

Figure B1), covering hard artificial coastlines (there was no natural coastlines or soft shores), during both wet and dry seasons (August and November 2009). All intertidal surveys were during suitable ebbing tides.

At each survey location, to determine representative locations for transect deployment, a walk-through survey was conducted to actively search for any intertidal flora and epifauna along the shore to establish general database on species composition and their relative occurrence in the survey location. The walk-through survey aided the determination of location for transect deployment as well as provision of qualitative data on intertidal communities.

After the walk-through survey, quantitative survey was conducted using line transects in I1, I2, and I5 (sloping seawalls), with horizontal transects (50m in length) at three tidal levels (High, Middle and Low). Ten 0.5m x 0.5m quadrats were laid on each transect. The epifauna in each quadrat were identified and their numbers/coverage percentages were recorded.

Intertidal epifauna and flora within each quadrat were identified and enumerated. In general, mobile fauna were counted in terms of abundance per unit area. Flora and sessile organisms were estimated in terms of percentage cover per fixed area.

Station I3 and I4 were vertical seawalls and thus transect survey could not be performed. But the species compositions were observed and recorded during the walk-through survey. Representative photographs of intertidal habitat and flora / fauna species identified were taken.

B2.3 *Data processing*

Abundance, biomass, species diversity H' and evenness J were calculated for pooled data, using the formulae:

$$H' = -\sum (N_i / N) \ln (N_i / N); \text{ and}$$

$$J = H' / \ln S$$

where S is the total number of species in the sample, N is the total number of individuals, and N_i is the number of individuals of the i^{th} species.

B3 RESULTS

B3.1 Results of intertidal survey

Intertidal surveys were conducted in wet season (August 2009) and dry season (November 2009) along the eastern coastline of Junk Bay and the 5 survey locations. The entire coastline was man-made seawalls. The coastline was basically semi-exposed to wave.

A total of 17 taxa were recorded during the intertidal survey (including walk-through surveys and transect surveys). No intertidal flora (such as alga) was found. All recorded taxa were common intertidal organisms in Hong Kong.

Table B1 Summary of the macrofauna recorded in intertidal survey

Common name	Scientific name	Commonness in Hong Kong
Rock oyster	<i>Saccostrea cucullata</i>	Common
Bivalve	<i>Barbatium</i> sp.	Common
Chiton	<i>Acanthopleura japonica</i>	Common
Limpet	<i>Cellana grata</i>	Common
False Limpet	<i>Siphonaria</i> sp.	Common
Littorinid snail	<i>Echinolittorina malaccana</i>	Common
Littorinid snail	<i>Echinolittorina radiata</i>	Common
Snail	<i>Nerita</i> sp.	Common
Snail	<i>Monodonta labio</i>	Common
Dog whelk	<i>Thais clavigera</i>	Common
Stalked barnacle	<i>Capitulum mitella</i>	Common
Barnacle	<i>Tetraclita squamosa</i>	Common
Barnacle	<i>Balanus amphitrite</i>	Common
Isopod	<i>Ligia exotica</i>	Common
Hermit crab	<i>Clibanarius</i> sp.	Common
Crab	<i>Gaetice depressus</i>	Common
Crab	<i>Parasesarma pictum</i>	Common

During the quantitative transect survey, a total of 10 taxa were recorded. The most frequently recorded species included littorid snails *Echinolittorina malaccana* and *Echinolittorina radiata*, and Rock Oyster *Saccostrea cucullata*,. Detailed results of the intertidal survey are presented in **Annex B1**. No species of conservation importance was found and none of the species are listed in the IUCN Red List (IUCN 2009).

Table B1 Summary of the macrofauna collected in intertidal survey

Common name	Taxa	Number of individual (Wet season)	Number of individual (Dry season)
Littorinid snail	<i>Echinolittorina malaccana</i>	343	351
Littorinid snail	<i>Echinolittorina radiata</i>	368	380
Stalked barnacle	<i>Capitulum mitella</i>	134	67
Limpet	<i>Cellana grata</i>	48	26
False limpet	<i>Siphonaria</i> sp.	30	10
Dog whelk	<i>Thais clavigera</i>	26	16
Chiton	<i>Acanthopleura japonica</i>	49	19
Rock oyster	<i>Saccostrea cucullata</i>	NA	NA
Snail	<i>Monodonta labio</i>	38	6
Acorn barnacle	<i>Teraclita squamosa</i>	NA	NA
	Total	1,036	875

Among the 5 survey sites, Site I3 and I4 were vertical seawalls. Transect survey could not be performed. These vertical seawalls were mainly colonised by Rock Oyster *Saccostrea cucullata* at low tide zone, other intertidal fauna were scarce on the seawall.

Diversity index (H') and Evenness index (J) were shown in **Table B2** below. The diversity index ranged from 1.21 to 1.88, indicating a low to moderate diversity, while the Evenness index ranged from 0.58 to 0.90, showing a moderate evenness.

Table B2. Diversity index and evenness index of the 3 transect survey sites

Survey location	I1	I2	I5
Wet season			
Species no.	8	8	7
Individual no.	476	195	365
H'	1.45	1.88	1.53
J	0.70	0.90	0.79
Dry Season			
Species no.	8	8	7
Individual no.	293	142	440
H'	1.21	1.46	1.22
J	0.58	0.70	0.63

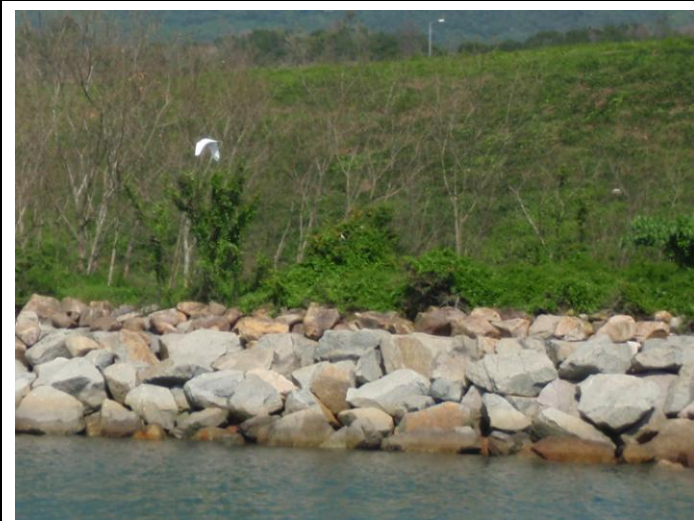
B4 DISCUSSIONS

A total of 17 taxa were recorded during the survey (from both walk-through surveys and transect surveys). All recorded taxa were common intertidal organisms in Hong Kong. No species of conservation importance was found and none of the species are listed in the IUCN Red List (IUCN 2009).

As indicated by the results from intertidal surveys however, the intertidal habitats in the area are not of species ecological value due to the commonness of the species recorded, the low diversity and the low evenness of the intertidal communities.

The loss of intertidal habitats would not constitute insurmountable impacts on intertidal communities.

Photo Plate B1



I1



I2



I3



I4



I5



Echinolittorina malaccana



Echinolittorina radiata



Thais clavigera



Siphonaria sp.

Annex B1 Results of Intertidal Transect Survey

Station I1										
Wet Season										
High intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana	15				6	6	11		17	
Echinolittorina radiata	5				7	11	18		7	2
Capitulum mitella					1		2			5
Cellana grata										
Siphonaria sp.										
Thais clavigera										
Acanthopleura japonica										
Saccostrea cucullata										
Monodonta labio										
Teraclita squamosa										
Mid Intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana	15	15	24		16		21	16		21
Echinolittorina radiata	9	12	8		34	25	13	21		11
Capitulum mitella	2			6		3		11		5
Cellana grata										
Siphonaria sp.										

Thais clavigera										
Acanthopleura japonica										
Saccostrea cucullata										
Monodonta labio										
Teraclita squamosa										
Low Intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana										
Echinolittorina radiata										
Capitulum mitella					5				3	
Cellana grata			2	1	2	2		3	2	1
Siphonaria sp.					5				3	2
Thais clavigera				2			2		1	3
Acanthopleura japonica	3			2		2	4			5
Saccostrea cucullata	55%	65%	55%	45%	25%	65%	35%	45%	50%	50%
Monodonta labio	6				5				8	
Teraclita squamosa			5%		10%			5%		
Dry Season										
High intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana	15			10		5	6			2
Echinolittorina radiata					6	16	11		17	7

Capitulum mitella			2		1				2	
Cellana grata										
Siphonaria sp.										
Thais clavigera										
Acanthopleura japonica										
Saccostrea cucullata										
Monodonta labio										
Teraclita squamosa										
Mid Intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana	5	3		5	23	5		16		21
Echinolittorina radiata	12				6	16	3	21	11	11
Capitulum mitella	4			1	1		2			
Cellana grata										
Siphonaria sp.										
Thais clavigera										
Acanthopleura japonica										
Saccostrea cucullata										
Monodonta labio										
Teraclita squamosa										
Low Intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10

Echinolittorina malaccana										
Echinolittorina radiata										
Capitulum mitella			3							
Cellana grata	1				2			3	1	
Siphonaria sp.					1				2	
Thais clavigera						2				3
Acanthopleura japonica	2			1				2		1
Saccostrea cucullata	30%	35%	25%	15%	35%	25%	20%	45%	20%	50%
Monodonta labio						3				
Teraclita squamosa						5%			5%	

Station I2										
Wet Season										
High intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana										
Echinolittorina radiata										
Capitulum mitella										
Cellana grata										
Siphonaria sp.										
Thais clavigera										
Acanthopleura japonica										
Saccostrea cucullata										

Monodonta labio										
Teraclita squamosa										
Mid Intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana	5		8		18			7		11
Echinolittorina radiata	9		8		16	5		11		3
Capitulum mitella	2					3		9		5
Cellana grata										
Siphonaria sp.										
Thais clavigera										
Acanthopleura japonica										
Saccostrea cucullata										
Monodonta labio										
Teraclita squamosa										
Low Intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana										
Echinolittorina radiata										
Capitulum mitella				5				3		
Cellana grata		2	1	2	2		3	2	1	
Siphonaria sp.				5				3	2	
Thais clavigera			2			2		1		3

Acanthopleura japonica	3		2		2	4			5	1
Saccostrea cucullata	40%	15%	25%	20%	35%	25%	25%	15%	15%	35%
Monodonta labio	6			5				8		
Teraclita squamosa		5%		10%			5%			
Dry Season										
High intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana										
Echinolittorina radiata										
Capitulum mitella										
Cellana grata										
Siphonaria sp.										
Thais clavigera										
Acanthopleura japonica										
Saccostrea cucullata										
Monodonta labio										
Teraclita squamosa										
Mid Intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana	5	3			12	5		16		8
Echinolittorina radiata	12				6	16		21		6
Capitulum mitella	4				1					

Cellana grata										
Siphonaria sp.										
Thais clavigera										
Acanthopleura japonica										
Saccostrea cucullata										
Monodonta labio										
Teraclita squamosa										
Low Intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana										
Echinolittorina radiata										
Capitulum mitella			3							
Cellana grata	1				2			3	1	
Siphonaria sp.					1				2	
Thais clavigera						2				3
Acanthopleura japonica	2			1				2		1
Saccostrea cucullata	20%	35%	35%	40%	30%	15%	45%	25%	20%	15%
Monodonta labio						3				
Teraclita squamosa						5%			5%	

Station I5										
Wet Season										

High intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana	15	3	3			6	6		8	12
Echinolittorina radiata	9	6	6			7	2		17	6
Capitulum mitella	2		4			2			5	
Cellana grata										
Siphonaria sp.										
Thais clavigera										
Acanthopleura japonica										
Saccostrea cucullata										
Monodonta labio										
Teraclita squamosa										
Mid Intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana		11	4	6	11	9		6	6	5
Echinolittorina radiata	8	9	9	11	6	11		7	15	4
Capitulum mitella			3		11	6		13		10
Cellana grata										
Siphonaria sp.										
Thais clavigera										
Acanthopleura japonica										
Saccostrea cucullata										
Monodonta labio										

Teraclita squamosa										
Low Intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana										
Echinolittorina radiata										
Capitulum mitella	5							3		
Cellana grata	3	4				2		3	5	5
Siphonaria sp.	5							3		2
Thais clavigera		2	3					2	3	
Acanthopleura japonica		3		2	5		3		1	1
Saccostrea cucullata	80%	75%	55%	65%	55%	60%	75%	65%	65%	70%
Monodonta labio										
Teraclita squamosa		5%		10%			5%			
Dry Season										
High intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana	10	14	15			3		7	8	8
Echinolittorina radiata		5	6			5		16	7	15
Capitulum mitella	1		4					3	8	
Cellana grata										
Siphonaria sp.										
Thais clavigera										

Acanthopleura japonica										
Saccostrea cucullata										
Monodonta labio										
Teraclita squamosa										
Mid Intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana	12	11	21	32	10		16	5	8	3
Echinolittorina radiata	5	6		15	13	15	9	19	17	24
Capitulum mitella		11		6	1		2		4	
Cellana grata										
Siphonaria sp.										
Thais clavigera										
Acanthopleura japonica										
Saccostrea cucullata										
Monodonta labio										
Teraclita squamosa										
Low Intertidal										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Echinolittorina malaccana										
Echinolittorina radiata										
Capitulum mitella						3				
Cellana grata		1		5		4		1	1	

Siphonaria sp.			1						3	
Thais clavigera			3							3
Acanthopleura japonica	2			1					2	2
Saccostrea cucullata	35%	65%	35%	40%	45%	30%	35%	50%	50%	45%
Monodonta labio										
Teraclita squamosa		5%					10%		5%	10%