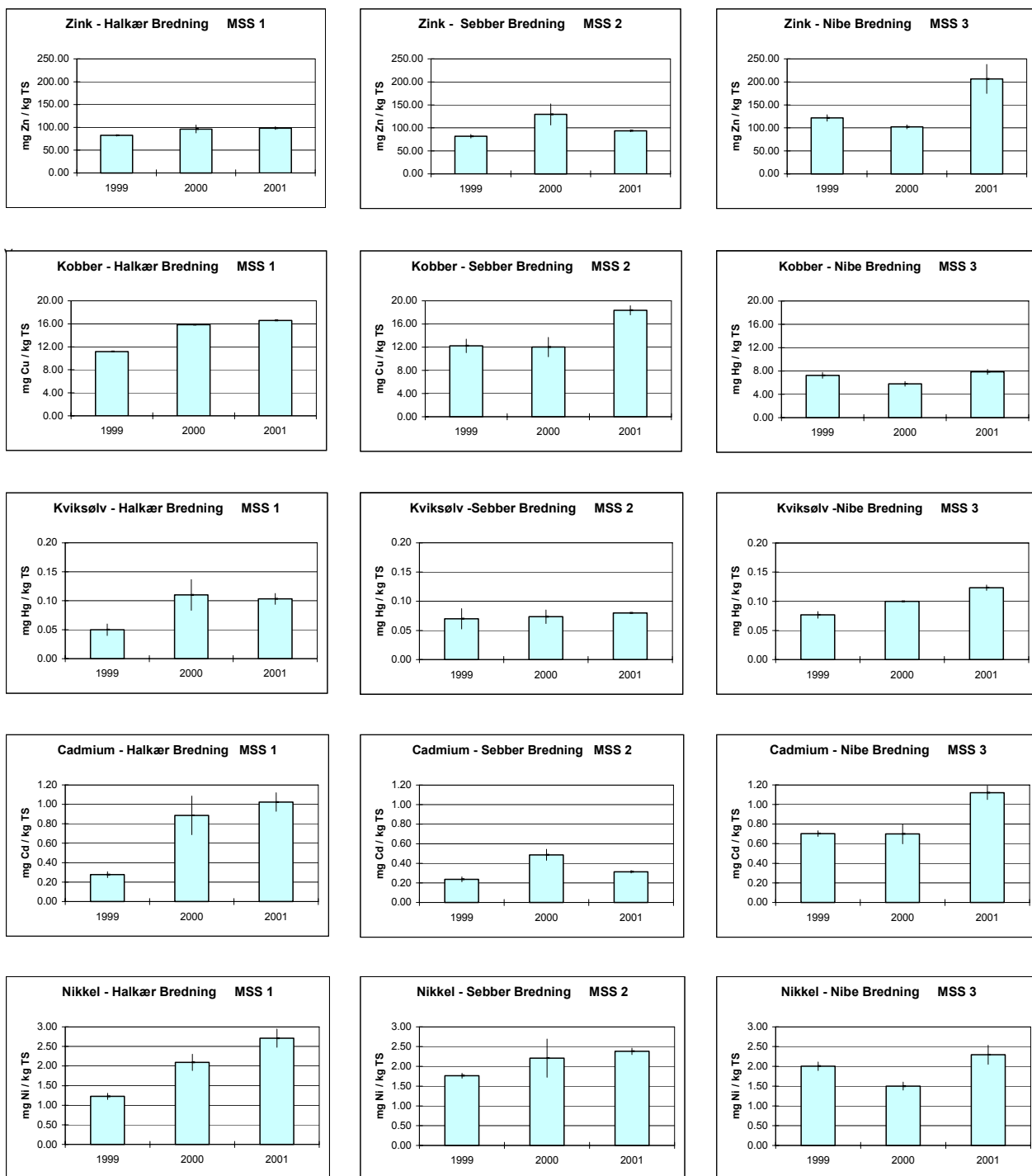
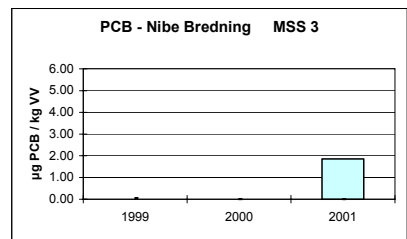
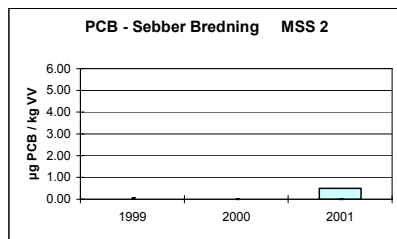
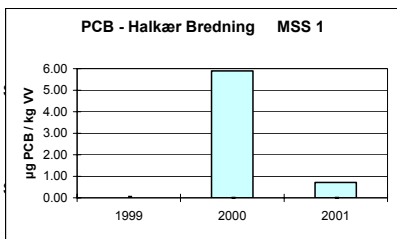


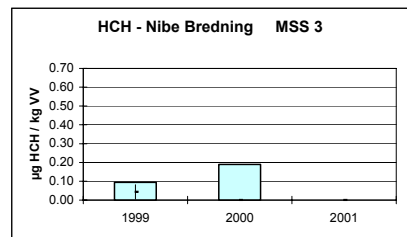
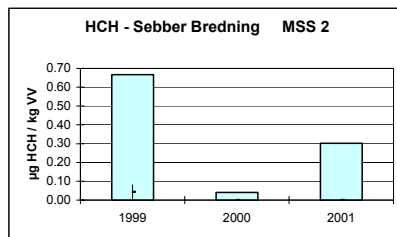
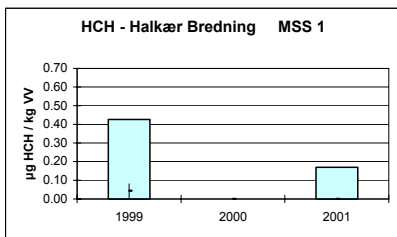
## Bilag 4.



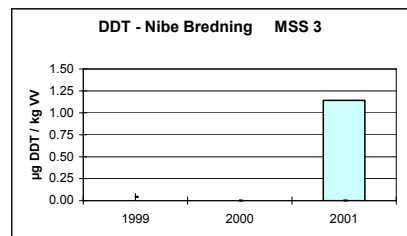
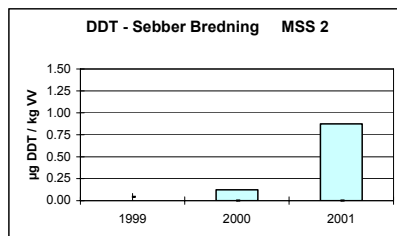
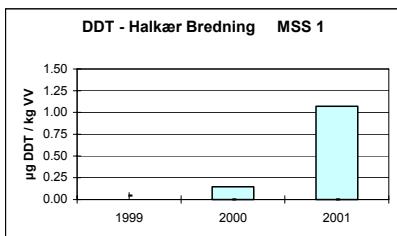
Figur 4.3: Koncentrationer af tungmetaller i sand- og blåmuslingers bløddede. Halkær, Sebber og Nibe Bredning, 2001. SFT's nedre grænseværdier for klassen moderat forurennet er h.h.v. for kobber 10, kviksølv 0,2; cadmium 2,0; nikkel 5,0 og bly 3,0; alle i mg/kg TS. Ingen værdier for zink.



Figur 4.4:  
Koncentrationer af PCB'er (sum) i sand- og blåmuslingers bløddele. Halkær, Sebber og Nibe Bredning, 2001.

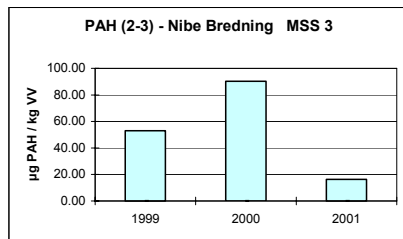
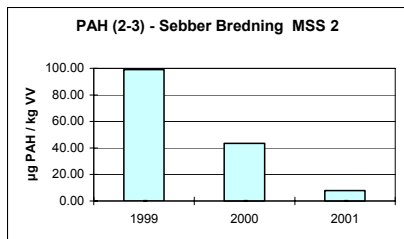
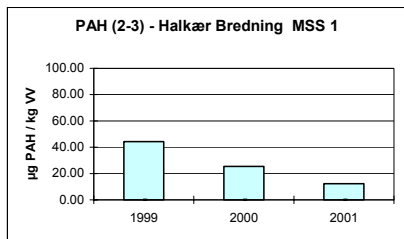


Figur 4.5:  
Koncentrationer af HCH'er (sum) i sand- og blåmuslingers bløddele. Halkær, Sebber og Nibe Bredning, 2001.

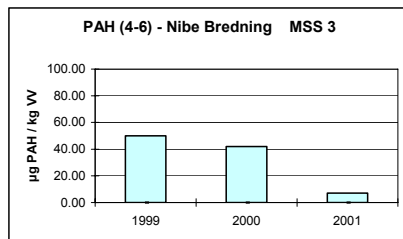
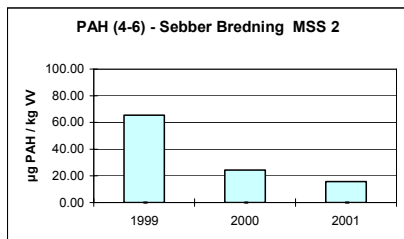
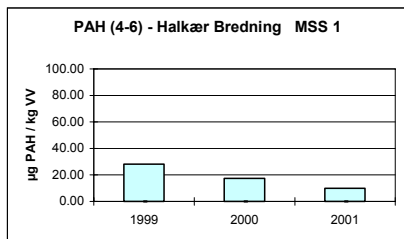


Figur 4.6:  
Koncentrationer af DDT'er (sum) i sand- og blåmuslingers bløddele. Halkær, Sebber og Nibe Bredning, 2001.

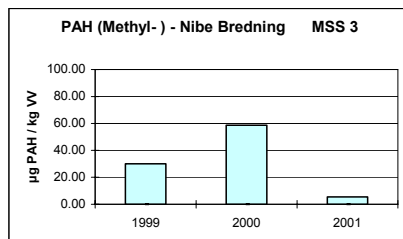
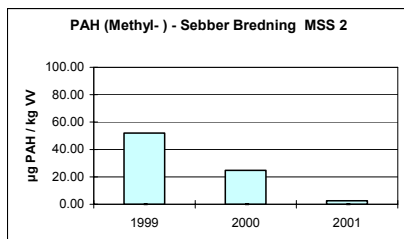
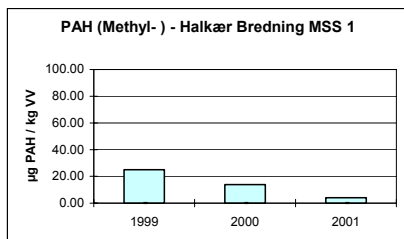
**PAH ( Sum lette 2-3)**



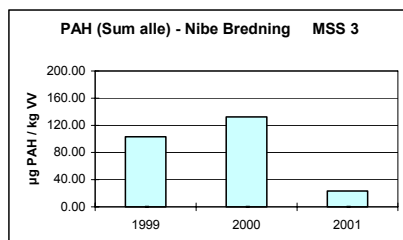
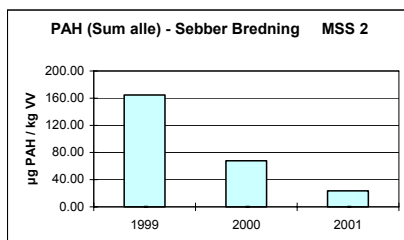
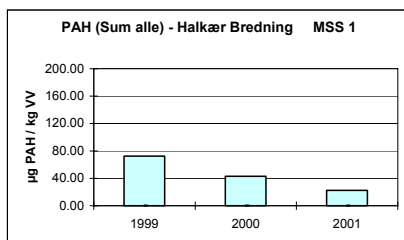
**PAH (Sum tunge 4 - 6)**



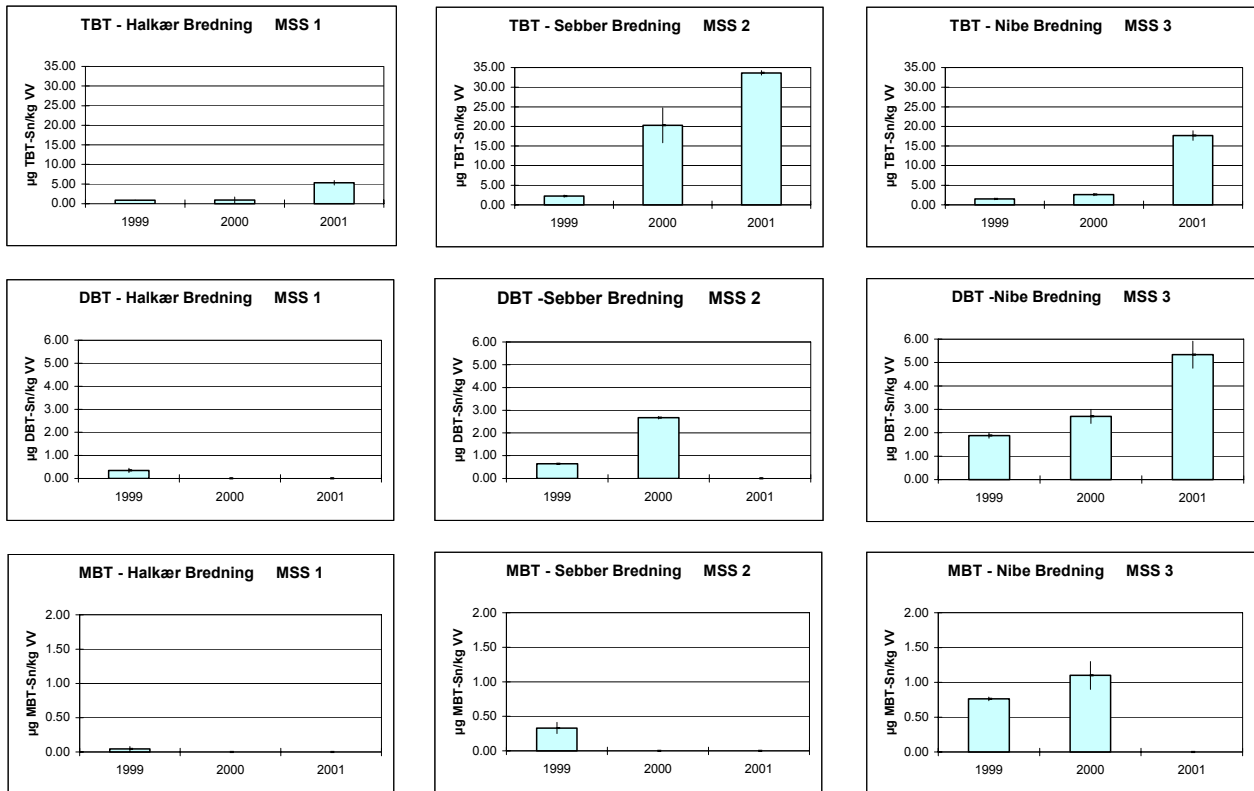
**PAH (Sum methylerede)**



**PAH ( Sum alle)**



Figur 4.7: Koncentrationer af grupperinger af PAH'er i sand- og blåmuslingers bløddele. Halkær, Sebber og Nibe Bredning, 2001.



Figur 4.8:  
 Koncentrationer af organotin (TBT, DBT og MBT) i sand- og blåmuslingers bløddele. Halkær, Sebber og Nibe Bredning, 2001.

Metaller	Halkær Bredning			MSS 1, 2001		Sebber Bredning			MSS 2, 2001		Nibe Bredning			MSS 3, 2001	
	MSS 1	MSS 1	MSS 1	middel	std.afv.	MSS 2	MSS 2	MSS 2	middel	std.afv.	MSS 3	MSS 3	MSS 3	middel	std.afv.
mg Zn/kg TS	103	96	96	98.33	3.30	96	91	94	93.67	2.05	240	215	164	206.33	31.63
mg Cu/kg TS	17.7	16.3	15.8	16.60	0.80	19.5	17.9	17.7	18.37	0.81	7.73	8.45	7.4	7.86	0.44
mg Hg/kg TS	0.11	0.09	0.11	0.10	0.01	0.08	0.08	0.08	0.08	0.00	0.13	0.12	0.12	0.12	0.00
mg Cd/kg TS	1.15	1	0.92	1.02	0.10	0.3	0.31	0.33	0.31	0.01	1.2	1.13	1.03	1.12	0.07
mg Ni/kg TS	2.85	2.9	2.38	2.71	0.23	2.47	2.27	2.4	2.38	0.08	2.06	2.63	2.19	2.29	0.24
mg Pb/kg TS	2.8	3.2	3.4	3.13	0.25	2.2	2.2	2.1	2.17	0.05	0.9	0.9	0.6	0.80	0.14

Tabel 4.1 Indhold af tungmetaller ( Zn, Cu, Hg, Cd, Ni, Pb ) i muslinger i Halkær-, Sebber- og Nibe Bredninger, 2001.

PCB mv. µg/kg v	Halkær Bredning			MSS 1, 2001		Sebber Bredning			MSS 2, 2001		Nibe Bredning			MSS 3, 2001	
	MSS 1	MSS 1	MSS 1	middel	std.afv.	MSS 2	MSS 2	MSS 2	middel	std.afv.	MSS 3	MSS 3	MSS 3	middel	std.afv.
PCB-28	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-
PCB-31	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-	0.61	<0,1	<0,1	0.61	-
PCB-52	0.1	<0,1	0.11	0.11	0.01	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-
PCB-101	0.19	0.18	0.14	0.17	0.03	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	0.29	-	-
PCB-105	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-
PCB-118	0.17	0.15	0.22	0.18	0.04	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	0.38	0.38	-
PCB-128	i.a	i.a	i.a	-	-	i.a	i.a	i.a	-	-	i.a	i.a	i.a	-	-
PCB-138	0.12	<0,1	<0,1	0.12	-	0.27	0.14	0.3	0.24	0.09	0.27	0.44	0.55	0.42	0.14
PCB-149	i.a	i.a	i.a	-	-	i.a	i.a	i.a	-	-	i.a	i.a	i.a	-	-
PCB-153	0.15	<0,1	0.12	0.14	0.02	0.38	0.14	0.26	0.26	0.12	0.31	0.38	0.64	0.44	0.17
PCB-156	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-
PCB-170	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-
PCB-180	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-
HCB	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-
alfa-HCH	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-
beta-HCH	<0,1	0.17	<0,1	0.17	-	0.12	<0,1	0.17	0.15	0.04	<0,1	<0,1	<0,1	-	-
gamma-HCH	<0,1	<0,1	<0,1	-	-	0.2	0.12	0.15	0.16	0.04	<0,1	<0,1	<0,1	-	-
p,p'-DDE	0.1	0.41	0.35	0.29	0.16	0.14	0.15	<0,1	0.15	0.01	<0,1	0.68	0.72	0.70	0.03
p,p'-DDD	0.82	0.78	0.75	0.78	0.04	0.75	0.65	0.79	0.73	0.07	0.19	0.37	0.77	0.44	0.30
p,p'-DDT	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-
Trans-nonachlor	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-

Tabel 4.2 Indhold af PCB mv. i muslinger i Halkær-, Sebber- og Nibe Bredninger, 2001.

	PAH' er m.m. µg/kg våd vægt	Halkær Bredning			MSS 1, 2001		Sebber Bredning			MSS 2, 2001		Nibe Bredning			MSS 3, 2001	
		MSS 1	MSS 1	MSS 1	middel	std.afv.	MSS 2	MSS 2	MSS 2	middel	std.afv.	MSS 3	MSS 3	MSS 3	middel	std.afv.
Lette PAH 'er C 4 - 6	Ekstraherb.															
	Total v. Smedes	0.43	0.28	0.3	0.34	0.08	0.37	0.23	0.27	0.29	0.07	0.3	0.46	0.28	0.35	0.10
	Naphthalen	i.r	i.r	i.r	-	-	i.r	i.r	i.r	-	-	i.r	i.r	i.r	-	-
	2-methylnaphthalen	i.r	i.r	i.r	-	-	i.r	i.r	i.r	-	-	i.r	i.r	i.r	-	-
	1-methylnaphthalen	i.r	i.r	i.r	-	-	i.r	i.r	i.r	-	-	i.r	i.r	i.r	-	-
	dimethylnaphthalener	<0,5	<0,5	<0,5	-	-	<0,5	<0,5	<0,5	-	-	0.73	0.9	0.62	0.75	0.14
	trimethylnaphthalener	0.76	<0,5	<0,5	0.76	-	<0,5	<0,5	<0,2	-	-	0.68	0.63	0.53	0.61	0.08
	Acenaphthylen	i.a	i.a	i.a	-	-	i.a	i.a	i.a	-	-	i.a	i.a	i.a	-	-
	Acenaphthen	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-	<0,1	<0,1	<0,1	-	-
	Fluoren	0.5	0.31	0.2	0.34	0.15	0.29	0.15	0.24	0.23	0.07	0.68	0.71	0.53	0.64	0.10
	Dibenzothiophen	0.8	0.63	0.42	0.62	0.19	0.33	0.35	0.36	0.35	0.02	0.83	0.72	0.69	0.75	0.07
	methyl dibenzothiophener	i.a	i.a	i.a	-	-	i.a	i.a	i.a	-	-	i.a	i.a	i.a	-	-
	Phenanthren	9.6	7.9	4.3	7.27	2.71	4.3	4.7	4.4	4.47	0.21	10	8.8	9.1	9.30	0.62
	2-methylphenanthren	2.8	2.5	1.9	2.40	0.46	1.7	2	1.6	1.77	0.21	3.2	2.4	2.8	2.80	0.40
3,6-dimethylphenanthren	0.93	0.76	0.76	0.82	0.10	0.71	0.79	0.58	0.69	0.11	1.3	1.2	1.1	1.20	0.10	
Anthracen	<0,3**	<0,3**	<0,3**	-	-	0.3	0.38	0.39	0.36	0.05	0.29	<0,2**	0.21	0.25	0.06	
Tunge PAH 'er C 4 - 6	Benz(a)fluoren	i.a	i.a	i.a	-	-	i.a	i.a	i.a	-	-	i.a	i.a	i.a	-	-
	Fluoranthren	2.6	2.5	3.1	2.73	0.32	3.5	3.3	3.5	3.43	0.12	2.2	2.6	2.2	2.33	0.23
	Pyren	1.7	1.4	1.7	1.60	0.17	2.7	2.5	2.5	2.57	0.12	2.1	1.6	1.4	1.70	0.36
	1-methylpyren	i.a	i.a	i.a	-	-	i.a	i.a	i.a	-	-	i.a	i.a	i.a	-	-
	Benz(a)anthracen	0.3	0.27	0.29	0.29	0.02	0.49	0.4	0.41	0.43	0.05	<0,2	<0,2	<0,2	-	-
	Chrysen/triphenylen	1.2	1.1	1.3	1.20	0.10	1.7	1.5	1.4	1.53	0.15	0.73	0.76	0.71	0.73	0.03
	Benz(b+j+k)fluoranthener	2	1.8	2.4	2.07	0.31	2.5	2.2	2.3	2.33	0.15	0.94	0.92	0.59	0.82	0.20
	Benz(e)pyren	1.7	1.5	2.1	1.77	0.31	2.6	2.3	2.6	2.50	0.17	0.75	0.67	0.49	0.64	0.13
	Benz(a)pyren	i.r	i.r	i.r	-	-	i.r	i.r	i.r	-	-	i.r	i.r	i.r	-	-
	Perylen	<0,2	0.29	0.43	0.36	0.10	3.2	2.1	2.5	2.60	0.56	1.1	1	0.84	0.98	0.13
	Indeno(1,2,3-cd)pyren	<1	<1	<1	-	-	<1	<1	<1	-	-	<1	<1	<1	-	-
Benz(ghi)perylen	<0,5	<0,5	<0,5	-	-	0.26	0.52	<0,5	0.39	0.18	<0,5	<0,5	<0,5	-	-	
Dibenz(a,h)anthracen	<1	<1	<1	-	-	<1	<1	<1	-	-	<1	<1	<1	-	-	
Sum PAH	24.89	20.96	18.9			24.58	23.19	22.78			25.53	22.91	21.81			
B(a)P-TEF																
2-3 ringe	15.39	12.1	7.58			7.63	8.37	7.57			17.71	15.36	15.58			
4-6 ringe	9.5	8.86	11.32			16.95	14.82	15.21			7.82	7.55	6.23			
Methylerede	4.49	0	0			2.41	2.79	2.18			5.91	5.13	5.05			

Tabel 4.3 Indhold af PAH' er mv. i muslinger i Halkær-, Sebber- og Nibe bredninger, 2001.

Stationsnavn		Halkær Bredning MSS 1 ( <i>Mya arenaria</i> )					Sebber Bredning MSS 2 ( <i>Mya arenaria</i> )					Nibe Bredning MSS 3 ( <i>Mytilus edulis</i> )								
Indsamlings-år		1998	1999	2000	2001	2002	2003	1998	1999	2000	2001	2002	2003	1998	1999	2000	2001	2002	2003	
		middelværdier ; n = 3					middelværdier ; n = 3					middelværdier ; n = 3								
B(a)P - TE Stof																				
PAH (µg/kg våd vægt)	0.001 Naphthalen	i.a.	1.91	1.48	0.00			i.a.	4.71	1.96	0.00			i.a.	3.31	7.30	0.00			
	0.001 2-methylnaphthalen	i.a.	4.34	2.38	0.00			i.a.	11.55	5.63	0.00			i.a.	5.43	7.00	0.00			
	0.001 1-methylnaphthalen	i.a.	2.31	1.32	0.00			i.a.	5.70	2.77	0.00			i.a.	2.06	5.20	0.00			
	0.001 dimethylnaphthalener	i.a.	10.47	5.33	0.00			i.a.	17.87	9.66	0.00			i.a.	9.42	13.90	0.75			
	0.001 trimethylnaphthalener	i.a.	5.62	3.41	0.76			i.a.	12.85	4.48	0.00			i.a.	6.73	9.30	0.61			
	C 2-3 , lette PAH'er	0.001 Acenaphthylen	i.a.	3.33	2.34	0.00			i.a.	6.60	3.67	0.00			i.a.	1.13	4.40	0.00		
		0.001 Acenaphthen	i.a.	1.14	0.64	0.00			i.a.	2.17	1.49	0.00			i.a.	0.93	0.40	0.00		
		0.001 Fluorene	i.a.	2.57	1.59	0.34			i.a.	5.36	1.48	0.23			i.a.	1.44	2.60	0.64		
		0.001 Dibenzothiophen	i.a.	1.16	0.70	0.62			i.a.	1.71	0.75	0.35			i.a.	1.95	1.10	0.75		
		0.001 Methylidibenzothiophener *	i.a.	0.00	0.00	0.00			i.a.		0.00	0.00			i.a.		14.20	0.00		
		0.001 Phenanthren	i.a.	7.99	4.15	7.27			i.a.	24.59	8.30	4.47			i.a.	12.60	16.40	9.30		
		0.001 methylphenanthrener	i.a.	1.90	1.06	2.40			i.a.	3.77	1.80	1.77			i.a.	3.82	3.80	2.80		
		0.001 dimethylphenanthrener	i.a.	0.27	0.37	0.82			i.a.	0.21	0.32	0.69			i.a.	2.55	3.60	1.20		
		0.01 Anthracen	i.a.	1.28	0.77	0.00			i.a.	2.09	1.14	0.36			i.a.	1.63	1.10	0.25		
C 4-6 , tunge PAH'er		0.001 Benz(a)flouren *	i.a.	0.00	0.00	0.00			i.a.		0.00	0.00			i.a.		0.40	0.00		
	0.001 Fluoranthene	i.a.	9.34	5.38	2.73			i.a.	14.40	5.00	3.43			i.a.	10.27	11.00	2.33			
	0.001 Pyren	i.a.	6.11	3.42	1.60			i.a.	7.93	3.25	2.57			i.a.	7.19	7.90	1.70			
	0.001 1-methylpyren *	i.a.	0.00	0.00	0.00			i.a.		0.00	0.00			i.a.		1.70	0.00			
	0.1 Benz(a)anthracen	i.a.	0.67	0.36	0.29			i.a.	3.54	0.96	0.43			i.a.	1.02	1.50	0.00			
	0.01 Chrysen/triphenylen	i.a.	2.40	1.42	1.20			i.a.	6.95	2.09	1.53			i.a.	3.52	5.10	0.73			
	0.1 Benz(b+j+k)fluoranthener	i.a.	3.06	1.68	2.07			i.a.	12.12	4.07	2.33			i.a.	7.16	4.00	0.82			
	0.01 Benz(e)pyren	i.a.	1.73	1.41	1.77			i.a.	3.72	1.58	2.50			i.a.	3.43	3.80	0.64			
	1 Benz(a)pyren	i.a.	0.94	0.82	0.00			i.a.	2.87	1.32	0.00			i.a.	1.79	2.70	0.00			
	0.1 Perylen	i.a.	0.81	0.90	0.36			i.a.	4.60	1.61	2.60			i.a.	6.73	3.10	0.98			
	0.1 Indeno(1,2,3-cd)pyren	i.a.	1.24	0.98	0.00			i.a.	4.16	2.23	0.00			i.a.	3.10	0.40	0.00			
	0.01 Benz(ghi)perylen	i.a.	1.21	1.13	0.00			i.a.	2.98	1.34	0.39			i.a.	2.73	0.30	0.00			
	5 Dibenzo(a,h)anthracen	i.a.	0.63	0.00	0.00			i.a.	1.86	0.97	0.00			i.a.	3.12	0.10	0.00			
	20 Dibenzo(a,i)pyren	i.a.	0.00		0.00			i.a.	0.39	0.00	0.00			i.a.	0.00		0.00			

Tabel 4.5 B(a)P - toxicitets ækvivalenter

B(a)P - toxicitets ækvivalent µg/kg våd vægt

	Halkær Bredning MSS 1 ( <i>Mya arenaria</i> )						Sebber Bredning MSS 2 ( <i>Mya arenaria</i> )						Nibe Bredning MSS 3 ( <i>Mytilus edulis</i> )						
	1998	1999	2000	2001	2002	2003	1998	1999	2000	2001	2002	2003	1998	1999	2000	2001	2002	2003	
<b>B(a)P - TE Stof</b>																			
0.001 Naphthalen	i.a.	0.0019	0.0015	0.0000	0.0000	0.0000	i.a.	0.0047	0.0020	0.0000	0.0000	0.0000	i.a.	0.0033	0.0073	0.0000	0.0000	0.0000	
0.001 2-methylnaphthalen	i.a.	0.0043	0.0024	0.0000	0.0000	0.0000	i.a.	0.0116	0.0056	0.0000	0.0000	0.0000	i.a.	0.0054	0.0070	0.0000	0.0000	0.0000	
0.001 1-methylnaphthalen	i.a.	0.0023	0.0013	0.0000	0.0000	0.0000	i.a.	0.0057	0.0028	0.0000	0.0000	0.0000	i.a.	0.0021	0.0052	0.0000	0.0000	0.0000	
0.001 dimethylnaphthalener	i.a.	0.0105	0.0053	0.0000	0.0000	0.0000	i.a.	0.0179	0.0097	0.0000	0.0000	0.0000	i.a.	0.0094	0.0139	0.0008	0.0000	0.0000	
0.001 trimethylnaphthalener	i.a.	0.0056	0.0034	0.0008	0.0000	0.0000	i.a.	0.0129	0.0045	0.0000	0.0000	0.0000	i.a.	0.0067	0.0093	0.0006	0.0000	0.0000	
0.001 Acenaphthylen	i.a.	0.0033	0.0023	0.0000	0.0000	0.0000	i.a.	0.0066	0.0037	0.0000	0.0000	0.0000	i.a.	0.0011	0.0044	0.0000	0.0000	0.0000	
0.001 Acenaphthen	i.a.	0.0011	0.0006	0.0000	0.0000	0.0000	i.a.	0.0022	0.0015	0.0000	0.0000	0.0000	i.a.	0.0009	0.0004	0.0000	0.0000	0.0000	
0.001 Fluorene	i.a.	0.0026	0.0016	0.0003	0.0000	0.0000	i.a.	0.0054	0.0015	0.0002	0.0000	0.0000	i.a.	0.0014	0.0026	0.0006	0.0000	0.0000	
0.001 Dibenzothiophen	i.a.	0.0012	0.0007	0.0006	0.0000	0.0000	i.a.	0.0017	0.0008	0.0003	0.0000	0.0000	i.a.	0.0020	0.0011	0.0007	0.0000	0.0000	
0.001 Methyl dibenzothiophener *	i.a.	0.0000	0.0000	0.0000	0.0000	0.0000	i.a.	0.0000	0.0000	0.0000	0.0000	0.0000	i.a.	0.0000	0.0142	0.0000	0.0000	0.0000	
0.001 Phenanthren	i.a.	0.0080	0.0041	0.0073	0.0000	0.0000	i.a.	0.0246	0.0083	0.0045	0.0000	0.0000	i.a.	0.0126	0.0164	0.0093	0.0000	0.0000	
0.001 methylphenanthrener	i.a.	0.0019	0.0011	0.0024	0.0000	0.0000	i.a.	0.0038	0.0018	0.0018	0.0000	0.0000	i.a.	0.0038	0.0038	0.0028	0.0000	0.0000	
0.001 dimethylphenanthrener	i.a.	0.0003	0.0004	0.0008	0.0000	0.0000	i.a.	0.0002	0.0003	0.0007	0.0000	0.0000	i.a.	0.0025	0.0036	0.0012	0.0000	0.0000	
0.01 Anthracen	i.a.	0.0128	0.0077	0.0000	0.0000	0.0000	i.a.	0.0209	0.0114	0.0036	0.0000	0.0000	i.a.	0.0163	0.0110	0.0025	0.0000	0.0000	
0.001 Benz(a)flouren *	i.a.	0.0000	0.0000	0.0000	0.0000	0.0000	i.a.	0.0000	0.0000	0.0000	0.0000	0.0000	i.a.	0.0000	0.0004	0.0000	0.0000	0.0000	
0.001 Fluoranthene	i.a.	0.0093	0.0054	0.0027	0.0000	0.0000	i.a.	0.0144	0.0050	0.0034	0.0000	0.0000	i.a.	0.0103	0.0110	0.0023	0.0000	0.0000	
0.001 Pyren	i.a.	0.0061	0.0034	0.0016	0.0000	0.0000	i.a.	0.0079	0.0032	0.0026	0.0000	0.0000	i.a.	0.0072	0.0079	0.0017	0.0000	0.0000	
0.001 1-methylpyren *	i.a.	0.0000	0.0000	0.0000	0.0000	0.0000	i.a.	0.0000	0.0000	0.0000	0.0000	0.0000	i.a.	0.0000	0.0017	0.0000	0.0000	0.0000	
0.1 Benz(a)anthracen	i.a.	0.0667	0.0362	0.0287	0.0000	0.0000	i.a.	0.3545	0.0958	0.0433	0.0000	0.0000	i.a.	0.1021	0.1500	0.0000	0.0000	0.0000	
0.01 Chrysen/triphenylen	i.a.	0.0240	0.0142	0.0120	0.0000	0.0000	i.a.	0.0695	0.0209	0.0153	0.0000	0.0000	i.a.	0.0352	0.0510	0.0073	0.0000	0.0000	
0.1 Benz(b+j+k)fluoranthener	i.a.	0.3059	0.1684	0.2067	0.0000	0.0000	i.a.	1.2115	0.4069	0.2333	0.0000	0.0000	i.a.	0.7161	0.4000	0.0817	0.0000	0.0000	
0.01 Benz(e)pyren	i.a.	0.0173	0.0141	0.0177	0.0000	0.0000	i.a.	0.0372	0.0158	0.0250	0.0000	0.0000	i.a.	0.0343	0.0380	0.0064	0.0000	0.0000	
1 Benz(a)pyren	i.a.	0.9431	0.8232	0.0000	0.0000	0.0000	i.a.	2.8732	1.3201	0.0000	0.0000	0.0000	i.a.	1.7940	2.7000	0.0000	0.0000	0.0000	
0.1 Perylen	i.a.	0.0812	0.0900	0.0360	0.0000	0.0000	i.a.	0.4604	0.1610	0.2600	0.0000	0.0000	i.a.	0.6727	0.3100	0.0980	0.0000	0.0000	
0.1 Indeno(1,2,3-cd)pyren	i.a.	0.1237	0.0977	0.0000	0.0000	0.0000	i.a.	0.4159	0.2231	0.0000	0.0000	0.0000	i.a.	0.3105	0.0400	0.0000	0.0000	0.0000	
0.01 Benz(ghi)perylen	i.a.	0.0121	0.0113	0.0000	0.0000	0.0000	i.a.	0.0298	0.0134	0.0039	0.0000	0.0000	i.a.	0.0273	0.0030	0.0000	0.0000	0.0000	
5 Dibenzo(a,h)anthracen	i.a.	3.1674	0.0000	0.0000	0.0000	0.0000	i.a.	9.2873	4.8660	0.0000	0.0000	0.0000	i.a.	15.5836	0.5000	0.0000	0.0000	0.0000	
20 Dibenzo(a,i)pyren	i.a.	0.0000	0.0000	0.0000	0.0000	0.0000	i.a.	7.8667	0.0000	0.0000	0.0000	0.0000	i.a.	0.0000	0.0000	0.0000	0.0000	0.0000	
<b>Sum</b>		<b>0.00</b>	<b>4.81</b>	<b>1.30</b>	<b>0.32</b>	<b>0.00</b>		<b>0.00</b>	<b>22.75</b>	<b>7.18</b>	<b>0.60</b>	<b>0.00</b>		<b>0.00</b>	<b>19.36</b>	<b>4.31</b>	<b>0.22</b>	<b>0.00</b>	<b>0.00</b>

Tabel 4.5 B(a)P - toxicitets ækvivalenter - FORTSAT !

Organismer: *Mya arenaria* og *Mytilus edulis*

Stationsnavn	NJA nr.	Halkær Bredning ( <i>Mya arenaria</i> )												Sebber Bredning ( <i>Mya arenaria</i> )												Nibe Bredning ( <i>Mytilus edulis</i> )													
		MSS 1, 1999				MSS 1, 2000				MSS 1, 2001				MSS 2, 1999				MSS 2, 2000				MSS 2, 2001				MSS 3, 1999				MSS 3, 2000				MSS 3, 2001					
		mid	std afv	mid-std	mid+std	mid	std afv	mid-std	mid+std	mid	std afv	mid-std	mid+std	mid	std afv	mid-std	mid+std	mid	std afv	mid-std	mid+std	mid	std afv	mid-std	mid+std	mid	std afv	mid-std	mid+std	mid	std afv	mid-std	mid+std	mid	std afv	mid-std	mid+std	mid	std afv
Organotin (µg/kg våd vægt)	µg TBT-Sn/kg	0.89	0.02	0.86	0.91	0.90	0.79	0.11	1.69	5.33	0.56	4.76	5.91	2.21	0.27	1.94	2.48	20.27	2.42	15.82	24.71	33.67	0.58	33.09	34.24	1.49	0.17	1.31	1.66	2.60	0.30	2.30	2.90	17.67	1.20	16.47	18.87		
	µg DBT-Sn/kg	0.35	0.10	0.25	0.45	<	<	<	<	-	-	-	-	0.64	0.02	0.63	0.66	2.67	0.06	2.61	2.72	-	-	-	-	1.88	0.11	1.77	1.99	2.70	0.30	2.40	3.00	5.33	0.58	4.76	5.91		
	µg MBT-Sn/kg	0.04	0.04	0.01	0.08	<	<	<	<	-	-	-	-	0.33	0.08	0.25	0.41	<	<	<	<	-	-	-	-	0.76	0.03	0.74	0.79	1.10	0.20	0.90	1.30	-	-	-	-		
Metaller (mg/kg tørstof)	mg Zn/kg TS	82.33	1.53	80.81	83.86	96.27	8.81	87.46	105.07	98.33	3.30	95.03	101.63	81.67	4.16	77.50	85.83	129.33	22.90	106.44	152.23	93.67	2.05	91.61	95.72	121.67	7.23	114.43	128.90	102.10	4.50	97.60	106.60	206.33	31.63	174.71	237.96		
	mg Cu/kg TS	11.17	0.15	11.01	11.32	15.87	2.74	13.12	18.61	16.60	0.80	15.80	17.40	12.23	1.17	11.07	13.40	12.03	1.68	10.35	13.71	18.37	0.81	17.56	19.17	7.25	0.50	6.75	7.75	5.80	0.40	5.40	6.20	7.86	0.44	7.42	8.30		
	mg Hg/kg TS	0.05	0.01	0.04	0.06	0.11	0.03	0.08	0.14	0.10	0.01	0.09	0.11	0.07	0.02	0.05	0.09	0.07	0.01	0.06	0.08	0.08	0.01	0.07	0.08	0.08	0.01	0.07	0.08	0.10	0.00	0.10	0.10	0.12	0.00	0.12	0.13		
	mg Cd/kg TS	0.28	0.03	0.25	0.31	0.89	0.20	0.69	1.09	1.02	0.10	0.93	1.12	0.24	0.03	0.21	0.26	0.49	0.06	0.43	0.54	0.31	0.01	0.30	0.33	0.70	0.03	0.67	0.73	0.70	0.10	0.60	0.80	1.12	0.07	1.05	1.19		
	mg Ni/kg TS	1.23	0.08	1.15	1.31	2.09	0.21	1.88	2.30	2.71	0.23	2.48	2.94	1.76	0.06	1.70	1.83	2.21	0.48	1.72	2.69	2.38	0.08	2.30	2.46	2.00	0.11	1.90	2.11	1.50	0.10	1.40	1.60	2.29	0.24	2.05	2.54		
	mg Pb/kg TS	2.50	0.10	2.40	2.60	2.30	0.17	2.13	2.47	3.13	0.25	2.88	3.38	1.73	0.32	1.41	2.05	1.60	0.26	1.34	1.86	2.17	0.05	2.12	2.21	0.67	0.06	0.61	0.72	0.60	0.10	0.50	0.70	0.80	0.14	0.66	0.94		
	mg Li/kg TS																																						
	% Al (TS)																																						
	PCB mv. (µg/kg våd vægt)	PCB-28					<	<	<	<	-	-	-	-	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	-	-	-	-	
		PCB-31					0.23	0.16	0.07	0.39	-	-	-	-	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	0.61	-	-	-	
		PCB-52					0.13	0.01	0.12	0.14	0.11	0.01	0.10	0.11	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	-	-	-	-	
		PCB-101					0.95	0.82	0.13	1.77	0.17	0.03	0.14	0.20	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	-	-	-	-	
		PCB-105					<	<	<	<	-	-	-	-	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	-	-	-	-	
PCB-118						0.83	0.30	0.53	1.12	0.18	0.04	0.14	0.22	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	0.38	-	-	-		
PCB-128						<	<	<	<	-	-	-	-	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	-	-	-	-		
PCB-138						1.57	1.38	0.19	2.95	0.12	-	-	-	<	<	<	<	-	-	-	-	0.24	0.09	-	-	<	<	<	<	<	<	<	<	0.42	0.14	-	-		
PCB-149						<	<	<	<	-	-	-	-	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	-	-	-	-		
PCB-153						2.11	0.32	1.79	2.43	0.14	0.02	0.11	0.16	<	<	<	<	-	-	-	-	0.26	0.12	-	-	<	<	<	<	<	<	<	<	0.44	0.17	-	-		
PCB-156						<	<	<	<	-	-	-	-	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	-	-	-	-		
PCB-170						<	<	<	<	-	-	-	-	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	-	-	-	-		
PCB-180						0.08	0.13	-0.06	0.21	-	-	-	-	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	-	-	-	-		
HCB						<	<	<	<	-	-	-	-	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	-	-	-	-		
alfa-HCH						<	<	<	<	-	-	-	-	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	-	-	-	-		
beta-HCH						<	<	<	<	0.17	-	-	-	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	-	-	-	-		
gamma-HCH						<	<	<	<	-	-	-	-	<	<	<	<	-	-	-	-	-	-	-	-	<	<	<	<	<	<	<	<	-	-	-	-		
p,p'-DDE	0.43	0.03			0.15	0.02	0.12	0.17	0.29	0.16	0.12	0.45	0.67	0.29			0.04	0.07			0.12	0.11			0.15	0.04			0.19	0.04			0.70	0.03					
p,p'-DDD					<	<	<	<	0.78	0.04	0.75	0.82	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<			
p,p'-DDT					<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<			
Trans-nonachlor					<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<			
PAH (µg/kg våd vægt)	Naphthalen	1.91	1.05			1.48	0.60			4.71	0.56			1.96	2.38			3.31	0.67			3.31	0.67			7.30	1.20			7.30	1.20								
	2-methylnaphthalen	4.34	0.42			2.38	2.77			11.55	2.56			5.63	5.13			5.43	0.39			5.43	0.39			7.00	1.20			7.00	1.20								
	1-methylnaphthalen	2.31	0.33			1.32	1.40			5.70	1.21			2.77	2.54			2.06	0.40			2.06	0.40			5.20	0.60			5.20	0.60								
	dimethylnaphthalener	10.47	0.20			5.33	7.26			17.87	3.86			9.66	7.31			9.42	2.88			9.42	2.88			13.90	1.50			13.90	1.50			0.75	0.14				
	trimethylnaphthalener	5.62	1.20			3.41	3.13			12.85	1.19			4.48	5.67			6.73	0.41			6.73	0.41			9.30	1.20			9.30	1.20			0.61	0.08				
	Acenaphthylen	3.33	1.36			2.34	1.39			6.60	3.00			3.67	2.67			1.13	0.38			1.13	0.38			4.40	1.00			4.40	1.00								
	Acenaphthen	1.14	0.14			0.64	0.71			2.17	1.60			1.49	0.74			0.93	0.06			0.93	0.06			0.40	0.20			0.40	0.20								
	Fluorene	2.57	0.62			1.59	1.38			0.34	0.15			5.36	0.17			1.44	0.76			0.23	0.07			2.60	0.60			2.60	0.60			0.64	0.10				
	Dibenzothiophen	1.16	0.23			0.70	0.66			0.62	0.19			1.71	0.59			0.75	0.57			0.35	0.02			1.10	0.10			1.10	0.10			0.75	0.07				
	Methylidibenzothiophener*																																						
Phenanthren	7.99	0.30			4.15	5.43			7.27	2.71			24.59	1.52			8.30	9.38			4.47	0.21			12.60	2.13			12.60	2.13			9.30	0.62					
methyphenanthrene	1.90	0.21			1.06	1.19			3.77	1.20			1.80	1.30			1.77	0.21			1.77	0.21			3.82	0.70			3.82	0.70			2.80	0.40					
dimethylphenanthrene	0.27	0.47			0.37	0.14			0.82	0.10			0.21	0.36			0.32	0.29			0.69	0.11			2.55	2.81			2.55	2.									

st. nr.	Halkær Bredning MSS 1 ; 2001						Sebber Bredning MSS 2 ; 2001					Nibe Bredning MSS 3 ; 2001					
	MSS 1	MSS 1	MSS 1	middel	std.afv.		MSS 2	MSS 2	MSS 2	middel	std. afv.		MSS 3	MSS 3	MSS 3	middel	std. afv.
Organotin	µg TBT-Sn/kg	5	5	6	5.3	0.6	33	34	34	33.7	0.6		17	19	17	17.7	1.2
	µg DBT-Sn/kg	<3	<3	<3	-	-	<3	<3	<3	-	-		5	5	6	5.33	0.6
	µg MBT Sn/kg	<5	<5	<5	-	-	<5	<5	<5	-	-		<5	<5	<5	-	-

Tabel 4.7 Indhold af organotin forbindelser i muslinger i Halkær-, Sebber- og Nibe Bredninger, 2001.

	Halkær Bredning			Sebber Bredning			Nibe Bredning		
	MSS 1	MSS 1	MSS 1	MSS 2	MSS 2	MSS 2	MSS 3	MSS 3	MSS 3
Dato	02.10.2001	02.10.2001	02.10.2001	03.10.2001	03.10.2002	03.10.2003	01.10.2001	01.10.2001	01.10.2001
WGS84	56° 56, 576	56° 56, 576	56° 56, 576	56° 58, 006	56° 58, 006	56° 58, 006	57° 00, 567	57° 00, 567	57° 00, 567
WGS84	09° 34, 369	09° 34, 369	09° 34, 369	09° 36, 516	09° 36, 516	09° 36, 516	09° 36, 062	09° 36, 062	09° 36, 062
Dybde	0.6	0.6	0.6	0.8	0.8	0.8	0.7	0.7	0.7

Tabel 4.8 Stationsoversigt - Miljøfremmede stoffer i muslinger, Halkær-, Sebber- og Nibe Bredninger, 2001.

	Halkær Bredning			Sebber Bredning			Nibe Bredning			
	MSS 1A	MSS 1B	MSS 1C	MSS 2A	MSS 2B	MSS 2C	MSS 3A	MSS 3B	MSS 3C	
Dato	02.10.2001	02.10.2001	02.10.2001	03.10.2001	03.10.2002	03.10.2003	01.10.2001	01.10.2001	01.10.2001	
WGS84	N	56° 56, 576	56° 56, 576	56° 56, 576	56° 58, 006	56° 58, 006	56° 58, 006	57° 00, 567	57° 00, 567	57° 00, 567
	Ø	09° 34, 369	09° 34, 369	09° 34, 369	09° 36, 516	09° 36, 516	09° 36, 516	09° 36, 062	09° 36, 062	09° 36, 062
Vandybde m	0.6	0.6	0.6	0.8	0.8	0.8	0.7	0.7	0.7	
Art	Mya arenaria	Mya arenaria	Mya arenaria	Mya arenaria	Mya arenaria	Mya arenaria	Mytilus edulis	Mytilus edulis	Mytilus edulis	
antal	147	148	146	118	100	99	54	59	48	
g middel	0.90	0.95	0.84	1.42	1.51	1.57	5.84	5.66	5.61	
g std.afv.	0.24	0.26	0.25	0.40	0.50	0.47	0.75	0.83	0.73	
g min	0.49	0.47	0.34	0.64	0.62	0.84	3.77	3.85	3.97	
g max	1.62	1.84	1.48	2.68	3.18	3.18	7.51	7.13	7.44	
g middel	1.09	1.12	1.03	2.27	2.45	2.42	11.02	9.58	10.49	
g std.afv.	0.24	0.26	0.30	0.65	0.88	0.80	3.55	3.29	4.53	
g min	0.57	0.70	0.63	1.31	1.15	1.38	4.46	3.29	4.52	
g max	1.96	1.85	1.73	4.81	5.14	5.13	20.32	16.89	29.20	
mm middel	30.2	31.2	29.8	35.7	37.4	36.5	58.4	56.6	56.1	
mm std.afv.	2.5	2.6	3.0	3.6	4.2	4.2	7.5	8.3	7.3	
mm min.	26.0	26.0	25.0	29.0	31.0	30.0	37.7	38.5	39.7	
mm max.	37.0	40.0	39.0	47.0	51.0	52.0	75.1	71.3	74.4	
%	12.35	13.47	13.79	16.98	16.84	16.33	16.43	15.78	10.49	

Tabel 4.9 Data for sandmuslinger og blåmuslinger, Halkær-, Sebber- og Nibe Bredninger, 2000