Table 1. Seasonal variations in depth (m), photic depth (1% light depth) (PD, m), mixing layer depth (MLD, m), integrated dark community respiration (IDCR, mmol C m^{-2} d^{-1}), net community production (NCP, mmol C m^{-2} d^{-1}) and air-sea CO_2 flux (F_{CO2}, mmol C m^{-2} d^{-1}) in the mixed layer, surface and bottom salinity (S_s and S_b), temperature (T_s and T_b, ^oC), dissolved inorganic nitrogen (DIN_s and DIN_b, μM), dissolved inorganic carbon (DIC_s and DIC_b, μM), dissolved oxygen (DO_s and DO_b, μM) near the Pearl River estuary (PRE), Victoria Harbour (VH) and eastern waters (EW) (see Fig. 1 for locations). ±1 SD and n = 2 to 9.

	Winter			Spring			Summer			Fall		
	PRE	VH	EW	PRE	VH	EW	PRE	VH	EW	PRE	VH	EW
Depth	20	12	27	20	12	27	20	12	27	20	12	27
PD	7	10.5	24	10	8.5	17.5	7	11	12	9	8.7	15
MLD	18	12	20	6	7.5	8	6	4	2	7	12	22
IDCR	165 ±25	124 ±60	154 ±40	113 ±5	93 ±5	34 ±20	210 ±18	110 ±10	116 ±70	142 ±13	136 ±20	140 ±12
NCP	-144 ±20	-98 ±38	-54 ±45	36 ±42	-12 ±30	26 ±10	40 ±10	80 ±30	110 ±48	-25 ±56	-86 ±6	-96 ±41
F_{CO2}	22 ±5	31 ±5	8 ±3	32 ±3	19 ±4	4 ±3	43 ±8	27 ±9	4 ±16	20 ±1	35 ±2	7 ±14
S_s	32	32	33	25	32	33	21	28	29	32	32	33
S_b	33	33	33	32	34	34	32	33	34	33	33	34
T_s	18	18	18	25	24	24	26	25	25	27	27	26
T_b	18	18	17	24	23	23	24	23	22	25	25	25
DIN_s	16	11	7	26	20	8	26	23	14	31	32	16
DIN_b	15	11	7	23	21	7	23	18	8	28	26	12
DIC_s	2011	1999	1989	1887	1940	1943	1789	1844	1850	1956	1921	1930
DIC_b	2011	1999	1989	1940	1957	1951	1907	1947	1969	1956	1955	1958
DO_s	235	225	239	201	163	187	177	196	228	182	183	205
DO_b	229	222	237	204	163	187	151	151	188	192	153	198

Table 2. Step-wise regression analysis performed for each region separately. Air-sea flux of CO_2 is the dependent variable (y axis). Sea surface salinity (SSS), temperature (SST), NO_3, NH_4, PO_4, net community production (NCP) and air-sea flux of O_2 (F_{O2}) is the independent variable, respectively. Slope is not presented when significant value p>0.05. n=14 to 25.

	PRE			VH			EW		
	Slope	r^2	p	Slope	r^2	p	Slope	r^2	p
SSS	-3.5	0.6	0.001	-2.8.5	0.3	0.02	-2.9	0.4	0.02
SST	-	-	-	-	-	-	-	-	-
Chl *a*	3.6	0.2	0.04	-	-	-	-4	0.3	0.05
NO_3	-	-	-	-	-	-	-	-	-
NH_4	-4	0.2	0.04	0.1	0.4	0.006	-	-	-
PO_4	32	0.2	0.04	20	0.3	0.02	-3	0.3	0.05
NCP	0.08	0.3	0.03	-0.1	0.4	0.006	-0.02	0.5	0.01
F_{O2}	0.16	0.4	0.03	0.14	0.5	0.004	0.11	0.4	0.02

Table 3. Surface and bottom DIC (DIC_s and DIC_b), difference between DIC_s and DIC_b (DIC_{b-s}), average net community production (NCP) in the mixed layer (note that unit of NCP was converted to μM d^{-1}), and NCP: DIC_{b-s} ratios in summer during 2005 and 2006, respectively.

		2005			2006		
	Units	PRE	VH	EW	PRE	VH	EW
S_s		28	32	32	17	26	30
S_b		32	33	34	30	32	34
P_{PRE}	%	100	30	30	100	50	20
DIC_s	μM	1864	1857	1860	1713	1830	1940
DIC_b	μM	1958	1962	1951	1856	1932	1956
DIC_{b-s}	μM	94	95	91	143	82	16
NCP	μM d^{-1}	32 ±10	72 ±30	32 ±48	32 ±42	72 ±30	100 ±10
NCP:DIC_{s-b}		34	76	35	22	88	-