Table S1. Densities of *Mesocentrotus nudus* by plot at 5 m intervals along the control transects (C1, C2, and C3)

Date	Plot	C1		C2		C3	
		n	m ± S.E.	n	m ± S.E.	n	m ± S.E.
30 September 2015	0–5 m	10	23.2 ± 7.3	10	17.4 ± 5.5	10	14.3 ± 4.5
	5–10 m			10	19.6 ± 8.8	10	19.8 ± 6.3
21 October	0–5 m		ND		ND	10	14.4 ± 4.6
	5–10 m				ND	10	16.5 ± 5.2
2 December	0–5 m	10	15.4 ± 4.9	10	9.1 ± 2.9	10	8.1 ± 2.6
	5–10 m			10	38.4 ± 12.1	10	16.3 ± 5.8
20 April 2016	0–5 m	10	12.7 ± 4.0	10	17.3 ± 5.5	10	8.7 ± 2.8
	5–10 m			10	48.1 ± 15.2	10	11.5 ± 3.6
27 October	0–5 m	10	23.4 ± 7.4	10	24.3 ± 7.7	10	9.5 ± 3.0
	5–10 m			10	32.2 ± 10.2	10	23.7 ± 7.5
5 June 2017	0–5 m	10	21.0 ± 6.6	10	18.6 ± 5.9	10	15.5 ± 4.9
	5–10 m			10	34.0 ± 10.8	10	30.1 ± 9.5
20 June 2019	0–5 m	10	17.1 ± 5.4	10	16.8 ± 5.3	10	17.2 ± 5.4
	5–10 m			10	30.7 ± 9.7	10	27.9 ± 8.8

ND, no data; n, number of quadrats (1 m × 1 m).

Table S2. Densities of the first and second stage juveniles (FSJ and SSJ), and adults of *Eisenia bicyclis* by plot at 5 m intervals along the control transects (C1, C2, and C3)

| Date	Plot	C. 1				C. 2				C. 3			
		n	FSJ	SSJ	Adult	n	FSJ	SSJ	Adult	n	FSJ	SSJ	Adult
30 September 2015	0−5 m	10	0.8 ± 0.5	0	2.4 ± 1.3	10	2.0 ± 1.3	0	1.3 ± 0.8	10	2.8 ± 1.8	0	0.5 ± 0.3
	5−10 m					10	0	0	0	10	0	0	0
21 October	0−5 m		ND	ND	ND		ND	ND	ND	10	3.1 ± 1.6	0	0.9 ± 0.5
	5−10 m						ND	ND	ND	10	0	0	0
2 December	0−5 m	10	0.9 ± 0.5	0.8 ± 0.8	ND	10	0.3 ± 0.3	0.4 ± 0.4	ND	10	1.2 ± 0.7	0.9 ± 0.8	ND
	5−10 m					10	0	0	0	10	0	0	0
20 April 2016	0−5 m	10	0	0	0	10	0	0.1 ± 0.1	0.4 ± 0.3	10	0.2 ± 0.1	0.7 ± 0.6	1.5 ± 1.0
	5−10 m					10	0	0	0	10	0	0	0
27 October	0−5 m	10	0	0	0	10	0	0	0	10	0	0	0.6 ± 0.4
	5−10 m					10	0	0	0	10	0	0	0
5 June 2017	0−5 m	10	0	0	0	10	0	0	0	10	0	0	0.6 ± 0.6
	5−10 m					10	0	0	0	10	0	0	0
20 June 2019	0−5 m	10	0	0	0	10	0	0	0	10	0	0	0.1 ± 0.1
	5−10 m					10	0	0	0	10	0	0	0

ND, no data; n, number of quadrats (1 m × 1 m).
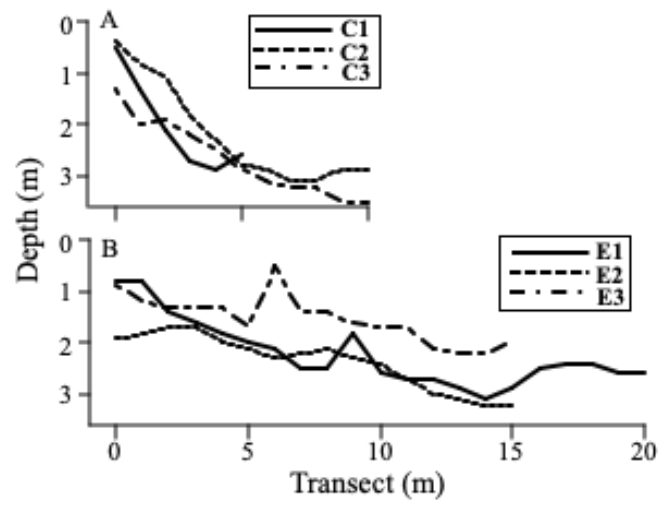
Fig. S1. Water depth profiles of the experimental transects (E1, E2, and E3) and control transects (C1, C2, and C3).
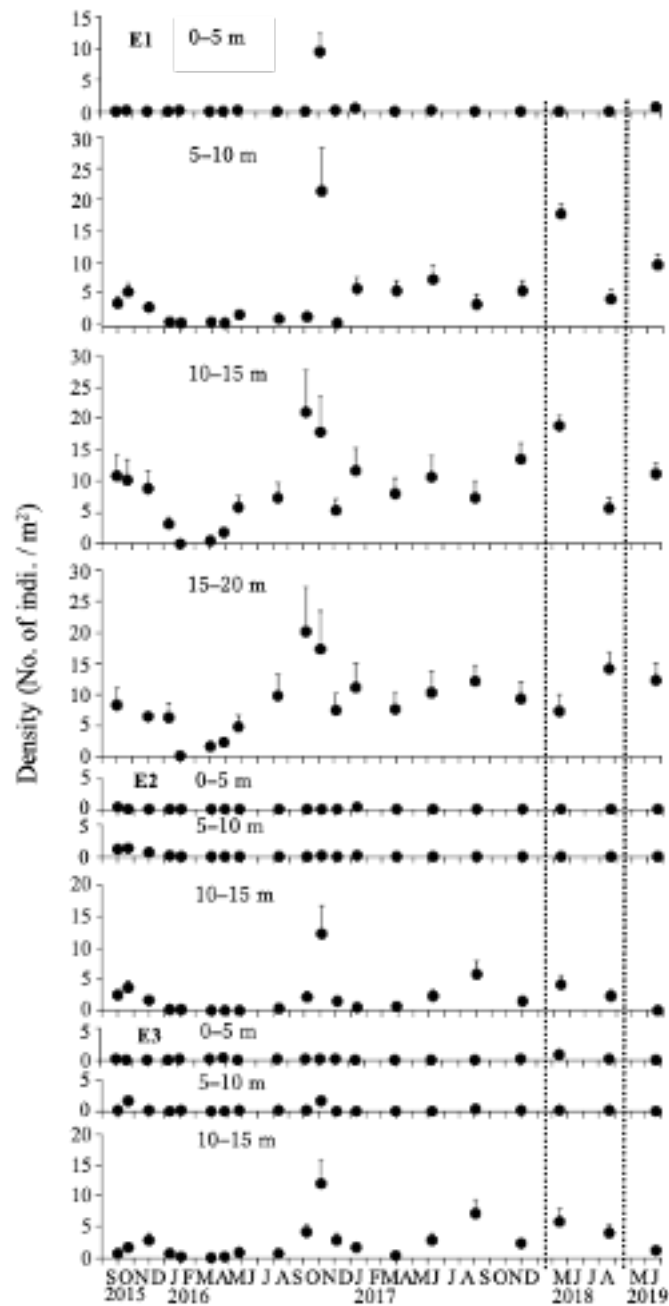
Fig. S2. Changes in the densities of *Mesocentrotus nudus* along the experimental transects (E1, E2, and E3) during sea urchin removal. Densities are expressed as the legend of Fig. 4. Two broken lines indicate exclusion of data for several consecutive months.
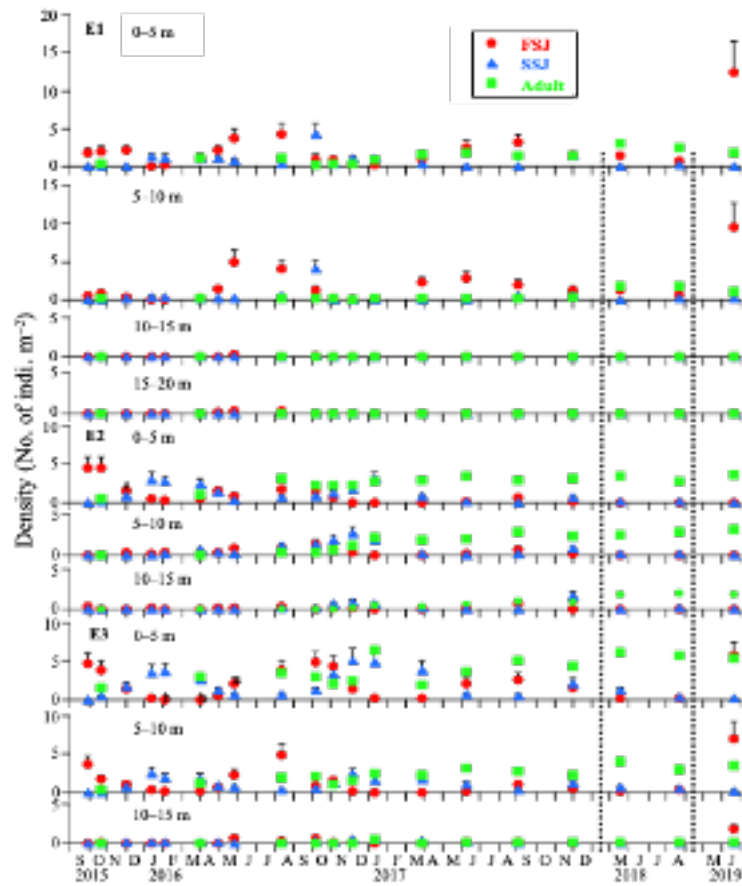
Fig. S3. Changes in the densities of adult and juvenile *Eisenia bicyclis* along the experimental transects (E1, E2, and E3) during sea urchin removal. The juveniles were divided into the first and second stages (FSJ and SSJ). Densities are expressed as the legend of Fig. 4. On 30 September and 2 December 2015, and 12 January, 4 February, 23 March, 30 April and 19 May 2016, only juvenile kelp were surveyed. Two broken lines indicate exclusion of data for several consecutive months.
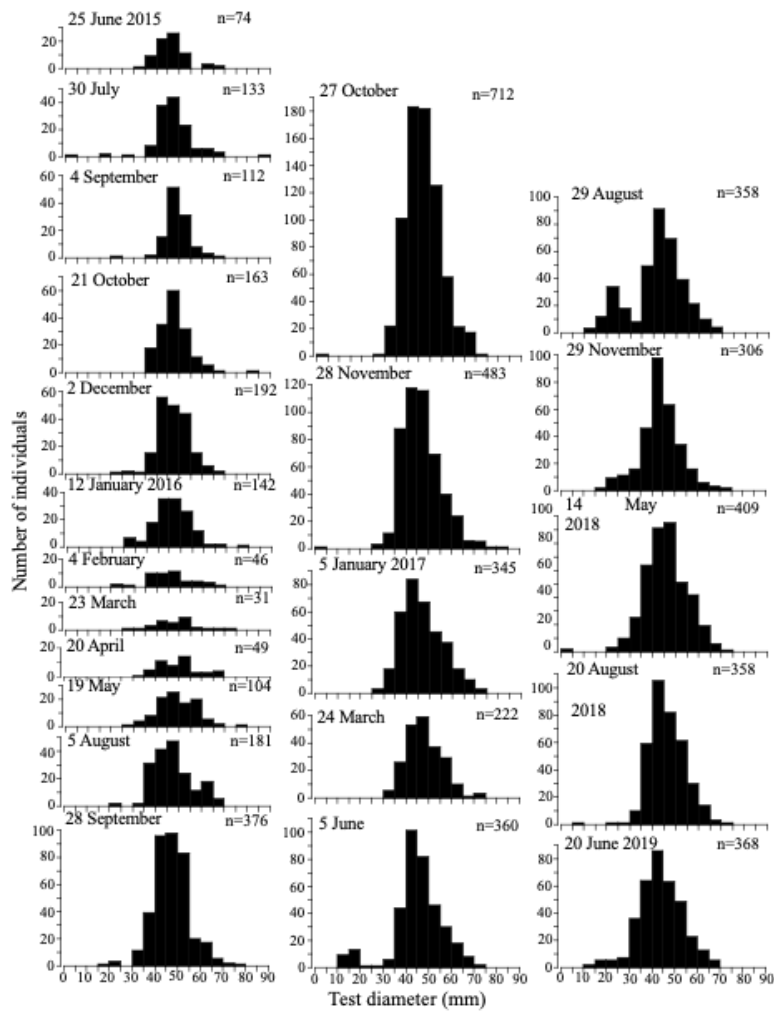
Fig. S4. Frequency distribution of test diameter in *Mesocentrotus nudus* along the experimental transects (E1, E2, and E3) before and during sea urchin removal. Each histogram combines data from sea urchins along the three transects, except for those from E2 on June 25, 2015 and from E1 and E3 on July 30, 2015.
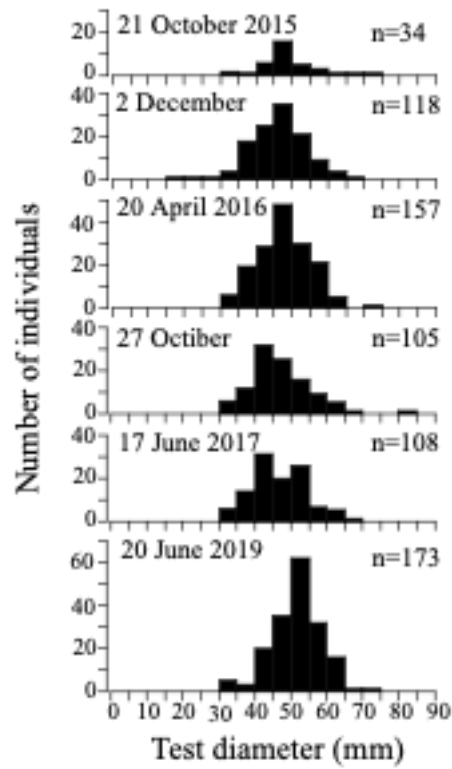
Fig. S5. Frequency distribution of test diameter in *Mesocentrotus nudus* along the control transects (C1, C2, and C3). Each histogram represents individuals randomly sampled from the three transects.