

**Table S1.** Total area of each macrohabitat, and area of each macrohabitat inside the marine protected areas (MPA) at the present state and after extension. The macrohabitats are seagrass (SG), nearshore (SH), channel (CH), and outer reef (RE) areas (Table 1).

Macrohabitat	Total (ha)	Present MPA (ha)	Extended MPA (ha)
SG	8.4	2.6	8.4
SH	11.1	2.3	11.1
CH	46.7	9.2	20.4
RE	112.0	0	6.4

**Table S2.** The number of counts for each species in each macrohabitat, which were used for the density calculation. The macrohabitats are seagrass (SG), nearshore (SH), channel (CH), and outer reef (RE) areas (Table 1).

Species	SG	SH	CH	RE	Total
<i>Actinopyga echinites</i>	3	0	0	0	3
<i>A. lecanora</i>	0	0	3	1	4
<i>A. mauritiana</i>	0	0	0	7	7
<i>A. miliaris</i>	0	1	0	0	1
<i>Bohadschia argus</i>	0	0	10	5	15
<i>B. koellikeri</i>	0	1	6	4	11
<i>B. marmorata</i>	23	0	0	0	23
<i>B. vitiensis</i>	14	9	9	0	32
<i>Euapta godeffroyi</i>	0	0	1	0	1
<i>Holothuria atra</i>	7	15	10	6	38
<i>H. coluber</i>	0	20	0	0	20
<i>H. edulis</i>	0	0	6	0	6
<i>H. fuscogilva</i>	18	3	6	0	27
<i>H. leucospilota</i>	4	0	0	0	4
<i>H. scabra</i>	26	0	0	0	26
<i>H. turrisclensa</i>	0	0	7	0	7
<i>H. whitmaei</i>	1	0	0	0	1
<i>Opheodesoma</i> sp.	1	0	1	0	2
<i>Pearsonothuria graeffei</i>	0	0	17	2	19
<i>Stichopus horrens</i>	0	0	22	14	36
<i>St. noctivagus</i>	0	0	1	0	1
<i>Synapta maculata</i>	22	0	0	0	22
<i>Thelenota ananas</i>	0	0	2	0	2
<i>T. anax</i>	0	0	2	0	2

**Table S3.** The result of permutational multivariate analysis of variance (PERMANOVA) based on Bray-Curtis dissimilarities to compare holothurian species compositions among macrohabitats using all subsection data. A subsection is a trisected part of a transect as described in the main text. Transects were nested to macrohabitats. The macrohabitats are seagrass (SG), nearshore (SH), channel (CH), and outer reef (RE) areas (Table 1).

	Df	Sum Sq	Mean Sq	Pseudo-F	R <sup>2</sup>	P
Macrohabitat	3	2.39	0.798	3.75	0.113	<b>0.001</b>
Macrohabitat:Transect	15	11.4	0.762	3.58	0.538	<b>0.001</b>
Residuals	35	7.44	0.213		0.350	
Total	53	21.3				1

Df: degrees of freedom; Sum Sq: sums of squares; Mean Sq: mean squares. Significance of  $p < 0.05$  is indicated by bold letters. The number of permutations was 999.

**Table S4.** The result of permutational multivariate analysis of variance (PERMANOVA) based on Bray-Curtis dissimilarities to compare holothurian species compositions among transects within each macrohabitat: the (a) channel (CH), (b) outer reef (RE), and (c) seagrass (SG) macrohabitats. Transects and trisected subsections of each transect were treated as sites and replicates, respectively. Data in the nearshore (SH) macrohabitat were not analyzed, because only a single transect was surveyed.

(a) CH	Df	Sum Sq	Mean Sq	Pseudo-F	R <sup>2</sup>	P
Transect	2	0.61	0.304	1.16	0.279	0.291
Residuals	6	1.57	0.262		0.721	
Total	8	2.18				1

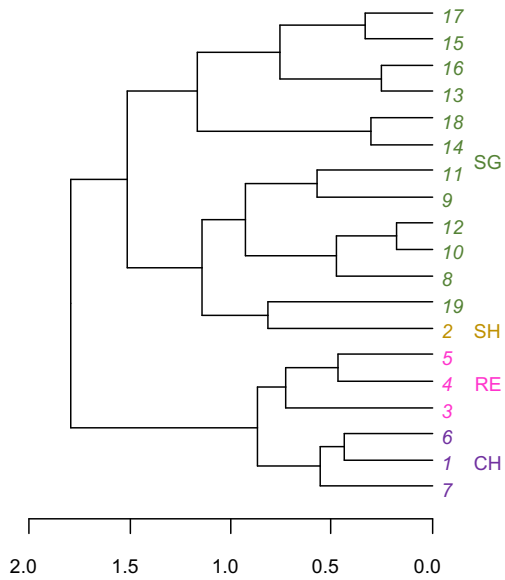
(b) RE	Df	Sum Sq	Mean Sq	Pseudo-F	R <sup>2</sup>	P
Transect	2	0.66	0.328	1.18	0.282	0.348
Residuals	6	1.67	0.279		0.718	
Total	8	2.33				1

(c) SG	Df	Sum Sq	Mean Sq	Pseudo-F	R <sup>2</sup>	P
Transect	11	7.44	0.676	3.55	0.650	<b>0.001</b>
Residuals	21	4.00	0.190		0.350	
Total	32	11.44				1

Df: degrees of freedom; Sum Sq: sums of squares; Mean Sq: mean squares. Significance of  $p < 0.05$  is indicated by bold letters. The number of permutations was 999.

**Table S5.** Body lengths of species in each macrohabitat shown as means  $\pm$  standard deviations with the number of data shown in brackets. The macrohabitats are seagrass (SG), nearshore (SH), channel (CH), and outer reef (RE) areas (Table 1).

Species	SG	SH	CH	RE
<i>Actinopyga echinites</i>	13.0 $\pm$ 1.7 (3)			
<i>A. lecanora</i>			15.0 $\pm$ 3.0 (3)	14.0 (1)
<i>A. mauritiana</i>				17.4 $\pm$ 7.0 (7)
<i>A. miliaris</i>		13.0 (1)		
<i>Bohadschia argus</i>			35.0 $\pm$ 4.2 (9)	20.4 $\pm$ 6.2 (5)
<i>B. koellikeri</i>		20.0 (1)	23.4 $\pm$ 3.0 (5)	18.3 $\pm$ 1.5 (4)
<i>B. marmorata</i>	13.3 $\pm$ 2.8 (23)			
<i>B. vitiensis</i>	18.4 $\pm$ 5.2 (14)	20.1 $\pm$ 8.6 (9)	24.0 $\pm$ 2.9 (7)	
<i>Euapta godeffroyi</i>			50.0 (1)	
<i>Holothuria atra</i>	13.1 $\pm$ 2.8 (7)	22.1 $\pm$ 4.3 (15)	26.8 $\pm$ 7.8 (5)	22.2 $\pm$ 6.9 (6)
<i>H. coluber</i>		60.5 $\pm$ 24.2 (20)		
<i>H. edulis</i>			29.4 $\pm$ 11.7 (5)	
<i>H. fuscogilva</i>	13.4 $\pm$ 4.7 (19)	18.7 $\pm$ 1.5 (3)	25.7 $\pm$ 4.9 (6)	
<i>H. leucospilota</i>	14.0 $\pm$ 3.5 (4)			
<i>H. scabra</i>	14.5 $\pm$ 2.2 (26)			
<i>H. turriscelsa</i>			28.5 $\pm$ 3.6 (6)	
<i>H. whitmaei</i>	12.0 (1)			
<i>Opheodesoma</i> sp.	67.0 (1)			
<i>Pearsonothuria graeffei</i>			28.1 $\pm$ 3.7 (16)	24.0 $\pm$ 12.7 (2)
<i>Stichopus horrens</i>			24.0 $\pm$ 5.4 (22)	22.6 $\pm$ 6.8 (14)
<i>St. noctivagus</i>			24.0 (1)	
<i>Synapta maculata</i>	63.0 $\pm$ 47.6 (22)			
<i>Theleota ananas</i>			42.0 (1)	
<i>T. anax</i>			55.0 (1)	



**Fig. S1.** A Ward's clustering dendrogram using Bray-Curtis dissimilarity of holothurian species compositions between the transects. The transect ID numbers correspond to those described in Fig. 1 and Table 2. The macrohabitats are seagrass (SG), nearshore (SH), channel (CH), and outer reef (RE) areas (Table 1). The difference of the species compositions of holothurians among the macrohabitats was significant by permutational multivariate analysis of variance (PERMANOVA) ( $p < 0.05$ ), as described in the main paper and Table S3.