



**Figure S1.** Heat map of the relative abundance of the 35 most abundant microbial genera across all samples. S—surface sediment; H—sediment in the hole; A—ambient sediment; G—gut of *S. nudus*.

**Table S1.** Sequencing information and microbial diversity estimates for the worm intestine and different sediments.

Sample	Raw Tags	Effective reads	OTU number	ACE	Chao 1	Shannon	Simpson	Coverage
S1	146,242	113,147	3051	4440	4252	9.25	1.00	0.959
S2	146,669	117,326	3190	4909	4601	8.97	0.99	0.954
S3	140,448	111,906	3298	4908	4574	9.24	0.99	0.955
S4	147,244	119,343	2377	4019	3738	6.81	0.89	0.962
H1	86,727	72,209	2667	3695	3493	7.48	0.94	0.966
H2	130,660	107,909	2727	4151	3879	7.78	0.95	0.961
H3	55,077	45,813	2849	3614	3324	8.04	0.96	0.97
H4	146,610	122,177	3303	5258	4894	8.08	0.95	0.95
A1	93,502	76,966	3441	4717	4393	9.16	0.99	0.958
A2	45,097	37,769	3093	3599	3521	9.44	0.99	0.975
A3	114,245	93,815	3821	5750	5433	9.21	0.99	0.945
A4	118,522	97,877	3483	5638	5326	8.74	0.98	0.946
G1	146,838	116,253	1978	2978	2807	7.19	0.97	0.973
G2	88,983	72,364	1343	1725	1649	7.17	0.98	0.986
G3	35,939	29,600	831	1350	1743	6.79	0.98	0.989
G4	146,862	121,639	876	1638	1407	5.19	0.92	0.985