

## Macrobenthic recovery from hypoxia in an estuarine tidal mudflat

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Table A1. Abundance and biomass of taxa in the control macrobenthic assemblage, averaged over the duration of the experiment (March to September 2005), with an indication of their functional group(s), and environmental characterisation of the study site, based on averaged values of the monitored environmental variables over the duration of the experiment (March to September 2005) in the control plots. AFDW: ash-free dry weight. NAP: Dutch Ordinance Level

Biotic characterisation	Abundance (ind. m <sup>-2</sup> )	Biomass (g AFDW m <sup>-2</sup> )	Functional group	Environmental characterisation	
<i>Abra tenuis</i>	56.7	< 0.01	Biodestabilising, discretely mobile surface deposit feeder	Chl a (µg g <sup>-1</sup> )	11.00
<i>Gammarus</i> spp.	24.0	0.46	Mobile surface deposit feeder	Sediment stability (Kpa)	12.85
<i>Aphelochaeta marioni</i>	3710.9	0.52	Biodestabilising, discretely mobile surface deposit feeder	Oxygen penetration (µm)	2618.87
<i>Capitella capitata</i>	8.0	< 0.01	Biodestabilising, discretely mobile subsurface deposit feeder	Ammonium (µg l <sup>-1</sup> )	5084.93
<i>Cerastoderma edule</i>	876.4	43.76	Biodestabilising, discretely mobile suspension feeder	Total organic carbon (%)	0.78
<i>Eteone longa</i>	909.9	0.19	Mobile, biodestabilising omnivore/scavenger	Total nitrogen (%)	0.07
<i>Heteromastus filiformis</i>	11454.6	4.68	Biodestabilising, discretely mobile subsurface deposit feeder	Mud content (%)	41.54
<i>Hydrobia ulvae</i>	869.2	1.21	Mobile surface deposit feeder	Median particle size (µm)	74.5
<i>Macoma balthica</i>	1505.9	7.92	Biodestabilising, discretely mobile surface deposit feeder	% very fine sand	39.45
<i>Malacocerus tetracerus</i>	1001.8	0.10	Biodestabilising, discretely mobile surface deposit feeder	% fine sand	17.76
<i>Nemertinae</i> spp.	32.8	0.03	Mobile, biodestabilising omnivore/scavenger	% medium sand	1.23
<i>Nereis diversicolor</i>	856.4	3.53	Mobile, biodestabilising omnivore/scavenger	Water content (%)	62.13
Tubificid oligochaeta	3511.1	0.27	Biodestabilising, discretely mobile subsurface deposit feeder	Total organic matter (%)	4.17
<i>Polydora cornuta</i>	183.7	0.02	Tube-building surface deposit feeder	Bed level (cm + NAP)	17.9
<i>Pygospio elegans</i>	4207.0	0.28	Tube-building surface deposit feeder	Emersion time at mean tide (h)	5–5.5
<i>Retusa obtusa</i>	51.1	< 0.01	Mobile, biodestabilising omnivore/scavenger		
<i>Scrobicularia plana</i>	76.7	5.23	Biodestabilising, discretely mobile surface deposit feeder		
<i>Streblospio benedicti</i>	568.8	0.14	Biodestabilising, discretely mobile surface deposit feeder		

Table A2. Results of the SIMPER analyses between the species assemblage in the defaunated and control plots on each sampling occasion, based on standardised square-root transformed abundance and biomass data. Species that contribute most to the observed dissimilarities and their percentage of contribution are shown. Underlined percentages of dissimilarity indicate higher abundance/biomass in the control plots for the considered species. Time: number of days since opening plots

Time (d)	Dissimilarity abundance (%)	Species contributing most to the abundance dissimilarity			Dissimilarity biomass (%)	Species contributing most to the biomass dissimilarity		
0	–	–	–	–	–	–	–	–
1	54.63	<i>H. ulvae</i> 19.52	<i>H. filiformis</i> <u>14.87</u>	<i>A. marioni</i> <u>13.38</u>	83.06	<i>H. ulvae</i> <u>26.19</u>	<i>C. edule</i> <u>23.77</u>	<i>S. plana</i> <u>11.29</u>
2	60.32	<i>H. ulvae</i> 29.16	<i>H. filiformis</i> 25.58	<i>M. balthica</i> <u>7.53</u>	81.85	<i>H. ulvae</i> 25.17	<i>C. edule</i> 22.02	<i>M. balthica</i> <u>11.67</u>
7	51.82	<i>H. ulvae</i> <u>19.64</u>	Oligochaeta <u>15.37</u>	<i>H. filiformis</i> <u>10.48</u>	82.83	<i>H. ulvae</i> 33.13	<i>C. edule</i> <u>28.05</u>	<i>S. plana</i> <u>10.9</u>
14	50.37	<i>H. ulvae</i> 19.11	Oligochaeta <u>15.99</u>	<i>H. filiformis</i> <u>14</u>	84.78	<i>H. ulvae</i> <u>30.03</u>	<i>C. edule</i> <u>27.34</u>	<i>S. plana</i> <u>13.98</u>
21	47.56	<i>H. ulvae</i> 21.48	<i>H. filiformis</i> <u>19.66</u>	<i>P. elegans</i> <u>13.66</u>	84.59	<i>H. ulvae</i> 22.62	<i>C. edule</i> <u>18.7</u>	<i>P. elegans</i> 16.7
28	54.76	<i>P. elegans</i> <u>21.62</u>	<i>H. filiformis</i> <u>20.32</u>	<i>A. marioni</i> <u>16.65</u>	64.7	<i>H. ulvae</i> <u>22.62</u>	<i>C. edule</i> <u>17.92</u>	<i>M. balthica</i> <u>15.65</u>
42	48.07	<i>H. filiformis</i> <u>20.06</u>	<i>P. elegans</i> 19.11	Oligochaeta <u>11.48</u>	74.53	<i>C. edule</i> <u>25.66</u>	<i>H. ulvae</i> <u>19.69</u>	<i>P. elegans</i> <u>16.13</u>
56	42.96	<i>H. filiformis</i> <u>26.34</u>	<i>P. elegans</i> 20.71	<i>A. marioni</i> <u>11.15</u>	71.86	<i>C. edule</i> <u>28.09</u>	<i>H. ulvae</i> 22.24	<i>P. elegans</i> 19.38
70	43.59	<i>H. filiformis</i> <u>20.02</u>	<i>P. elegans</i> 14.61	Oligochaeta <u>12.61</u>	61.81	<i>C. edule</i> <u>28.41</u>	<i>P. elegans</i> 25.72	<i>S. plana</i> <u>10.26</u>
84	34.94	<i>P. elegans</i> 15.66	<i>H. filiformis</i> <u>14.79</u>	<i>A. marioni</i> <u>13.4</u>	39.14	<i>C. edule</i> <u>36.77</u>	<i>H. ulvae</i> 15.51	<i>P. elegans</i> 15.47
98	35.97	<i>A. marioni</i> <u>15.51</u>	<i>P. elegans</i> 13.52	Oligochaeta <u>12.76</u>	48.71	<i>C. edule</i> <u>23</u>	<i>P. elegans</i> 17.96	<i>S. plana</i> <u>15.15</u>
112	31.41	<i>A. marioni</i> <u>15.24</u>	Oligochaeta <u>14.63</u>	<i>P. cornuta</i> 13.94	46.44	<i>C. edule</i> <u>32.74</u>	<i>P. elegans</i> 18.02	<i>N. diversicolor</i> <u>10.46</u>
126	35.02	<i>P. elegans</i> 18.96	<i>P. cornuta</i> 12.47	<i>A. marioni</i> <u>11.86</u>	58.06	<i>C. edule</i> <u>28.98</u>	<i>P. cornuta</i> 13.19	<i>A. marioni</i> 10.19
140	30.5	<i>P. ligni</i> 14.53	<i>P. elegans</i> 14.52	Oligochaeta <u>12.02</u>	48.24	<i>C. edule</i> <u>31.85</u>	<i>N. diversicolor</i> 17.66	<i>S. plana</i> <u>8.92</u>
154	30.07	<i>P. elegans</i> 17	Oligochaeta <u>16.18</u>	<i>A. marioni</i> <u>11.52</u>	41.39	<i>C. edule</i> <u>30.74</u>	<i>H. filiformis</i> 18.17	<i>N. diversicolor</i> 16.75
175	26.97	<i>P. elegans</i> 25.47	Oligochaeta <u>16.84</u>	<i>M. tetracerus</i> <u>10.59</u>	48.72	<i>C. edule</i> <u>27.55</u>	<i>S. plana</i> <u>12.76</u>	<i>S. benedicti</i> 12.43

Table A3. Relative abundance and biomass of species in the defaunated plots. The 3 most dominant species are shown whenever they contribute to >5% of the total abundance and biomass. Time: number of days since opening plots

Time (d)	Relative abundance (%)			Relative biomass (%)		
0	–	–	–	–	–	–
1	<i>H. ulvae</i> 40	Oligochaeta 20	<i>M. tetracerus</i> 13.3	<i>H. ulvae</i> 87.6	–	–
2	<i>H. ulvae</i> 80	–	–	<i>H. ulvae</i> 98.6	–	–
7	<i>H. ulvae</i> 40	<i>H. filiformis</i> 20	Nemertinae 10	<i>H. ulvae</i> 95.5	–	–
14	<i>H. ulvae</i> 39.8	<i>P. elegans</i> 34.2	<i>H. filiformis</i> 7.8	<i>H. ulvae</i> 60.3	<i>P. elegans</i> 37.5	–
21	<i>H. ulvae</i> 43.4	<i>P. elegans</i>	–	<i>H. ulvae</i> 92.1	–	–
28	<i>P. elegans</i> 89.1	–	–	<i>H. ulvae</i> 55.1	<i>P. elegans</i> 37.3	–
42	<i>P. elegans</i> 86.4	<i>N. diversicolor</i> 8.2	–	<i>H. ulvae</i> 53.6	<i>P. elegans</i> 41.5	–

Table A3 (continued)

Time (d)	Relative abundance (%)			Relative biomass (%)		
56	<i>P. elegans</i> 77.4	<i>N. diversicolor</i> 9.5	<i>M. balthica</i> 6.9	<i>P. elegans</i> 65	<i>H. ulvae</i> 15.5	<i>N. diversicolor</i> 11
70	<i>P. elegans</i> 62.4	<i>M. balthica</i> 19.9	<i>N. diversicolor</i> 19.5	<i>H. filiformis</i> 33.7	<i>H. ulvae</i> 18.7	<i>P. elegans</i> 17.6
84	<i>P. elegans</i> 61.3	<i>N. diversicolor</i> 9.2	<i>M. balthica</i> 8.3	<i>P. elegans</i> 34.5	<i>M. balthica</i> 23	<i>M. balthica</i> 21.2
98	<i>P. elegans</i> 59.7	<i>P. cornuta</i> 14.9	<i>N. diversicolor</i> 6.1	<i>N. diversicolor</i> 29.5	<i>M. balthica</i> 26	<i>P. elegans</i> 25.1
112	<i>P. elegans</i> 45.3	<i>H. filiformis</i> 21.5	<i>P. cornuta</i> 9.2	<i>N. diversicolor</i> 25.4	<i>M. balthica</i> 23.4	<i>P. cornuta</i> 16.2
126	<i>P. elegans</i> 38.6	<i>H. filiformis</i> 22.6	<i>P. cornuta</i> 14.1	<i>N. diversicolor</i> 39.6	<i>M. balthica</i> 26.5	<i>H. filiformis</i> 16.4
140	<i>P. elegans</i> 34.1	<i>H. filiformis</i> 21	<i>P. cornuta</i> 12.2	<i>H. filiformis</i> 33.5	<i>N. diversicolor</i> 31.1	<i>M. balthica</i> 25.2
154	<i>P. elegans</i> 45.9	<i>H. filiformis</i> 15.1	<i>M. balthica</i> 10	<i>M. balthica</i> 28.8	<i>N. diversicolor</i> 26.2	<i>H. filiformis</i> 14.8
175	<i>P. elegans</i> 41.2	<i>H. filiformis</i> 19.8	<i>M. balthica</i> 11.2	<i>M. balthica</i> 29.8	<i>H. ulvae</i> 20.8	<i>H. filiformis</i> 29.4

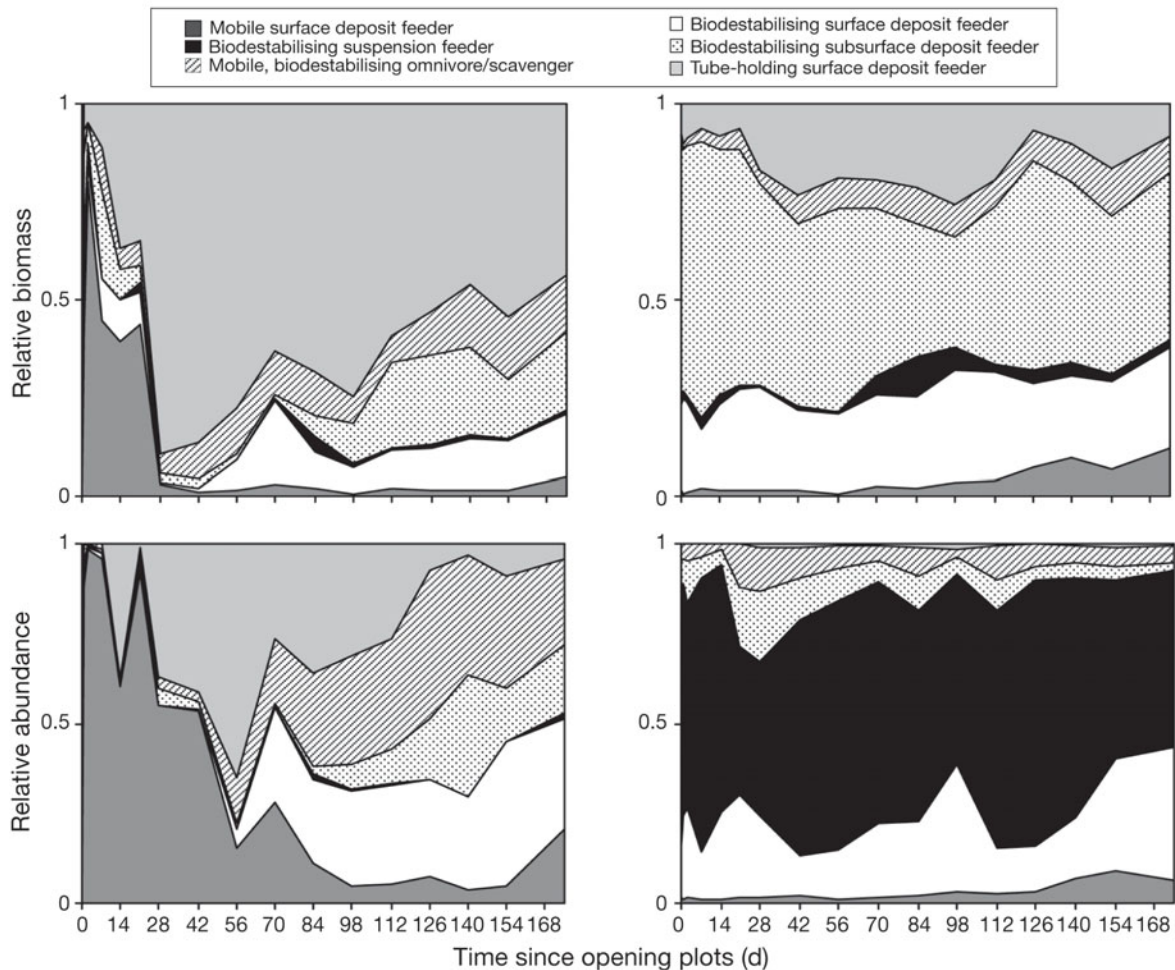


Fig. A1. Temporal variation in relative abundance and biomass of functional groups in the defaunated and control plots