

## [Supplementary Materials]

**Table S1.** Results of ANOSIM for comparison of benthic community composition based on before/after typhoon, month and depth factors.

Global test	R statistic	Significance level ( <i>p</i> )
Typhoon	0.755	0.001
Month	0.475	0.001
Depth	0.018	0.159
<b>Pairwise tests</b>		
Month		
May, Sep	0.593	0.001
May, Nov	0.689	0.001
Sep, Nov	0.173	0.001

**Table S2.** SIMPER analysis of dissimilarity before and after the typhoon.

Groups : Before and after typhoon				
Average dissimilarity = 50.06				
Species	Before typhoon	After typhoon	Contribution (%)	Cumulative (%)
	Average abundance	Average abundance		
Non-Geniculate coralline algae	1.50	4.61	16.07	16.07
<i>Ecklonia cava</i>	8.17	5.56	15.08	31.15
Geniculate coralline algae	2.00	4.61	13.43	44.59
<i>Sargassum</i> spp.	2.52	0.85	12.10	56.69
<i>Plocamium</i> sp.	0.68	2.24	9.01	65.70
<i>Peyssonnelia</i> sp.	0.13	1.52	7.08	72.78
Filamentous turf	-	1.46	7.00	79.78
<i>Grateloupia</i> sp.	0.40	1.57	6.62	86.40
<i>Cladophora</i> sp.	0.58	0.77	4.50	90.91
<i>Hildenbrandia</i> sp.	0.10	0.86	4.06	94.97
<i>Spirastrella</i> sp.	0.07	0.15	0.98	95.95
<i>Gelidium</i> sp.	-	0.19	0.87	96.82
<i>Montipora millepora</i>	-	0.19	0.85	97.66
<i>Dichotomaria</i> sp.	0.13	-	0.58	98.24
<i>Padina</i> sp.	0.13	-	0.52	98.77
<i>Hymeniacidon</i> sp.	0.06	0.06	0.48	99.24
<i>Herdmania</i> sp.	0.06	-	0.22	99.47
<i>Heteractis</i> sp.	-	0.03	0.14	99.61
<i>Pterocliadiella</i> sp.	-	0.03	0.14	99.75
<i>Alveopora japonica</i>	-	0.03	0.13	99.87
<i>Petrosia</i> sp.	-	0.03	0.13	100.0

**Table S3.** ANOVA results for differences in the density of morphological forms of *E. cava* according to month and depth factors.

Factors	Recruit		Adult		Holdfast	
	F stat	<i>p</i> -value	F stat	<i>p</i> -value	F stat	<i>p</i> -value
Month	0.199	0.658	0.845	0.364	9.532	0.004
Depth	0.599	0.444	1.699	0.201	5.762	0.022
Month x Depth	0.201	0.657	0.118	0.734	0.023	0.880

**Table S4.** Summary of the percentage cover and density of *E. cava* reported from several sites in Jeju Island, Korea.

Site	Survey area (m <sup>2</sup> )	Year	Month	Depth (m)	Percentage cover (%)	Density (ind./m <sup>2</sup> )	Reference
Seongsan	10	2022	May (Before typhoon)	10	78.2	NA	Present study
				15	53.7	NA	
			September (After typhoon)	10	36.5	22.0*	
				15	19.4	22.6*	
			November (After typhoon)	10	24.6	19.0*	
				15	27.3	18.8*	
Biyangdo	15.75	2012	October	15	4.5	NA	[21]
Seogwipo	4	2013	June	10	NA	63.3	[31]
			August		NA	52.5	
		2013	October		NA	34.5	
			December		NA	30.8	
			February		NA	27.8	
		2014	April		NA	26.5	
			June		NA	23.5	
			August		NA	20.8	
			October		NA	18.8	
			December		NA	16.5	
			February		NA	14.8	
			April		NA	66.0	
			June		NA	28.3	
		2015	January		20.2	NA	[23]
				10	3.2	NA	
				15	3.1	NA	
		2014		5	0.1	NA	
				10	0.1	NA	
				15	0.3	NA	
Bukchon	20			5	0.4	NA	
Handong	1.5	2017	May	4-7	39.7	NA	[22]
			October	4-7	29.8	NA	
			May	7-17	82.3	NA	
			October	7-17	56.5	NA	
			May	17-22	3.3	NA	
			October	17-22	3.8	NA	

NA, not available

\*, the whole number of *E. cava* (recruit + adult + holdfast).