

Supplementary material

Biological traits of benthic macrofauna show size-based differences in response to bottom trawling intensity

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Table S1. KS16 dataset full species list.

KS16 dataset species list			
<i>Abra alba</i>	<i>Eurynome aspera</i>	<i>Nephtys hombergii</i>	<i>Stegocephalus similis</i>
<i>Abra nitida</i>	<i>Euspira montagui</i>	<i>Nephtys longosetosa</i>	<i>Sthenelais boa</i>
<i>Abra prismatica</i>	<i>Euspira nitida</i>	<i>Nephtys sp.</i>	<i>Sthenelais limicola</i>
<i>Abra tenuis</i>	<i>Fabriciola baltica</i>	<i>Neptunea antiqua</i>	<i>Streblosoma intestinale</i>
<i>Abyssoninoe scopa</i>	<i>Fabulina fabula</i>	<i>Notomastus latericeus</i>	<i>Suberites ficus</i>
<i>Acanthocardia echinata</i>	<i>Gari fervensis</i>	<i>Nucula nitidosa</i>	<i>Tanaidacea spp.</i>
<i>Acanthomysis longicornis</i>	<i>Gastrosaccus spinifer</i>	<i>Oligochaeta sp.</i>	<i>Tanaissus lilljeborgi</i>
<i>Acidostoma obesum</i>	<i>Gattyana cirrhosa</i>	<i>Onchidoris muricata</i>	<i>Tellimya ferruginosa</i>
<i>Acteon tornatilis</i>	<i>Glycera alba</i>	<i>Ophelina acuminata</i>	<i>Terebellidae indet.</i>
<i>Alvania testae</i>	<i>Glycera lapidum</i>	<i>Ophiura sp.</i>	<i>Terebellides stroemii</i>
<i>Ampelisca brevicornis</i>	<i>Glycera unicornis</i>	<i>Orbinia sertulata</i>	<i>Tharyx spp.</i>
<i>Ampelisca eschrichtii</i>	<i>Glycinde nordmanni</i>	<i>Ostracoda indet.</i>	<i>Thelepus cincinnatus</i>
<i>Ampelisca macrocephala</i>	<i>Glyphohesione klatti</i>	<i>Owenia fusiformis</i>	<i>Thracia convexa</i>
<i>Ampelisca tenuicornis</i>	<i>Golfingia spp.</i>	<i>Oxydromus flexuosus</i>	<i>Thracia myopsis</i>
<i>Ampelisca typica</i>	<i>Goniada maculata</i>	<i>Pagurus bernhardus</i>	<i>Thracia phaseolina</i>
<i>Ampharete acutifrons</i>	<i>Haleaidae indet.</i>	<i>Pagurus pubescens</i>	<i>Thyasira flexuosa</i>
<i>Ampharete baltica</i>	<i>Haploops tubicola</i>	<i>Paradoneis lyra</i>	<i>Trichobranchus glacialis</i>
<i>Ampharete falcata</i>	<i>Harmothoe antilopes</i>	<i>Paramphinome jeffreysii</i>	<i>Trichobranchus roseus</i>
<i>Ampharete finmarchica</i>	<i>Harmothoe extenuata</i>	<i>Paranebalia longipes</i>	<i>Tritia reticulata</i>
<i>Ampharete lindstroemi</i>	<i>Harmothoe glabra</i>	<i>Parexogone hebes</i>	<i>Trochochaeta multisetosa</i>
<i>Ampharete octocirrata</i>	<i>Harmothoe impar</i>	<i>Parvicardium pinnulatum</i>	<i>Tryphosites longipes</i>
<i>Ampharetidae indet.</i>	<i>Harpinia antennaria</i>	<i>Parvicardium scabrum</i>	<i>Tubificoides benedii</i>
<i>Amphibalanus improvisus</i>	<i>Harpinia crenulata</i>	<i>Peachia boeckii</i>	<i>Turbellaria indet.</i>
<i>Amphicteis gunneri</i>	<i>Harpinia laevis</i>	<i>Peachia cylindrica</i>	<i>Turrisipho fenestratus</i>
<i>Amphipoda indet.</i>	<i>Harpinia pectinata</i>	<i>Pectinaria (Amphictene) auricoma</i>	<i>Turritella communis</i>
<i>Amphitrite cirrata</i>	<i>Hauchiella tribullata</i>	<i>Pectinaria belgica</i>	<i>Unciola planipes</i>
<i>Amphitritides gracilis</i>	<i>Hermania scabra</i>	<i>Pelseneeria stylifera</i>	<i>Upogebia stellata</i>
<i>Amphiura chiajei</i>	<i>Heteromastus filiformis</i>	<i>Pennatula phosphorea</i>	<i>Virgularia mirabilis</i>
<i>Amphiura filiformis</i>	<i>Hiatella arctica</i>	<i>Periocolodes longimanus</i>	<i>Vitreolina philippi</i>
<i>Ampithoe rubricata</i>	<i>Hilbigneris gracilis</i>	<i>Pestarella tyrrhena</i>	<i>Westwoodilla caecula</i>
<i>Anemonia spp.</i>	<i>Hormathia digitata</i>	<i>Pettibonesia furcosetosa</i>	
<i>Anobothrus gracilis</i>	<i>Hyalia vitrea</i>	<i>Phascolion (Phascolion) strombus strombus</i>	
<i>Anoplodactylus petiolatus</i>	<i>Hydrozoa indet.</i>	<i>Phaxas pellucidus</i>	
<i>Anoplodactylus pygmaeus</i>	<i>Hypereteone foliosa</i>	<i>Pherusa plumosa</i>	
<i>Antalis dentalis</i>	<i>Kurtiella bidentata</i>	<i>Philine aperta</i>	
<i>Anthozoa indet.</i>	<i>Labidoplax buskii</i>	<i>Pholoe inornata</i>	

<i>Aonides oxycephala</i>	<i>Lagis koreni</i>	<i>Pholoe pallida</i>	
<i>Aphelochaeta marioni</i>	<i>Lanice conchilega</i>	<i>Phoronis muelleri</i>	
<i>Aphrodita aculeata</i>	<i>Laonice bahusiensis</i>	<i>Phoxichilidium femoratum</i>	
<i>Apistobranthus tullbergi</i>	<i>Lepidonotus squamatus</i>	<i>Phyllodoce groenlandica</i>	
<i>Aporrhais pespelecani</i>	<i>Leptocardii sp.</i>	<i>Phyllodoce maculata</i>	
<i>Arctica islandica</i>	<i>Leptocythere pellucida</i>	<i>Pista cristata</i>	
<i>Argissa hamatipes</i>	<i>Leptomysis gracilis</i>	<i>Podarkeopsis helgolandicus</i>	
<i>Artacama proboscidea</i>	<i>Leptopentacta elongata</i>	<i>Polychaeta indet.</i>	
<i>Astarte sulcata</i>	<i>Leptosynapta inhaerens</i>	<i>Polycirrus norvegicus</i>	
<i>Asterias rubens</i>	<i>Leptosynapta minuta</i>	<i>Polycirrus plumosus</i>	
<i>Astropecten irregularis</i>	<i>Leucon (Leucon) nasica</i>	<i>Polydora ciliata</i>	
<i>Aurospio banyulensis</i>	<i>Leucothoe incisa</i>	<i>Polydora cornuta</i>	
<i>Brada villosa</i>	<i>Levinsenia gracilis</i>	<i>Polyphysia crassa</i>	
<i>Brissopsis lyrifera</i>	<i>Liocarcinus depurator</i>	<i>Praxillella affinis</i>	
<i>Bylgides sarsi</i>	<i>Lipobranchius jeffreysii</i>	<i>Praxillella praetermissa</i>	
<i>Callianassa subterranea</i>	<i>Lumbrineris latreilli</i>	<i>Praxillura longissima</i>	
<i>Capitella capitata</i>	<i>Lumbrineris tetraura</i>	<i>Priapulul caudatus</i>	
<i>Cerastoderma glaucum</i>	<i>Lutraria lutraria</i>	<i>Prionospio cirrifera</i>	
<i>Ceratocephale loveni</i>	<i>Lysilla loveni</i>	<i>Prionospio fallax</i>	
<i>Chaetoderma nitidulum</i>	<i>Macoma calcarea</i>	<i>Prionospio polybranchiata</i>	
<i>Chaetoparia nilssoni</i>	<i>Macomangulus tenuis</i>	<i>Prionospio steenstrupi</i>	
<i>Chaetopterus variopedatus</i>	<i>Maera loveni</i>	<i>Processa canaliculata</i>	
<i>Chaetozone setosa</i>	<i>Magelona alleni</i>	<i>Processa nouveli nouveli</i>	
<i>Chone fauveli</i>	<i>Magelona minuta</i>	<i>Protomedeia fasciata</i>	
<i>Clausinella fasciata</i>	<i>Maldane sarsi</i>	<i>Pseudopolydora antennata</i>	
<i>Corbula gibba</i>	<i>Maldanidae indet</i>	<i>Pseudopolydora pulchra</i>	
<i>Cossura longocirrata</i>	<i>Malmgrenia andreapolis</i>	<i>Psolus phantapus</i>	
<i>Crisia eburnea</i>	<i>Malmgrenia furcosetosa</i>	<i>Pygospio elegans</i>	
<i>Cylichna cylindracea</i>	<i>Malmgrenia ljunmani</i>	<i>Pyramidellidae indet.</i>	
<i>Diastylis laevis</i>	<i>Malmgrenia lunulata</i>	<i>Pyrgiscus crenatus</i>	
<i>Diastylis lucifera</i>	<i>Mangelia attenuata</i>	<i>Quinqueloculina sp.</i>	
<i>Diastylis rathkei</i>	<i>Mediomastus fragilis</i>	<i>Rhodine gracilior</i>	
<i>Diplocirrus glaucus</i>	<i>Melanella lubrica</i>	<i>Rhodine loveni</i>	
<i>Dosinia exoleta</i>	<i>Melita palmata</i>	<i>Sabella pavonina</i>	
<i>Echinocardium cordatum</i>	<i>Meterythropros robustus</i>	<i>Saxicavella jeffreysi</i>	
<i>Edwardsia spp.</i>	<i>Microdeutopus anomalus</i>	<i>Scalibregma inflatum</i>	
<i>Enipo kinbergi</i>	<i>Microdeutopus sp.</i>	<i>Schistomysis spiritus</i>	
<i>Ennucula tenuis</i>	<i>Musculus discors</i>	<i>Schizoporella errata</i>	
<i>Enteropsidae indet.</i>	<i>Mya arenaria</i>	<i>Scolecopsis foliosa</i>	
<i>Epitonium clathratulum</i>	<i>Mya truncata</i>	<i>Scoloplos armiger</i>	
<i>Erato voluta</i>	<i>Myrtea spinifera</i>	<i>Siriella norvegica</i>	
<i>Euchone papillosa</i>	<i>Mysia undata</i>	<i>Sorgenfreispira brachystoma</i>	

<i>Euclymene lindrothi</i>	<i>Mysidae indet.</i>	<i>Sphaerodorum gracilis</i>	
<i>Eudorella emarginata</i>	<i>Mytilus edulis</i>	<i>Spio filicornis</i>	
<i>Eudorella truncatula</i>	<i>Nassarius reticulatus</i>	<i>Spionidae indet.</i>	
<i>Eugyra arenosa</i>	<i>Neastacilla richardsonae</i>	<i>Spiophanes bombyx</i>	
<i>Eumida ockelmanni</i>	<i>Nemertea indet.</i>	<i>Spiophanes kroyeri</i>	
<i>Eunereis longissima</i>	<i>Nephrops norvegicus</i>	<i>Spisula elliptica</i>	
<i>Eunoe nodosa</i>	<i>Nephtys caeca</i>	<i>Spisula subtruncata</i>	

Table S2. Pair-wise correlations and Variable Inflation Factors (VIF) between the predictor variables analysed with the (a) KS16 and (b) NOVANA datasets.

(a) KS16

Model: $Y \sim \text{Trawling} + \text{Mud} + \text{Depth} + \text{Current} + \text{Salinity} + \text{Temp} + (1 \text{Site})$						
Variable	Trawling	Mud	Depth	Current	Salinity	VIF
Mud	0.588					2.21
Depth	0.288	0.475				2.7
Current	-0.389	-0.325	-0.328			1.30
Salinity	0.5156	0.379	0.663	-0.2		2.49
Temp	0.16	-0.355	-0.375	0.02	0.059	1.82
Trawling						2.04

(b) NOVANA

Model: $Y \sim \text{Trawling} + \text{Mud} + \text{Depth} + \text{Current} + \text{Salinity} + \text{Temp} + (1 \text{Site}) + (1 \text{Year})$						
Variable	Trawling	Mud	Depth	Current	Salinity	VIF
Mud	0.348					2.11
Depth	0.601	0.691				4.87
Current	-0.177	-0.165	-0.199			1.05
Salinity	0.423	0.35	0.509	-0.144		1.58
Temp	-0.237	-0.243	-0.567	0.020	-0.0325	1.9
Trawling						1.67

Table S3. Site-by-site summary information for trawling intensity and environmental variables for the KS16 (a) and NOVANA (b) datasets. As SAR values were estimated for each replicate sample in the KS16 data, the values in (a) are averaged over the four replicates (standard deviation shown in brackets). All other data were calculated per sampling site.

(a) KS16	Trawling Intensity	Current speed	Depth	Mud content	Min Salinity	Temperature
Sampling site	SAR (yr ⁻¹)	cm/s	m	% <63µm	PSU	Celsius
3	11.31 (0.4)	1.66	34.43	79.59	32.20	8.12
4	3.61 (0.2)	1.69	16.25	13.67	29.16	8.98
5	12.6 (0)	1.36	32.90	96.54	33.15	8.54
6	6.88 (0.2)	0.84	33.18	67.08	33.04	8.17
7	1.87 (0.3)	1.86	38.65	3.78	30.76	8.54
8	1.83 (0.1)	1.02	33.00	5.10	29.28	8.85
12	0.07 (0.02)	0.98	18.58	3.57	30.03	8.99
13	6.1 (0.02)	0.73	28.03	11.89	33.72	7.82
15	6.57 (0.29)	1.45	63.68	96.16	34.31	6.92
17	10.66 (0.3)	0.42	60.90	60.77	34.26	6.95
18	3.0 (0.4)	0.41	81.08	95.76	34.34	6.80
19	4.17 (0.02)	0.95	64.90	92.67	34.24	7.02
21	2.25 (0.1)	2.54	59.93	44.93	34.22	7.33
24	1.41 (0.02)	1.93	59.30	4.32	34.04	7.50
26	4.14 (0.2)	1.35	62.08	10.90	34.47	6.89
41	0.89 (<0.01)	4.11	22.45	24.67	30.37	7.54
42	1.36 (0.01)	1.46	19.88	12.46	30.78	7.77
44	0.89 (<0.01)	3.56	23.13	5.48	30.83	7.89
45	0 (0)	2.35	26.78	57.94	32.07	6.77
49	0 (0)	1.76	19.25	25.68	21.63	6.41
51	0 (0)	1.10	20.93	56.17	26.66	6.25

(b) NOVANA	Trawling Intensity	Current speed	Depth	Mud content	Min Salinity	Temperature
Sampling site	SAR (yr ⁻¹)	cm/s	m	% <63µm	PSU	Celsius
2005_1402	1.94	2.58	27.00	8.81	33.67	7.03
2005_1416	3.30	0.87	24.00	11.53	30.63	8.92
2005_155	0.00	2.41	13.50	2.86	24.85	8.91
2005_158	3.89	1.92	35.00	80.00	31.99	8.00
2005_31S	0.14	1.75	17.50	22.25	21.93	7.63
2005_409	0.00	2.60	14.00	4.33	26.58	8.50
2005_413	4.87	2.27	55.00	94.74	33.64	6.69
2005_42	0.51	2.57	13.00	1.27	25.07	9.08
2005_49	2.30	2.57	23.00	8.83	31.76	8.29
2005_939	5.30	2.32	37.00	15.01	33.07	6.87
2005_BF16N21	2.68	0.74	27.00	72.41	31.53	8.56

2005_P11	1.15	0.90	28.00	87.74	32.73	7.32
2005_P21	1.56	2.23	13.00	20.99	29.21	8.87
2005_P23	8.02	3.87	23.00	22.72	30.89	7.80
2005_P26	1.04	1.73	19.50	1.68	31.83	8.20
2005_P35	0.18	3.84	22.50	37.20	31.13	7.55
2005_P46	5.05	1.84	15.00	18.07	29.73	9.26
2005_P6	0.79	3.67	32.00	4.91	32.81	7.41
2005_P9	4.47	1.98	29.50	20.72	32.20	7.94
2005_SK57	5.09	4.60	19.50	4.91	29.09	8.16
2006_14	0.09	2.10	17.00	1.55	29.22	7.73
2006_1402	5.85	2.58	27.00	8.81	33.67	7.03
2006_1416	5.69	0.87	24.00	11.53	30.63	8.92
2006_150	0.13	4.92	16.50	1.11	29.95	8.98
2006_155	0.04	2.41	13.50	2.86	24.85	8.91
2006_158	9.12	1.92	35.00	80.00	31.99	8.00
2006_31S	0.04	1.75	17.50	22.25	21.93	7.63
2006_409	0.00	2.60	14.00	4.33	26.58	8.50
2006_413	9.30	2.27	55.00	94.74	33.64	6.69
2006_42	2.15	2.57	13.00	1.27	25.07	9.08
2006_49	7.84	2.32	23.00	8.83	31.76	8.29
2006_939	5.10	0.74	37.00	15.01	33.07	6.87
2006_BF16	6.18	2.02	27.00	72.41	31.53	8.56
2006_P11	3.19	0.90	28.00	87.74	32.73	7.32
2006_P21	3.72	2.23	13.00	20.99	29.21	8.87
2006_P23	14.89	3.87	23.00	22.72	30.89	7.80
2006_P26	2.02	1.73	19.50	1.68	31.83	8.20
2006_P35	0.33	3.84	22.50	37.20	31.13	7.55
2006_P46	8.77	1.84	15.00	18.07	29.73	9.26
2006_P6	1.55	3.67	32.00	4.91	32.81	7.41
2006_P9	9.42	1.98	29.50	20.72	32.20	7.94
2006_SK57	4.24	4.60	19.50	4.91	29.09	8.16
2007_14	0.00	2.33	17.00	1.55	27.00	6.43
2007_1402	2.42	3.37	27.00	8.81	28.48	6.04
2007_1416	2.50	2.39	24.00	11.53	29.54	8.60
2007_150	0.15	5.55	16.50	1.11	28.22	7.39
2007_155	0.00	2.58	13.50	2.86	25.06	8.26
2007_158	5.79	1.81	35.00	80.00	31.40	7.71
2007_31S	0.16	2.83	17.50	22.25	15.68	6.72
2007_409	0.00	2.46	14.00	4.33	26.49	8.03
2007_413	3.97	2.41	55.00	94.74	31.40	6.32
2007_42	1.41	2.73	13.00	1.27	25.54	8.51
2007_49	5.54	1.95	23.00	8.83	30.10	7.55
2007_939	3.90	1.10	37.00	15.01	25.71	5.24
2007_BF16N21	3.94	2.72	27.00	72.41	30.70	8.25
2007_P11	2.45	0.76	28.00	87.74	31.49	6.95
2007_P21	3.57	3.65	13.00	20.99	27.79	8.20

2007_P23	9.78	4.52	23.00	22.72	27.81	6.35
2007_P35	0.04	5.57	22.50	37.20	27.50	6.08
2007_P46	7.29	2.21	15.00	18.07	28.13	8.90
2007_P6	1.00	3.29	32.00	4.91	29.42	6.65
2007_P9	6.68	2.63	29.50	20.72	29.72	7.09
2007_SK57	7.40	4.87	19.50	4.91	27.25	7.00
2008_14	0.02	2.12	17.00	1.55	24.78	6.79
2008_1402	2.63	3.19	27.00	8.81	27.80	6.39
2008_1416	2.05	1.73	24.00	11.53	29.89	8.35
2008_155	0.00	3.82	13.50	2.86	22.65	8.33
2008_158	4.06	2.40	35.00	80.00	31.19	7.67
2008_31S	1.02	3.29	17.50	22.25	14.42	7.49
2008_409	0.00	4.29	14.00	4.33	22.80	8.18
2008_413	7.16	2.78	55.00	94.74	30.24	6.17
2008_42	0.95	2.55	13.00	1.27	23.19	8.77
2008_49	3.49	2.06	23.00	8.83	29.17	7.64
2008_939	10.20	1.27	37.00	15.01	20.38	5.58
2008_BF16N21	3.14	2.83	27.00	72.41	30.76	8.07
2008_P11	1.57	0.91	28.00	87.74	31.43	6.92
2008_P21	0.80	3.76	13.00	20.99	27.44	8.02
2008_P23	7.63	4.33	23.00	22.72	25.49	6.67
2008_P26	0.32	1.38	19.50	1.68	29.49	7.59
2008_P35	0.04	6.95	22.50	37.20	25.92	6.51
2008_P46	4.35	2.44	15.00	18.07	28.40	8.46
2008_P6	1.00	3.98	32.00	4.91	28.20	6.63
2008_P9	5.95	2.68	29.50	20.72	28.30	7.31
2008_SK57	4.36	5.59	19.50	4.91	27.24	7.22
2010_14	0.00	2.77	17.00	1.55	28.74	7.47
2010_1402	1.84	2.02	27.00	8.81	31.63	7.07
2010_1416	2.01	1.18	24.00	11.53	31.13	8.89
2010_150	0.12	3.89	16.50	1.11	30.45	8.93
2010_155	0.00	2.19	13.50	2.86	25.96	8.89
2010_158	3.97	2.39	35.00	80.00	31.97	8.23
2010_31S	0.02	2.37	17.50	22.25	19.94	7.88
2010_409	0.00	2.13	14.00	4.33	27.64	8.30
2010_413	7.17	2.05	55.00	94.74	33.70	6.60
2010_42	0.69	1.90	13.00	1.27	25.70	9.13
2010_49	1.92	2.82	23.00	8.83	30.45	8.57
2010_939	6.74	0.99	37.00	15.01	34.49	6.17
2010_BF16N21	3.15	2.25	27.00	72.41	31.61	8.77
2010_P11	1.56	1.03	28.00	87.74	32.51	7.86
2010_P21	0.45	2.10	13.00	20.99	29.70	8.49
2010_P23	4.21	3.85	23.00	22.72	31.82	7.59
2010_P26	0.21	2.08	19.50	1.68	30.80	8.46
2010_P35	0.24	3.68	22.50	37.20	30.17	7.52
2010_P46	3.12	1.71	15.00	18.07	30.28	9.14

2010_P6	3.49	3.32	32.00	4.91	32.69	7.53
2010_P9	7.36	1.91	29.50	20.72	31.66	8.48
2010_SK57	4.67	4.31	19.50	4.91	31.03	8.08
2011_14	0.00	2.29	17.00	1.55	28.23	6.39
2011_1402	5.15	2.51	27.00	8.81	32.42	6.58
2011_1416	1.55	1.43	24.00	11.53	30.57	7.43
2011_155	0.00	2.26	13.50	2.86	25.85	7.62
2011_158	3.43	2.02	35.00	80.00	31.22	6.57
2011_31S	1.13	2.60	17.50	22.25	20.06	6.63
2011_409	0.00	2.57	14.00	4.33	28.09	6.73
2011_413	8.93	2.21	55.00	94.74	32.42	6.58
2011_42	0.32	1.82	13.00	1.27	26.08	7.64
2011_49	1.18	2.44	23.00	8.83	30.07	7.29
2011_939	7.01	0.96	37.00	15.01	29.61	6.17
2011_BF16N21	1.83	2.20	27.00	72.41	30.67	7.12
2011_P11	1.03	0.93	28.00	87.74	31.70	6.81
2011_P21	0.00	1.26	13.00	20.99	29.78	6.99
2011_P23	1.37	3.89	23.00	22.72	29.59	6.59
2011_P26	0.25	1.83	19.50	1.68	30.31	7.29
2011_P35	0.00	4.33	22.50	37.20	28.57	6.44
2011_P46	2.81	2.08	15.00	18.07	30.15	7.80
2011_P6	1.97	3.18	32.00	4.91	31.58	6.87
2011_P9	5.34	1.89	29.50	20.72	31.07	7.30
2013_14	0.00	1.64	17.00	1.55	29.54	6.91
2013_1402	5.29	2.81	27.00	8.81	33.52	6.82
2013_1416	10.66	1.07	24.00	11.53	30.19	8.71
2013_155	0.00	2.86	13.50	2.86	23.22	7.37
2013_158	10.87	2.11	35.00	80.00	31.79	8.02
2013_31S	0.00	1.44	17.50	22.25	18.19	7.12
2013_409	0.00	2.29	14.00	4.33	26.56	7.30
2013_413	10.02	2.52	55.00	94.74	33.53	6.38
2013_42	1.45	2.24	13.00	1.27	23.39	8.39
2013_49	2.07	2.52	23.00	8.83	31.83	8.16
2013_939	12.55	0.83	37.00	15.01	32.70	5.69
2013_BF16N21	6.78	2.14	27.00	72.41	31.06	8.49
2013_P11	4.48	0.88	28.00	87.74	32.33	7.21
2013_P21	0.08	2.48	13.00	20.99	28.81	8.19
2013_P23	2.01	4.52	23.00	22.72	30.92	7.16
2013_P26	0.63	1.90	19.50	1.68	31.35	8.04
2013_P35	2.27	4.63	22.50	37.20	31.74	7.19
2013_P46	5.88	1.75	15.00	18.07	29.62	9.05
2013_P6	3.06	3.80	32.00	4.91	32.50	7.23
2013_P9	7.98	1.96	29.50	20.72	32.04	7.87

Table S4. Summary output from generalised linear mixed models. The values shown are parameter estimates, and associated standard errors (shown in brackets). The significance level is denoted by asterisks (* = $P < 0.05$; ** = $P < 0.01$; * = $P < 0.001$). Model coefficients of determination (R^2) are provided as conditional R^2 values (both marginal and random effects combined).**

KS16 Large fraction	Intercept	Current	Depth	Mud	Salinity	Temperature	Trawling	R^2
>10	1.49 (0.64)		-0.03 (0.01)**				-0.44 (0.08)*	0.69
0-5cm deep	-0.29(0.27)		-0.011(<0.01)*					0.44
101-200mm	9.75 (2.89)	0.89 (0.36)*	-0.05 (0.01)***			-1.08 (0.35)**		0.68
Burrow-dwelling	1.61 (0.67)		-0.04(0.01)*				-0.35(0.09)***	0.77
Crevice-dwelling	-2.242(0.41)		-0.019(<0.01)*					0.64
Exoskeleton (chitin/calcium carbonate)	6.24 (2.16)	0.40 (0.19)*	-0.03 (0.01)***			-0.70 (0.25)**		0.57
Infauna: 6-10cm	11.79 (4.01)		-0.08 (0.02)***			-1.30 (0.50)**	-0.31 (0.11)**	0.83
Lecithotrophic	5.4(3.7)				-0.33(0.15)**			0.17
Planktotrophic	1.65 (0.45)		-0.03 (0.01)*				-0.13 (0.05)*	0.58
Sessile	1.49 (0.64)		-0.03 (0.01)*				-0.44 (0.08)***	0.83
Sexual shed eggs- pelagic	9.28 (2.2)		-0.05 (0.01)***			-0.92 (0.27)**		0.58
Soft	2.28 (1.76)					-0.565 (0.23)*	-0.17(0.05)**	0.63
Subsurface deposit	6.02(2.8)					-0.91(0.38)*	-0.24(0.08)**	0.64
Surface deposition	7.18 (2.47)		-0.05 (0.01)***			-0.67 (0.30)*	-0.13 (0.05)*	0.67
Suspension	1.38 (0.42)		-0.04 (0.01)***				-0.13 (0.05)*	0.69
Tube-dwelling	4.24 (1.85)					-0.93 (0.24)***	-0.27 (0.05)***	0.80

KS 16 Full community	Intercept	Current	Depth	Mud	Salinity	Temperature	Trawling	R^2
>10	6.99 (2.52)		-0.05 (0.01)***			-0.69 (0.3)*		0.69
0-5cm deep	1.82(1.13)				-0.07(0.03)*			0.53
101-200mm	7.81 (2.51)		-0.04 (0.01)***			-0.82 (0.30)**		0.70
Burrow-dwelling	10.67(2.99)		-0.05(0.01)***	-0.021(<0.01)*		-1.088(0.35)**	-0.154(0.07)*	0.79
Crevice-dwelling	-1.96(0.34)		-0.017(<0.01)*					0.7

Exoskeleton (chitin/calcium carbonate)	5.94 (2.04)		-0.03 (<0.01)***			-0.55 (0.24)*		0.58
Infauna: 6-10cm	11.51 (3.23)		-0.08 (0.01)***			-1.33 (0.39)***		0.81
Lecithotrophic	3.8(2.6)				-0.232(0.08)**			0.24
Planktotrophic	1.73 (0.37)		-0.02 (<0.01)**				-0.12 (0.04)**	0.61
Sessile	1.5 (0.51)		-0.03 (0.01)**				-0.35 (0.06)***	0.82
Sexual shed eggs-pelagic	4.68 (1.86)	0.39 (0.17)*	-0.03 (0.01)***			-0.51 (0.21)*		0.62
Soft	4.28 (1.19)			-0.007(<0.01)**	-0.084 (0.03)**	-0.388 (0.11)***		0.58
Subsurface deposit	4.17(2.1)					-0.613(0.28)*	-0.246(0.05)***	0.62
Surface deposition	1.7 (0.42)		-0.03 (<0.01)***				-0.15 (0.05)**	0.70
Suspension	1.34 (0.36)		-0.04 (<0.01)***				-0.12 (0.04)**	0.72
Tube-dwelling	3.70 (1.59)					-0.79 (0.21)***	-0.27 (0.04)***	0.84

KS16 Small fraction	Intercept	Current	Depth	Mud	Salinity	Temperature	Trawling	R ²
>10	-2.15 (0.46)		-0.02 (0.01)*					0.67
0-5cm deep	-1.510(0.13)			-0.007(<0.01)**				0.39
101-200mm	-2.51 (1.69)				-0.07 (0.04)*	0.31 (0.15)*		0.48
Burrow-dwelling	-0.914(0.44)	-0.472(0.15)**	-0.021(<0.01)**				-0.160(0.03)***	0.64
Crevice-dwelling	-4.108(0.2)							0.47
Exoskeleton	-5.74 (1.4)					0.47 (0.18)**		0.52
Infauna: 6-10cm	1.13 (1.01)			-0.01 (<0.01)*	-0.14 (0.03)***			0.57
Lecithotrophic	2.5(1.8)			-0.011(0.01)*	-0.193(0.05)***			0.51
Planktotrophic	-2.42 (1.19)				-0.06 (0.02)*	0.35 (0.10)**		0.42
Sessile	-1.69 (0.31)	-0.23 (0.13)*					-0.21 (0.03)***	0.74
Sexual shed eggs-pelagic	-1.04 (1.04)				-0.08 (0.02)***	0.26 (0.09)**		0.40
Soft	1.162(0.78)			-0.004(<0.01)*	-0.105(0.02)***			0.58
Subsurface deposit	-2.6(0.18)						-0.191(0.03)***	0.52
Surface deposition	-2.09 (1.27)				-0.07 (0.03)**	0.29 (0.11)*		0.44
Suspension	-2.91 (1.72)				-0.09 (0.04)*	0.38 (0.16)*		0.45

Tube-dwelling	6.65 (2.08)			-0.02 (<0.01)***		-1.35 (0.26)***		0.81
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NOVANA	Intercept	Current	Depth	Mud	Salinity	Temperature	Trawling	R ²
>10	-6.07	0.37 (0.07)***	0.05 (0.01)***			0.37 (0.11)**	-0.09 (0.02)**	0.41
0-5cm deep	-1.96(0.37)	0.14(0.04)**		0.003(<0.01)*	0.03(0.01)**			0.18
101-200mm	-2.54 (0.22)	0.32 (0.06)***		0.01 (<0.01)***				0.52
Burrow-dwelling	-0.58 (0.28)		-0.04(0.1)***	-0.029(<0.01)***				0.49
Crevice-dwelling	-6.51(0.69)	0.17(0.04)***	0.06(<0.01)***		-0.05(0.01)***	0.46(0.07)***		0.21
Exoskeleton (chitin/calcium carbonate)	-2.62 (0.51)	0.23 (0.06)***			0.05 (0.01)***			0.29
Infauna: 6-10cm	-6.81 (0.71)	0.31 (0.07)***	-0.05 (0.01)***	-0.01 (<0.01) ***	0.18 (0.02)***		-0.11 (0.03)***	0.84
Lecithotrophic	1.88(1.5)		-0.05(0.01)***	-0.02(0.01)***		-0.58(0.16)***		0.17
Planktotrophic	-2.39 (0.47)	0.21 (0.05)***			0.06 (0.01)***		-0.05 (0.02)*	0.41
Sessile	-0.16 (1.14)	0.35 (0.08)		0.03 (<0.01)***	0.09 (0.02)***	-0.56 (0.11)***	-0.09 (0.03)**	0.91
Sexual shed eggs- pelagic	-2.30 (0.47)				0.04 (0.01)***	0.25 (0.05)**		0.42
Soft	-0.25(0.84)	0.114(0.05)*	-0.07(<0.01)***		0.1(0.01)***	-0.441(0.09)***		0.572
Subsurface deposit	-6.44(0.67)	0.36(0.07)***		-0.02(0.01)***	0.12(0.02)***		-0.13(0.02)***	0.13
Surface deposition	-2.76 (0.51)	0.13 (0.05)*		-0.01 (<0.01)*	0.06 (0.01)***		-0.04 (0.02)*	0.43
Suspension	-1.67 (0.22)	0.27 (0.06)***		-0.01 (<0.01)**				0.43
Tube-dwelling	3.78 (0.78)	0.37 (0.06)***		-0.02 (<0.01)***		-1.09 (0.09)***	-0.12 (0.02)***	0.76

Figures:

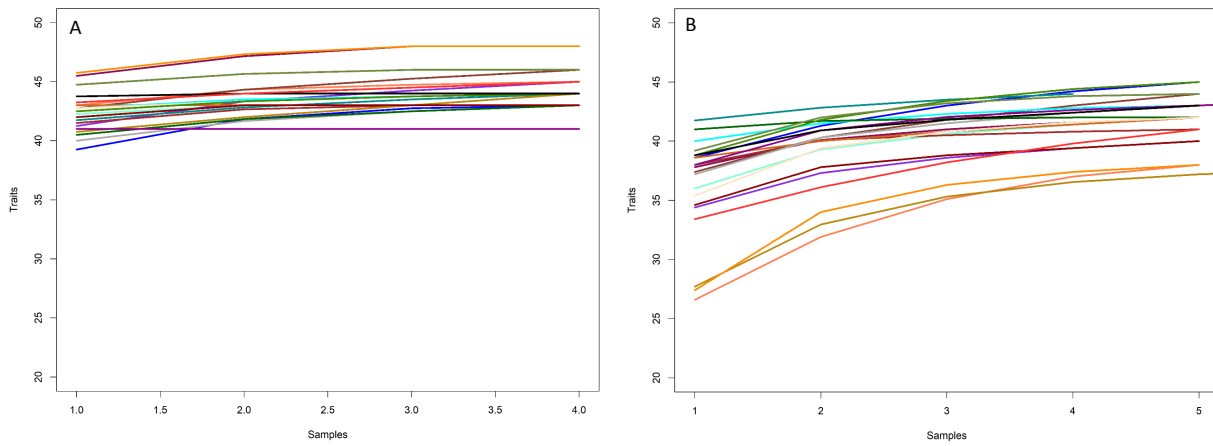


Figure S1. Trait accumulation curves for individual sampling sites in the (A) KS16 and (B) NOVANA datasets. To aid visual interpretation, a single year of NOVANA data (2013) is presented to compare with KS16 data (2016).

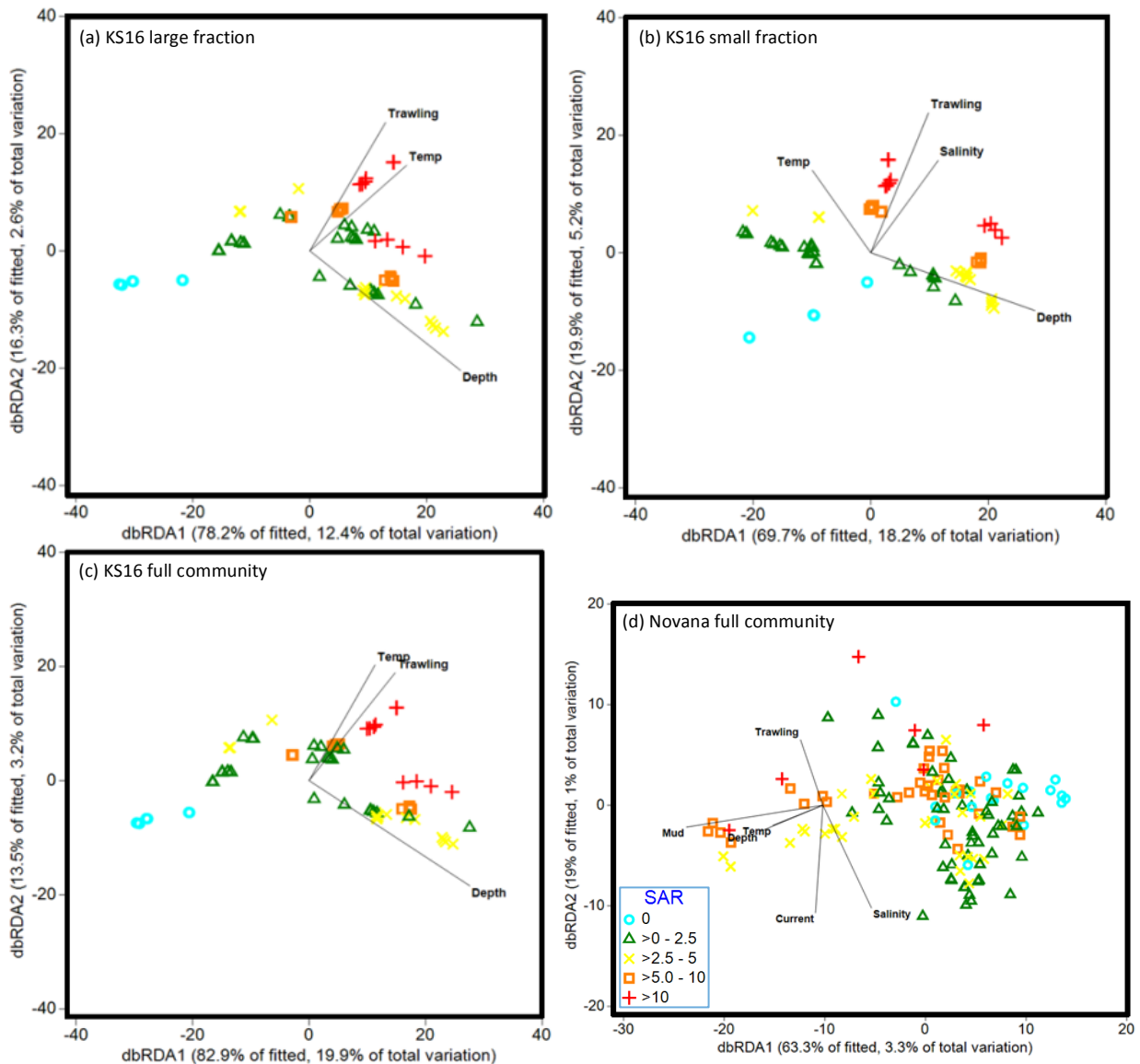


Figure S2. Distance-based redundancy analysis (dbRDA) ordinations of trait composition, from the (a) KS16 large fraction, (b) KS16 small fraction, (c) KS16 full community, and (d) NOVANA datasets. Sampling sites are colour coded by their associated trawling intensity (SAR) category. The length and direction of the vectors indicate the relative effect of each predictor variable on the constrained ordination.