Supporting Information

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Table S1. Seasonal patterns of vertical change in the upper limit of _Mazzaella parksii_

Year	Summer change in upper limit (cm)			Winter change in upper limit (cm)		
	N	mean	s.e.	N	mean	s.e.
1979	5	−1.73	1.47	5	1.68	2.54
1980	5	−2.10	1.42	5	2.76	1.05
1981	8	−5.01	2.38	7	1.31	0.70
1982	7	1.52	1.87	7	0.27	0.44
1983	8	−1.06	0.32	7	−0.02	1.73
1984	8	−0.35	1.94	8	1.76	0.96
1985	8	−3.04	1.79	8	2.19	1.73
1986	8	−0.05	0.33	5	0.43	0.47
1987	7	0.97	1.17	7	−0.67	0.67
1988	7	−0.46	0.57	7	−0.16	0.55
1989	7	−3.89	1.78	7	4.05	1.47
1990	7	0.16	0.67	6	−0.17	0.74
1991	6	0.60	0.61	6	−0.19	0.35
1992	6	−3.42	1.40	5	2.59	0.77
1993	5	−11.89	3.43	5	11.48	3.97
1994	8	−7.84	2.70	6	13.50	5.67
1995	6	−11.00	3.87	8	3.38	1.42
1996	8	−4.75	2.61	8	3.87	2.45
1997	8	−9.18	3.05	8	11.08	3.10
1998	8	−1.66	1.59	8	1.46	1.33
1999	8	−0.19	0.15	8	−0.52	0.36
2000	8	0.57	1.36	5	0.08	0.45
2001	5	−1.14	1.33	8	−2.31	2.92
2002	8	2.91	2.91	8	0.60	0.37
2003	8	−7.77	2.05	8	7.02	2.27
2004	8	−12.75	2.53	8	6.76	1.69
2005	8	−1.76	0.53	8	−1.19	1.59
2006	8	−3.30	1.17	8	5.69	1.36
2007	8	−3.60	1.35	8	1.16	1.30
2008	8	0.83	0.82			

Negative numbers represent downshore transitions (drops). Summer change was calculated as the difference between spring (using the sampling date closest to late April / early May) and fall (late August / early September). Winter change was calculated as the difference between fall of the listed year and spring of the following year. Although some post-disturbance recovery may occur during the summer, and the winter recovery may not be complete by early May, these sampling dates are broadly representative of the seasonal maximum and minimum position of the upper limit in the spring and fall, respectively. For both summer and winter transitions, differences were calculated for every transect for which there were both spring and fall data, and these differences were then averaged. Because conditions were often hazardous in spring, sample sizes are commonly less than 8. Note that missing data on a single date, e.g., spring of 2001, results in a reduced sample size for both the preceding winter and the subsequent summer. Owing to the different sample sizes of the seasonal transition dataset and the long-term dataset from which it is derived, the seasonal transitions presented above cannot be used to precisely reconstruct the long-term pattern presented in Fig. 2.