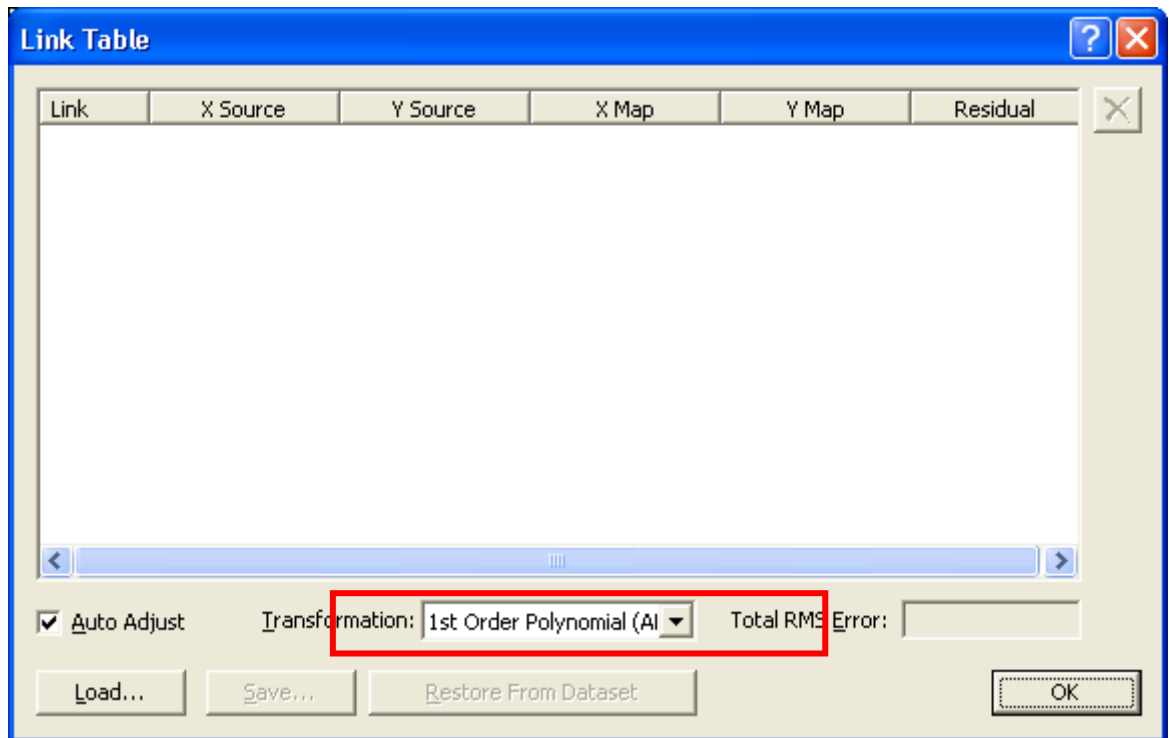
APPENDIX II

Preparation of Geospatial Data with ArcGIS

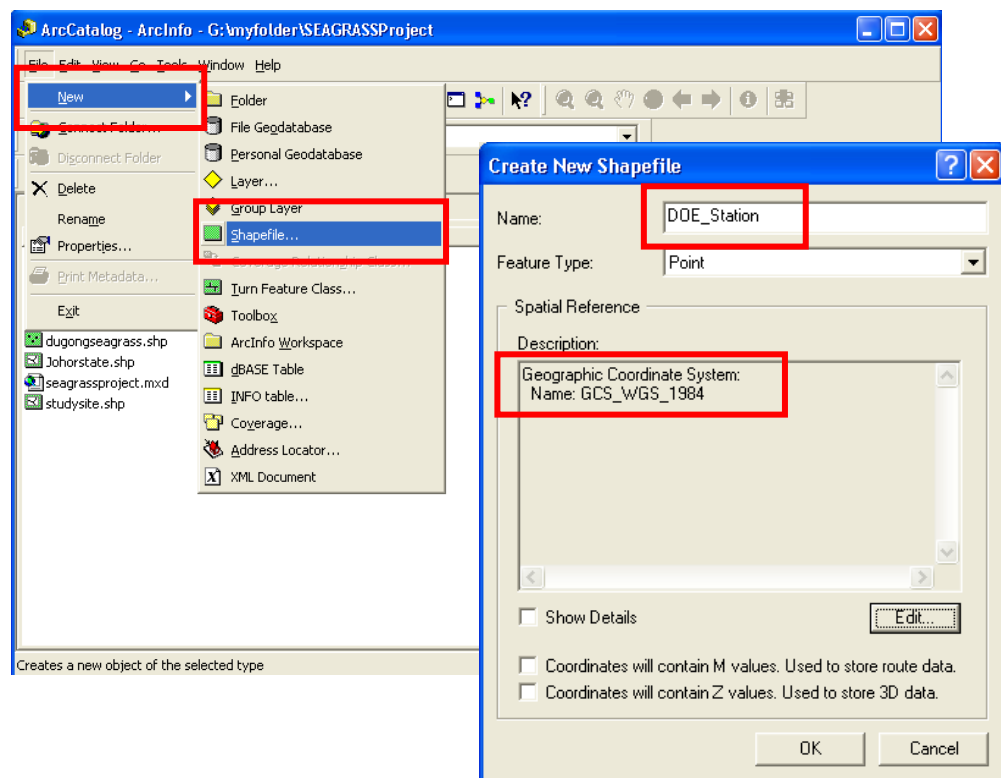
(A) Spatial Data Preparation

To enable results of the study be tied to corresponding geometry of the area, spatial database were generated. To start with, topographic maps of Johor (shows administrative boundaries) were scanned at high resolution dpi >300 image format .tif (map sheet no. 4551, 4552, 4651 and 4652). Then layers in ArcMap Viewer were compiled. The topographic map were then been *rectify* to real coordinate world (WGS84 projection), using arctools georeferencing. Control point in the Link Table (below) was added using 1st order polynomial transformation.

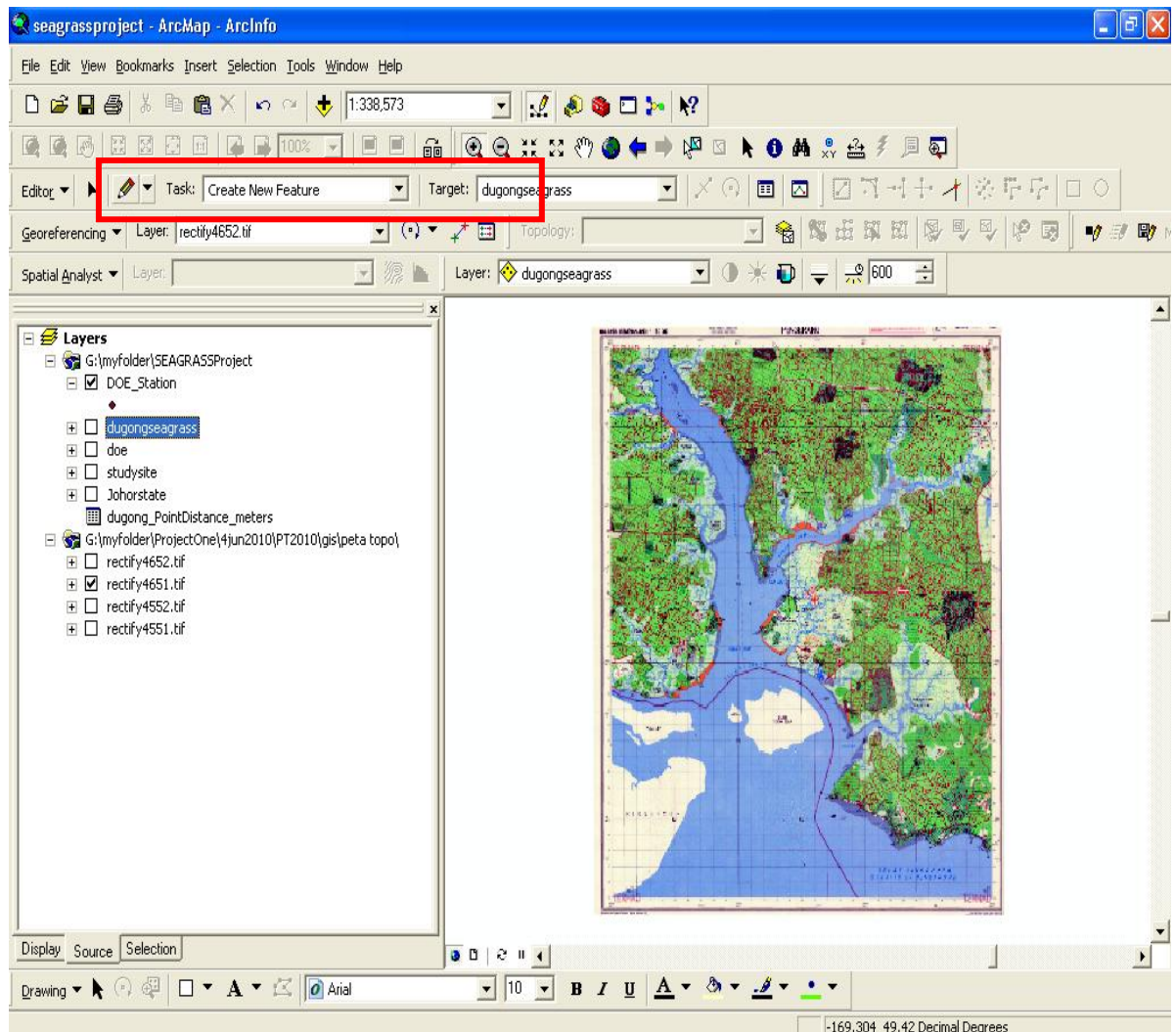




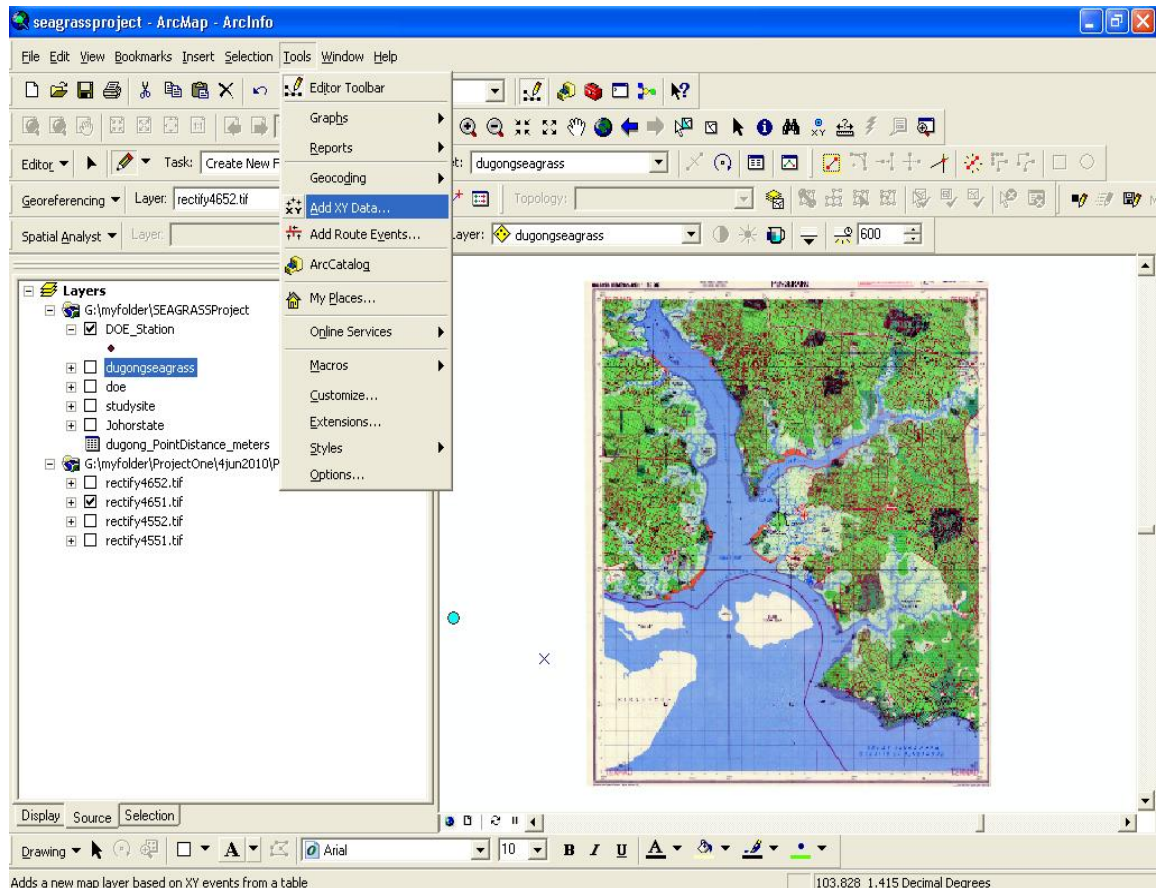
To digitize a topographic map, one has to create a new vector using ArcCatalog. Define the new shapefile as DOE station, and then add Projection: GCS_WGS_1984.



Then add DOE shapefile in ArcMap viewer, and start editing for Task: Create New Features.



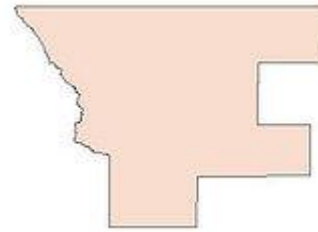
Or add DOE station X,Y coordinate (in dbf4 or txt file).



The process will give a vector data stored in shape files (.shp). There are three types of vector data: polygon, line (or arc) and point data. Johor.shp is vector data that shows the state of Johor boundary as a line while station.shp is the point data type.

(B) Dissolve

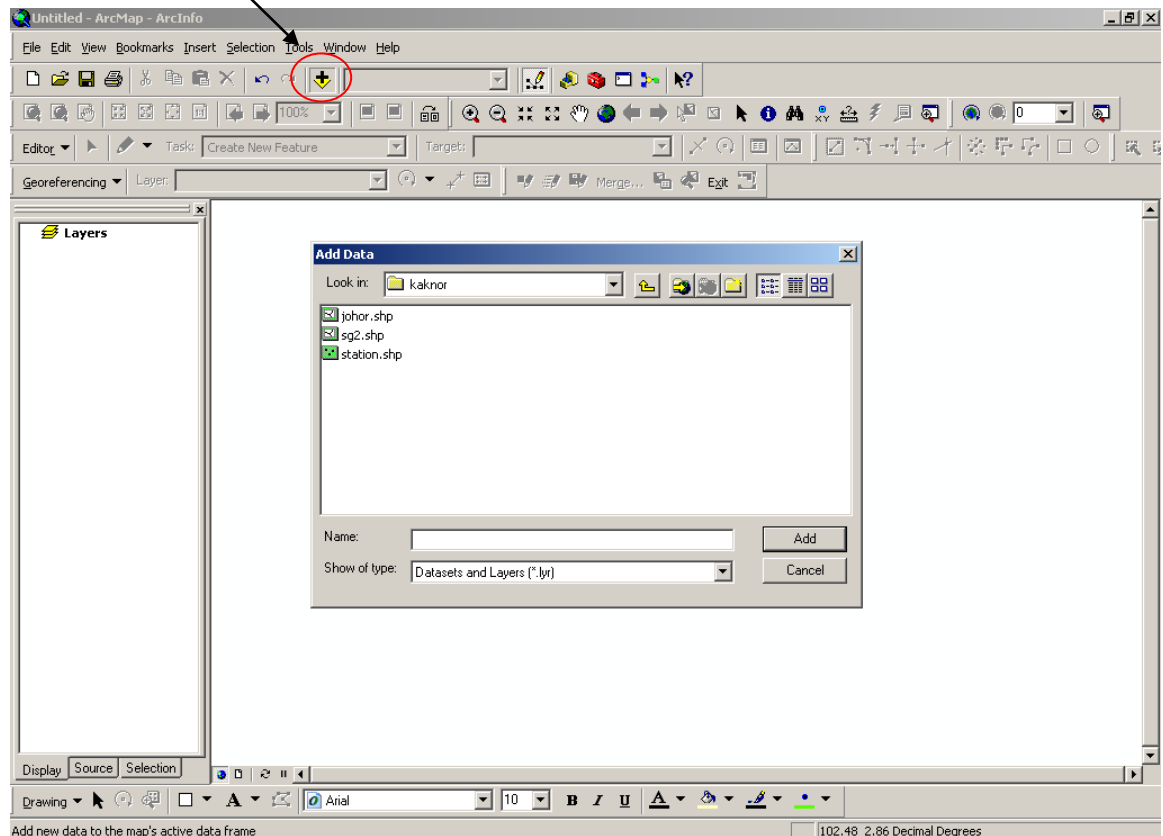
In GIS, *dissolve* is an aggregation process in which a new map feature is created by merging adjacent polygons, lines, or regions that have a common value for a specified attribute.



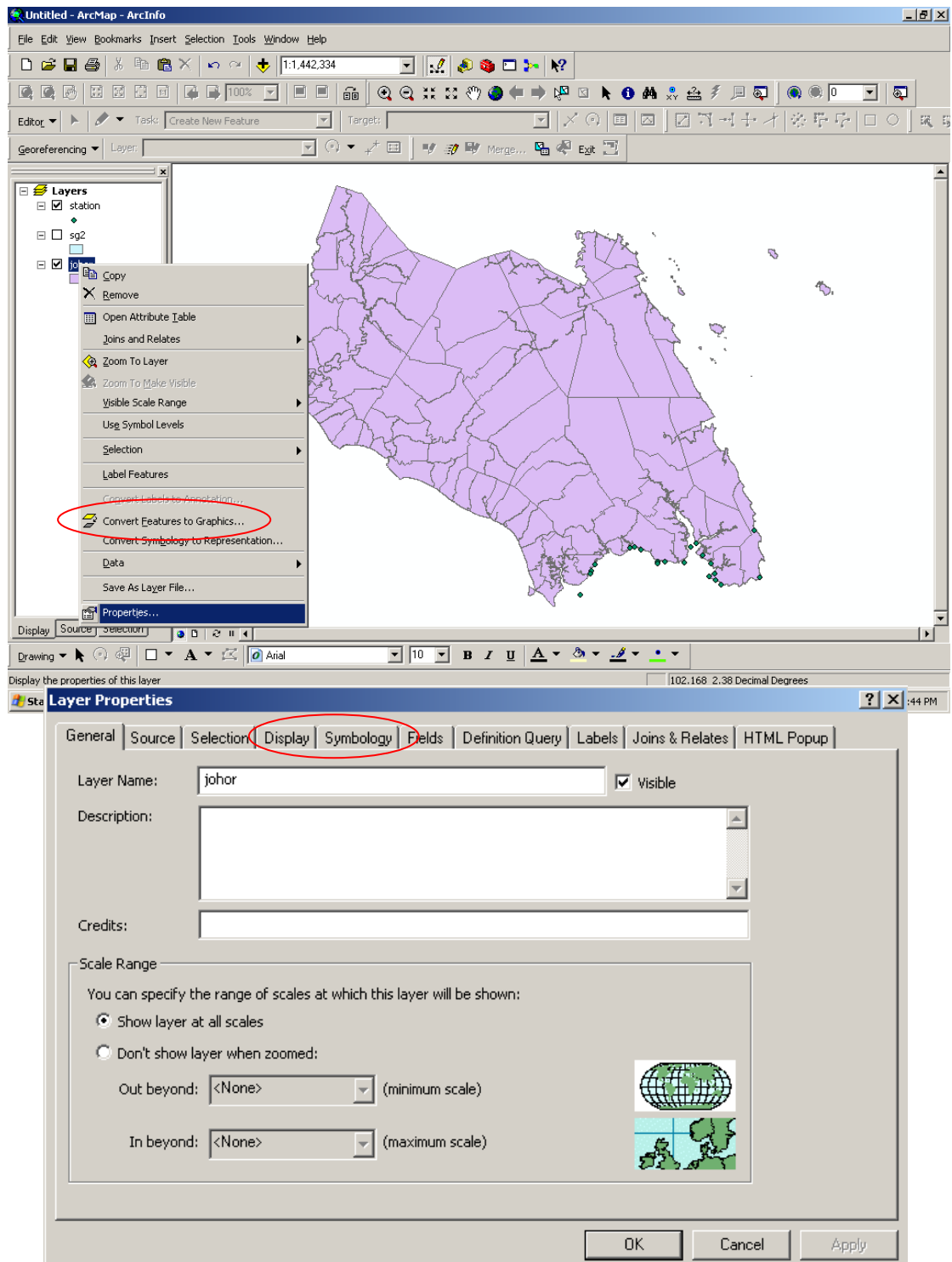
Dissolve: Three polygons before the dissolve operation and a single polygon after the dissolve operation.

Aggregated features based on specified field, in this case specified field or column is STATE field. The district within *Johor.shp* will be generalized to state scale. For attributes table, it depends on user application to choose the appropriate column or to remain on available column. Column selection will decide further analysis.

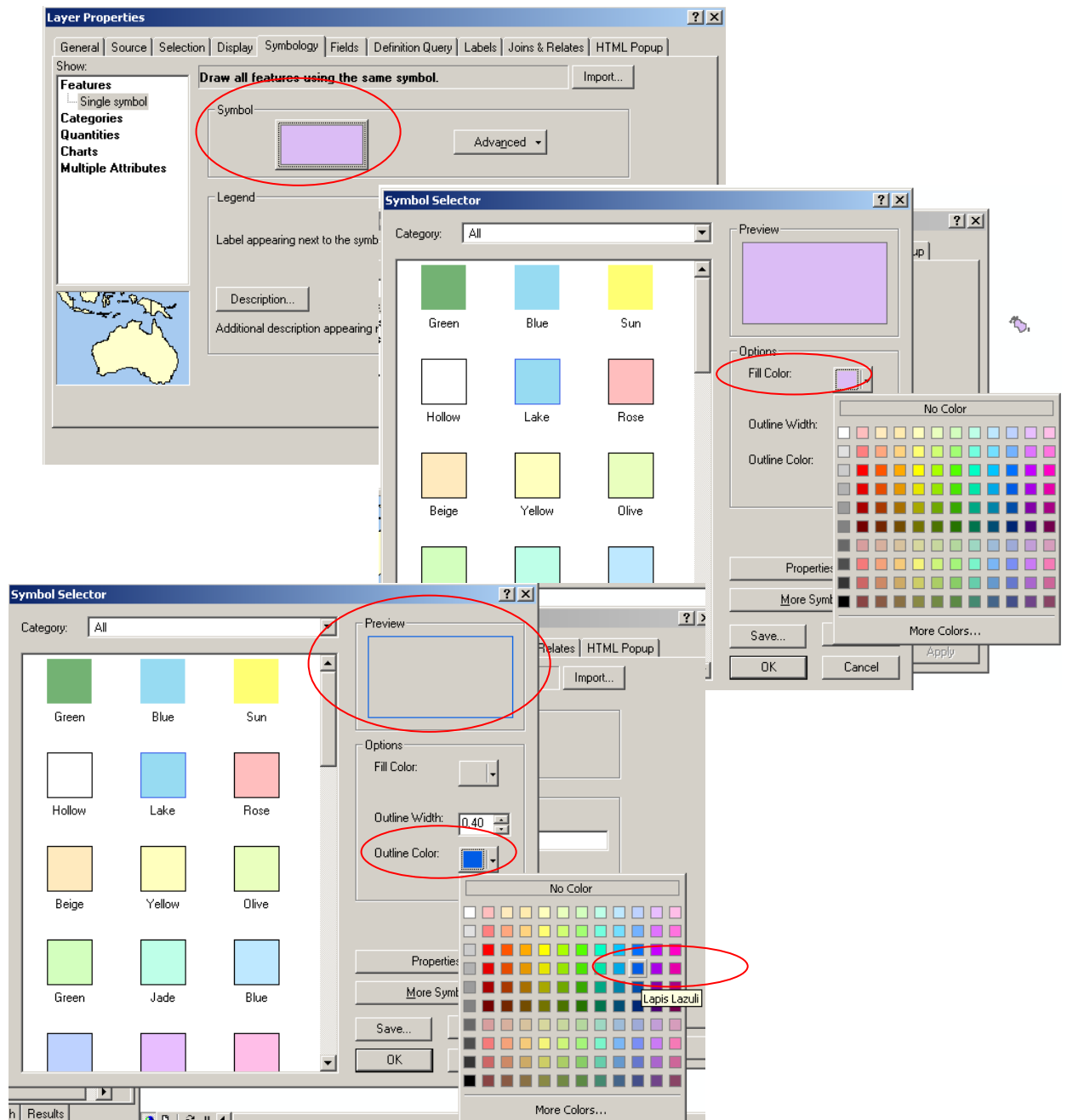
- Add Data: vector file = johor.shp; sg2.shp; station.shp for displaying and editing purposes.



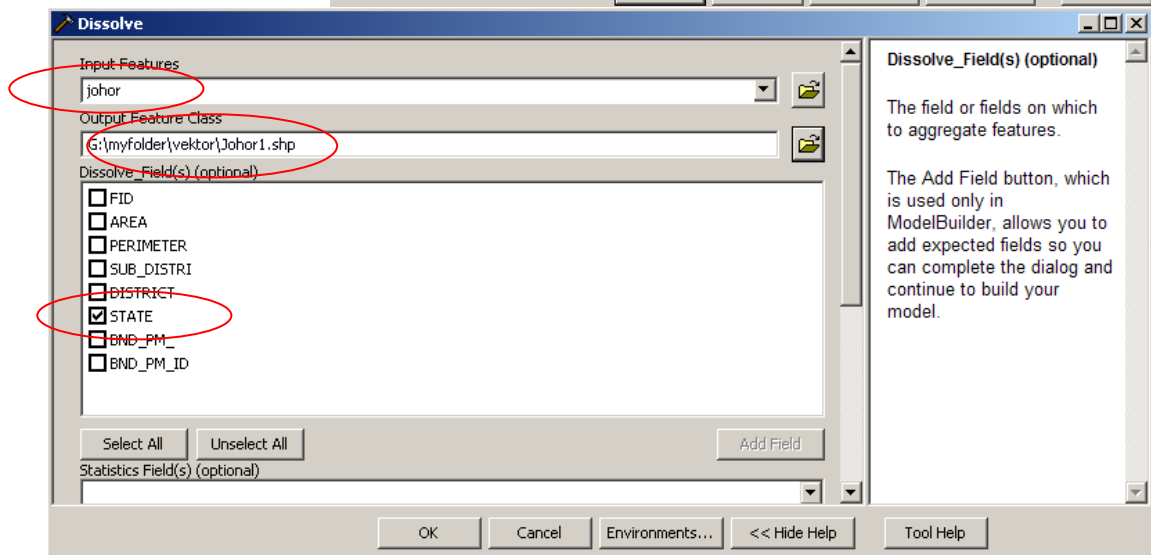
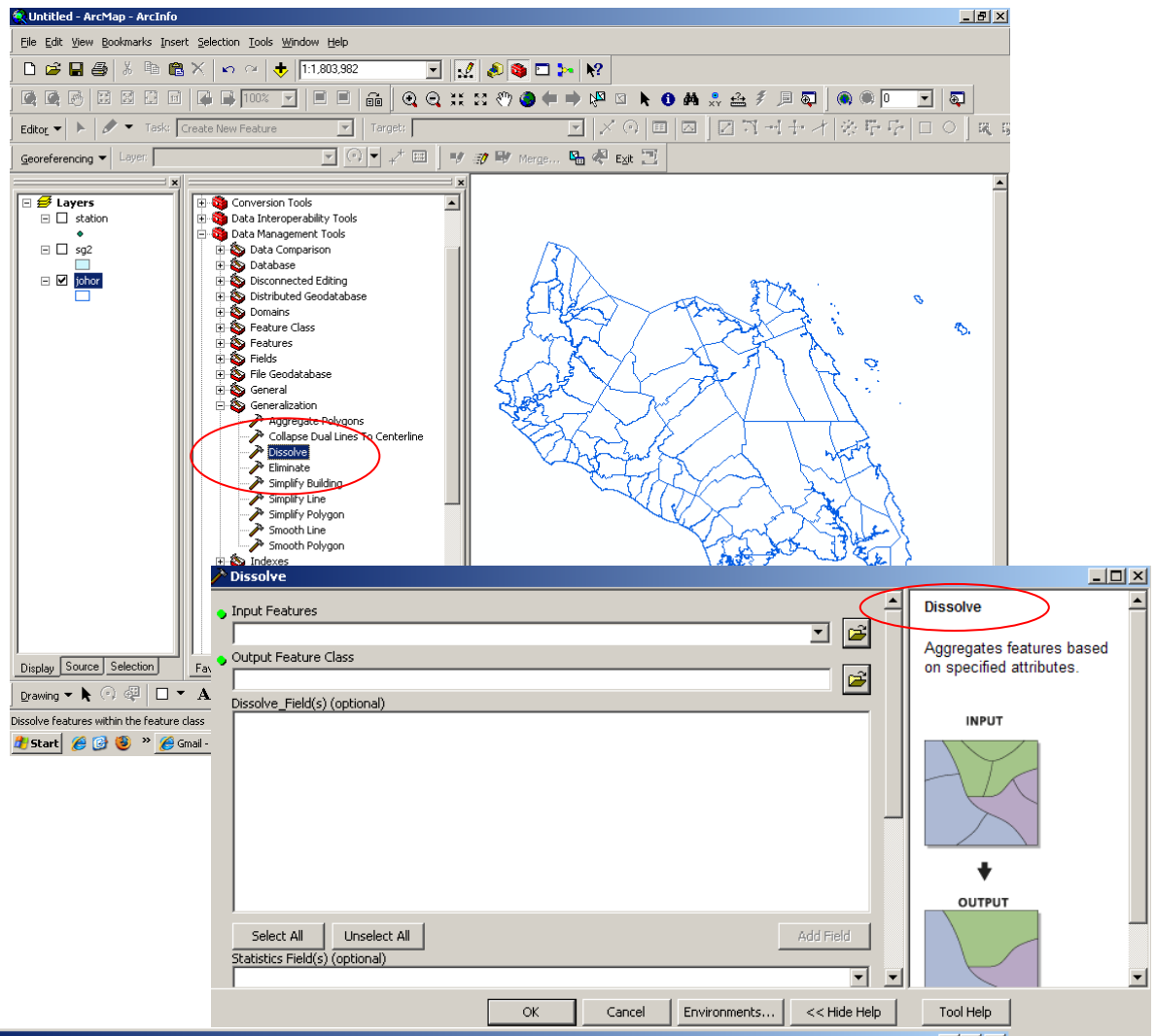
- Use Properties to change vector Symbology



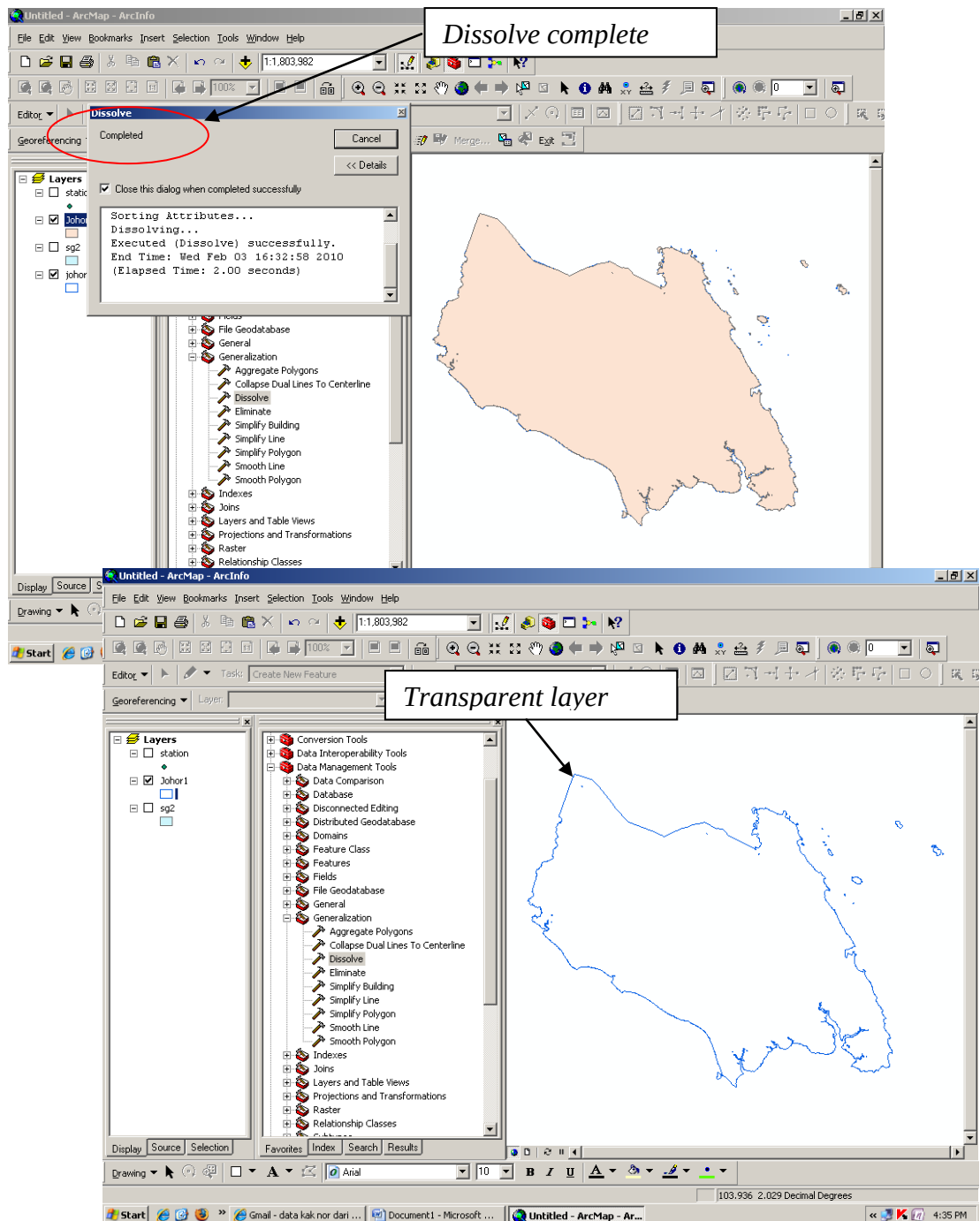
- Layer Properties menu will appear, next select *Symbology* → *Symbol* → *Fill Color* → *No Colour*. *No colour* is selected to give a transparent outlook for vector data and *Outline Colour* is to give colour for line vector.



- Vector johor.shp need to be edit to generalize its spatial detail through *Generalization* process (*Dissolve* technique). At arc toolbox, select *Data Management Tools* → *Generalization* → *Dissolve*. Add input features = *johor.shp* and new features class = *Johor1.shp*; and dissolve fields will based on *STATE* field column.



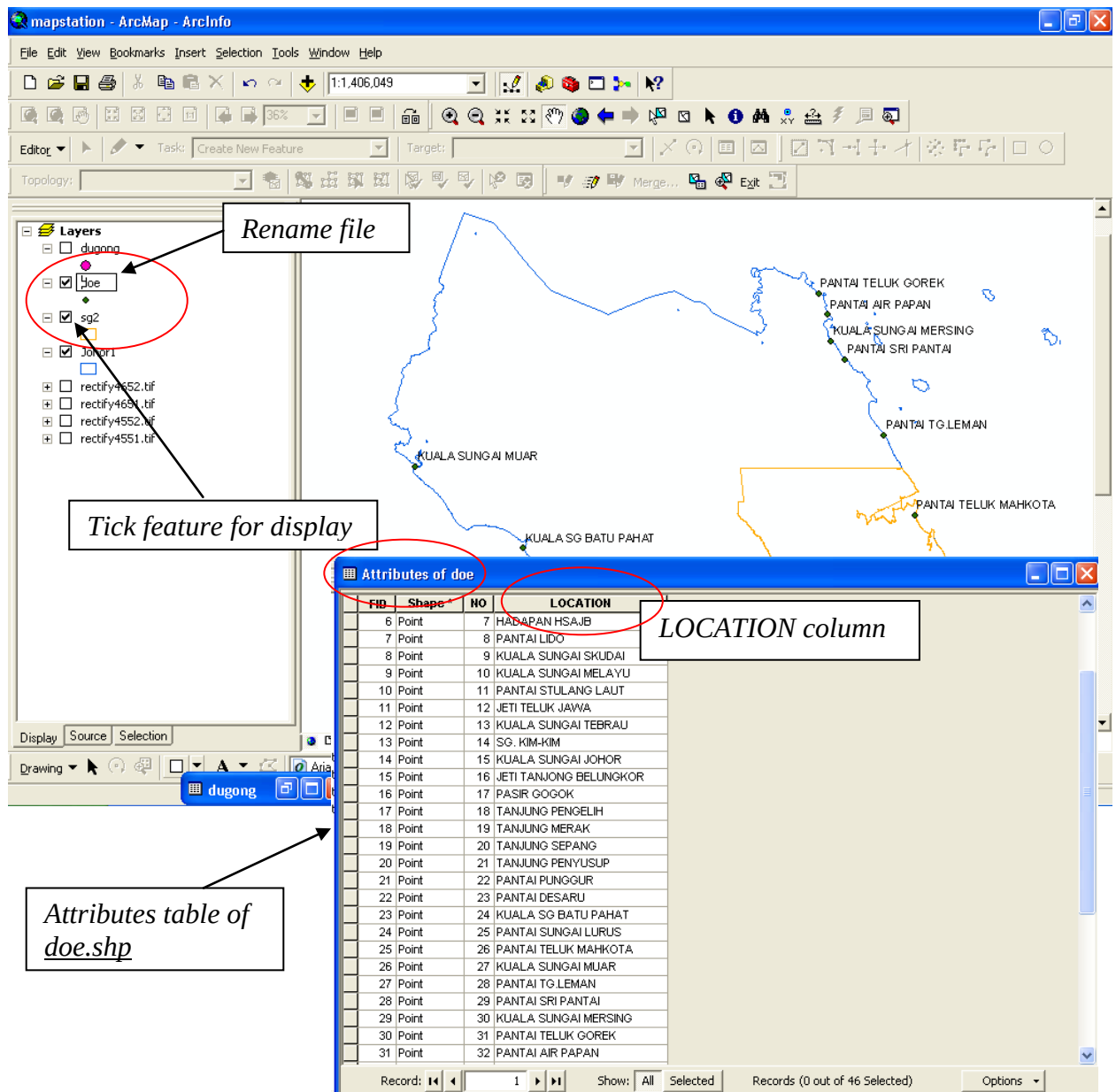
- After the process completed, change back *Layer Properties* to *transparent*. Or just leave the vector the way it is (solid colour).



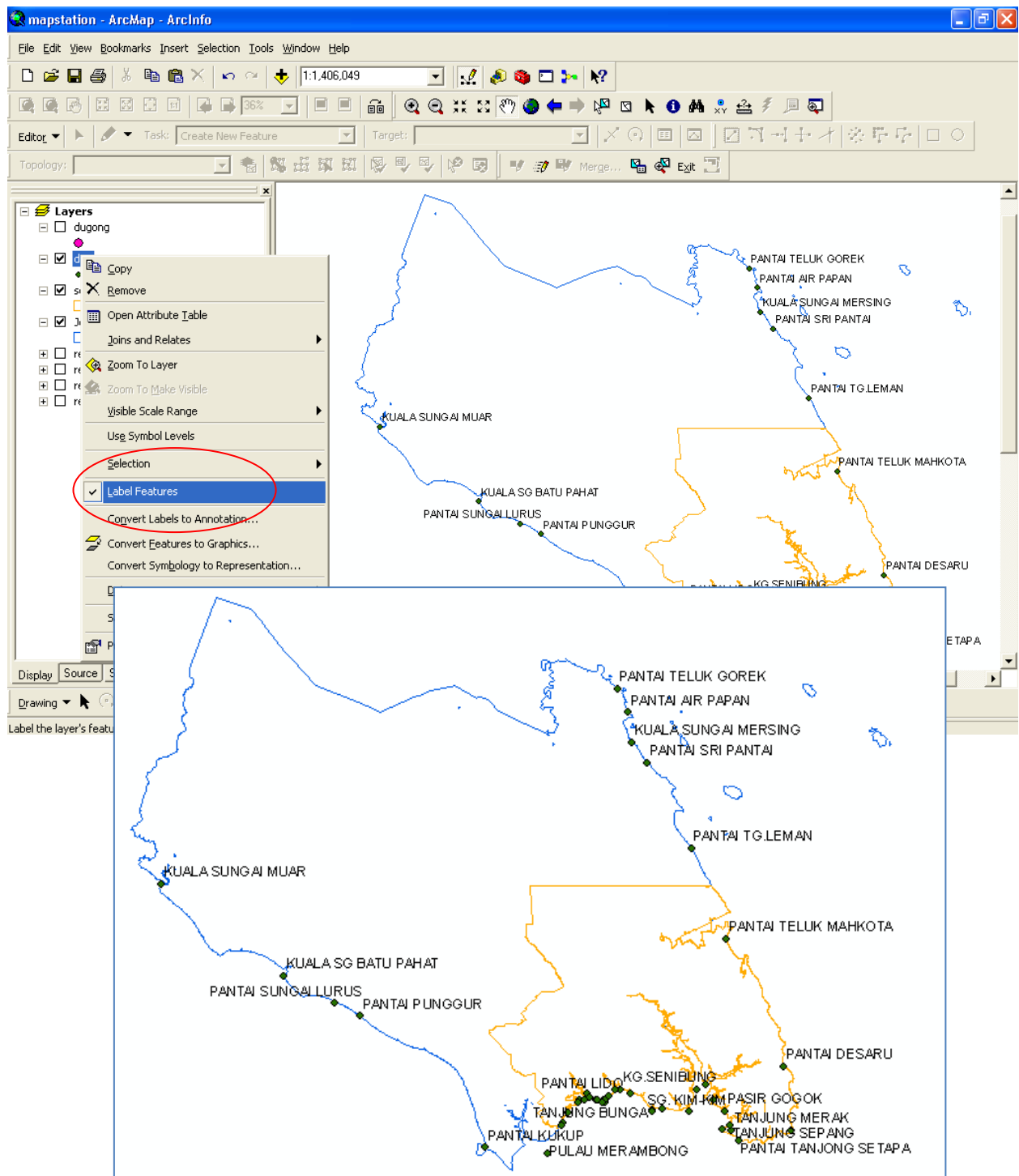
(C) Labelling

Labelling is needed to label features based on its feature attributes. Public do understand map with a descriptive text, so it is important to keep feature attributes appear on the map. Usually, feature attribute that was select to appear is the name of the point or area. Example; attribute of doe.shp, column LOCATION is selected because it contain name of available sampling points.

- To avoid a confusion, rename station.shp to doe.shp
- Display vector data = sg2.shp and doe.shp.



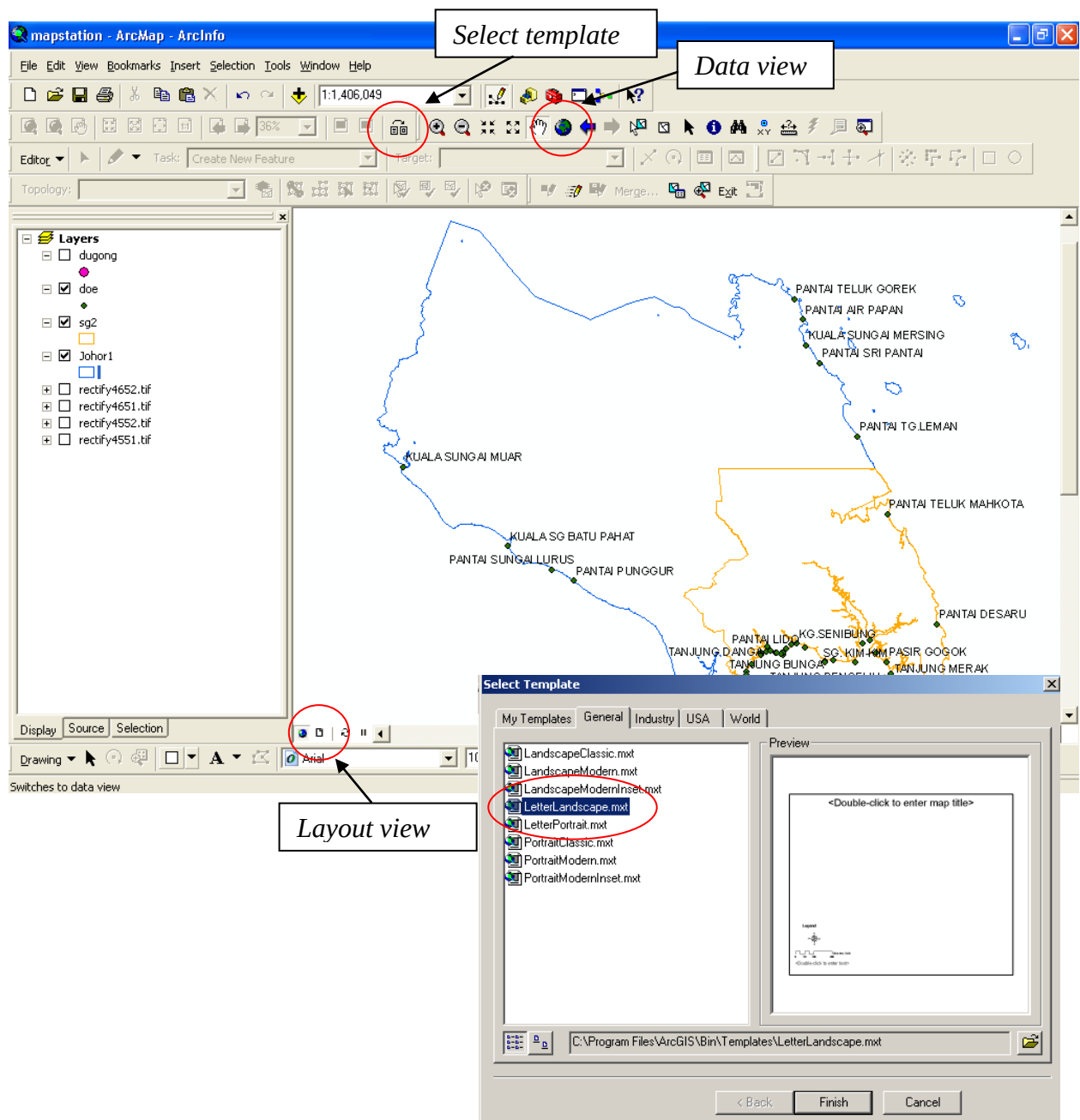
- Mouse right clicks on doe.shp and tick *Label Features*. Automatically label vector = doe.shp appear on the screen.



(D) Mapping

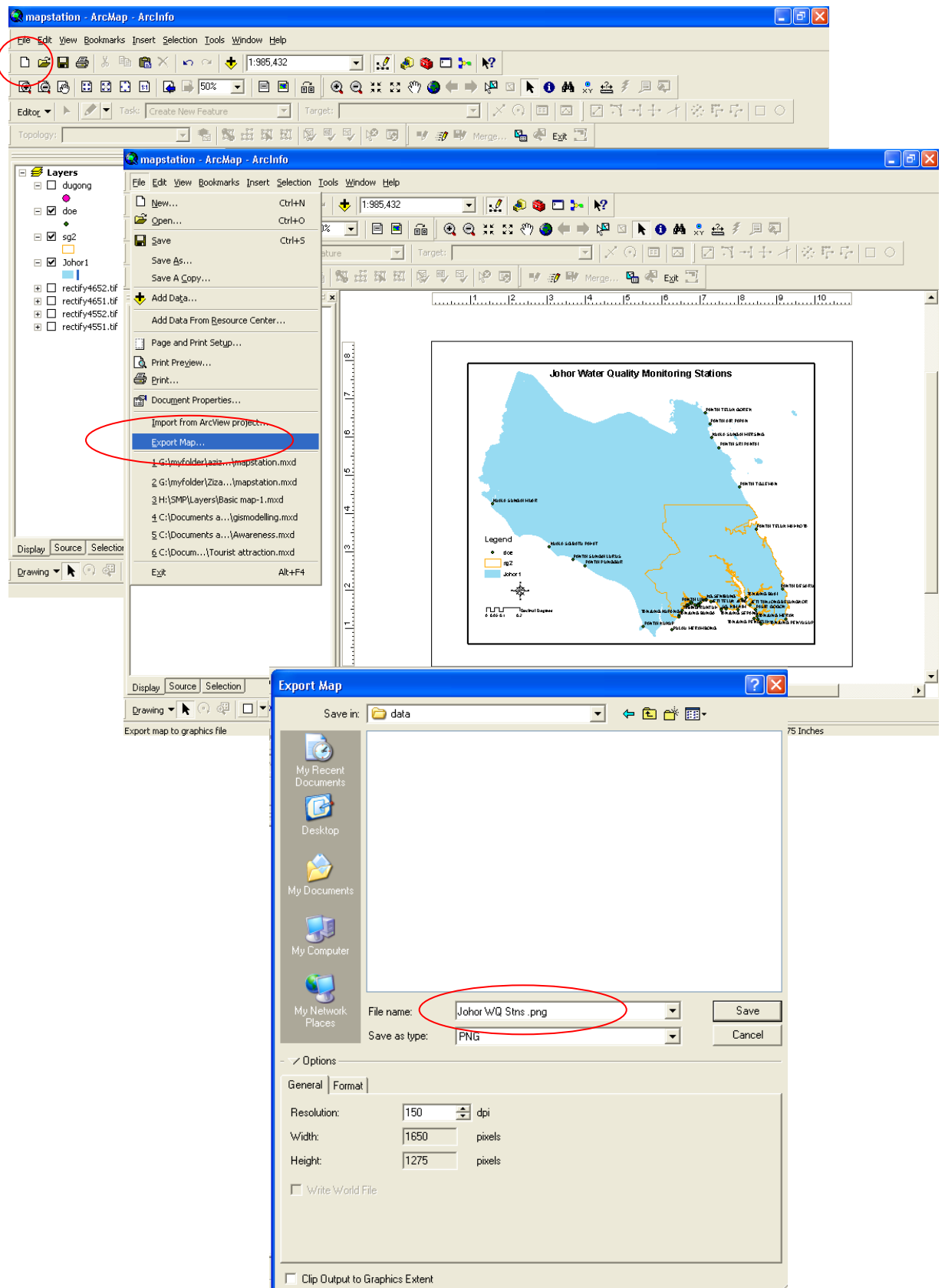
A map is a visual representation of an area—a symbolic depiction highlighting relationships between elements of that space such as objects, regions, and themes (<http://en.wikipedia.org/wiki/Map/>). To do the *mapping* means to produce a map.

- To produce a map with ArcGIS, click *layout view* and use available template (select template) for preparing map layout.
- After that, click data view.



-
- The screenshot illustrates the steps to add a title to a map in ArcMap. The 'Insert' menu is open, and 'Text' is selected. The 'Properties' dialog box is open, showing the 'Text' tab with the text 'Johor Water Quality Monitoring Stations' entered. The map in the background shows a coastline with various monitoring stations marked.

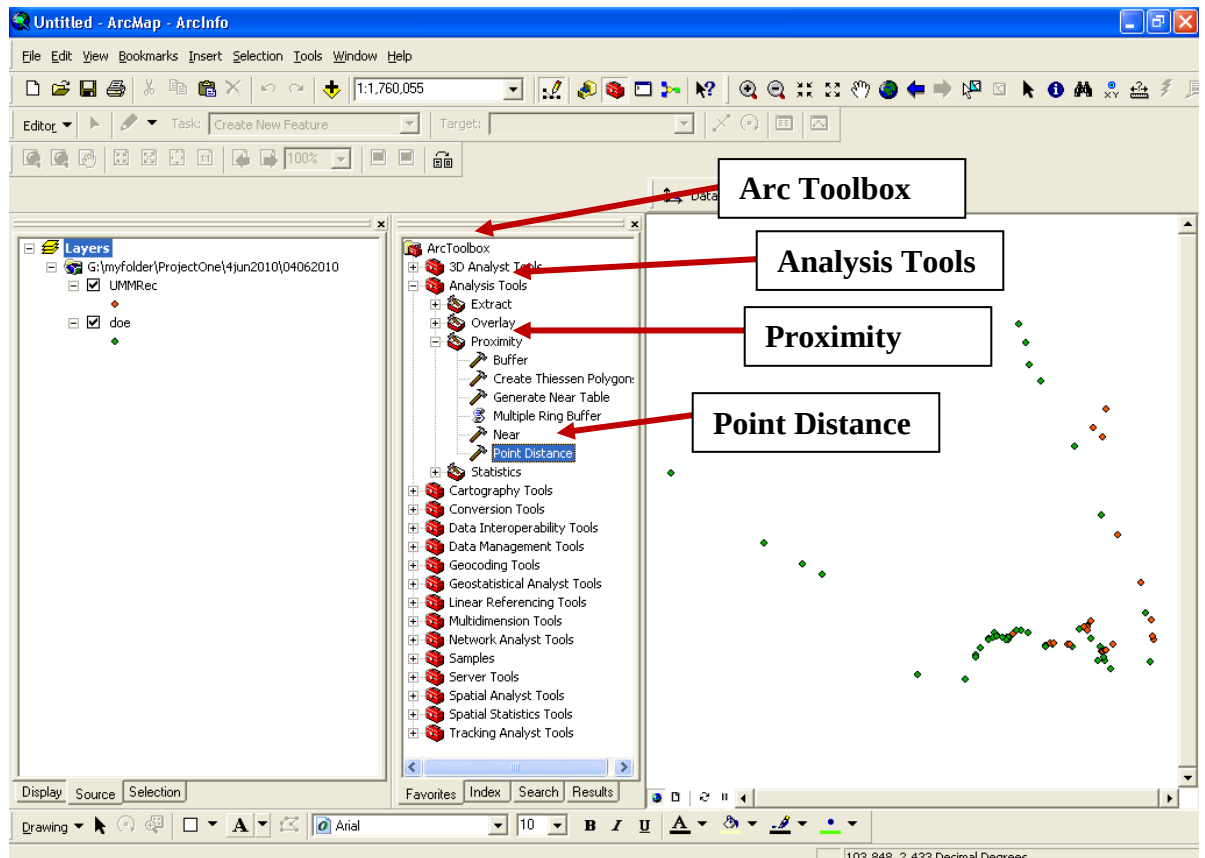
- Name the output. Output map in this example was named “Johor Water Quality Monitoring Stations”. Map can be saved in raster format such as .png, .tif and jpg.



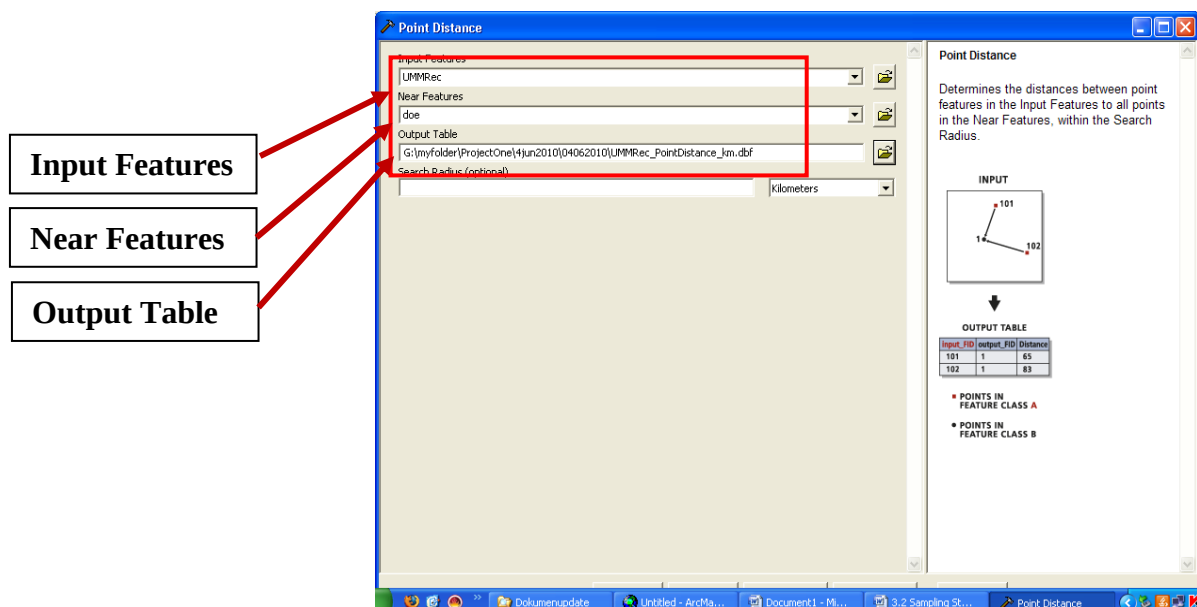
APPENDIX III

POINT DISTANCE ANALYSIS

1. At Arctoolbox → Analysis Tools → Proximity → Point Distance.

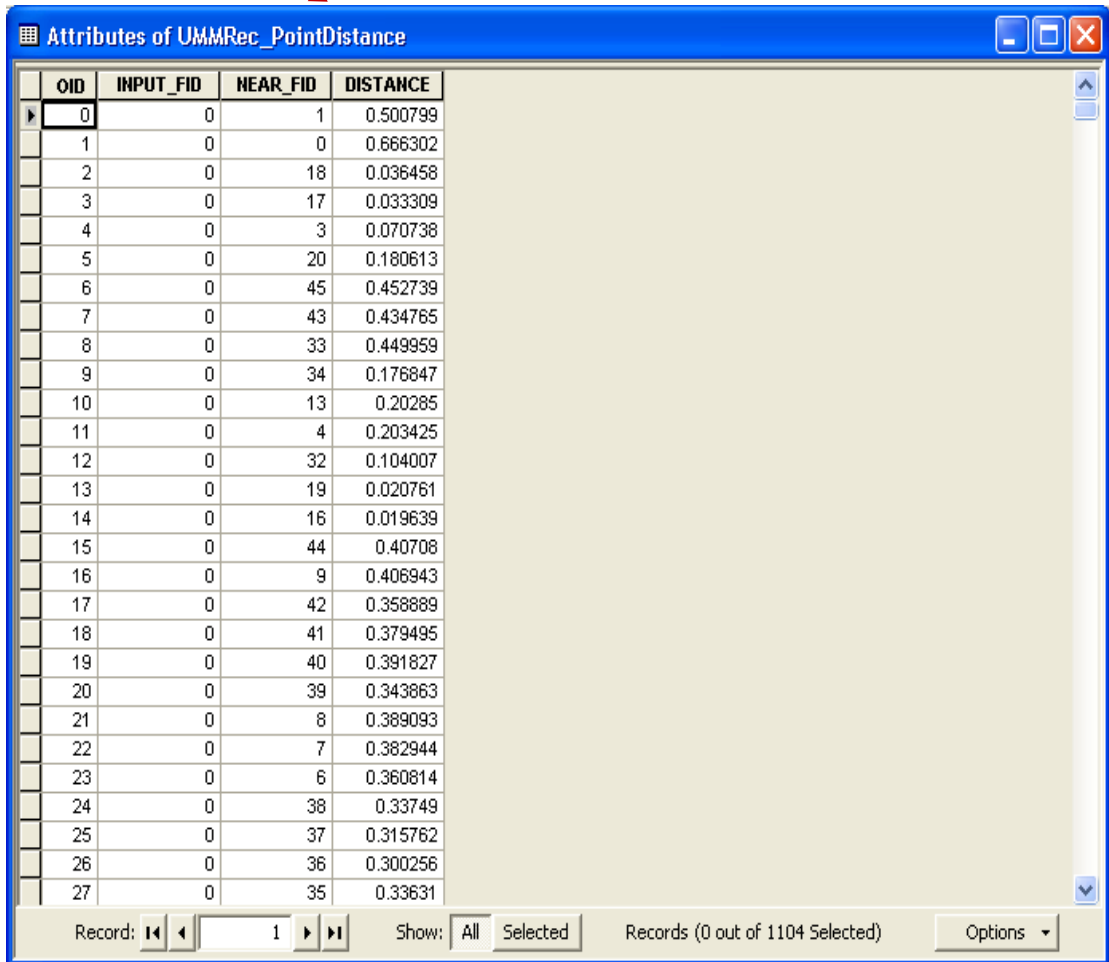


2. Point Distance menu will appear; browse UMMRec shapefile for **Input Features**, doe shapefile for **Near Features**, and named the output table to UMMRec_PointDistance.dbf.



3. The result of output table for UMMRec_ Point Distance.dbf is as below.

Output table in .dbf format



OID	INPUT_FID	NEAR_FID	DISTANCE
0	0	1	0.500799
1	0	0	0.666302
2	0	18	0.036458
3	0	17	0.033309
4	0	3	0.070738
5	0	20	0.180613
6	0	45	0.452739
7	0	43	0.434765
8	0	33	0.449959
9	0	34	0.176847
10	0	13	0.20285
11	0	4	0.203425
12	0	32	0.104007
13	0	19	0.020761
14	0	16	0.019639
15	0	44	0.40708
16	0	9	0.406943
17	0	42	0.358889
18	0	41	0.379495
19	0	40	0.391827
20	0	39	0.343863
21	0	8	0.389093
22	0	7	0.382944
23	0	6	0.360814
24	0	38	0.33749
25	0	37	0.315762
26	0	36	0.300256
27	0	35	0.33631

4. INPUT_FID column refer to FID number in UMMRec shapefile and NEAR_FID column refer to FID number in doe shapefile.

Point Distance table

UMMRec.shp table

Attributes of UMMRec_PointDistance_km

OID	INPUT_FID	NEAR_FID	DISTANCE
608	13	13	0.126383
609	13	4	0.124443
610	13	32	0.222023
611	13	19	0.339465
612	13	16	0.319815
613	13	44	0.088034
614	13	9	0.085901
615	13	42	0.038704
616	13	41	0.056015
617	13	40	0.070152
618	13	39	0.029213
619	13	8	0.063502
620	13	7	0.058777
621	13		
622	13		
623	13		
624	13		
625	13		
626	13	12	0.018157
627	13	10	0.004721
628	13	5	0.022235
629	13	11	0.056457
630	13	14	0.239381
631	13	15	0.284611
632	13	2	
633	13	22	
634	13	21	
635	13	24	0.795265
636	13	23	0.95137
637	13	25	0.534806
638	13	26	1.359482
639	13	27	0.711353
640	13	28	0.915109
641	13	29	0.968064
642	13	31	1.049356
643	13	30	1.11282
644	14	1	0.334474
645	14	0	0.492073
646	14	18	0.205016

Attributes of UMMRec

FID	Shape *	LOCATION	STN	N
0	Point	KG. PASIR GOGOK	1.405083	104
1	Point	KUALA SG.SANTI	1.406056	104
2	Point	KUALA SG.SANTI	1.410417	104
3	Point	SUNGAI SANTI	1.412694	104
4	Point	SG. SANTI (UP RIVER)	1.433861	104
5	Point	PERIGI ACHEH (GUARD POST)	1.432111	103
6	Point	TJG. KOPOK	1.43125	103
7	Point	KUALA SG. LEBAM	1.515	104
8	Point	TG. PERUMPUT	1.499556	104
9	Point	TG. PERUMPUT	1.496028	11
10	Point	TJG. SURAT	1.496028	104
11	Point	TJG SURAT (RIGHT HAND)	1.481144	11
12	Point	TANJUNG BUAI	1.493222	104
13	Point	STULANG LAUT	1.469891	103
14	Point	PASIR GUDANG (FERRY JETTY)	1.433944	103
15	Point	KG. PASIR PUTIH		
16	Point	TELUK PUNGGAI		
17	Point	TANJUNG PENAWAR		
18	Point	TANJUNG GEMOH		

Attributes of doe

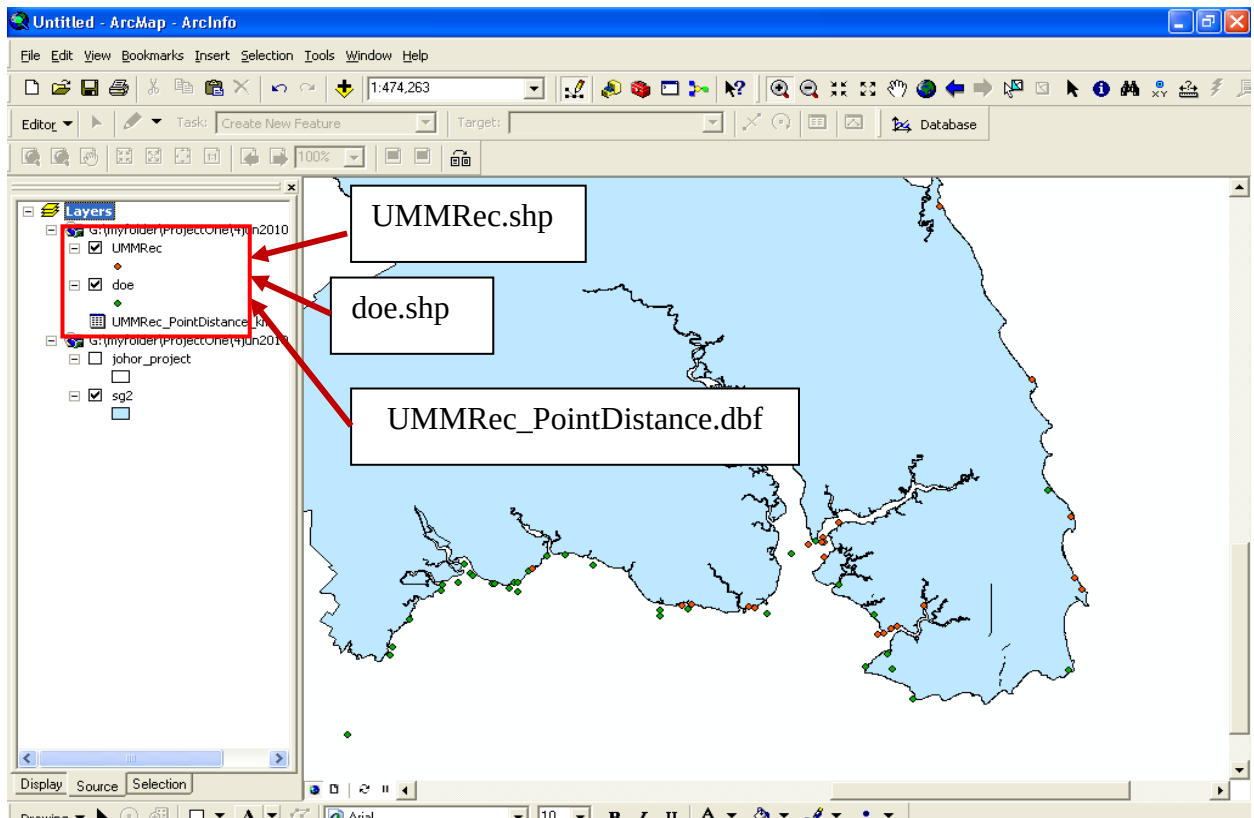
FID	Shape *	NO	LOCATION	STN	L
0	Point	1	PANTAI KUKUP	1334925	01o 19' 31"
1	Point	2	PULAU MERAMBONG	1336972	01o 18' 2"
2	Point	3	TANJUNG BUAI	1340973	01o 29' 4"
3	Point	4	PANTAI TANJONG SETAPA	1341961	01o 20' 3"
4	Point	5	PEL. PASIR GUDANG	1428939	01o 25' 4"
5	Point	6	KUALA SUNGAI SEGGET	1437919	01o 27' 2"
6	Point	7	HADAPAN HSAJB	1437920	01o 27' 1"
7	Point	8	PANTAI LIDO	1437921	01o 27' 5"
8	Point	9	KUALA SUNGAI SKUDAI	1437922	01o 28' 2"
9	Point	10	KUALA SUNGAI MELAYU	1437946	01o 27' 1"
10	Point	11	PANTAI STULANG LAUT	1437951	01o 28' 0"
11	Point	12	JETI TELUK JAWA	1438913	01o 28' 2"
12	Point	13	KUALA SUNGAI TEBRAU	1438943	01o 28' 5"
13	Point	14	SG. KIM-KIM	1439965	01o 25' 2"
14	Point	15	KUALA SUNGAI JOHOR	1440916	01o 29' 0"
15	Point	16	JETI TANJONG BELUNGKOR	1440963	01o 27' 1"
16	Point	17	PASIR GOGOK	1441966	01o 25' 2"
17	Point	18	TANJUNG PENGELIH	1441967	01o 22' 2"
18	Point	19	TANJUNG MERAK	1441968	01o 21' 7"
19	Point	20	TANJUNG SEPANG	1443969	01o 23' 0"

INPUT FID

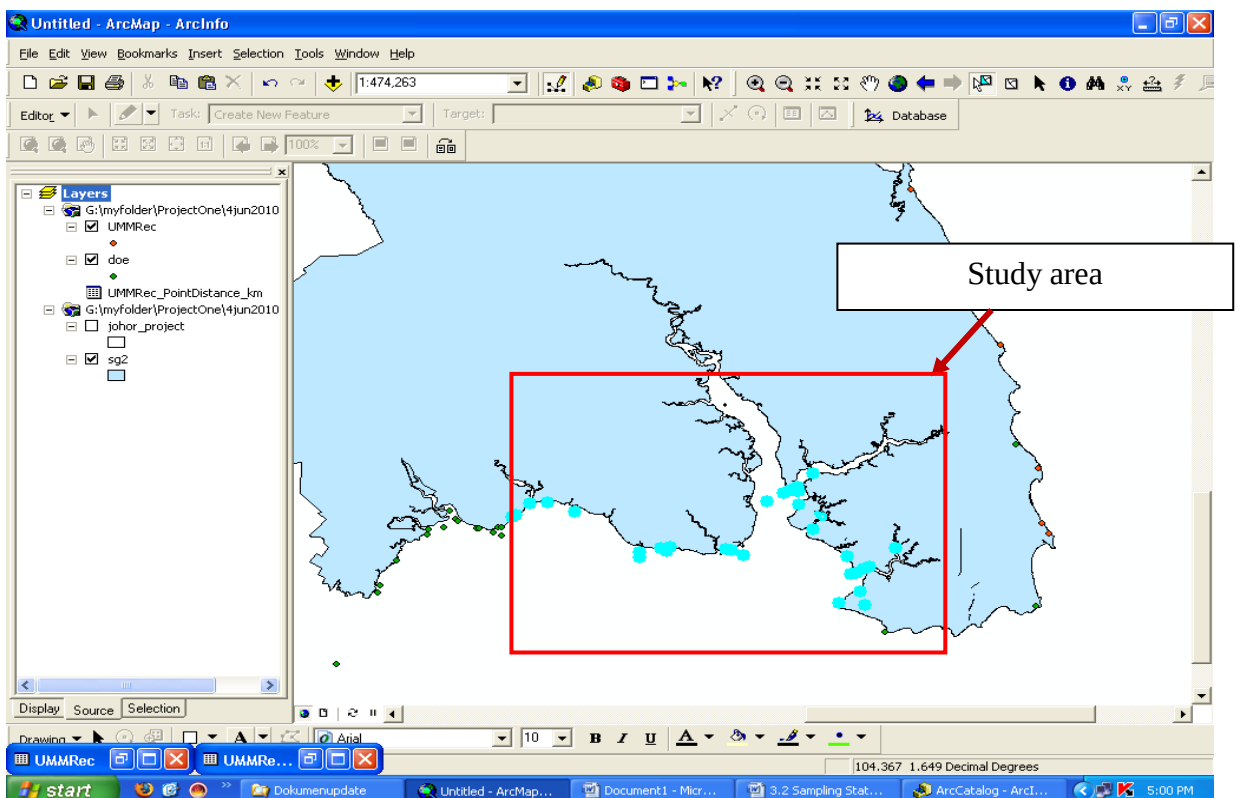
NEAR FID

doe.shp table

5. UMMRec.shp and doe.shp were display; output table for point distance also appear at same screen.



6. Select only point within study area; along Sungai Johor and Selat Johor (east of Tambak Johor).



7. Selected point and attribute for UMMRec shapefile, within the study area.

Attributes of UMMRec

FID	Shape *	LOCATION	STN	N	E
0	Point	KG. PASIR GOGOK		1.405083	104.102861
1	Point	KUALA SG.SANTI		1.406056	104.109194
2	Point	KUALA SG.SANTI		1.410417	104.115889
3	Point	SUNGAI SANTI		1.412694	104.121583
4	Point	SG. SANTI (UP RIVER)		1.433861	104.146028
5	Point	PERIGI ACHEH (GUARD POST)		1.432111	103.983806
6	Point	TJG. KOPOK		1.43125	103.989333
7	Point	KUALA SG. LEBAM		1.515	104.067556
8	Point	TG. PERUMPUT		1.499556	104.052667
9	Point	TG. PERUMPUT		1.496028	104.0535
10	Point	TJG. SURAT		1.496028	104.051889
11	Point	TJG SURAT (RIGHT HAND)		1.481144	104.0535
12	Point	TANJUNG BUAI		1.493222	104.039278
13	Point	STULANG LAUT		1.469891	103.783339
14	Point	PASIR GUDANG (FERRY JETTY)		1.433944	103.92125
15	Point	KG. PASIR PUTIH		1.434111	103.930694
16	Point	TELUK PUNGAI		1.449167	104.292972
17	Point	TANJUNG PENAWAR		1.460083	104.286361
18	Point	TANJUNG GEMOH		1.823694	104.160917
19	Point	TANJUNG SIANG		1.65525	104.246639
20	Point	DESARU (TG. BATU)		1.520056	104.283111
21	Point	PULAU TINGGI		2.276639	104.120611
22	Point	PULAU SIBU		2.212778	104.07225
23	Point	PULAU SIBU HUJUNG		2.176667	104.109833

Record: 1 Show: All Selected Records (16 out of 24)

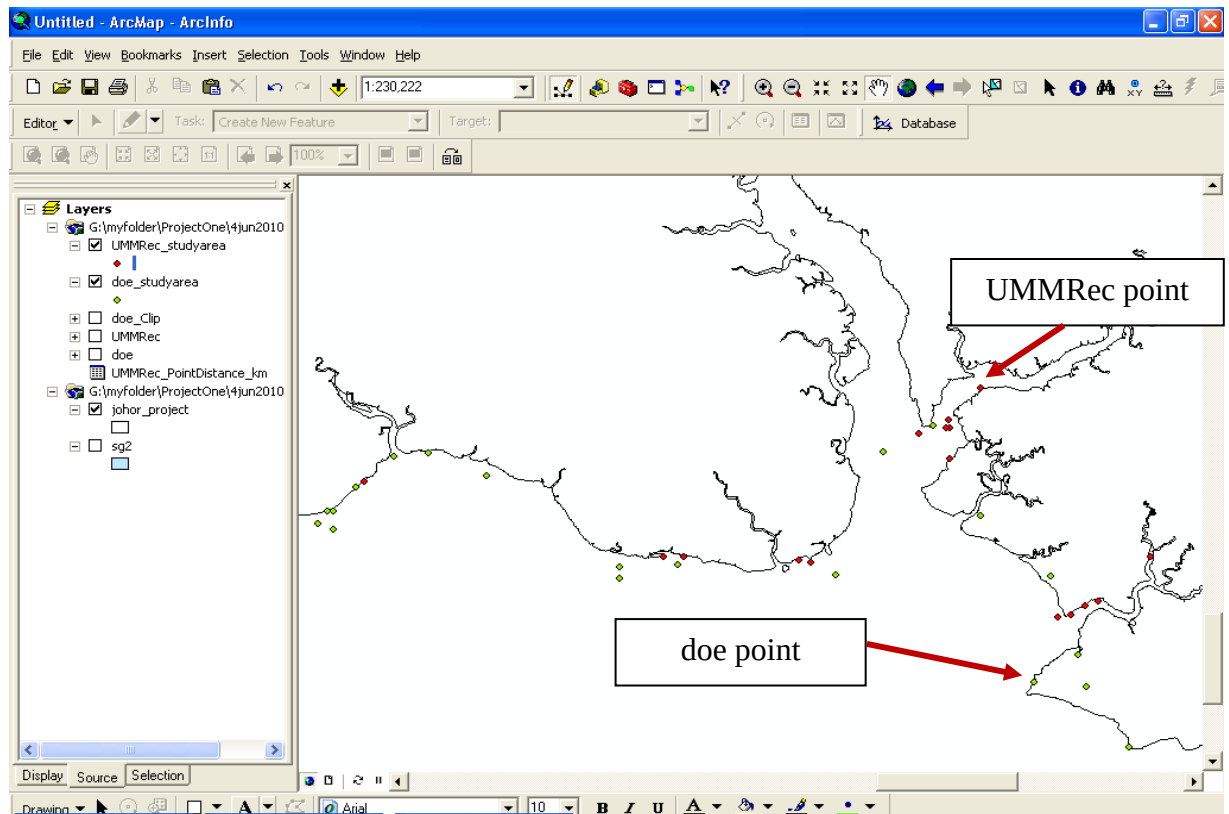
8. Selected point and attribute for doe shapefile.

Selected Attributes of doe

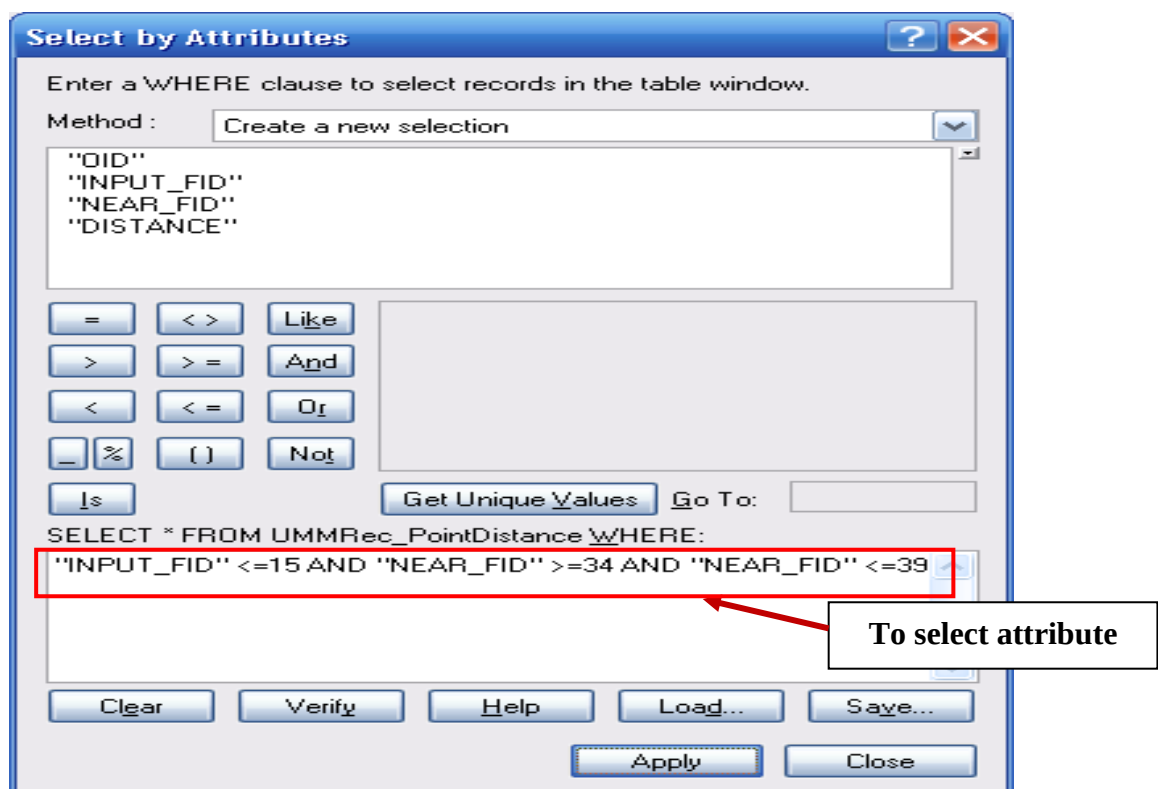
FID	Shape *	NO	LOCATION	STN	LAT	N	L
2	Point	3	TANJUNG BUAI	1340973	01o 29' 48.1"	1.496694	104o 02'
3	Point	4	PANTAI TANJONG SETAPA	1341961	01o 20' 33.0"	1.3425	104o 08'
4	Point	5	PEL. PASIR GUDANG	1428939	01o 25' 44.0"	1.428889	103o 54'
5	Point	6	KUALA SUNGAI SEGGET	1437919	01o 27' 21.0"	1.455833	103o 45'
10	Point	11	PANTAI STULANG LAUT	1437951	01o 28' 02.0"	1.467222	103o 46'
11	Point	12	JETI TELUK JAWA	1438913	01o 28' 22.0"	1.472778	103o 50'
12	Point	13	KUALA SUNGAI TEBRAU	1438943	01o 28' 56.0"	1.482222	103o 47'
13	Point	14	SG. KIM-KIM	1439965	01o 25' 24.0"	1.423333	103o 54'
14	Point	15	KUALA SUNGAI JOHOR	1440916	01o 29' 04.0"	1.484444	104o 01'
15	Point	16	JETI TANJONG BELUNGKOR	1440963	01o 27' 14.0"	1.453889	104o 04'
16	Point	17	PASIR GOGOK	1441966	01o 25' 28.2"	1.4245	104o 05'
17	Point	18	TANJUNG PENGELIH	1441967	01o 22' 24.5'	1.373472	104o 05'
18	Point	19	TANJUNG MERAK	1441968	01o 21' 76.5'	1.37125	104o 06'
19	Point	20	TANJUNG SEPANG	1443969	01o 23' 01.2"	1.386667	104o 06'
32	Point	33	KG.TANJUNG KOPOK	0	01o 25' 31.0"	1.425278	104o 00'
34	Point	35	KG. PASIR PUTIH	0	01o 25' 48.0"	1.43	103o 55'
35	Point	36	JK SULTAN ISKANDAR	0	01o 26' 49.0"	1.446944	103o 46'
36	Point	37	KG.SENIBUNG	0	01o 29' 01.0"	1.483611	103o 48'
37	Point	38	KUALA SG.TEBRAU	0	01o 28' 56.0"	1.482222	103o 47'
38	Point	39	TANJUNG PUTRI	0	01o 27' 20.0"	1.455556	103o 46'
39	Point	40	HADAPAN MPJB (W.F.CT)	0	01o 27' 00.0"	1.45	103o 45'

Record: 1 Show: All Selected Records (21 out of 46)

9. Below is a view of selected point for both *UMMRec* and *doe* within study area. Red point = *UMMRec*, green = *doe*.



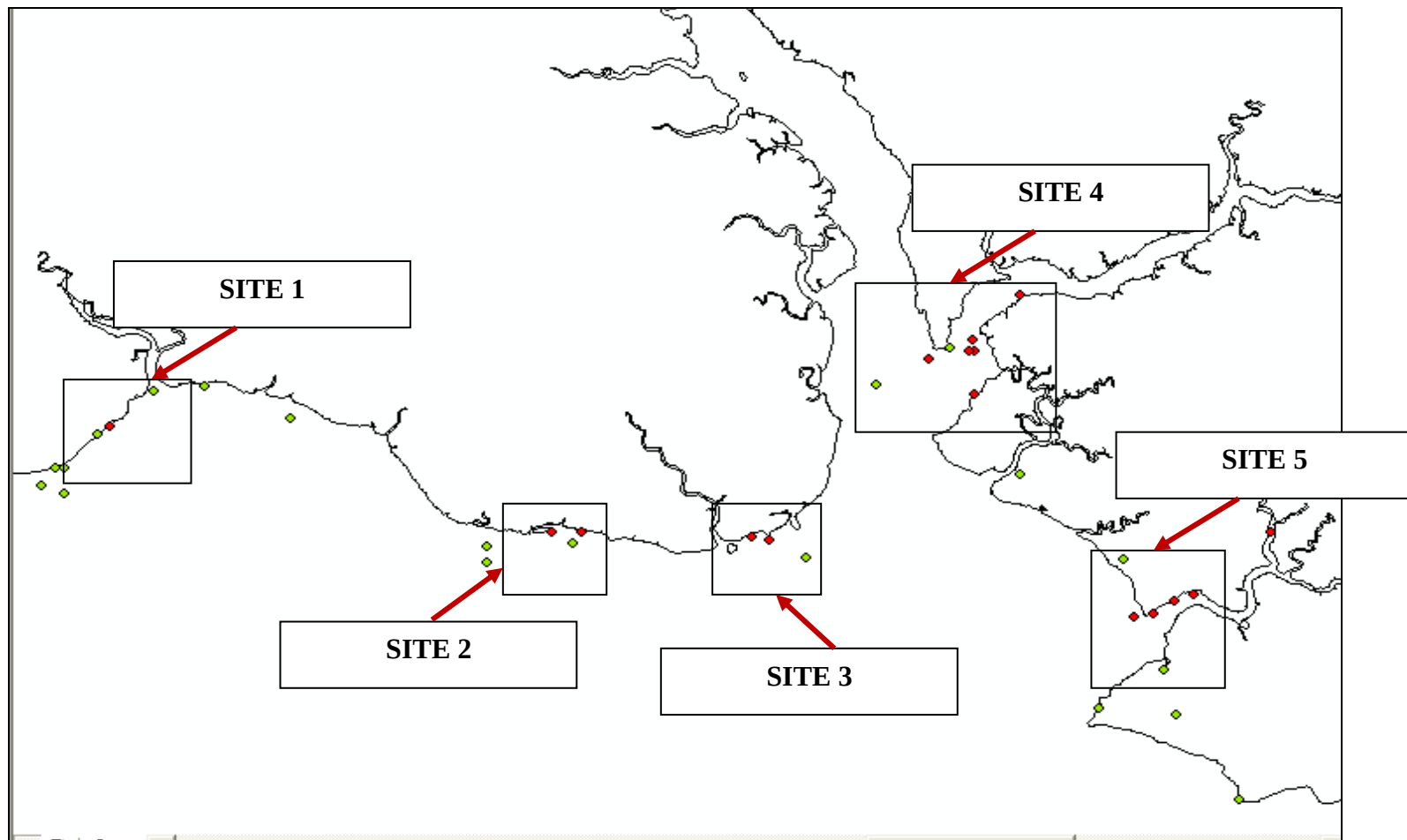
10. Select by attribute (refer to table: point distance / UMMRec/ doe), INPUT_FID = (0-15); and NEAR_FID = (2-5), (10-19), (32), (34-39). Distance < 2.5 km



11. Edit point distance dbf table in excel.

SITE	LOCATION_INPUT	INPUT_FID	NEAR_FID	LOCATION_NEAR	DISTANCE	REMARK
1	STULANG LAUT	13	10	PANTAI STULANG LAUT	0.004721	OK
1	STULANG LAUT	13	12	KUALA SG TEBRAU	0.018157	CHECK
1	STULANG LAUT	13	38	TANJUNG PUTRI	0.020158	CHECK
2	KG. PASIR PUTIH	15	34	KG. PASIR PUTIH	0.00504	OK
2	PASIR GUDANG (FERRY JETTY)	14	34	KG. PASIR PUTIH	0.007626	OK
2	PASIR GUDANG (FERRY JETTY)	14	4	PEL. PASIR GUDANG	0.021033	OK
2	PASIR GUDANG (FERRY JETTY)	14	13	SG. KIM-KIM	0.023009	OK
3	TJG. KOPOK	6	32	KG. TANJUNG KOPOK	0.012958	OK
3	PERIGI ACHEH (GUARD POST)	5	32	KG. TANJUNG KOPOK	0.018347	OK
4	TJG. SURAT	10	2	TANJUNG BUI	0.006534	OK
4	TANJUNG BUI	12	2	TANJUNG BUI	0.007028	OK
4	TG. PERUMPUT 1	8	2	TANJUNG BUI	0.007819	OK
4	TG. PERUMPUT 2	9	2	TANJUNG BUI	0.008138	OK
4	TJG. SURAT (RIGHT HAND)	11	2	TANJUNG BUI	0.017538	OK
4	TANJUNG BUI	12	14	KUALA SUNGAI JOHOR	0.018689	OK
5	KG. PASIR GOGOK	0	16	PASIR GOGOK	0.019638	OK
5	KUALA SG. SANTI 1	1	19	TANJUNG SEPANG	0.019659	OK
5	KUALA SG. SANTI 1	1	16	PASIR GOGOK	0.020646	OK
5	KG. PASIR GOGOK	0	19	TANJUNG SEPANG	0.02076	OK
5	KUALA SG. SANTI 2	2	16	PASIR GOGOK	0.021294	OK
5	KUALA SG. SANTI 2	2	19	TANJUNG SEPANG	0.02400	OK
5	SUNGAI SANTI	3	16	PASIR GOGOK	0.024674	OK

12. Sites are defined based on **Point Distance table** and several assumptions. Example: Distance < 2.5km
Only remark with 'OK' will be use in further analysis.

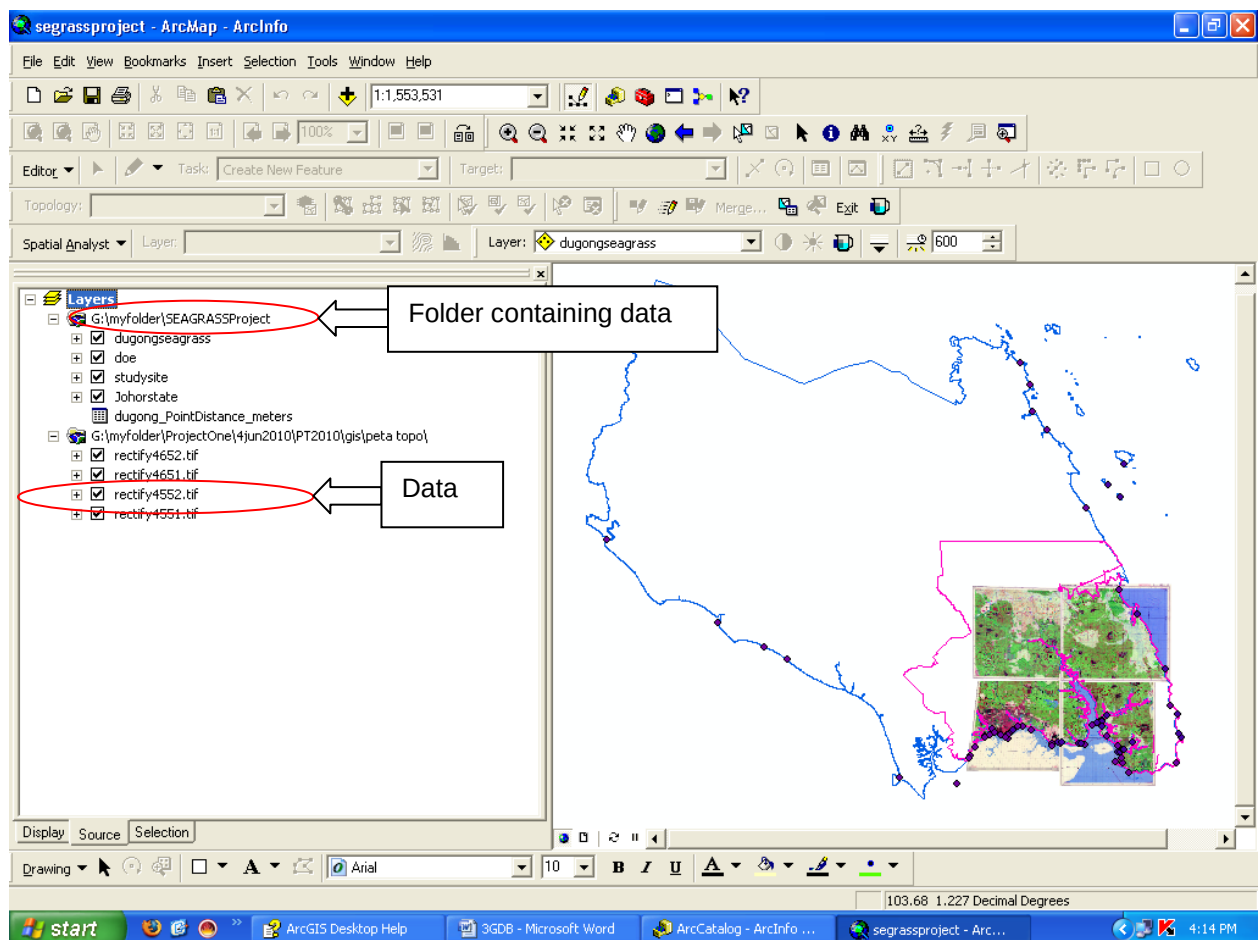


APPENDIX IV

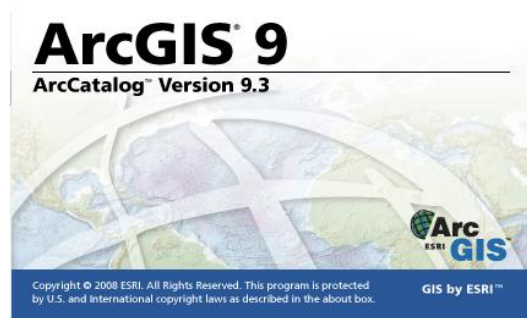
Designing Geodatabase

In this study, geographic features that are to be represented is water quality station point, seagrass observation point and its attributes, raster topographic map and statistical analysis. First is to define projection to be use in geodatabase, commonly used is World Geodetic System (WGS 1984), the reference coordinates system used by the Global Positioning System (GPS).

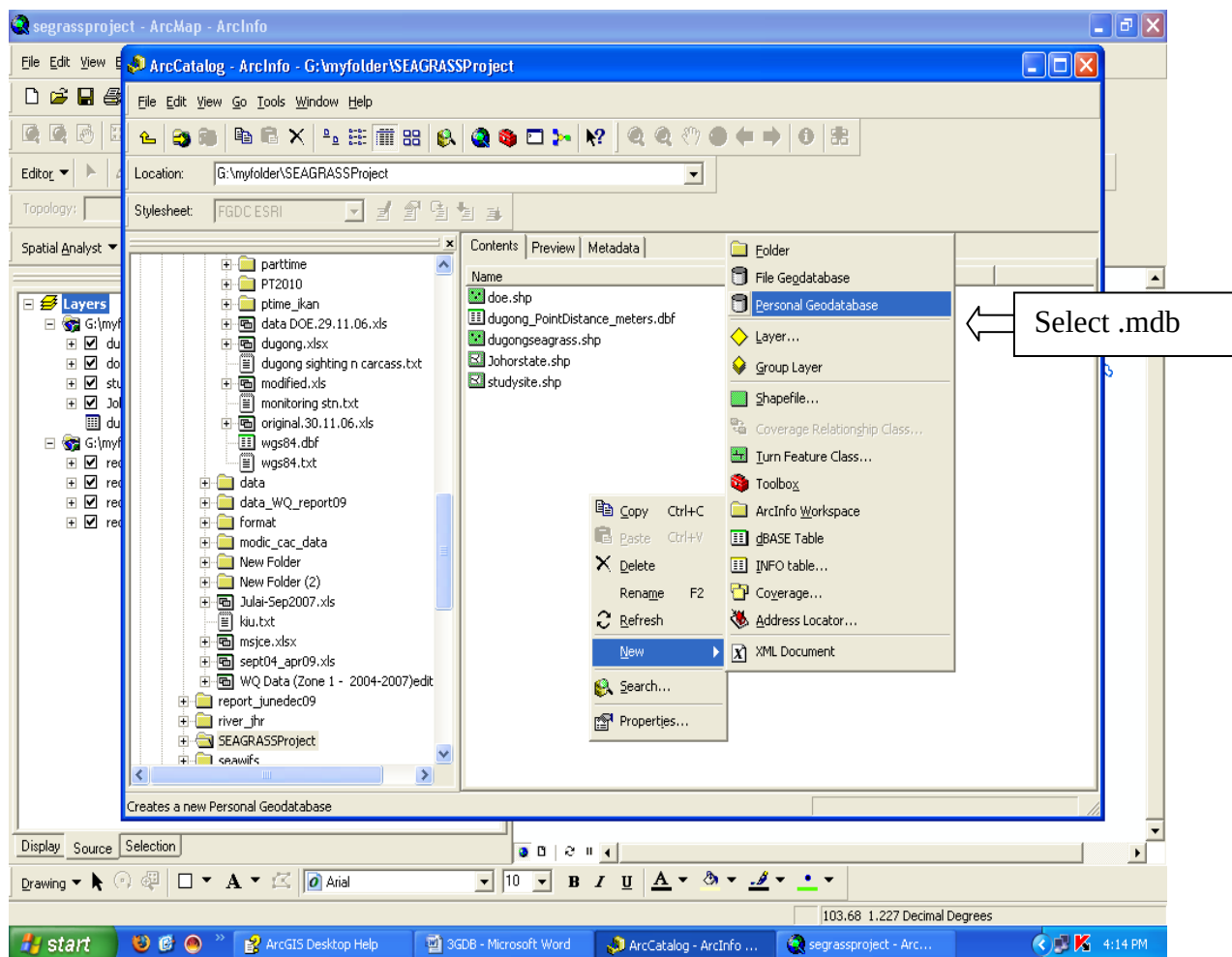
- 1) Define where data is located, using source menu.



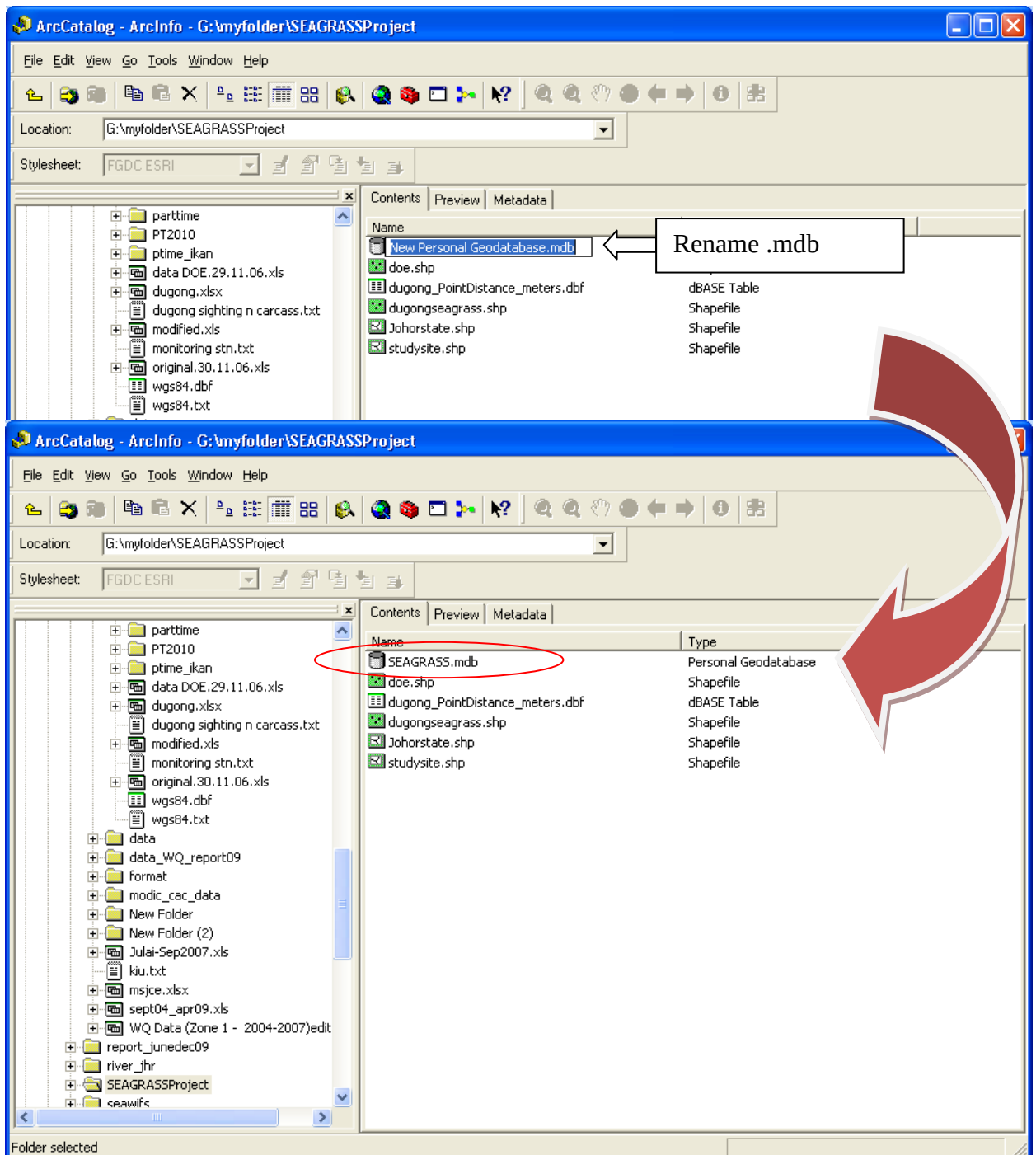
- 2) Open ArcCatalog, go to the desired folder that geodatabase will be created in.



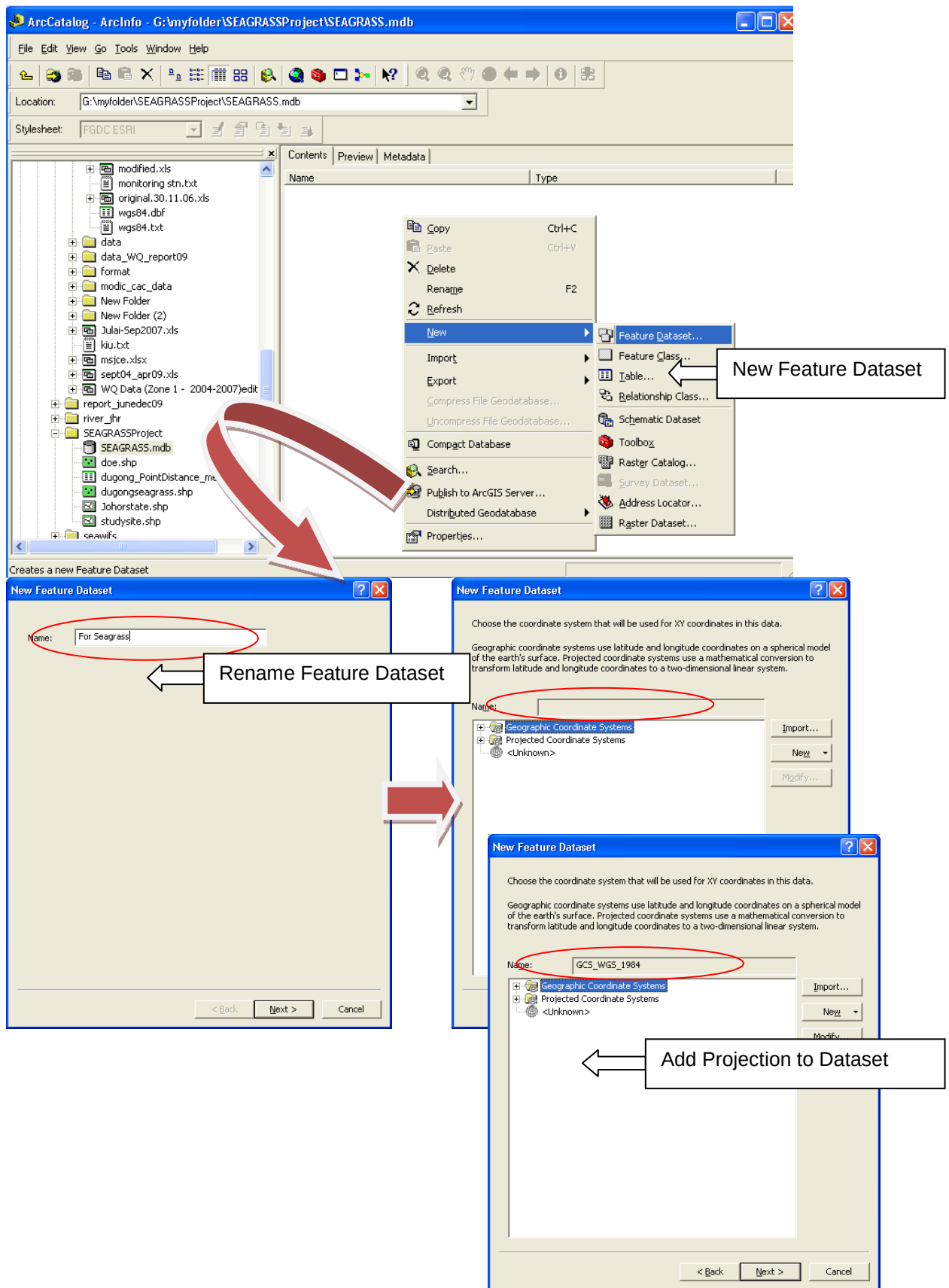
- 3) Right-click the mouse, go to 'New' and select 'Personal Geodatabase' (.mdb)



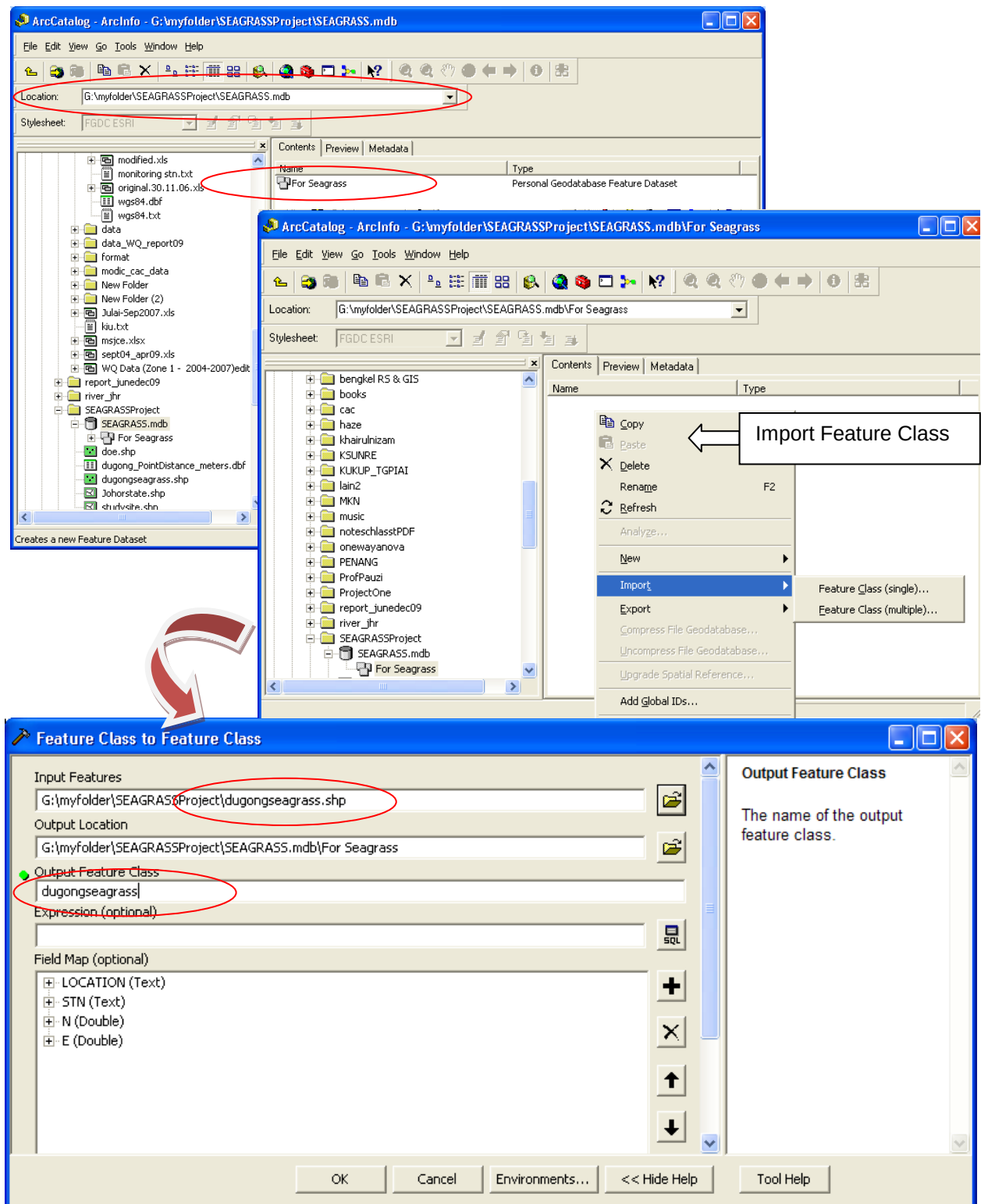
- 4) New Personal geodatabase will be created and it needs to be rename, SEAGRASS.mdb.



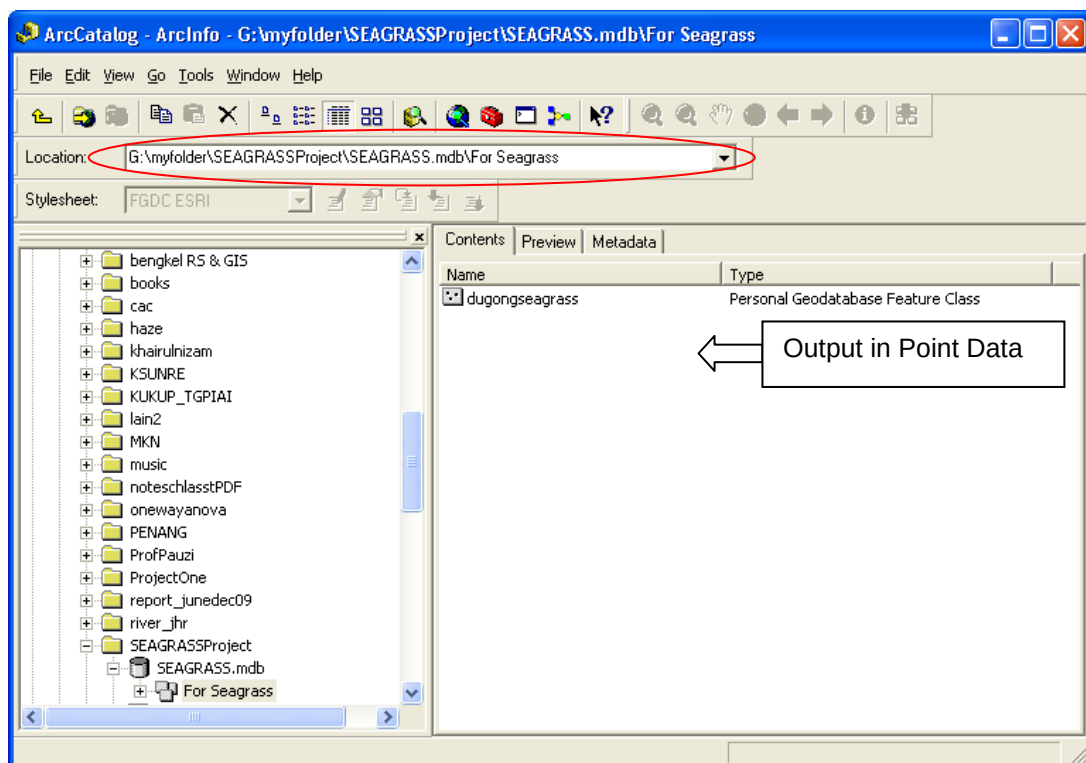
- 5) On SEAGRASS.mdb create New Feature Dataset and name it to For Seagrass, then define projection, select Geographic Coordinate System, GCS World → WGS 1984 → OK.



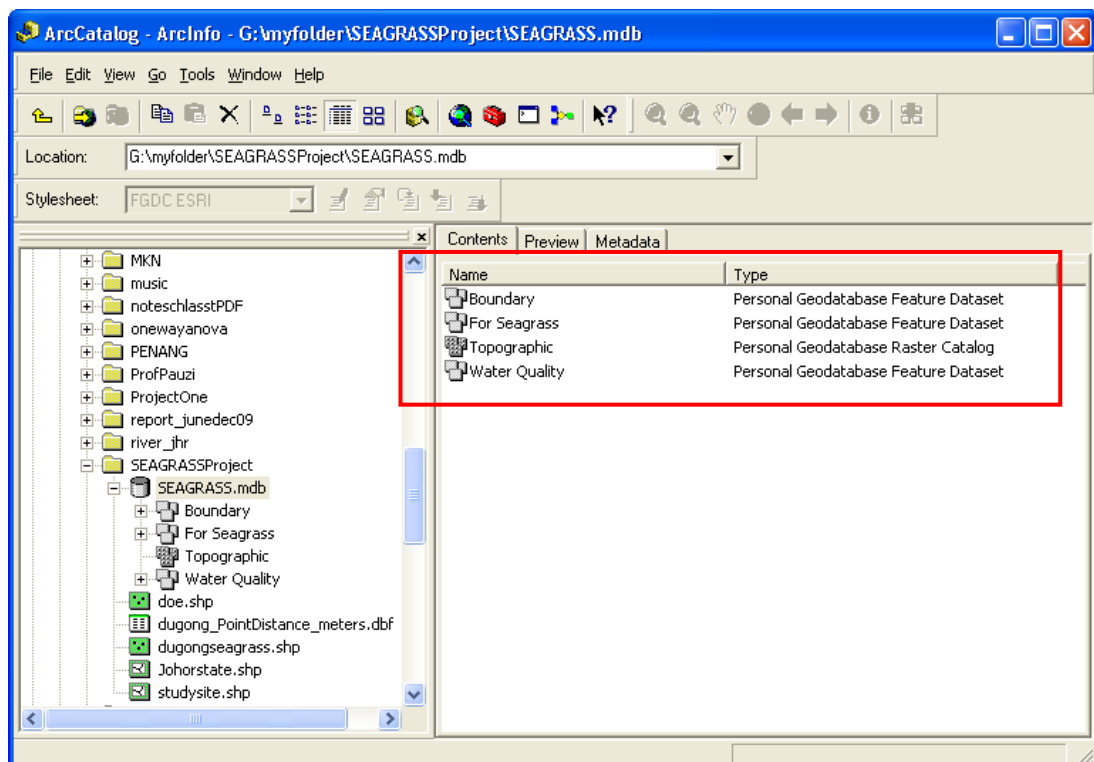
- 6) To insert feature For Seagrass, double clicks to insert it. Then right click to Import Feature Class (single or multiple).



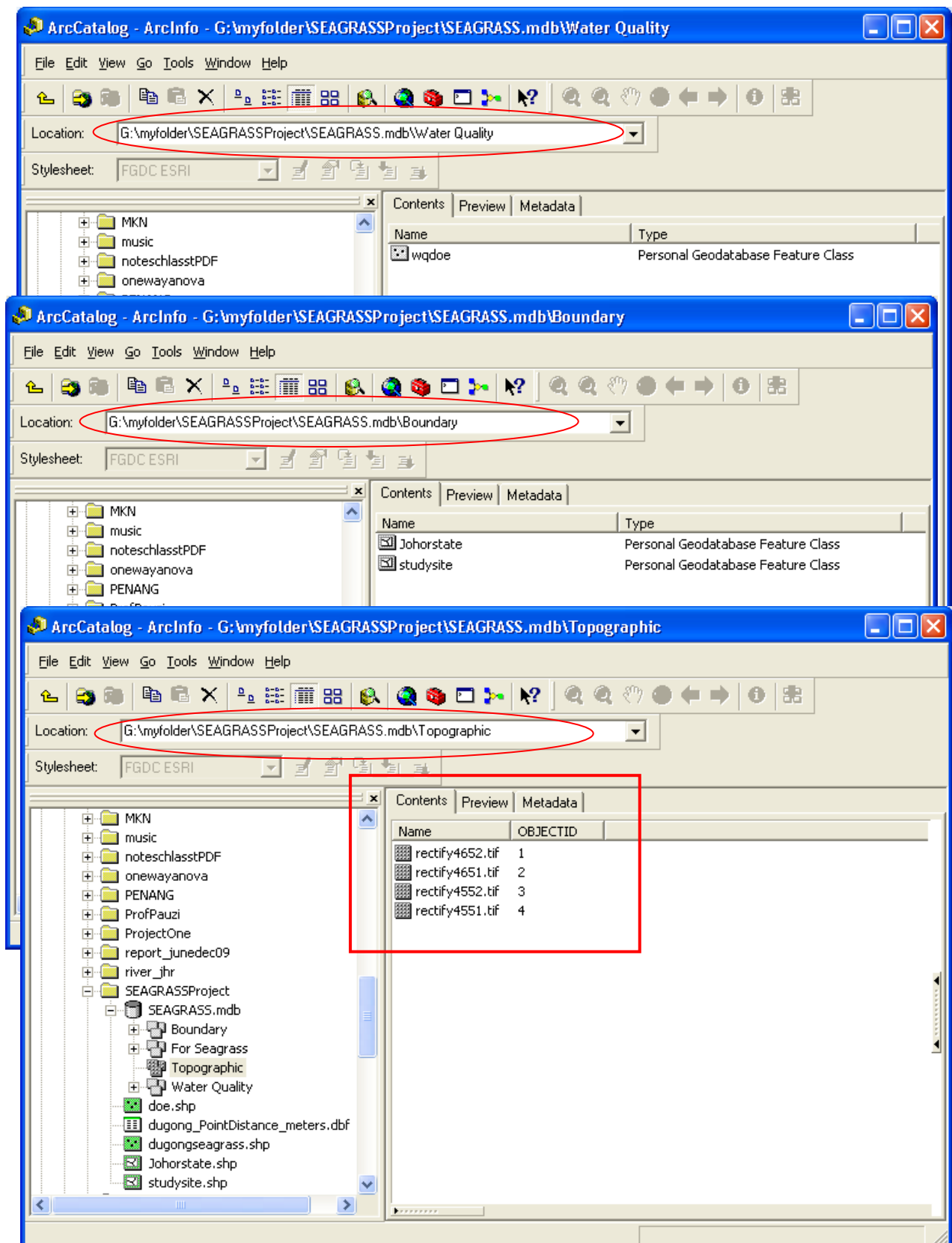
- 7) Output can be seen on SEAGRASS.mdb \For Seagrass is dugongseagrass



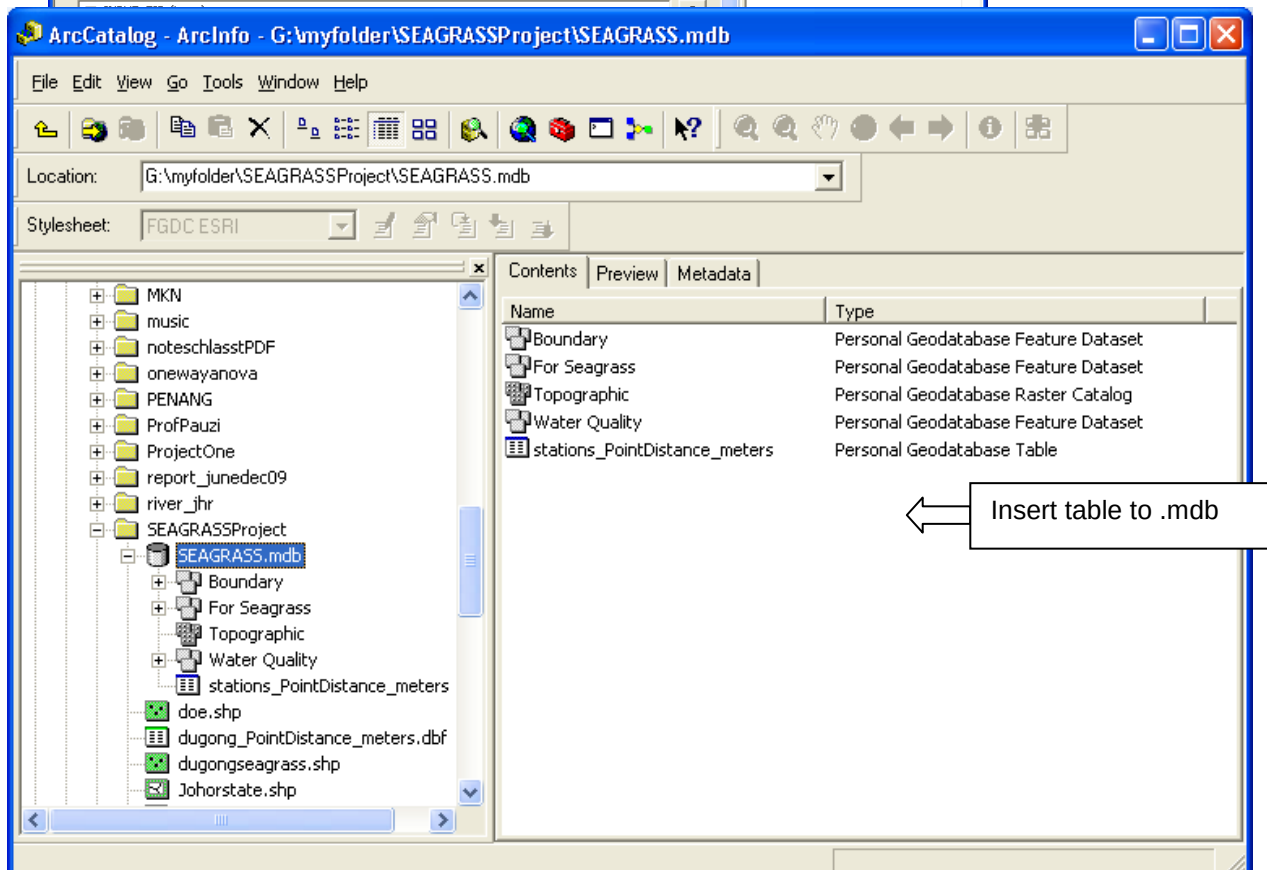
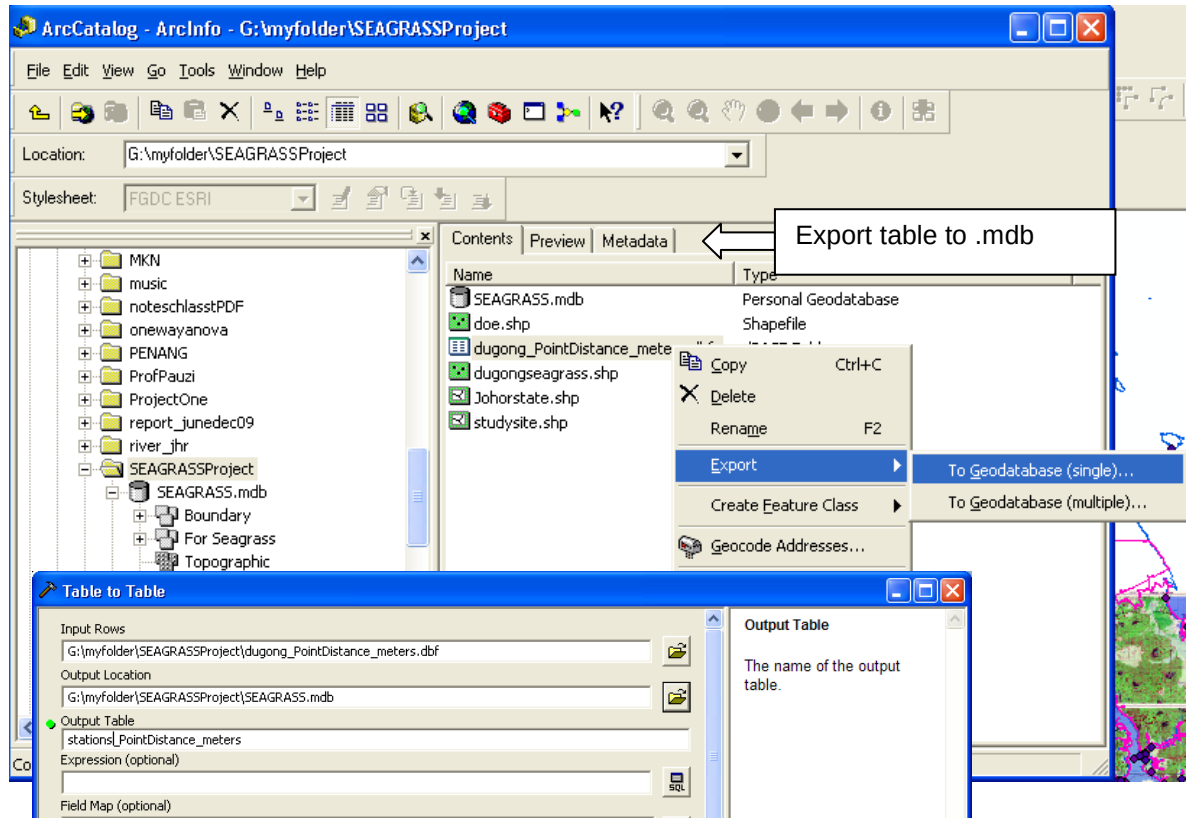
- 8) Repeat step 5 to 7, for Water Quality, Boundary and Raster data, add all related data to specific folder.



9) Output for Water Quality, Boundary and Raster data.



- 10) Export table into mdb, right click to the table data, select Export To Geodatabase (single), then create output table to desire .mdb (SEAGRASS.mdb)



- 11) Export all data table included the analysis than have been done. Output of Personal geodatabase for the seagrass is as shown below.

