The following supplement accompanies the article

Detrital kelp subsidy supports high reproductive condition of deep-living sea urchins in a sedimentary basin

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Aquatic Biology 23: 71–86 (2014)

Supplement.

Table S1. Video transects at Owl's Head: date, start position coordinates, heading, length (m), and depth range. (-) indicates missing data

Date	Transect type	Position Coordinates	Heading (°)	Length (m)	Depth range (m)
13/08/2010	Detritus survey	44° 31.19' N 64° 00.11' W	82	242	11-75
26/09/2010	Detritus survey	44° 31.21' N 64° 00.11' W	90	118	11-42
14/10/2010	Detritus survey	44° 31.57' N 64° 00.40' W	50	279	24-74
25/10/2010	Detritus survey	44° 31.19' N 64° 00.12' W	90	240	10-76
5/02/2011	Detritus survey	44° 31.20' N 64° 00.12' W	80	780	29-88
20/07/2012	Detritus survey	44° 31.20' N 64° 00.11' W	90	750	10-80
04/09/2012	Detritus survey	44° 31.23' N 64° 00.14' W	100	710	5-90
15/02/2013	Detritus survey	-	-	-	-

20/06/2013	Field experiment	44° 31.29’ N 64° 00.15’ W	98	260	20-70
23/06/2013	Field experiment	44° 31.29’ N 64° 00.15’ W	100	266	20-69
28/06/2013	Field experiment	44° 31.31’ N 64° 00.14’ W	110	549	34-74
12/07/2013	Field experiment	44° 31.29’ N 64° 00.13’ W	102	330	28-71
25/07/2013	Field experiment	44° 31.33’ N 64° 00.18’ W	115	355	15-68
5/08/2013	Field experiment	44° 27.20’ N 63° 46.94’ W	78	611	10-25
20/08/2013	Field experiment	44° 31.31’ N 64° 00.17’ W	100	654	20-90
11/09/2013	Field experiment	44° 31.30’ N 64° 00.10’ W	100	646	40-92
04/10/2013	Field experiment	44° 31.29’ N 64° 00.10’ W	112	740	1-90
15/11/2013	Detritus survey	44° 32.29’ N 64° 00.91’ W	100	830	10-70

Table S2. *Strongylocentrotus droebachiensis*. Mean proportion of macroalgae (excluding coralline algae), sediment and animal sources in gut contents of sea urchins at Owl’s Head (OH, 60 m depth) and Duncan’s Cove (DC, 8 m depth) from August 2010 to May 2013

Date	Location	Kelp	Sediment	Animal
8/18/2010	OH	0.96	0.04	0.00
9/26/2010	OH	1.00	0.00	0.00
10/25/2010	OH	0.69	0.31	0.00
2/4/2011	OH	0.55	0.45	0.00
3/15/2011	OH	0.70	0.05	0.25
4/20/2011	OH	0.93	0.07	0.00
5/11/2011	OH	1.00	0.00	0.00
5/25/2011	OH	1.00	0.00	0.00
7/27/2011	OH	0.99	0.01	0.00
8/27/2011	OH	1.00	0.00	0.00
9/13/2011	OH	0.99	0.00	0.01

10/19/2011	OH	1.00	0.00	0.00
12/12/2011	OH	0.80	0.20	0.00
1/13/2012	OH	0.60	0.40	0.00
2/10/2012	OH	0.55	0.45	0.00
3/9/2012	OH	0.66	0.34	0.00
4/24/2012	OH	0.53	0.36	0.11
6/9/2012	OH	0.89	0.11	0.00
7/13/2012	OH	0.98	0.03	0.00
8/9/2012	OH	1.00	0.00	0.00
9/15/2012	OH	0.97	0.03	0.00
10/19/2012	OH	0.97	0.03	0.00
12/11/2012	OH	0.91	0.08	0.01
2/15/2013	OH	0.72	0.17	0.11
3/19/2013	OH	0.69	0.31	0.00
4/5/2013	OH	0.72	0.28	0.00
5/17/2013	OH	0.70	0.22	0.08
9/17/2010	DC	0.87	0.12	0.00
2/7/2011	DC	0.96	0.04	0.04
3/17/2011	DC	1.00	0.00	0.00
4/21/2011	DC	1.00	0.00	0.00
6/22/2011	DC	0.99	0.01	0.00
2/5/2012	DC	0.96	0.04	0.00
3/14/2012	DC	0.98	0.02	0.00
4/27/2012	DC	1.00	0.00	0.00
6/26/2012	DC	0.99	0.01	0.00
9/27/2012	DC	1.00	0.00	0.00
10/26/2012	DC	1.00	0.00	0.00
1/15/2013	DC	0.90	0.00	0.10
3/15/2013	DC	0.88	0.00	0.12
5/7/2013	DC	0.99	0.01	0.00

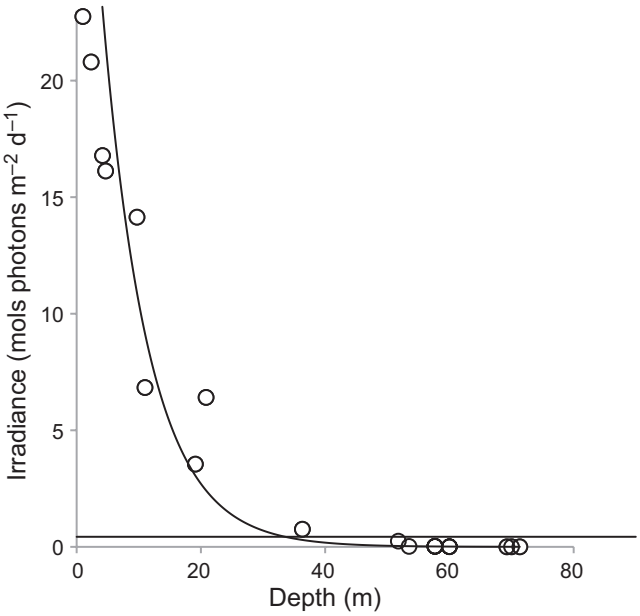

Fig. S1. Irradiance reaching seafloor at various depths within 25 km of Owl's Head, based on satellite measurements by Gattuso et al. (2006). Horizontal line indicates minimum irradiance detected by tube feet of *Strongylocentrotus droebachiensis* (Lesser et al. 2011)