

Annex K2

Monitoring Results for Soft Shore Ecology

Table K2.1 Results for Horseshoe Crabs during Qualitative Walk-through Surveys in June 2023

Sighting #	Species	Prosomal Width (cm)	Total Length (cm)
Monitoring Date: 5 June 2023			
Monitoring Station: TCB3			
1	<i>Tachypleus tridentatus</i>	1.5	2.5
2	<i>Tachypleus tridentatus</i>	6.4	11.7
3	<i>Tachypleus tridentatus</i>	6.3	12.0
4	<i>Tachypleus tridentatus</i>	8.2	17.7
5	<i>Tachypleus tridentatus</i>	5.5	10.0
6	<i>Tachypleus tridentatus</i>	1.4	2.5
7	<i>Tachypleus tridentatus</i>	2.0	2.5
8	<i>Tachypleus tridentatus</i>	1.1	1.8
9	<i>Tachypleus tridentatus</i>	1.1	2.0
10	<i>Tachypleus tridentatus</i>	0.8	1.1
11	<i>Tachypleus tridentatus</i>	0.8	1.0
	Mean (Range)	3.2 (0.8 – 8.2)	5.9 (1.0 – 17.7)
Monitoring Date: 19 June 2023			
Monitoring Station: TCB2			
1	<i>Tachypleus tridentatus</i>	1.6	2.7
2	<i>Tachypleus tridentatus</i>	12.6	34.0
3	<i>Tachypleus tridentatus</i>	0.8	1.0
4	<i>Tachypleus tridentatus</i>	1.1	1.8
	Mean (Range)	4.0 (0.8 – 12.6)	9.9 (1.0 – 34.0)
Monitoring Date: 20 June 2023			
Monitoring Station: THW			
1	<i>Tachypleus tridentatus</i>	1.4	2.5
2	<i>Tachypleus tridentatus</i>	1.0	1.6
3	<i>Tachypleus tridentatus</i>	1.6	2.6
4	<i>Tachypleus tridentatus</i>	1.5	2.5
5	<i>Tachypleus tridentatus</i>	3.4	6.3
6	<i>Tachypleus tridentatus</i>	1.1	1.8
7	<i>Tachypleus tridentatus</i>	1.2	1.7
8	<i>Tachypleus tridentatus</i>	1.0	1.5
9	<i>Tachypleus tridentatus</i>	1.1	1.6
10	<i>Tachypleus tridentatus</i>	1.5	2.6
11	<i>Tachypleus tridentatus</i>	2.2	4.1
12	<i>Tachypleus tridentatus</i>	1.3	2.4
	Mean (Range)	1.5 (1.0 – 3.4)	2.6 (1.5 – 6.3)
Monitoring Date: 30 June 2023			
Monitoring Station: TCB1			
1	<i>Tachypleus tridentatus</i>	1.5	2.5
2	<i>Tachypleus tridentatus</i>	1.8	2.7
3	<i>Tachypleus tridentatus</i>	1.4	2.5
	Mean	1.6 (1.4 – 1.8)	2.6 (2.5 – 2.7)

Table K2.2 Results for Seagrass during Qualitative Walk-through Surveys in June 2023

Sighting #	Species	Area (m²)	Area Coverage (%)	Seagrass Area (m²)
Monitoring Date: 5 June 2023				
Monitoring Station: TCB3				
1	<i>Halophila ovalis</i>	140.0	60%	84.0
2	<i>Halophila ovalis</i>	40.0	50%	20.0
3	<i>Halophila ovalis</i>	70.0	80%	56.0
Monitoring Date: 19 June 2023				
Monitoring Station: TCB2				
1	<i>Halophila ovalis</i>	3.0	50%	1.5

Table K2.3 Results for Other Intertidal Soft Shore Communities during Qualitative Walk-through Surveys in June 2023

Monitoring Station	Shore Height *	No. of Species
TCB1	H	27
	M	25
	L	27
	Overall	39
TCB2	H	19
	M	22
	L	16
	Overall	28
TCB3	H	28
	M	33
	L	31
	Overall	43
THW	H	23
	M	23
	L	18
	Overall	32

* H: +2mCD; M: +1.5mCD; L: +1mCD

Table K2.4 Results for Other Intertidal Soft Shore Communities during Quantitative Transect Surveys in June 2023

Monitoring Station	Shore Height *	Top Three Dominant Species	Density (ind. / m ²)
TCB1	H	1 <i>Cerithidea diadjariensis</i>	475.2
		2 <i>Batillaria zonalis</i>	43.2
		3 <i>Cerithidea rhizophorarum</i>	39.2
	M	1 <i>Cerithidea diadjariensis</i>	68.8
		2 <i>Batillaria zonalis</i>	64.8
		3 <i>Cerithidea cingulata</i>	14.4
	L	1 <i>Oligochaete sp.</i>	4.8
		2 <i>Sipunculus sp.</i>	3.2
		3 <i>Nassarius festivus</i>	1.6
TCB2	H	1 <i>Cerithidea diadjariensis</i>	27.2
		2 <i>Oligochaete sp.</i>	18.4
		3 <i>Batillaria zonalis</i>	5.6
	M	1 <i>Cerithidea diadjariensis</i>	147.2
		2 <i>Batillaria zonalis</i>	41.6
		3 <i>Cerithidea cingulata</i>	24.8
	L	1 <i>Oligochaete sp.</i>	8.8
		2 <i>Hemigrapsus penicillatus</i>	0.8
		3 -	
TCB3	H	1 <i>Batillaria multiformis</i>	526.4
		2 <i>Batillaria zonalis</i>	337.6
		3 <i>Cerithidea diadjariensis</i>	275.2
	M	1 <i>Cerithidea diadjariensis</i>	100.8
		2 <i>Monodonta labio</i>	92.8
		3 <i>Batillaria multiformis</i>	60.0
	L	1 <i>Batillaria zonalis</i>	33.6
		2 <i>Cerithidea diadjariensis</i>	28.8
		3 <i>Cerithidea cingulata</i>	3.2
THW	H	1 <i>Geloina erosa</i>	25.6
		2 <i>Cerithidea diadjariensis</i>	16.0
		3 <i>Cerithidea cingulata</i>	4.8
	M	1 <i>Cerithidea diadjariensis</i>	241.6
		2 <i>Batillaria zonalis</i>	49.6
		3 <i>Cerithidea cingulata</i>	22.4
	L	1 <i>Cerithidea diadjariensis</i>	17.6
		2 <i>Nassarius festivus</i>	8.0
		3 <i>Geloina erosa</i>	6.4

* H: +2mCD; M: +1.5mCD; L: +1mCD

Group	Species	TCB1			TCB2			TCB3			THW		
		H (Qual)	M (Qual)	L (Qual)	H (Qual)	M (Qual)	L (Qual)	H (Qual)	M (Qual)	L (Qual)	H (Qual)	M (Qual)	L (Qual)
Barnacle	<i>Balanus amphitrite</i>	++	+	++		+	+	+	+	++		++	+
Barnacle	<i>Chthamalus malayensis</i>							++					
Barnacle	<i>Microeuraphia withersi</i>	++	+										
Bivalve	<i>Anomalocardia squamosa</i>									+			
Bivalve	<i>Arcuatula senhousia</i>							+		+			
Bivalve	<i>Barbatia virescens</i>		+	++		++		+	+	+			
Bivalve	<i>Coecella chinensis</i>			+									
Bivalve	<i>Geloina erosa</i>		+		+	+		+	+	+	+++	+++	++
Bivalve	<i>Hiatula diphos</i>	+				+		+	+				
Bivalve	<i>Saccostrea cucullata</i>	+	++	+	+	+	+++	+	++	+++	+	++	+++
Crab	<i>Hemigrapsus penicillatus</i>	+			+		+	+	++	+	++	++	+
Crab	<i>Hemigrapsus sanguineus</i>							+		+			
Crab	<i>Macrophthalmus sp.</i>							+	+				
Crab	<i>Metapograpus frontalis</i>			+++	++	+++	+++		+	++		++	+
Crab	<i>Metapograpus quadridemtatus</i>	+	+	++	+	+++	+++			+		++	+
Crab	<i>Perisesarma bidens</i>	+++			+++			++	+++	+	+++		
Crab	<i>Philyra pisum</i>				+						+		
Crab	<i>Uca arcuata</i>											+++	
Crab	<i>Uca borealis</i>	+++	++	++		++	+	+	++		++		
Crab	<i>Uca lactea</i>	+++	+++	++		+++	+	++	+++	++	+++	+++	+
Crab	<i>Uca splendida</i>	+++						++	++	+	+++	+++	+
Fish	<i>Periophthalmus modestus</i>	++	++	+	+++	++	+	+	++	+	+++	++	++
Gastropod	<i>Batillaria multiformis</i>	++	++	+	+	+	+	+++	++	++	+	++	+
Gastropod	<i>Batillaria zonalis</i>	+++	+++	+	++	+++	+	+++	++	++	+	+++	+
Gastropod	<i>Cellana grata</i>			+					++				
Gastropod	<i>Cellana toreuma</i>		+							+			
Gastropod	<i>Cerithidea cingulata</i>	++	++	+	+	++	+	++	++	+	++	++	+
Gastropod	<i>Cerithidea diadjarimensis</i>	+++	+++	+	+++	+++	++	+++	+++	++	+++	+++	++
Gastropod	<i>Cerithidea rhizophorarum</i>	++	+		+	+		+					
Gastropod	<i>Clytho sp.</i>			+		+		+	+		+	+	+
Gastropod	<i>Echinolittorina radiata</i>	+	+	+	+				+				
Gastropod	<i>Littoraria articulata</i>	++	++	++	+	+		+	+++	+		++	
Gastropod	<i>Littoraria melanostoma</i>	++						++			++		
Gastropod	<i>Lunella coronata</i>		+	++					+	+			+
Gastropod	<i>Monodonta labio</i>	++	+++	+++	+	+++	+	+	+++	++		+	+
Gastropod	<i>Nassarius festivus</i>	+	+	+				+++	++	+		+	++
Gastropod	<i>Nerita albicilla</i>					+			+	+++	+	+	
Gastropod	<i>Nerita chamaeleon</i>								+		+		
Gastropod	<i>Nerita polita</i>	+				+			+	+++	+	+	
Gastropod	<i>Patelloida pygmaea</i>		+	+						+			
Gastropod	<i>Planaxis sulcatus</i>	++		+						+			
Gastropod	<i>Terebralia palustris</i>										++	++	
Gastropod	<i>Terebralia sulcata</i>										+++	+++	
Gastropod	<i>Thais clavigera</i>	+						+	+	+	+		
Hermit Crab	<i>Clibanarius sp.</i>	+	+	+++	+	+	+	+	++	+	++	+	+
Hermit Crab	<i>Diogenes sp.</i>	+	+	++			+	+	+	+	+	+	+
Hermit Crab	<i>Pagurus sp.</i>		+	+						+			
Horseshoe Crab	<i>Tachypleus tridentatus</i>			+	+	+		+	++	+	+	++	
Seagrass	<i>Halophila ovalis</i>					+		++	+++	++			
Sea Slater	<i>Ligia oceanica</i>	++			++	+					+		
Worm	<i>Oligochaete sp.</i>		+	+	+++		+		+				
Worm	<i>Sipunculus sp.</i>			+					+++				

Raw Data for Quantitative Transect Survey at Tung Chung Bay and Tai Ho Wan (June 2023)

Group	Species	TCB1																		
		H1	H2	H3	H4	H5	Density (ind. / m ² or % cover)	M1	M2	M3	M4	M5	Density (ind. / m ² or % cover)	L1	L2	L3	L4	L5	Density (ind. / m ² or % cover)	
Barnacle	<i>Balanus amphitrite</i>						0%		<5%					<5%						0%
Bivalve	<i>Anomalocardia squamosa</i>						0							0						0
Bivalve	<i>Arcuatula senhousia</i>						0							0						0
Bivalve	<i>Barbatia virescens</i>						0							0						0
Bivalve	<i>Coecella chinensis</i>						0							0			1			0.8
Bivalve	<i>Geloina erosa</i>						0	1				1	1.6						0	
Bivalve	<i>Hiatula diphos</i>					1	0.8							0						0
Bivalve	<i>Saccostrea cucullata</i>					5%	1%							0%						0%
Crab	<i>Hemigrapsus penicillatus</i>						0							0						0
Crab	<i>Macrophthalmus sp.</i>						0							0						0
Crab	<i>Metapograpsus frontalis</i>						0							0						0
Crab	<i>Metapograpsus quadridentatus</i>						0							0	1					0.8
Crab	<i>Uca lactea</i>						0			1				0.8	1					0.8
Fish	<i>Periophthalmus modestus</i>						0							0						0
Gastropod	<i>Batillaria multiformis</i>	10					8			2	8			8					1	0.8
Gastropod	<i>Batillaria zonalis</i>	6	6	8	34		43.2	19	10	26	22	4	64.8	4	4			2	8	
Gastropod	<i>Cellana grata</i>						0							0						0
Gastropod	<i>Cellana toreuma</i>						0							0						0
Gastropod	<i>Cerithidea cingulata</i>	10	8	4	8	10	32	12		2	4			14.4						0
Gastropod	<i>Cerithidea diajariensis</i>	110	128	118	131	107	475.2	18	44	24				68.8						0
Gastropod	<i>Cerithidea rhizophorarum</i>	6	3	5	21	14	39.2							0						0
Gastropod	<i>Clithon spp.</i>						0							0						0
Gastropod	<i>Echinolittorina radiata</i>						0							0				1		0.8
Gastropod	<i>Littoraria articulata</i>						0							0			1			0.8
Gastropod	<i>Lunella coronata</i>						0							0						0
Gastropod	<i>Monadonta labio</i>						0							0						0
Gastropod	<i>Nassarius festivus</i>	2		2	1		4							0		2				1.6
Gastropod	<i>Nerita chamealeon</i>						0							0						0
Gastropod	<i>Nerita polita</i>						0							0						0
Gastropod	<i>Terebralia palustris</i>						0							0						0
Gastropod	<i>Terebralia sulcata</i>						0							0						0
Gastropod	<i>Thais clavigera</i>					2	1.6							0						0
Hermit Crab	<i>Diogenes sp.</i>						0							0				1		0.8
Worm	<i>Oligochaete sp.</i>						0	2	2	3				5.6	1		3		2	4.8
Worm	<i>Sipunculus sp.</i>						0							0		2	2			3.2

Raw Data for Quantitative Transect Survey at Tung Chung Bay and Tai Ho Wan (June 2023)

Group	Species	TCB2																	
		H1	H2	H3	H4	H5	Density (ind. / m ² or % cover)	M1	M2	M3	M4	M5	Density (ind. / m ² or % cover)	L1	L2	L3	L4	L5	Density (ind. / m ² or % cover)
Barnacle	<i>Balanus amphitrite</i>						0%						0%						0%
Bivalve	<i>Anomalocardia squamosa</i>						0						0						0
Bivalve	<i>Arcuatula senhousia</i>						0						0						0
Bivalve	<i>Barbatia virescens</i>						0						0						0
Bivalve	<i>Coecella chinensis</i>						0						0						0
Bivalve	<i>Geloina erosa</i>	2					1.6						0						0
Bivalve	<i>Hiatula diphos</i>						0				1		0.2						0
Bivalve	<i>Saccostrea cucullata</i>			<5%			<5%	<5%	5%				1%	20%	10%	10%	<5%	25%	13%
Crab	<i>Hemigrapsus penicillatus</i>				1		0.8						0				1		0.8
Crab	<i>Macrophthalmus sp.</i>						0						0						0
Crab	<i>Metapograpus frontalis</i>			2			1.6						0						0
Crab	<i>Metapograpus quadridentatus</i>						0						0						0
Crab	<i>Uca lactea</i>						0						0						0
Fish	<i>Periophthalmus modestus</i>					1	0.8		1			3	3.2						0
Gastropod	<i>Batillaria multiformis</i>						0	1				1	1.6						0
Gastropod	<i>Batillaria zonalis</i>				7		5.6	6		18	21	7	41.6						0
Gastropod	<i>Cellana grata</i>						0						0						0
Gastropod	<i>Cellana toreuma</i>						0						0						0
Gastropod	<i>Cerithidea cingulata</i>		1		2		2.4	3	9			19	24.8						0
Gastropod	<i>Cerithidea diajariensis</i>	6	3	6	9	10	27.2	63	14	6	35	66	147.2						0
Gastropod	<i>Cerithidea rhizophorarum</i>						0	2					1.6						0
Gastropod	<i>Clithon spp.</i>						0						0						0
Gastropod	<i>Echinolittorina radiata</i>						0						0						0
Gastropod	<i>Littoraria articulata</i>						0						0						0
Gastropod	<i>Lunella coronata</i>						0						0						0
Gastropod	<i>Monadonta labio</i>						0	2	1				2.4						0
Gastropod	<i>Nassarius festivus</i>						0						0						0
Gastropod	<i>Nerita chamaeleon</i>						0						0						0
Gastropod	<i>Nerita polita</i>						0						0						0
Gastropod	<i>Terebralia palustris</i>						0						0						0
Gastropod	<i>Terebralia sulcata</i>						0						0						0
Gastropod	<i>Thais clavigera</i>						0						0						0
Hermit Crab	<i>Diogenes sp.</i>						0						0						0
Worm	<i>Oligochaete sp.</i>	4	2	10	7		18.4						0			4		7	8.8
Worm	<i>Sipunculus sp.</i>						0						0						0

Group	Species	TCB3																	
		H1	H2	H3	H4	H5	Density (ind. / m ² or % cover)	M1	M2	M3	M4	M5	Density (ind. / m ² or % cover)	L1	L2	L3	L4	L5	Density (ind. / m ² or % cover)
Barnacle	<i>Balanus amphitrite</i>						0%						0%		<5%	<5%		<5%	<5%
Bivalve	<i>Anomalocardia squamosa</i>						0						0	1					0.8
Bivalve	<i>Arcuatula senhousia</i>	3					2.4						0		2				1.6
Bivalve	<i>Barbatia virescens</i>						0				3		2.4		3				2.4
Bivalve	<i>Coecella chinensis</i>						0						0						0
Bivalve	<i>Geloina erosa</i>					1	0.8				2	1	2.4	1					0.8
Bivalve	<i>Hiatula diphos</i>	6	2	5	2		3				2		0.4						0
Bivalve	<i>Saccostrea cucullata</i>	<5%		<5%	5%	2	1%	10%	<5%		15%		5%		30%	10%	25%		13%
Crab	<i>Hemigrapsus penicillatus</i>						0				2		1.6	1					0.8
Crab	<i>Macrophthalmus sp.</i>						0	1					0.8						0
Crab	<i>Metapograpsus frontalis</i>						0						0						0
Crab	<i>Metapograpsus quadridentatus</i>						0						0						0
Crab	<i>Uca lactea</i>						0	2					1.6	1					0.8
Fish	<i>Periophthalmus modestus</i>						0						0						0
Gastropod	<i>Batillaria multiformis</i>	134	206	128	118	72	526.4	32	32	5	6		60				2		1.6
Gastropod	<i>Batillaria zonalis</i>	84	186	52	74	26	337.6	6	8	4	12	24	43.2	20	6		16		33.6
Gastropod	<i>Cellana grata</i>						0	11					8.8						0
Gastropod	<i>Cellana toreuma</i>						0	2					1.6						0
Gastropod	<i>Cerithidea cingulata</i>	6	10	34	14	12	60.8		2	4			4.8	2			2		3.2
Gastropod	<i>Cerithidea diajariensis</i>	42	42	56	116	88	275.2	18	32	44		32	100.8	4	14	4	8	6	28.8
Gastropod	<i>Cerithidea rhizophorarum</i>		1				0.8						0						0
Gastropod	<i>Clithon spp.</i>	6					4.8						0						0
Gastropod	<i>Echinolittorina radiata</i>						0	10					8						0
Gastropod	<i>Littoraria articulata</i>						0	8			3		8.8						0
Gastropod	<i>Lunella coronata</i>						0	2			2		3.2						0
Gastropod	<i>Monodonta labio</i>						0	92			24		92.8						0
Gastropod	<i>Nassarius festivus</i>	38	66	6			88					4	3.2						0
Gastropod	<i>Nerita chamaeleon</i>						0	2					1.6						0
Gastropod	<i>Nerita polita</i>						0	1					0.8						0
Gastropod	<i>Terebralia palustris</i>						0						0						0
Gastropod	<i>Terebralia sulcata</i>						0						0						0
Gastropod	<i>Thais clavigera</i>						0						0						0
Hermit Crab	<i>Diogenes sp.</i>						0						0						0
Worm	<i>Oligochaete sp.</i>						0				7		5.6						0
Worm	<i>Sipunculus sp.</i>						0	24			6		24						0

Raw Data for Quantitative Transect Survey at Tung Chung Bay and Tai Ho Wan (June 2023)

Group	Species	THW															Density (ind. / m ² or % cover)		
		H1	H2	H3	H4	H5	Density (ind. / m ² or % cover)	M1	M2	M3	M4	M5	Density (ind. / m ² or % cover)	L1	L2	L3		L4	L5
Barnacle	<i>Balanus amphitrite</i>						0%				<5%		<5%						0%
Bivalve	<i>Anomalocardia squamosa</i>						0						0						0
Bivalve	<i>Arcuatula senhousia</i>						0						0						0
Bivalve	<i>Barbatia virescens</i>						0						0						0
Bivalve	<i>Coecella chinensis</i>						0						0						0
Bivalve	<i>Geloina erosa</i>	3	16	5	5	3	25.6	8		1	3	5	13.6		4	1	1	2	6.4
Bivalve	<i>Hiatula diphos</i>						0						0						0
Bivalve	<i>Saccostrea cucullata</i>					<5%	<5%			15%			3%		30%	40%	25%		19%
Crab	<i>Hemigrapsus penicillatus</i>						0						0						0
Crab	<i>Macrophthalmus sp.</i>						0						0						0
Crab	<i>Metapograpsus frontalis</i>						0						0						0
Crab	<i>Metapograpsus quadridentatus</i>						0						0						0
Crab	<i>Uca lactea</i>						0						0						0
Fish	<i>Periophthalmus modestus</i>						0						0						0
Gastropod	<i>Batillaria multiformis</i>						0	5	8	6	8		21.6						0
Gastropod	<i>Batillaria zonalis</i>						0	10	4		42	6	49.6						0
Gastropod	<i>Cellana grata</i>						0						0						0
Gastropod	<i>Cellana toreuma</i>						0						0						0
Gastropod	<i>Cerithidea cingulata</i>	4	2				4.8	8	4	4	8	4	22.4						0
Gastropod	<i>Cerithidea diajariensis</i>	16	2			2	16	52	122	28	86	14	241.6		10	10	2		17.6
Gastropod	<i>Cerithidea rhizophorarum</i>						0						0						0
Gastropod	<i>Clithon spp.</i>						0						0						0
Gastropod	<i>Echinolittorina radiata</i>						0						0						0
Gastropod	<i>Littoraria articulata</i>						0						0						0
Gastropod	<i>Lunella coronata</i>						0						0						0
Gastropod	<i>Monodonta labio</i>						0						0						0
Gastropod	<i>Nassarius festivus</i>						0						0		10				8
Gastropod	<i>Nerita chamaeleon</i>						0						0						0
Gastropod	<i>Nerita polita</i>						0						0						0
Gastropod	<i>Terebralia palustris</i>						0	1					0.8						0
Gastropod	<i>Terebralia sulcata</i>				1		0.8	1	1				1.6						0
Gastropod	<i>Thais clavigera</i>						0						0						0
Hermit Crab	<i>Diogenes sp.</i>						0						0						0
Worm	<i>Oligochaete sp.</i>						0						0						0
Worm	<i>Sipunculus sp.</i>						0						0						0