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MERCURY CONTAMINATION OF BELGIAN AND PERUVIAN CETACEA.

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Abstract

Cetacea recolted in Belgium were analysed for their total mercury contamination: a male Sperm Whale *Physeter catodon*, a Common Dolphin *Delphinus delphis*, 3 Porpoises *Phocoena phocoena* and a Harbour Seal ~~*Phoca vitulina*~~.

In general, relatively "normal" Hg levels for marine mammals were found. The obvious exceptions are the Sperm Whale and the Dolphin: both show very high concentrations of 40 and 50 ppm dry weight and 4600 and 1200 ppm lipid weight, as well as a very high liver/muscle ratio. This might be an indication for acute intoxication, possibly even responsible for the death of the animals. In both cases, the animal was found dying and an extremely high liver contamination per lipid weight reflects a very low lipid content: bad physiological conditions with consumption of own fat reserves might have caused a remobilization of liposoluble xenobiotics and provoked an acute intoxication.

However, a separate determination of organic mercury is still needed before drawing more definitive conclusions (this will happen within a few months).

In the Peruvian samples: two *Lagenorhynchus obscurus* and a *Phocoena spinipinnis* from the bycatch, levels are of the same order of magnitude. The higher contamination of the adult male than the immature males, if significant, can be understood as a continuing accumulation with increasing age.

Table 1: Total mercury contamination of Belgian and Peruvian cetacea.

Species	Tissue	$\mu\text{g Hg/g}$ fresh weight (mean)		$\mu\text{g Hg/g}$ dry weight (mean)		$\mu\text{g Hg/g}$ lipid weight (mean)	
<i>Physeter catodon</i> Koksijde, Belgium, 13-2-1989	liver	18.46	18.9	49.23	50.3	4502.70	4599
	<i>idem</i>	19.23		51.28		4690.24	
	<i>idem</i>	18.87		50.26		4601.22	
	<i>idem</i>	18.87		50.26		4601.22	
	muscle	0.71	0.73	1.80	1.90	8.74	9.12
	<i>idem</i>	0.71		1.80		8.74	
	<i>idem</i>	0.82		2.13		10.07	
	<i>idem</i>	0.82		2.13		10.07	
	<i>idem</i>	0.65		1.64		8.00	
<i>Phocoena phocoena</i> Belgium, 5-1987	liver	0.76	0.75	2.95	2.93	38.65	38.3
	<i>idem</i>	0.75		2.91		38.04	
	muscle	0.33	0.33	0.47	0.47	2.34	2.34
	<i>idem</i>	0.33		0.47		2.34	
<i>Phocoena phocoena</i> Belgium, 24-6-1988	blubber	0.57	0.48	1.26	1.05	2.71	2.27
	<i>idem</i>	0.39		0.84		1.83	
	liver	0.33	0.35	1.25	1.36	15.10	16.4
	<i>idem</i>	0.38		1.46		17.61	
<i>Phocoena phocoena</i> Belgium, 8-7-1988	liver	0.97	0.99	5.00	5.00	107.90	110
	<i>idem</i>	1.01		5.00		113.03	
<i>Phocoena phocoena</i> Belgium, 15-8-1988	muscle	1.00	0.97	2.70	2.61	12.97	12.5
	<i>idem</i>	0.93		2.51		12.10	

<i>Delphinus delphis</i> (*) Zeebrugge, Belgium, 10-1-1986	liver	26.40	30.0	36.60	41.6	1062.80	1208
	<i>idem</i>	33.60		46.60		1352.66	
	muscle	5.90	5.70	7.90	8.20	7.90	7.64
	<i>idem</i>	5.50		8.50		7.37	
	blubber	0.80	0.80				
<i>Lagenorhynchus obscurus</i> Bucusana, Peru, 17-9-1988 male, probably immature	liver	0.66	0.63	2.29	2.20	16.61	15.5
	<i>idem</i>	0.60		2.12		13.35	
	<i>idem</i>	0.68		2.38		17.28	
	<i>idem</i>	0.58		2.01		14.60	
<i>Lagenorhynchus obscurus</i> Bucusana, Peru, 18-9-1989 male, probably mature	liver	5.88	7.78	20.59	27.3	244.31	323
	<i>idem</i>	8.82		30.88		366.47	
	<i>idem</i>	8.65		30.30		359.51	
<i>Phocoena spinipinnis</i> Bucusana, Peru, 18-9-1989 immature male	liver	0.55	0.51	1.82	1.68	20.33	18.8
	<i>idem</i>	0.49		1.63		18.21	
	<i>idem</i>	0.48		1.59		17.75	

(*) Joiris, C., J.M. Bouquegneau, K. Delbeke and W. Overloop. 1987. Contamination by stable pollutants (organochlorines and heavy metals) of a common dolphin *Delphinus delphis* found dying in Belgium. Eur. Cetacean Soc. Newsletter, 1: 30-31.