Supplementary Materials for:

Inverse method applied to autonomous broadband hydroacoustic survey detects higher densities of zooplankton in near-surface aggregations than vessel-based net survey

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Table S1: Density values in individuals per m^3 from MultiNet tows throughout the study region. Values combined using a weighted average over depth for a single value of density for each stations for each species in the upper 100 m. The species are colour coded by taxonomic group (Copepods in purple; Euphausiids in red; Amphipods in green; Gelatinous in pink; Fish larvae in blue; Pteropods in orange; and Others in white).

Collection/Net type	MPS180	MPS180	MPS180	MPS180	MPS	MPS	MPS	MPS	MPS180	MPS180	MPS180	MPS180	MPS180	MPS180	MPS180
Date	21.06.2018	21.06.2019	21.06.2020	21.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018
Area/Station name	**7**	**7**	**7**	**7**	**8**	**8**	**8**	**8**	**9**	**9**	**9**	**9**	**10**	**10**	**10**
Layer [m]	**5-0**	**10-5**	**10-30**	**30-100**	**100-30**	**30-10**	**10-5**	**5-0**	**100-30**	**30-10**	**10-5**	**5-0**	**100-30**	**30-10**	**10-5**
Calanus finmarchicus AM					0.95	5.00			0.63	5.00		1.48	0.57	7.62	6.66
C. finmarchicus AF	64.00	19.20	38.40	117.03	33.33	45.00	64.00	12.00	5.71	115.00	28.57	22.22	2.29	205.71	300.00
C. finmarchicus CV	1280.00	524.80	3046.40	431.54	375.24	1160.00	1708.00	796.00	148.57	770.00	777.14	711.11	51.43	6811.43	6200.00
C. finmarchicus CIV	102.40	22.40	38.40	138.97	20.95	70.00	68.00	8.00	49.52	25.00	22.86	35.55	6.29	114.29	100.00
C. finmarchicus CIII		3.20	12.80	14.63	5.71	1.25			7.62	1.67		1.48	0.19	7.62	
C. finmarchicus CII			0.00	7.31	3.81	1.25	4.00	4.00	1.90			1.48	0.19		
C. finmarchicus CI					1.90		12.00		0.63	1.67		1.48	0.57	3.81	
C. hyperboreus CV											1.60				
C. hyperboreus CIV						2.50	4.00		0.63	5.00		8.89	0.19	7.62	6.66
C. hyperboreus CIII					0.95	1.25			3.81		5.71	8.89	0.57	7.62	
Microcalanus spp.	230.40	28.80	25.60	343.77	32.38	5.00	32.00	8.00	17.14	10.00	11.43	48.89	32.00	22.86	6.66
Pseudocalanus spp. AM	76.80	6.40	0.00	131.66	0.95				0.63				0.19		
Pseudocalanus spp. AF					7.62	1.25	2.00		11.43	1.67			2.29	7.62	6.66
Pseudocalanus spp. CV					24.76	15.00	16.00		3.81	5.00	1.90	4.44	2.29	7.62	6.66
Pseudocalanus spp. CIV					26.67				5.71	5.00		4.40	4.57	22.86	6.66
Pseudocalanus spp. CI-CIII					20.95	1.25	4.00		1.90	10.00		4.44	0.19	68.57	6.66
Metridia longa AM															
M. longa AF	38.40	6.40		36.57					0.63	1.67	5.71				6.66
M. longa CV	25.60			58.51	0.95				0.63	5.00	1.90	4.44	0.19		6.66
M. longa CIV				36.57					1.90	5.00		1.48	0.57		
M. longa CIII					1.90										
M. longa CII					3.81										
M. longa CI		3.20			3.81										
Paraeuchaeta norvegica AF															
Paraeuchaeta spp. CV													0.06		0.80
Paraeuchaeta spp. CIV													0.19		
Paraeuchaeta spp. CIII									0.63				0.19		
Paraeuchaeta spp. CII									0.63						
Paraeuchaeta spp. CI															
Acartia spp.															
Chiridius obtusifrons	12.80														
Heterorhabdus norvegicus	12.80														
Metridia lucens AM					2.86	3.33			1.90	1.67	1.90	8.89	1.14		6.66
Metridia lucens AF					5.71	3.33	4.00		3.81			4.44	14.86	7.62	6.66
M. lucens CI-CV					25.71	3.33	8.00	4.00	7.62	1.67		1.48	10.29		6.66
Anomalocera patersoni										0.20					
Scaphocalanus magnus		3.20													
Scolecithricella minor									0.63						
Temora longicornis															
Microsetella norvegica											1.9				
Harpacticoida indet.								8.0							
Oithona atlantica	12.80				60.95	65.00	16.00	4.00	15.24	1.67	5.71	8.89	25.71		6.66
Oithona similis	1049.60	185.60	345.60	1367.77	1603.81	1465.00	1072.00	316.00	647.62	460.00	771.43	680.00	195.24	388.57	300.00
Oncaea spp.															
Triconia (=Oncaea) borealis		9.60		21.94	3.81	2.50			3.81	1.67		4.44	3.43	3.81	6.66
Copepoda nauplii		19.20		7.31	1.90	5.00	16.00	12.00	7.62	1.67	11.43	4.44	1.14	7.62	40.00
Ostracoda										1.67					
Cirripedia nauplii						10.00	112.00	28.00		5.00	1.90				

Collection/Net type	MPS180	MPS180	MPS180	MPS180	MPS	MPS	MPS	MPS	MPS180	MPS180	MPS180	MPS180	MPS180	MPS180	MPS180
Date	21.06.2018	21.06.2019	21.06.2020	21.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018	22.06.2018
Area/Station name	**7**	**7**	**7**	**7**	**8**	**8**	**8**	**8**	**9**	**9**	**9**	**9**	**10**	**10**	**10**
Layer [m]	**5-0**	**10-5**	**10-30**	**30-100**	**100-30**	**30-10**	**10-5**	**5-0**	**100-30**	**30-10**	**10-5**	**5-0**	**100-30**	**30-10**	**10-5**
Cirripedia cypris															
Cirripedia Facetotecta nauplii															
Themisto abyssorum			12.80		0.74		1.60		0.75	2.87	0.00	0.80	0.06	4.61	6.66
Themisto libellula									0.06						
Themisto spp. <1mm															
Isopoda Bopyridae									0.63	1.67			0.19	7.62	6.66
Isopoda indet.															
Thysanoessa inermis					0.6	0.4									
Thysanoessa longicaudata															
Thysanoessa raschii					1.5	0.2									
Euphausiacea nauplii					1.9										
Euphausiacea calyptopis					0.5					1.67			0.19		
Euphausiacea furcilia	25.60		51.20	21.94	1.43	2.20	1.60		7.66	6.07	5.71	0.80	1.71	9.22	6.66
Eupagurus zoea															
Eupagurus megalopa															
Decapoda indet. larvae					1.26	1.20	0.80		0.29	1.40		2.40	0.17	1.80	0.80
Aglantha digitale	51.20	32.00			2.86	5.00	28.00	28.00		5.00	29.37	8.89	0.19	7.62	6.66
Hydrozoa medusae indet.															
Hydrozoa larvae															
Dimophyes arctica															
Ctenophora larvae															
Nemertea pilidium															
Clione limacina veliger						2.50									
Limacina helicina veliger					0.95	15.00	32.00	20.00		1.67					
Limacina retroversa	25.60		102.40	7.31	3.33	1.25	68.00	9.60	13.33	25.00	5.71	4.44	1.14	22.86	20.00
Gastropoda veliger									0.63	1.67	5.71	4.44	0.57		
Bivalvia veliger					0.95	2.50	32.00	4.00	0.63	5.00	1.90			7.62	
Polychaeta larvae															
Polychaeta larvae mitraria															
Polychaeta secondary larvae									5.71					3.81	
Echinodermata larvae		12.80		7.31							1.90		0.57		
Bryozoa larvae					1.90		24.00	8.00	1.90	10.00		4.44		7.62	20.00
Eukrohnia hamata	12.80			21.94	0.34	0.20			1.20		0.80	0.80	0.91	4.01	2.40
Sagitta elegans				0.00	0.17	0.60			0.34	5.00			0.69		
Fritillaria borealis	25.60			0.00							1.90				
Oikopleura spp.				7.31	2.86	6.67	4.00	0.00	11.49	1.67	1.90	8.89	5.14	22.86	
Appendicularia larvae															
Pisces larvae					0.06	0.40		0.80		0.80		0.80		0.20	
Paracalanus spp.														3.81	

Collection/Net type	MPS180	MPS180	MPS180	MPS180	MPS180	MPS180	MPS180	MPS180	MPS180	WP2	WP2	WP2	MPS	MPS	MPS
Date	22.06.2018	23.06.2018	23.06.2018	23.06.2018	23.06.2018	23.06.2018	23.06.2018	23.06.2018	23.06.2018	24.06.2018	24.06.2018	24.06.2018	24.06.2018	24.06.2018	24.06.2018
Area/Station name	**10**	**11**	**11**	**11**	**11**	**12**	**12**	**12**	**12**	**13**	**13**	**13**	**14**	**14**	**14**
Layer [m]	**5-0**	**100-30**	**30-10**	**10-5**	**5-0**	**100-30**	**30-10**	**10-5**	**5-0**	**100-30**	**30-10**	**10-0**	**100-30**	**30-10**	**10-5**
Calanus finmarchicus AM	6.66	1.90	16.00		8.00	1.43	1.11	3.34	5.28	11.43			1.90		
C. finmarchicus AF	240.00	38.10	96.00	20.00	40.00	43.57	30.00	90.00	144.00	74.29	68.57	230.00	11.43	76.00	208.00
C. finmarchicus CV	5973.34	339.05	4464.00	672.00	1440.00	21.43	366.67	2310.00	3408.00	491.43	4068.57	3445.00	76.19	680.00	2320.00
C. finmarchicus CIV	120.00	13.33	64.00	28.00	24.00	7.86	13.33	60.00	48.00	17.14	51.43	35.00	43.81	32.00	104.00
C. finmarchicus CIII					2.66	1.43	13.33	10.00	16.00	2.86		4.00	11.43	6.00	8.00
C. finmarchicus CII	6.66					2.14	6.67	3.34	16.00	3.81			2.86	4.00	8.00
C. finmarchicus CI	6.66						3.33	3.34	16.00	0.95			1.90	4.00	8.00
C. hyperboreus CV															
C. hyperboreus CIV		0.63				0.71	3.33		5.34	0.29			0.11		
C. hyperboreus CIII	20.00	3.81	2.67	8.00	2.66	1.90	1.11			0.57			0.11		
Microcalanus spp.	20.00	43.81	5.33	28.00	48.00	15.24	3.33	50.00	16.00	240.00			17.14	12.00	4.00
Pseudocalanus spp. AM						0.24									
Pseudocalanus spp. AF	6.66	0.63			2.66	3.81	3.33		5.34	8.57		0.80	1.90		4.00
Pseudocalanus spp. CV	6.66	11.43	5.33		2.66	45.71	23.33	3.34	32.00	91.43		0.80	30.48	32.00	16.00
Pseudocalanus spp. CIV	20.00	7.62			16.00	32.38	20.00	10.00	32.00	34.29			13.33		
Pseudocalanus spp. CI-CIII		1.90			2.66	17.14	23.33	3.34	16.00	45.71			15.24	12.00	
Metridia longa AM				1.34											
M. longa AF	6.66				2.66										
M. longa CV	6.66	0.63		1.34	2.66			3.34							
M. longa CIV	6.66	0.63	2.67							5.71					
M. longa CIII										5.71					
M. longa CII										2.86			1.90		
M. longa CI										2.86			3.81		
Paraeuchaeta norvegica AF															4.00
Paraeuchaeta spp. CV		0.40				0.06									
Paraeuchaeta spp. CIV		0.63				0.24		10.00							
Paraeuchaeta spp. CIII						0.71			5.34						
Paraeuchaeta spp. CII						0.24									
Paraeuchaeta spp. CI															
Acartia spp.								3.34							8.00
Chiridius obtusifrons															
Heterorhabdus norvegicus															
Metridia lucens AM	6.66					2.86	1.11			2.86			1.90		
Metridia lucens AF	20.00	1.90	2.67		2.66	7.14	3.33	3.34	5.34	2.86			1.90		
M. lucens CI-CV	20.00	3.81		4.00	16.00	12.86	1.11		16.00	24.76			6.67	0.40	
Anomalocera patersoni															
Scaphocalanus magnus															
Scolecithricella minor	20.00	0.63													
Temora longicornis															
Microsetella norvegica															
Harpacticoida indet.									5.34						
Oithona atlantica	6.66	11.43	5.33		16.00	34.29	33.33	3.34	16.00	68.57			76.19	4.00	
Oithona similis	220.00	451.43	32.00	492.00	480.00	394.29	1390.00	490.00	1056.00	2202.86	200.00	12.00	1676.19	488.00	224.00
Oncaea spp.					2.66			3.34							
Triconia (=Oncaea) borealis	6.66	0.63			2.66	3.81	1.11		5.34	22.86			5.71		4.00
Copepoda nauplii	20.00	1.90		4.00	2.66	13.33	23.33	30.00	64.00	17.14		2.00	1.90	4.00	4.00
Ostracoda		0.63		1.34		0.24									
Cirripedia nauplii												6.00			56.00

Collection/Net type	MPS180	MPS180	MPS180	MPS180	MPS180	MPS180	MPS180	MPS180	MPS180	WP2	WP2	WP2	MPS	MPS	MPS
Date	22.06.2018	23.06.2018	23.06.2018	23.06.2018	23.06.2018	23.06.2018	23.06.2018	23.06.2018	23.06.2018	24.06.2018	24.06.2018	24.06.2018	24.06.2018	24.06.2018	24.06.2018
Area/Station name	**10**	**11**	**11**	**11**	**11**	**12**	**12**	**12**	**12**	**13**	**13**	**13**	**14**	**14**	**14**
Layer [m]	**5-0**	**100-30**	**30-10**	**10-5**	**5-0**	**100-30**	**30-10**	**10-5**	**5-0**	**100-30**	**30-10**	**10-0**	**100-30**	**30-10**	**10-5**
Cirripedia cypris										0.23					
Cirripedia Facetotecta nauplii						0.69	3.33								
Themisto abyssorum	9.86	1.38	0.40	1.34	3.46	3.37	1.11	3.34	0.00	0.51	2.40	0.00	0.57	1.40	0.80
Themisto libellula															
Themisto spp. <1mm															
Isopoda Bopyridae		1.90			8.00	0.24	1.11								
Isopoda indet.						0.24									
Thysanoessa inermis			0.20							0.57					
Thysanoessa longicaudata						0.17				0.11					
Thysanoessa raschii						0.40							0.51	0.80	
Euphausiacea nauplii															
Euphausiacea calyptopis		0.63				0.24		3.34		0.95			0.48		
Euphausiacea furcilia	9.06	7.07	11.33	1.34	5.06	4.84	20.40	20.80	6.94	18.10	20.00	2.00	7.62	16.00	2.40
Eupagurus zoea										0.40	0.40	0.80	0.46	0.80	
Eupagurus megalopa											0.40				
Decapoda indet. larvae	1.60	0.46	0.40			0.06	0.40		2.40		5.40	2.40			
Aglantha digitale	40.00	11.60	16.20	76.00	129.60	7.96	30.40	30.80	80.00	9.31	80.00		0.11	33.33	16.00
Hydrozoa medusae indet.															
Hydrozoa larvae				1.34											
Dimophyes arctica															
Ctenophora larvae															
Nemertea pilidium					2.66										
Clione limacina veliger						0.24				0.11					
Limacina helicina veliger												2.00	1.90	4.00	4.00
Limacina retroversa	20.00	13.33	80.00	1.34	56.00	7.62	83.33	100.00	224.00	2.571428571	1840.00	6.00	4.76	26.80	29.60
Gastropoda veliger										2.9					
Bivalvia veliger		0.63					1.11		5.34	8.6			3.81	4.00	
Polychaeta larvae	6.66									2.9			0.95		
Polychaeta larvae mitraria				4.00											
Polychaeta secondary larvae	6.66	1.90		1.34	16.00		6.67	10.00	5.34						
Echinodermata larvae							3.33								
Bryozoa larvae	6.66	0.63	5.33	4.00	2.66	0.71			5.34	2.9		2.00	0.95		
Eukrohnia hamata	1.60	3.90	0.20		1.60	3.26	0.80	0.80	3.20	0.628571429			3.50	0.20	0.80
Sagitta elegans		0.46	5.33	4.00	2.66	1.11	2.11		7.74	1.885714286			1.83	1.00	
Fritillaria borealis															
Oikopleura spp.	6.66	19.05	32.00	16.00	73.60	34.40	16.67	3.34	6.14	24.76190476			11.43		
Appendicularia larvae															
Pisces larvae	0.80	0.06			0.80		0.20					0.40			
Paracalanus spp.	20.00	1.90		1.34						5.71					

Collection/Net type	MPS	MPS180	MPS180	MPS180	MPS180	MPS	MPS	MPS	MPS	MPS	MPS	MPS
Date	24.06.2018	24.06.2018	24.06.2018	24.06.2018	25.06.2018	25.06.2018	25.06.2018	25.06.2018	25.06.2018	25.06.2018	25.06.2018	25.06.2018
Area/Station name	14	15	15	15	16	16	16	16	17	17	17	17
Layer [m]	5-0	100-30	30-10	10-5	5-0	100-30	30-5	5-0	100-30	30-10	10-5	5-0
Calanus finmarchicus AM		3.43	1.67	2.22	1.34	0.48		5.33	0.86	1.00	5.33	
C. finmarchicus AF	232.00	12.57	135.00	186.66	64.00	44.76	16.00	88.00	0.57	15.00	8.00	4.00
C. finmarchicus CV	3224.00	88.00	645.00	1086.66	348.00	493.33	1411.20	2208.00	1.71	144.00	136.00	112.00
C. finmarchicus CIV	152.00	5.71	25.00	33.34	16.00	3.81	64.00	122.67	1.14	21.00	5.33	16.00
C. finmarchicus CIII	8.00	2.29	5.00	6.66	1.34	1.90	6.40	26.67		1.00	2.67	4.00
C. finmarchicus CII	8.00	1.14	5.00	6.66	1.34		9.60	5.33		2.00	5.33	8.00
C. finmarchicus CI	16.00	1.14	10.00	6.66	1.34		16.00	5.33	0.19	1.00	2.67	20.00
C. hyperboreus CV												
C. hyperboreus CIV	2.67	1.14	1.67	6.66				0.80			0.80	
C. hyperboreus CIII		0.38		2.22		0.95		1.60				
Microcalanus spp.		53.33	1.67	6.66	68.00			64.00	35.43	24.00	74.67	176.00
Pseudocalanus spp. AM			1.67						1.14			
Pseudocalanus spp. AF	1.60	5.71	1.67	2.22	4.00	0.95	3.20		4.00	4.00		4.00
Pseudocalanus spp. CV	8.00	5.71	25.00	13.34	12.00	5.71	12.80	24.00	2.86	22.00	8.00	4.00
Pseudocalanus spp. CIV		6.86	5.00	2.22	4.00	1.90	6.40		4.00	16.00	2.67	8.00
Pseudocalanus spp. CI-CIII		2.29	5.00	2.22	8.00			48.00	1.43	12.00	10.67	8.00
Metridia longa AM												
M. longa AF						0.48			0.29		5.33	0.80
M. longa CV	5.33	1.14	1.67	2.22		3.33		1.60	0.86		5.33	0.80
M. longa CIV					1.34						5.33	
M. longa CIII	5.33							1.60	0.19	2.00		2.67
M. longa CII				2.22						2.00		
M. longa CI									0.29	2.00		2.67
Paraeuchaeta norvegica AF												
Paraeuchaeta spp. CV						0.06		0.80				
Paraeuchaeta spp. CIV		0.38			1.34	1.43			0.11			
Paraeuchaeta spp. CIII		0.38		2.22		1.43		0.80	0.17	0.20		
Paraeuchaeta spp. CII						0.95			0.23			
Paraeuchaeta spp. CI						0.48						
Acartia spp.			1.67									
Chiridius obtusifrons												
Heterorhabdus norvegicus						0.19		0.80				
Metridia lucens AM	5.33	0.38	1.67	2.22	1.34				0.57	1.00		12.00
Metridia lucens AF	1.60	17.14	5.00	6.66	4.00	3.33		0.80	7.43	4.00	2.67	8.00
M. lucens CI-CV	10.67	28.57	10.00	2.22	8.00	0.48			5.43	9.00	2.67	16.00
Anomalocera patersoni												
Scaphocalanus magnus												
Scolecithricella minor						0.95						4.00
Temora longicornis			1.67									
Microsetella norvegica												
Harpacticoida indet.												
Oithona atlantica	32.00	12.57	1.67	6.66	32.00	17.14			21.14	22.00	21.33	3.20
Oithona similis	544.00	384.76	505.00	326.66	872.00	272.38	419.20	464.00	133.71	796.00	597.33	656.00
Oncaea spp.		0.38										
Triconia (=Oncaea) borealis	8.00	3.43	1.67	6.66	12.00	1.90		32.00	4.00			16.00
Copepoda nauplii		4.57	25.00	33.34	104.00	1.90	201.60	544.00		14.00	101.33	72.00
Ostracoda		0.76				0.95		17.60				
Cirripedia nauplii	80.00		1.67								2.67	2.67

Legend
Copepods
Euphausiids
Amphipods
Gelatinous
Fish larvae
Pteropods
Other

Collection/Net type	MPS	MPS180	MPS180	MPS180	MPS180	MPS	MPS	MPS	MPS	MPS	MPS	MPS
Date	24.06.2018	24.06.2018	24.06.2018	24.06.2018	25.06.2018	25.06.2018	25.06.2018	25.06.2018	25.06.2018	25.06.2018	25.06.2018	25.06.2018
Area/Station name	**14**	**15**	**15**	**15**	**16**	**16**	**16**	**16**	**17**	**17**	**17**	**17**
Layer [m]	**5-0**	**100-30**	**30-10**	**10-5**	**5-0**	**100-30**	**30-5**	**5-0**	**100-30**	**30-10**	**10-5**	**5-0**
Cirripedia cypris												
Cirripedia Facetotecta nauplii		0.4			1.3							
Themisto abyssorum		0.84	1.87		2.14		0.32	0.80				
Themisto libellula												
Themisto spp. <1mm						0.17						
Isopoda Bopyridae		0.38										
Isopoda indet.												
Thysanoessa inermis		0.06							0.11			
Thysanoessa longicaudata		0.06										
Thysanoessa raschii		0.46										
Euphausiacea nauplii			1.67							2.00	2.67	2.67
Euphausiacea calyptopis		1.14	5.00		1.34		1.07		0.23			3.20
Euphausiacea furcilia	2.40	11.71	2.46	0.00	4.80	0.97	3.20	0.80	0.29	2.20	1.60	0.00
Eupagurus zoea												
Eupagurus megalopa			0.20									
Decapoda indet. larvae		0.17	0.20	0.80		0.06						
Aglantha digitale	75.47	5.71	20.20	33.34	44.00	0.34	2.45	2.40	1.66	3.20	61.33	96.00
Hydrozoa medusae indet.				2.22	4.00							
Hydrozoa larvae												
Dimophyes arctica								0.80				
Ctenophora larvae									0.14			2.00
Nemertea pilidium				2.22								
Clione limacina veliger											2.67	
Limacina helicina veliger	32.00					0.48	6.40	8.00		4.00	2.67	4.00
Limacina retroversa	36.00	10.29	180.00	73.34	40.00	12.63	7.47	0.00	0.00	0.80	0.80	1.60
Gastropoda veliger					1.34						2.67	
Bivalvia veliger	8.00	1.14	1.67	13.34	4.00					1.00		2.67
Polychaeta larvae		0.38			1.34					1.00		8.00
Polychaeta larvae mitraria												
Polychaeta secondary larvae			5.00		4.00							
Echinodermata larvae		0.38			4.00							
Bryozoa larvae	40.00		5.00		8.00					12.00		24.00
Eukrohnia hamata	0.80	4.32	1.87		1.60	6.34	3.52	7.20	0.46	0.20		0.80
Sagitta elegans	0.00	0.23			4.00	0.11				0.40		0.00
Fritillaria borealis					4.00				3.43	4.00	10.67	
Oikopleura spp.		13.94	20.00	26.66	32.00	0.48	3.20		1.14	19.00	32.00	24.00
Appendicularia larvae												
Pisces larvae												
Paracalanus spp.		1.14			4.00							

Table S2: Density values in individuals per m^3 from Tucker Trawl tows throughout the study region. Values extrapolated from subsample counts to total sample and divided by opening area (1m2), tow speed (1.03 m/s) and tow time (900 s). The species are colour coded by taxonomic group (Copepods in purple; Euphausiids in red; Amphipods in green; Gelatinous in pink; Fish larvae in blue; Pteropods in orange and Others in white).

Stations	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Target depth (m)	25	30	40	30	30	30	30	30	30	20	20
Calanus spp.	52.332	9.735	19.469	42.598	28.306	8.837	28.168	4.798	5.316	11.599	1.381
Thyssanoessa inermis	8.975	1.864	1.726	3.314	5.523	2.209	4.142	1.691	1.726	4.453	2.813
Themisto abyssorum	1.381	1.381	1.588	1.036	3.452	1.105	1.795	0.552	2.002	0.587	0.311
Limacina retroversa	10.770	16.017	0.759	2.209	8.837	6.559	2.693	2.002	1.519	3.866	0.483
Munida rugosa	1.795	2.900	1.795	1.657	1.795	0.759	1.381	1.761	0.863	0.104	0.155
Chaetognata (Eukrohnia ?)	0.138					0.069				0.242	0.173
Aglantha digitale	0.138								0.242	0.173	0.035
Mertensia ovum					0.276			0.035			
Gadidae juveniles	1.933	0.069	0.207	0.000	0.138	0.138	0.138	0.069	0.104	0.173	0.069
Capelin juveniles		0.069	0.069	0.069	0.138	0.069	0.276				
Thyssanoessa longicaudata				0.069							
Calianassa (tyrrhena ?)		0.138	0.069	0.138				0.069			
Megalopa larvae		0.069						0.138			0.017
Brachyuria larvae		0.069						0.035			
Isopoda sp.	0.276										
Copepod paraeuchatea sp.	2.624										
Total	80.362	32.311	25.683	51.090	48.466	19.745	38.593	11.150	11.771	21.195	5.437

Legend
Copepods
Euphausiids
Amphipods
Gelatinous
Fish larvae
Pteropods
Others

Table S3: Relative density of each taxonomic group at each station of MultiNet samples from Table S1.

Taxonomic group	Station 7	Station 8	Station 9	Station 10	Station 11	Station 12	Station 13	Station 14	Station 15	Station 16	Station 17
Copepods	0.97	0.99	0.96	0.99	0.95	0.92	0.89	0.97	0.90	0.98	0.94
Euphausiid larvae	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00
Amphipods	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gelatinous	0.01	0.00	0.01	0.01	0.03	0.04	0.01	0.01	0.03	0.01	0.04
Fish larvae	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pteropods	0.01	0.01	0.02	0.00	0.02	0.03	0.09	0.01	0.05	0.01	0.00
Other	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Table S4: Relative density of each taxonomic groups at each station of Tucker Trawl samples from Table S2.

Taxonomic group	Station 7	Station 8	Station 9	Station 10	Station 11	Station 12	Station 13	Station 14	Station 15	Station 16	Station 17
Copepods	0.65	0.30	0.76	0.83	0.58	0.45	0.73	0.43	0.45	0.55	0.25
Euphausiid larvae	0.11	0.06	0.07	0.07	0.11	0.11	0.11	0.15	0.15	0.21	0.52
Amphipods	0.02	0.04	0.06	0.02	0.07	0.06	0.05	0.05	0.17	0.03	0.06
Gelatinous	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.04
Fish larvae	0.02	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Pteropods	0.13	0.50	0.03	0.04	0.18	0.33	0.07	0.18	0.13	0.18	0.09
Other	0.06	0.10	0.07	0.04	0.04	0.04	0.04	0.18	0.07	0.00	0.03

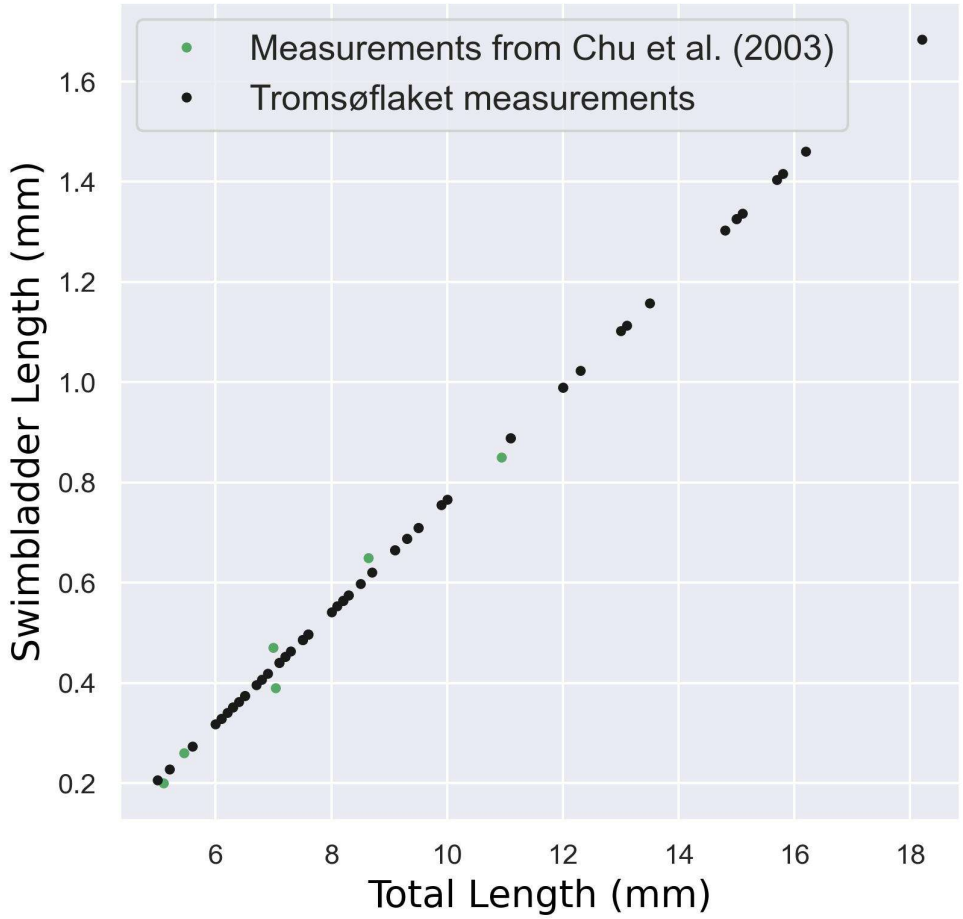

Figure S1: Fish total length to swimbladder length for the range of total fish length measurements from Tromsøflaket with Tucker trawl samples. The literature values used to determine the linear regression are in green and the Tucker trawl measurements are in black.

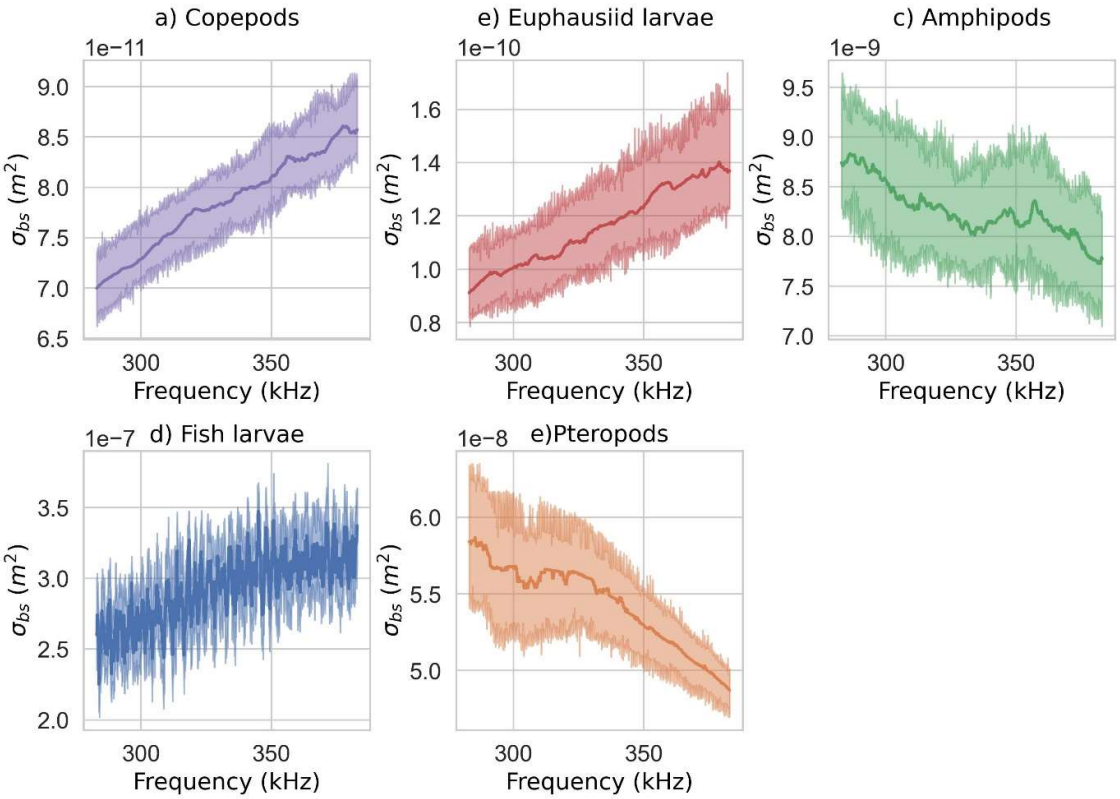

Figure S2: Theoretical cross-sectional backscatter for each taxonomic group (a-e) summarized for 1000 model simulations. The solid line represents the median and the shaded region represents the 5th and 95th percentiles. Note the different scales of each panel.

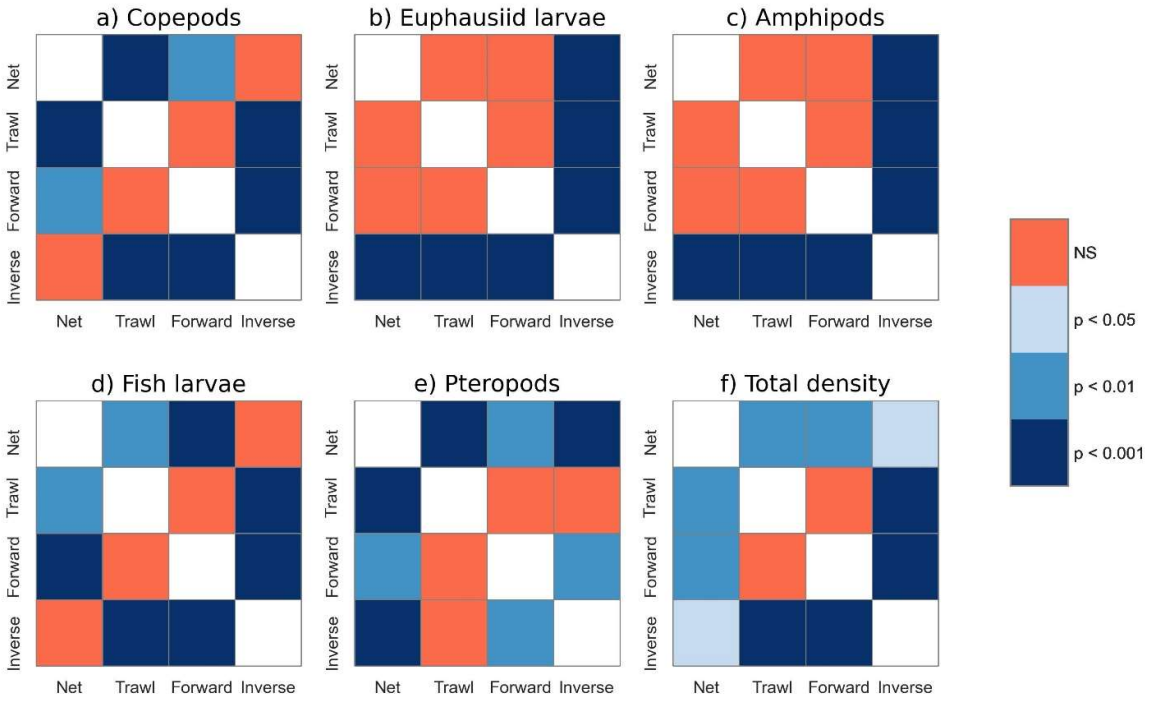

Figure S3: Sign plots to denote the statistical significance between density estimates for each taxonomic group (a-e) and total density (f) of the four measurement methods. Net represents MultiNet estimates, and Trawl is Tucker Trawl estimates. The acoustic survey density estimates are Forward for the forward method and Inverse for the inverse method.