Hylebos Waterway Fish Injury Studies Individual Data and Quality Assurance Results CASE NARRATIVE

Reproductive Toxicology in Flatfish Biliary FACs

Individual bile samples from English sole captured for the Hylebos Waterway Fish Injury Studies were analyzed by HFLC with fluorescence detection. In addition to benzo(a)pyrene- (BaP) and naphthalene- (NPH) like compounds, fluorescence responses were also measured for phenanthrene- (PHN) like compounds. In accordance with the Sampling and Analysis Plan (SAP), analytical quality control (identified by QCBatch) was assessed with each analysis set. The QCBatch identifications for the analyses sets are "HylRepro01" through "HylRepro5".

Those samples used in the Reproductive Toxicology Interpretive Report are identified by "ReTox" under the INVEST# in the summary table. In addition, data from all samples listed in this case narrative are used with FAC data from the Toxicopathic Conditions Study, and the combined flatfish FAC data is summarized

in the Toxicopathic Conditions Interpretive Report. Therefore, the only revision in this case narrative is the inclusion of the additional FAC data of bile from male English sole, as well as additional data from English sole collected from Hylebos and Colvos waterways in months other than December and January. The inclusion of these additional data complete the overall flatfish Biliary FACs dataset discussed in the Toxicopathic Conditions Interpretive Report.

.Method Blank

Results of HPLC analysis of the method blank for each of the QCBatches showed fluorescence responses of BaP, NPH, and PHN met the following criteria: BaP, NPH, or PHN equivalents in the method blanks were less than 10% of concentrations in any bile sample analyzed in the same set.

Initial Calibration Standards

An initial calibration standard consisting of known concentrations of BaP, NPH, and PHN was analyzed in duplicate at the start of each sample set. The relative standard deviation (RSD) for each individual PAH for the two analyses met the criteria ($\leq 15\%$) set in the quality control section (Table 4) of the SAP for each of the QCBatches.

Continuing Calibration Standards

The calibration standard was analyzed periodically throughout the sample sets. The relative standard deviations for the analyses in all three QCBatches were within the 25% RSD limit set for each individual PAH (Table 4, SAP).

Bile Reference Material

A bile reference material was analyzed near the beginning and end of each sample set and compared to historical interlaboratory means of this reference material (see Quality Assurance section in SAP). The measured fluorescence responses of this bile sample were within the upper and lower control limits of the interlaboratory mean value for this reference bile (see Quality Assurance Results).

Replicates

Selected bile samples were analyzed in duplicate for every ten fish analyzed. The RSDs ranged from <1 to 28%, which is within the 50% RSD limit set in the SAP.

	ID#	REPL	INVEST#	PHN	NPH	BaP	PHN/PROT	NPH/PROT	BAP/PROT P	ROTEIN	QCBATCH
	Colvos Passage	-Dec									
	English sole										
	Enguisit sole										
	94-3505	1		21,000	90,000	500	7,000	30,000	163	3.0	HylRepro01
	94-3300 94-3507	1		20,000	85 000	000	0,300 11 400	50,000	229	2.4	HylRepro01
	94-3508	1		42.000	240.000	900	12.000	68,600	269	35	HylRenm01
	94-3508	2		44,000	280.000	1.000	12,600	80.000	286	3.5	HviRepro01
	94-3509	1		34,000	170,000	1,000	4,200	21,000	123	8.1	HylRepro01
	94-3510	1		20,000	110,000	400	6,300	34,400	122	3.2	HylRepro01
	94-3511	1		19,000	120,000	300	11,200	70,600	165	1.7	HylRepro01
	94-3512	1		29,000	190,000	400	9,100	59,400	119	3.2	HylRepro01
	94-3513	1		22,000	130,000	800	9,600	56,500	343	2.3	HylRepro01
	94-3514	1.	ReTox	11,000	27,000	200	7,900	19,400	127	1.4	HylRepro04
	94-3515	1	ReTox	10,000	30,000	100	10,500	29,700	128	1.0	HylRepro04
	94-3516	1.	Helox	18,000	53,000	200	8,000	24,000	75	2.2	HylRepro04
	84-3517 94-3518	1	BeToy	33,000	26 000	1,000	10,000	02,900 44 000	200	3.5	HylBoom04
	94-3518	2	ReTox	7,000	25,000	100	14,000	50,900	238	0.6	HytReom04
	94-3519	1		12,000	39,000	600	7.100	22.900	376	1.7	HylRepro01
	94-3520	1	ReTox	12,000	36,000	200	5,100	15,700	99	2.3	HylRepro04
	94-3521	1	ReTox	8,000	33,000	100	9,600	41,300	103	0.8	HylRepro04
	94-3522	1		8,000	48,000	600	6,700	40,000	517	. 1.2	HylRepro01
	94-3523	1	ReTox	10,000	32,000	100	9,000	29,100	194	1.1	HylRepro04
	94-3524	1	ReTox	11,000	41,000	200	8,700	31,700	176	1.3	HylRepro04
	94-3525	1	ReTox	39,000	142,000	500	9,000	32,900	119	4.3	HylRepro04
	94-3526	1	ReTox	21,000	76,000	. 400	3,600	12,800	61	5.9	HytRepro04
	84-352/ 94-3528	1	BeToy	9,000	23,000	200	7,700 R 100	20,100	127	U.9 1 1	HylRenin04
	94-3529	1	BeTox	16.000	54.000	200	6,100	20,800	86	2.6	HylReoro04
	94-3529	2	ReTox	16,000	53.000	200	6,300	21,200	91	2.5	HviRepro04
	94-3530	1	ReTox	25,000	145,000	300	11,500	65,900	132	2.2	HylRepro04
	94-3531	1	ReTox	14,000	43,000	200	6,300	19,700	105	2.2	HylRepro04
	94-3532	1	ReTox	19,000	73,000	400	5,800	22,800	119	3.2	HylRepro04
	94-3533	1	ReTox	8,000	34,000	100	7,600	30,700	73	1.1	HylRepro04
	94-3534	1	ReTox	15,000	50,000	200	7,700	26,100	127	1.9	HylRepro04
	94-3535	1	ReTox	8,000	29,000	200	13,400	47,600	268	0.6	HylRepro04
	94-3030	1	ReTox	16,000	48,000	300	5 600	17 200	108	5.U 2.B	HylRepro04
	94-3538	1	BeTox	10,000	34,000	100	16,500	55,900	217	0.6	HviRenm04
	94-3539	1	ReTox	9.000	30.000	400	8,900	29,500	404	1.0	HylRepro04
	94-3540	1	ReTox	8,000	28,000	400	5,000	16,500	· 235	1.7	HylRepro04
	94-3541	1	ReTox	8,000	27,000	200	8,900	30,200	198	0.9	HylRepro04
	94-3542	1	ReTox	33,000	101,000	400	9,900	30,600	126	3.3	HylRepro04
	94-3543	1	ReTox	13,000	43,000	200	8,500	28,400	164	1.5	HyiRepro04
	94-3544	1	ReTox	10,000	33,000	300	5,200	17,300	165	1.9	HylRepro04
	For English sole for	om Colvos		n= 43	n (protein) = 4	3 I	Protein ave: 2.	3±1.5 ma/mi			
										-	
	AVE ± SD PHN	(ng/g bile)	18,000	± 11,500	AVE	± SD PHN/	PROT (ng/mg	protein)	8,700 ± 2,80	D	
	AVE ± SD NP	H (ng/a bite)	80.000	± 65.000	AVE	± SD NPH/	PROT (no/ma	protein)	36,000 ± 17.00	00	•
•			000	1 080					100 ± 100		
-	AVE ± 3D BA	r (ngrg bile)	380	I 200	AVE	1 30 689/	rnut (ng/mg	protein)	130 2 100		
	Colvos Passage	-Jan									
											•
	English sole			·							
	94-3650	1	ReTox	27,000	120,000	500	10,400	46,200	188	2.6	HylRepro01
	94-3651	1	Refox	15,000	92,000	500	11,500	/0,800	362	1.3	HyiHepro01
	¥4-3032 04_9859	1	PIE I OX	10,000	33,000 70,000	000	10 000	23,000	210	2.3	HylRenco1
	94-3033 94.985A	1	ReTor	22 000	130,000	700	12 00/	, <u>52,700</u>) 76.500	406	1.0	HylRenmO1
	94-3654	2	BeTox	20.000	120.000	800	11.800	70.600	441	1.7	HylRepro01
	94-3657	1	ReTox	12,000	28,000	200	17,500	39,800	276	0.7	HylRepro05
	94-3659	1	ReTox	15,000	40,000	300	5,800	15,300	102	2.6	HylRepro05
	94-3660	1	ReTox	10,000	32,000	200	7,400	24,300	162	1.3	HyiRepro05
	94-3661	1	ReTox	9,000	29,000	100	14,400	47,600	235	0.6	HylRepro05
	94-3662	1	ReTox	9,000	29,000	100	6,60	0 20,500	91	1.4	HylRepro05
	94-3662	2	ReTox	9,000	28,000	100	6,20	0 18,600	81	1.5	HylRepro05
	94-3663	1	ReTox	12,000	38,000	200	3,50	0 11,000	62	3.5	HylRepro05
	94-3664	1	ReTox	13,000	41,000	300	5,70	U 18,700	130	2.2	HylRepro05
	¥4-3005 04.3666	1	BaTav	25,000	130,000	600	9,30	u 48,100 0 90,700	295	2.7	HylRooro05
	0000-766	1	THE I UX	20,000	04,000 100 000	000	0,50	0 20,700	220	2.5	HylRenrol1
	34-3000	•		23,000	190,000	900	7,00		£7V	0.7	i gin idpicori

ID#	REPL	INVEST#	PHN	NPH	BaP P	HN/PROT	NPH/PROT	BaP/PROT	PROTEIN	QCBATCH
94-3669	1	ReTox	15,000	47,000	200	9,100	27,800	115	1.7	HylRepro05
94-3670	1	ReTox	21,000	110,000	400	23,300	122,200	489	0.9	HylRepro01
94-3672	1	ReTox	58,000	340,000	1,100	12,900	75,600	244	4.5	HylRepro01
94-3673	1		26,000	140,000	700	7,200	38,900	192	3.6	HylRepro01
94-3674	1		120,000	650,000	4,900	17,600	95,600	721	6.8	HylRepro01
94-3681	1	ReTox	10,000	34,000	200	4,700	15,300	73	2.2	HylRepro05
94-3682	1	HeTox	8,000	27,000	100	7,700	24,500	124	1.1	HylHepro05
94-3083	1	ReTex	5,000	16 000	500	4 400	40,500	403	1.2	HytReproto
94-3695	1	BeTox	13,000	39,000	200	5,100	15,700	71	2.5	HylRenm05
94-3686	4	HUIDA	19,000	120.000	700	12,700	80.000	480	1.5	HylRepro01
94-3687	1	ReTox	38.000	120.000	1.100	5,900	18,700	174	6.4	HviRepro05
94-3688	1	ReTox	9.000	25,000	200	10,500	27,600	269	0.9	HylRepro05
94-3689	1	ReTox	22,000	65,000	500	13,900	40,700	287	1.6	HylRepro05
94-3690	1	ReTox	11,000	38,000	100	9,400	31,800	. 118	1.2	HylRepro05
94-3691	1		29,000	170,000	900	8,800	51,500	264	3.3	HylRepro01
94-3691	2		34,000	230,000	1,100	10,300	69,700	333	3.3	HylRepro01
For English sole fr	om Colvos	-	n= 34	n (protein) = 34	Pa	otein ave: 2.3	±1.4 mg/ml			
AVE ± SD PHN	l (ng/g bile)	21,500	± 20,000	AVE :	± SD PHN/P	ROT (ng/mg p	protein)	9,800 ± 4,30	00	
AVE ± SD NP	H (ng/g bile)	102,000	± 118,000	AVE	± SD NPH/P	NOT (ng/mg p	protein)	43,000 ± 26,0	100	
AVE ± SD Ba	P (ng/g blie)	630	± 810	AVE	± SD BeP/P	NOT (ng/mg p	protein)	270 ± 170		
Colvos Passage	-Oct									
English sole										
94-3402	1		37.000	82.000	5.500	24,700	54,700	3.667	1.5	HvlRepro02
94-3403	1		14.000	66.000	1,200	7,000	33,000	600	2.0	HylRepro02
94-3404	1		18,000	67,000	4,600	7,200	26,800	1,840	2.5	HylRepro02
94-3405	1		13,000	55,000	300	5,000	21,200	127 [.]	2.6	HylRepro02
94-3409	1		4,000	22,000	300	800	4,600	56	4.8	HylRepro02
94-3411	1		19,000	89,000	3,700	5,300	24,700	1,028	3.6	HylRepro02
94-3413	1		18,000	83,000	400	6,400	29,600	143	2.8	HylRepro02
94-3471	1	•	17,000	90,000	300	5,500	29,000	100	3.1	HyiHepro02
94-3471	2		19,000	82,000	400	6,100	20,500	135	3.1	Hymeprouz
94-3484	1		8,000	59,000	3,200	4 100	24 100	123	9.0	HylRepro02
94-3460	1		14 000	56,000	800	2,700	11.000	147	5.1	HylRept002
94-3499	1		24,000	120,000	800	4,100	20,700	131	5.8	HylRepro02
For English sole f	rom Colvos	· · · ·	n= 13	n (protein) = 1;	3 Pi	rotein ave: 3.4	l±1.3 mg/ml			
AVE ± SD PH	N (ng/g bile)	16,500	± 7,900	AVE	± SD PHN/P	ROT (ng/mg	protein)	6,200 ± 5,6	00	
AVE ± SD NF	PH (ng/g bile)	71,000	± 23,000	AVE	± SD NPH/P	ROT (ng/mg	protein)	25,000 ± 12,0	000	
AVE ± SD Ba	P (ng/g blie)	1,670	± 1,800	AVE	± SD BaP/F	PROT (ng/mg	protein)	680 ± 1,0	00	
Hylebos-Dec										
English sole	•									
94-3546	1	BeTox	64.000	200.000	. 900	6.500	20,200	93	9.9	HylRepro01
94-3548	1	ReTox	25.000	72,000	600	19,200	55,400	485	1.3	HylRepro01
94-3550	. 1	ReTox	150,000	440,000	2,200	21,700	63,800	319	6.9	HylRepro01
94-3552	1	ReTox	89,000	270,000	1,100	20,200	61,400	250	4.4	HylRepro01
94-3552	2	ReTox	81,000	300,000	1,600	18,400	68,200	364	4.4	HylRepro01
94-3554	1	ReTox	50,000	165,000	800	23,800	78,700	380	2.1	HylRepro04
94-3556	1	.	26,000	100,000	700	13,000	50,000	360	2.0	MyiMeprout
94-3558	1	Helox	13,000	43,000	200	13,000	7 43,400) 195 600	1/1	1.0	HulBoom04
94-3560	1	Peter	41,000	197,000	700	36,000	125,500 1 85,600	430	1.6	HylRepro04
2005-9F5 Qa-2582	2	ReTor	56,000	134.000	700	32,900) 78.700	400	1.7	HylRepro04
94-3566	1	AeTox	275.000	383.000	2.500	49,900	69,700	445	5.5	HylRepro04
94-3568	1	ReTox	32,000	88,000	500	40,300	110,600	658	0.8	HylRepro04
94-3569	1	ReTox	26,000	64,000	500	26,100	63,500	518	1.0	HylRepro04
94-3570	1		64,000	220,000	1,200	16,000	0 55,000	300	4.0	HylRepro01
				32.000	500	1,400	0 2,700) 43	11.7	HylRepro01
94-3571	1		16,000	52,000			-			
94-3571 94-3573	1 1		16,000 67,000	190,000	1,000	10,300	0 29,200) 154	6.5	HylRepro01
94-3571 94-3573 94-3574	1 1 1	ReTox	16,000 67,000 220,000	190,000 383,000	1,000 2,800	10,300 73,400	0 29,200 0 127,800) 154) 928	6.5 3.0	HylRepro01 HylRepro04
94-3571 94-3573 94-3574 94-3576	1 1 1	ReTox ReTox	16,000 67,000 220,000 56,000	190,000 383,000 118,000	1,000 2,800 500	10,300 73,400 70,300	0 29,200 0 127,800 0 146,900	154 928 685 410	6.5 3.0 0.8	HylRepro01 HylRepro04 HylRepro04 HylRepro04
94-3571 94-3573 94-3574 94-3576 94-3577	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ReTox ReTox ReTox	16,000 67,000 220,000 56,000 125,000	190,000 383,000 118,000 180,000	1,000 2,800 500 1,400	10,300 73,400 70,300 37,900	0 29,200 0 127,800 0 146,900 0 54,500 0 61,300	154 928 685 419 532	6.5 3.0 0.8 3.3	HylRepro01 HylRepro04 HylRepro04 HylRepro04 HylRepro01
94-3571 94-3573 94-3574 94-3576 94-3576 94-3580 04-3581	1 1 1 1 1	ReTox ReTox ReTox ReTox	16,000 67,000 220,000 56,000 125,000 150,000	190,000 383,000 118,000 180,000 380,000 263,000	1,000 2,800 500 1,400 3,300 1,400	10,30(73,40) 70,30(37,90(24,20) 94,80	0 29,200 0 127,800 0 146,900 0 54,500 0 61,300 0 164,600) 154) 928) 685) 419) 532) 906	6.5 3.0 0.8 3.3 6.2 1.6	HylRepro01 HylRepro04 HylRepro04 HylRepro04 HylRepro01 HylRepro04 HylRepro04
94-3571 94-3573 94-3574 94-3576 94-3587 94-3580 94-3581 94-3583	1 1 1 1 1 1 1	ReTox ReTox ReTox ReTox	16,000 67,000 220,000 56,000 125,000 150,000 152,000 65,000	190,000 383,000 118,000 180,000 380,000 263,000 140,000	1,000 2,800 500 1,400 3,300 1,400 800	10,300 73,400 70,300 37,900 24,200 94,800 18,100	0 29,200 0 127,800 0 146,900 0 54,500 0 61,300 0 164,600 0 38,900) 154) 928) 685) 419) 532) 906) 211	6.5 3.0 0.8 3.3 6.2 1.6 3.6	HylRepro01 HylRepro04 HylRepro04 HylRepro04 HylRepro01 HylRepro04 HylRepro01

	ID#	REPL	INVEST#	PHN	NPH	BaP	PHN/PROT I	PH/PROT	BaP/PROT	PROTEIN	QCBATCH
	94-3586	1	ReTox	28,000	67,000	600	21,200	51,900	425	1.3	HylRepro04
	94-3586	2	ReTox	25,000	59,000	500	20,500	49,200	381	1.2	HylRepro04
	94-3587	1	ReTox	25,000	63,000	300	41,500	105,800	448	0.6	HylRepro04
	94-3588	1	ReTox	73,000	200,000	900	56,000	154,100	687	1.3	HylRepro04
	94-3590	1	ReTox	418,000	655,000	4,300	144,200	226,000	1,496	2.9	HylRepro04
	94-3591	1,	ReTox	80,000	203,000	1,000	88,600	225,100	1,090	0.9	HylRepro04
	94-3592	1	ReTox	79,000	215,000	1,000	30,300	82,700	383	2.6	HylRepro04
	94-3593	1	ReTox	30,000	98,000	300	75,600	245,200	813	0.4	HylRepro04
	94-3594	` 1	ReTox	72,000	230,000	1,000	40,000	127,800	556	1.8	HylRepro01
			· · · · · · · · · · · · · · · · · · ·								
1	For English sole fr	rom Hylebos-D)ec	n= 33	n (protein) = 33	Pi	otein ave: 3.0:	±2.7 mg/ml			
			~~ ~~~							400	
	AVE ± SD PHN	(ng/g bile)	80,000	± 82,800	AVE 1	: SD PHN/P	HOT (ng/ing p	rotein)	39,400 ± 30,	100	
	AVE ± SD NP	H (ng/g bile)	193,000	± 134,000	AVE 1	SD NPH/P	ROT (ng/mg p	votein)	91,000 ± 58,0	000	
			1 160	. 020	AVE		DOT Incine a		510 + 210		
	AVE I SU BE	in (utra pile)	1,100	1 930	AVE :		nor (againg p	motern)	510 1 510	, 	
Hyle	ebos-Feb										
_				•							
En	iglish sole										
	94-3716	1		67,000	250,000	2,000	22,300	83,300	667	3.0	HylRepro02
	94-3719	1		54,000	190,000	900	30,000	105,600	517	1.8	HylRepro02
	94-3720	1		220,000	710,000	7,600	146,700	473,300	5,067	1.5	HylRepro02
	94-3724	1		65,000	190,000	1,500	54,200	158,300	1,250	. 1.2	HylRepro02
	94-3725	1		64,000	250,000	2,600	16,800	65,800	684	3.8	HylRepro02
	94-3725	2		65,000	250,000	2,900	17,100	65,800	763	3.8	HylRepro02
	94-3726	1		45,000	150,000	1,400	25,000	83,300	778	1.8	HylRepro02
	94-3727	1		12,000	48,000	600	1,000	3,900	51	12.3	HylRepro02
	94-3728	1		84,000	310,000	2,600	40,000	147,600	1,238	2.1 -	HylRepro02
	94-3729	1 -		31,000	170,000	600	2,200	12,200	45	13.9	HylRepro02
	94-3730	1		42,000	160,000	1,300	24,700	94,100	765	1.7	HylRepro02
1	94-3732	1		94,000	370,000	1,600	26,900	105,700	457	3.5	HylRepro02
	94-3733	1		55,000	200,000	1,600	34,400	125,000	1,000	1.6	HylRepro02
	94-3736	1		69,000	230,000	1,600	20,900	69,700	485	3.3	HylRepro03
	94-3737	1		47,000	150,000	1,500	19,600	62,500	625	2.4	HylRepro03
	94-3738	1		46,000	300,000	1,400	35,400	230,800	1,077	1.3	HylRepro03
	94-3739	1		58,000	130,000	1,800	36,300	81,300	1,125	1.6	HylRepro03
	94-3739	2		59,000	130,000	1,800	36,900	81,300	1,125	1.6	HylRepro03
	94-3740	1		26,000	110,000	1,100	6,000	25,600	256	4.3	HylRepro03
	94-3741	1		43,000	160,000	600	13,400	50,000	175	3.2	HylRepro03
	94-3742	1		25,000	130,000	700	8,600	44,800	248	2.9	HylRepro03
	94-3743	1 -		34,000	120,000	1,200	17,900	63,200	632	1.9	HylRepro03
	94-3744	1		71,000	200,000	3,600	33,800	95,200	1,714	2.1	HylRepro03
	94-3745	1		79,000	370,000	2,500	10,000	46,800	316	7.9	HylRepro03
			_								
	For English sole (from Hylebos-	Feb	n= 24	n (protein) = 24	i 19	rotein ave: 3.5	±3.2 mg/ml			
	AVE + OD DH		60 600	+ 38 400	AVE	+ 80 PHW	PROT Inalma	protein)	28.300 ± 27	.800	
			00,000	2 00,000			-				
	AVE ± SD NI	PH (ng/g blie)	220,000) ± 129,000	AVE	± SD NPH/	PROT (ng/mg	protein)	99,000 ± 92,	,000	
	AVE ± SD B	aP (ng/g bile)	1,880) ± 1,410	AVE	± SD BaP/	PROT (ng/mg	protein)	880 ± 97	0	
	· · · · · · · · · · · · · · · · · · ·										
Hyl	edos-Jân										
F	nalish sole										
			D.T	66 AAA	404 000			101 000	1 400	4.0	LhdDoom04
	94-3594A	1	HETOX	66,000	181,000	1,500	00,200	101,300	1,403	1.0	пулюргооч
	94-3595	1	HeTox	65,000	192,000	1,700	21,000	01,300	. 533	3.1	
	94-3595	2	HeTox	66,000	193,000	1,700	21,200	02,300	000	3.1	
	94-3596	1	Retox	74,000	210,000	1,500	17,200	48,800) 349) 005	4.3	Hyineprout
	94-3597	1		70,000	170,000	500	29,200	70,800	225	2.4	HyiHeprou1
	94-3597	2		63,000	200,000	700	26,300	83,300	2/5	2.4	
	94-3598	1	Retox	25,000	68,000	300	9,900	27,400	138	2.5	HyiHeprou4
	94-3599	1		87,000	430,000	2,400	6,000	29,900	167	14.4	nyimeprout
	94-3600	1	ReTox	52,000	138,000	700	51,600	138,400	701	1.0	riyiHepro04
	94-3601	1		69,000	280,000	1,500	31,400	127,300	682	2.2	HyiHeproOt
	94-3602	1	HeTox	30,000	114,000	400	25,200	5 35,100	/ 295	1.2	riyiHeproU4
	94-3603	1	HeTox	29,000	100,000	500	41,900	142,40	080	0.7	myineprou4
	94-3604	1	HeTox	34,000	78,000	400	38,200	<i>b b 7</i> ,10	456	0.9	riyiHeprou4
	94-3605	1	HeTox	54,000	157,000	/00	14,900	, 43,/0	u 203	3.6	nyineprou4
	94-3606	1		65,000	240,000	1,100	24,100	, 99,90	u 407	2.7	Hyreprout
	94-3607	1	ReTox	54,000	154,000	1,200	49,000	139,80	v 1,058	1.1	Hyineprou4
	94-3608	1		56,000	180,000	1,600	26,700	J 85,70	0 /62	2.1	HyiHeprout
	94-3615	1	HeTox	19,000	59,000	200	32,40	J 98,50	u 410	0.6	Hytheprou4
	94-3615	2	ReTox	18,000	55,000	200	35,70	J 109,60	u 462	0.5	Hythepro04
	94-3616	1	ReTox	37,000	101,000	1,500	73,00	u 201,50	0 3,028	0.5	Hytreprov4
	94-3617	1	ReTox	102,000	408,000	1,600	48,60	u 194,10	u 770	2.1	HyiHeprou4

ID# 1	REPL	INVEST#	PHN	NPH	BaP P	HN/PROT	NPH/PROT	BaP/PROT P	ROTEIN	QCBATCH
94-3618	1	ReTox	18,000	45,000	200	9,900	24,900	98	1.8	HylBeoro05
94-3619	1		35,000	200.000	1,100	13.500	76,900	423	2.6	HviRepro01
94-3619	2		37,000	180.000	1.000	14.200	69.200	365	2.6	HylBenro01
94-3624	1		34,000	110,000	400	8 300	26 800	105	A 1	HulBeom01
94-3625			53 000	160.000	900	53 000	160,000	950	4.1	HudDenm04
04-2626	-		04,000	100,000	900	01,000	100,000	740	1.0	Hyineprou 1
94-3020	1.0		24,000	130,000	800	21,000	110,200	/18	1.1	нунергоот
94-3027	1		100,000	500,000	1,500	27,000	135,100	405	3.7	HylHepro01
94-3628	1	Herox	42,000	131,000	500	27,700	87,100	353	. 1.5	HylRepro05
94-3629	1	ReTox	78,000	231,000	1,700	19,100	56,300	407	4.1	HylRepro05
94-3630	1	ReTox	34,000	94,000	600	14,600	40,800	252	2.3	HylRepro05
94-3630	2	ReTox	37,000	105,000	500	15,300	43,900	211	2.4	HylRepro05
94-3631	1	ReTox	28,000	80,000	400	35,600	99,700	501	0.8	HviRepro05
94-3632	1	ReTox	52.000	175.000	900	22,600	76.300	387	23	HylBeom05
94-3633		BeToy	117 000	264 000	1 400	64 800	146 800	789	1.0	HulBoom05
94-3634		BoToy	49,000	121 000	000	69 300	197 800	1 260	0.7	HudDenmOS
04 9696		DeTex	33,000	101,000	500	20,000	65 900	044	0.7	hymeproos
04 0000		DeTex	33,000	04,000	300	20,000	30,000	010	1.0	пунергооз
94-3636	1	Helox	27,000	91,000	400	22,800	76,000	319	1.2	HylRepro05
94-3637	1	ReTox	34,000	92,000	400	42,500	115,600	496	0.8	HylRepro05
94-3639	1	ReTox	18,000	48,000	200	45,600	120,400	578	0.4	HylRepro05
94-3644	1	ReTox	70,000	196,000	1,000	1,400	4,000	21	49.0	HylRepro05
94-3644	2	ReTox	68,000	202,000	1,000	1,400	4,100	20	49.0	HylRepro05
94-3647	1	ReTox	41,000	118,000	500	17,800	51,400	221	2.3	HylRepro05
94-3648	1	ReTox	25,000	68,000	200	28.200	75,600	276	0.9	HylRepro05
94-3649	1	ReTox	30.000	86.000	400	27.600	77,900	393	1.1	HviRepro05
For English sole from	Hylebos-Ja	in	n= 45	n (protein) = 45	Pro	tein ave: 4.3	±9.9 mg/mi			
AVE ± SD PHN (n	ig/g bile)	49,300	± 23,800	AVE :	E SD PHN/PF	iot (ng/mg	protein)	29,200 ± 17,50	0	
AVE + SD NPH 4	naja bile)	161.000	+ 96.000	AVE -	SO NPH/PE	NOT (ne/ma	(nietora	90.000 + 49.00	n	
		,							•	
AVE ± SD BaP (ng/g bile)	870	± 530	AVE :	t SD BaP/PI	NOT (ng/mg	protein)	520 ± 480		
Hviebos-Oct				•.						
11916003-001										
English sole										
					4		400 500	-		
94-3305	1		88,000	210,000	1,300	51,800	123,500	/65	1.7	Нунерго02
94-3366	1		190,000	330,000	4,700	37,300	64,700	922	5.1	HylRepro02
94-3366	2		190,000	340,000	6,100	37,300	66,700	1,196	5.1	HylRepro02
94-3369	1		260,000	580,000	9,400	70,300	156,800	2,541	3.7	HylRepro02
94-3372	1		150,000	360,000	2,600	26,800	64,300	464	5.6	HylRepro02
94-3375	1		87,000	190,000	1,400	79,100	172,700	1,273	1.1	HylRepro02
94-3378	1		210,000	400,000	4,300	61,800	117,600	1,265	3.4	HylRepro02
94-3380	1		180.000	490.000	4,600	78,300	213,000	2,000	2.3	HviRepro02
94-3382	1		19.000	100.000	600	15.800	83,300	492	1.2	HylRepro02
94-3385	1		120.000	380.000	3.200	21.400	67,900	571	5.6	HylBenm02
94-3388			85 000	310,000	1 400	24 300	88,600	400	3.5	HylRepm02
04,9901			220,000	790.000	12 000	80 500	178.000	2 027	A 1	HudDopm00
04 2204			330,000	1 200 000	12,000	449.800	270,000	5 417	4.0	hullane 00
84-3394			080,000	1,300,000	20,000	143,000	270,000	0,417	4.0	riyineprouz
94-3401	1		170,000	580,000	0,500	21,500	73,400	023	7.9	HyiHeprouz
94-3401	2		170,000	580,000	6,700	21,500	/3,400	548	. 7.9	путнерго02
Ear English sale from	idulahaa "		n- 1F	n (nontain) - 4E		A man alak	0+91 malmi			
For English sole non	i Hyleboe-C		n= 13	10 (Droten) = 15	PR	700KL (170 4.4	LIZ.I mynta			
AVE ± SD PHN (na/a blie)	195.900	± 151.200	AVE	± SD PHN/P	ROT (na/ma	protein)	51.400 ± 33.70	00	
								404 000 00 00		
								191 NW + 89 N	M C C C C C C C C C C C C C C C C C C C	
AVE ± SD NPH ((ng/g bile)	459,000	± 278,000	AVE	± SD NPH/P	ROT (ng/mg	protein)	121,000 1 02,00		
AVE ± SD NPH (AVE ± SD BAP ((ng/g bile) (ng/g bile)	459,000 6.050	± 278,000 ± 6,150	AVE AVE	± SD NPH/P ± SD BeP/P	ROT (ng/mg ROT (ng/ma	protein) protein)	1,460 ± 1.290)	
AVE ± SD NPH	(ng/g bile) (ng/g bile)	459,000 6,050	± 278,000 ± 6,150	AVE 	± SD NPH/P ± SD Bap/P	ROT (ng/mg ROT (ng/mg	protein) protein)	1,460 ± 1,290)	
AVE ± SD NPH AVE ± SD BaP (Hylebos-Sept	(ng/g bile) (ng/g bile)	459,000 6,050	± 278,000 ± 6,150	AVE	± SD NPH/P ± SD BaP/P	ROT (ng/mg ROT (ng/mg	protein) protein)	1,460 ± 1,290)	<u> </u>
AVE ± SD NPH (AVE ± SD BaP (Hylebos-Sept	(ng/g bile) (ng/g bile)	459,000 6,050	± 278,000 ± 6,150	AVE	± SD NPH/P ± SD BaP/P	ROT (ng/mg	protein) protein)	1,460 ± 1,290)	
AVE ± SD NPH (AVE ± SD BaP (Hylebos-Sept English sole	(ng/g bile) (ng/g bile)	459,000 6,050	± 278,000 ± 6,150	AVE	± SD NPH/P ± SD BaP/P	ROT (ng/mg	protein) protein)	1,460 ± 1,290)	
Ave ± so NPH Ave ± so Bap Hylebos-Sept English sole 94-3271	(ng/g bile) (ng/g bile) 1	459,000 6,050	± 278,000 ± 6,150 29,000	AVE AVE 130,000	± SD NPH/P ± SD 5eP/P 600	ROT (ng/mg ROT (ng/mg 3,20	protein) protein) D 14,100	1,460 ± 1,290	9.2	HylRepro01
AVE ± SD NPH AVE ± SD BAP Hylebos-Sept English sole 94-3271 94-3272	(ng/g bile) (ng/g bile) 1 1	459,000 6,050	± 278,000 ± 6,150 29,000 93,000	AVE AVE 130,000 330,000	± SD NPH/P ± SD BeP/P 600 2,800	ROT (ng/mg ROT (ng/mg 3,20 10.70	protein) protein) 0 14,100 0 37,900	1,460 ± 1,290	9.2	HylRepro01 HylRepro01
Ave ± 50 NPH Ave ± 50 BaP Hylebos-Sept English sole 94-3271 94-3272 94-3273	(ng/g bile) (ng/g bile) 1 1	459,000 6,050	± 278,000 ± 6,150 29,000 93,000 39,000	AVE AVE 130,000 330,000 160,000	± SD NPH/P ± SD BaP/P 600 2,800 1,100	ROT (ng/mg ROT (ng/mg 3,20(10,70(39.00)	protein) protein) 0 14,100 0 37,900 0 160.000	1,460 ± 1,290 70 322 1,100	9.2 8.7 1.0	HylRepro01 HylRepro01 HylRepro01
Ave ± SD NPH Ave ± SD BaP Hylebos-Sept English sole 94-3271 94-3272 94-3273 04-3274	(ng/g bile) (ng/g bile) 1 1 1	459,000 6,050	± 278,000 ± 6,150 29,000 93,000 39,000	AVE AVE 130,000 330,000 160,000 170,000	± SD NPWP ± SD BaP/P 600 2,800 1,100 1,000	ROT (ng/mg ROT (ng/mg 3,20(10,70(39,00) 14 20(protein) protein) 0 14,100 0 37,900 0 160,000 0 51,500	70 70 70 70 322 1,100 303	9.2 8.7 1.0 3.3	HylRepro01 HylRepro01 HylRepro01 HylRepro01
Ave ± SD NPH Ave ± SD BaP Hylebos-Sept English sole 94-3271 94-3272 94-3273 94-3274 04-3275	(ng/g bile) (ng/g bile) 1 1 1	459,000 6,050	± 278,000 ± 6,150 29,000 93,000 39,000 47,000	AVE AVE 130,000 330,000 160,000 170,000 720,000	± SD NPH/P ± SD BaP/P 600 2,800 1,100 1,000 5,100	ROT (ng/mg ROT (ng/mg 3,200 10,700 39,000 14,200 40, 90	protein) protein) 0 14,100 0 37,900 0 160,000 0 51,500 0 146,900	70 70 70 322 1,100 303 1,100	9.2 8.7 1.0 3.3	HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01
Ave ± so NPH Ave ± so BaP Hylebos-Sept English sole 94-3271 94-3272 94-3273 94-3274 94-3275 04 0000	(ng/g bile) (ng/g bile) 1 1 1 1 1	459,000 6,050	± 278,000 ± 6,150 29,000 93,000 39,000 47,000 200,000	AVE AVE 130,000 330,000 160,000 170,000 720,000 470,000	± SD NPH/P ± SD BaP/P ± SD BaP/P 600 2,800 1,100 1,000 5,100 1,000	ROT (ng/mg ROT (ng/mg 10,70(39,00(14,20(40,80)	protein) protein) 0 14,100 0 37,900 0 160,000 0 146,900 0 146,900	70 1,460 ± 1,290 70 322 1,100 303 1,041	9.2 8.7 1.0 3.3 4.9	HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01
Ave ± so NPH Ave ± so BaP Hylebos-Sept English sole 94-3271 94-3272 94-3273 94-3274 94-3275 94-3275 94-3276	(ng/g bile) (ng/g bile) 1 1 1 1 1 1 1 1	459,000 6,050	± 278,000 ± 6,150 29,000 93,000 39,000 47,000 200,000 170,000	AVE AVE 130,000 330,000 160,000 170,000 720,000 470,000	50 NPH/P 50 BaP/P 600 2,800 1,100 1,000 5,100 1,600	ROT (ng/mg ROT (ng/mg 3,20(10,70(39,00(14,20(40,80(60,70(protein) protein) 0 14,100 0 37,900 0 160,000 0 51,500 0 146,900 0 167,900	70 1,460 ± 1,290 70 322 1,100 303 1,041 571	9.2 8.7 1.0 3.3 4.9 2.8	HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01
Ave ± SD NPH Ave ± SD BaP Hylebos-Sept English sole 94-3271 94-3272 94-3273 94-3274 94-3275 94-3276 94-3277	(ng/g bile) (ng/g bile) 1 1 1 1 1 1 1 1 1	459,000 6,050	± 278,000 ± 6,150 93,000 93,000 39,000 47,000 200,000 170,000 26,000	AVE AVE 130,000 330,000 160,000 170,000 720,000 470,000 120,000	± SD NPH/P ± SD BaP/P ± SD BaP/P 5,800 1,100 1,000 5,100 1,600 800	ROT (ng/mg ROT (ng/mg 10,700 39,000 14,200 40,800 60,700 9,300	protein) protein) 0 14,100 0 37,900 0 160,000 0 51,500 0 146,900 0 167,900 0 42,900	70 1,460 ± 1,290 1,460 ± 1,290 1,100 303 1,041 571 300	9.2 8.7 1.0 3.3 4.9 2.8 2.8	HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01
Ave ± SD NPH Ave ± SD BaP Hylebos-Sept English sole 94-3271 94-3273 94-3273 94-3274 94-3275 94-3276 94-3277 94-3278	(ng/g bile) (ng/g bile) 1 1 1 1 1 1 1 1 1 1	459,000 6,050	± 278,000 ± 6,150 29,000 93,000 39,000 47,000 200,000 170,000 26,000 29,000	AVE AVE 130,000 330,000 160,000 170,000 720,000 470,000 120,000 73,000	± SD NPH/P ± SD BaP/P ± SD BaP/P 5,800 1,100 1,000 5,100 1,600 800 300	ROT (ng/mg ROT (ng/mg 3,20(10,70(39,00) 14,20(40,80(60,70(9,30) 13,80	protein) protein) 0 14,100 0 37,900 0 160,000 0 51,500 0 146,900 0 167,900 0 42,900 0 34,800	70 1,460 ± 1,290 1,460 ± 1,290 1,100 303 1,041 571 300 143	9.2 8.7 1.0 3.3 4.9 2.8 2.8 2.1	HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro02
Ave ± SD NPH Ave ± SD BaP Hylebos-Sept English sole 94-3271 94-3272 94-3273 94-3274 94-3275 94-3276 94-3276 94-3277 94-3278 94-3280	(ng/g bile) (ng/g bile) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	459,000 6,050	± 278,000 ± 6,150 29,000 93,000 39,000 47,000 200,000 170,000 26,000 29,000 91,000	AVE AVE 130,000 330,000 160,000 170,000 720,000 470,000 120,000 73,000 190,000	± SD NPH/P ± SD BaP/P ± SD BaP/P 2,800 1,100 1,000 5,100 1,600 800 300 1,500	ROT (ng/mg ROT (ng/mg 10,700 14,200 40,800 60,700 9,300 13,800 10,500	protein) protein) 0 14,100 0 37,900 0 160,000 0 160,000 0 167,900 0 42,900 0 34,800 0 21,800	70 1,460 ± 1,290 1,460 ± 1,290 1,100 303 1,041 571 300 143 172	9.2 8.7 1.0 3.3 4.9 2.8 2.8 2.8 2.1 8.7	HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro02 HylRepro02 HylRepro02
Ave ± 50 NPN Ave ± 50 BaP Hylebos-Sept English sole 94-3271 94-3272 94-3273 94-3274 94-3275 94-3276 94-3276 94-3278 94-3278 94-3280 94-3281	(ng/g bile) (ng/g bile) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	459,000 6,050	± 278,000 ± 6,150 29,000 93,000 39,000 47,000 200,000 170,000 26,000 29,000 91,000 220,000	AVE AVE 130,000 330,000 160,000 170,000 720,000 470,000 120,000 73,000 190,000 680,000	± SD NPH/P ± SD BaP/P ± SD BaP/P 2,800 1,100 1,000 5,100 1,600 800 300 1,500 4,200	ROT (ng/mg ROT (ng/mg 3,200 10,700 39,000 14,200 40,80 60,700 9,300 13,80 10,50 47,80	protein) protein) 0 14,100 0 37,900 0 160,000 0 51,500 0 146,900 0 42,900 0 42,900 0 34,800 0 21,800 0 147,800	70 1,460 ± 1,290 1,460 ± 1,290 1,100 322 1,100 303 1,041 571 300 143 172 913	9.2 8.7 1.0 3.3 4.9 2.8 2.8 2.1 8.7 4.6	HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro02 HylRepro02 HylRepro02
Ave ± SD NPH Ave ± SD BaP Hylebos-Sept English sole 94-3271 94-3272 94-3273 94-3274 94-3275 94-3276 94-3276 94-3277 94-3278 94-3280 94-3281 94-3281 94-3282	(ng/g bile) (ng/g bile) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	459,000 6,050	± 278,000 ± 6,150 29,000 93,000 39,000 47,000 200,000 170,000 26,000 91,000 220,000 140,000	AVE AVE 130,000 330,000 160,000 170,000 720,000 470,000 120,000 73,000 190,000 680,000 310,000	50 NPH/P 50 SeP/P 50 SeP/P 500 50	ROT (ng/mg ROT (ng/mg 3,20(10,70(39,00(14,20(40,80(60,70(9,30) 13,80(10,50(47,80(63,60(protein) protein) 0 14,100 0 37,900 0 160,000 0 51,500 0 146,900 0 146,900 0 42,900 0 34,800 0 21,800 0 21,800 0 147,800 0 147,800	1,460 ± 1,290 1,460 ± 1,290 322 1,100 303 1,041 571 300 143 172 913 1,727	9.2 8.7 1.0 3.3 4.9 2.8 2.8 2.1 8.7 4.6 2.2	HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02
Ave ± SD NPH Ave ± SD BaP Hylebos-Sept English sole 94-3271 94-3272 94-3273 94-3273 94-3275 94-3275 94-3276 94-3277 94-3277 94-3278 94-3280 94-3281 94-3282	(ng/g bile) (ng/g bile) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2	459,000 6,050	± 278,000 ± 6,150 29,000 93,000 39,000 47,000 200,000 170,000 26,000 29,000 91,000 220,000 140,000 150,000	AVE AVE 130,000 330,000 160,000 170,000 720,000 470,000 120,000 73,000 190,000 680,000 310,000 300,000	± SD NPH/P ± SD BaP/P ± SD BaP/P 2,800 1,100 1,000 5,100 1,600 800 300 1,500 4,200 3,800 4,200	ROT (ng/mg ROT (ng/mg 10,700 39,000 14,200 40,800 60,700 9,300 13,800 10,500 47,800 63,600 68,200	protein) protein) protein) 0 14,100 0 37,900 0 160,000 0 51,500 0 146,900 0 146,900 0 42,900 0 42,900 0 34,800 0 21,800 0 147,800 0 140,900 0 146,900 0 147,800 0 146,900 0 146,900	70 1,460 ± 1,290 1,460 ± 1,290 1,100 322 1,100 303 1,041 571 300 1,041 571 300 1,43 1,727 1,909	9.2 8.7 1.0 3.3 4.9 2.8 2.8 2.1 8.7 4.6 2.2 2.2	HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02
Ave ± SD NPH Ave ± SD NPH Ave ± SD BaP Hylebos-Sept English sole 94-3271 94-3272 94-3273 94-3274 94-3275 94-3276 94-3276 94-3277 94-3276 94-3280 94-3281 94-3282 94-3282 94-3282 94-3282	(ng/g bile) (ng/g bile) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 1	459,000 6,050	± 278,000 ± 6,150 29,000 93,000 39,000 47,000 200,000 170,000 26,000 29,000 91,000 220,000 140,000 150,000 93,000	AVE AVE 130,000 330,000 160,000 170,000 720,000 470,000 120,000 73,000 190,000 680,000 310,000 300,000 230,000	± SD NPH/P ± SD BaP/P ± SD BaP/P ± SD BaP/P 5,800 1,000 5,100 1,600 800 300 1,500 4,200 3,800 4,200 1,000	ROT (ng/mg ROT (ng/mg 10,700 39,000 14,200 40,800 60,700 9,300 13,800 10,500 47,800 63,600 68,200 30,000	protein) protein) protein) 0 14,100 0 37,900 0 160,000 0 51,500 0 146,900 0 146,900 0 146,900 0 21,800 0 21,800 0 147,800 0 140,900 0 146,400 0 74,200	1,460 ± 1,290 1,460 ± 1,290 1,460 ± 1,290 1,100 303 1,041 571 300 1,041 571 300 1,041 571 300 1,727 9,130 1,727 0,1,909 323	9.2 8.7 1.0 3.3 4.9 2.8 2.8 2.1 8.7 4.6 2.2 2.2 3.1	HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02
Ave ± SD NPN Ave ± SD NPN Ave ± SD BaP Hylebos-Sept English sole 94-3271 94-3272 94-3273 94-3274 94-3275 94-3275 94-3276 94-3277 94-3278 94-3280 94-3281 94-3282 94-3282 94-3283 94-3283 94-3283	(ng/g bile) (ng/g bile) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 1 1 1	459,000 6,050	± 278,000 ± 6,150 29,000 93,000 39,000 47,000 200,000 170,000 220,000 91,000 220,000 140,000 150,000 93,000 170,000	AVE AVE 130,000 330,000 160,000 170,000 720,000 470,000 120,000 73,000 190,000 680,000 310,000 230,000 230,000	± SD NPH/P ± SD BaP/P ± SD	ROT (ng/mg ROT (ng/mg 10,704 39,004 14,200 40,804 60,704 9,300 13,800 10,500 47,800 63,600 68,200 30,000 29,300 29,300	protein) protein) 0 14,100 0 37,900 0 160,000 0 146,900 0 146,900 0 42,900 0 42,900 0 21,800 0 147,800 0 140,900 0 140,900 0 136,400 0 74,200 0 86,200	70 1,460 ± 1,290 1,460 ± 1,290 1,100 303 1,041 571 300 1,041 1,	9.2 8.7 1.0 3.3 4.9 2.8 2.8 2.8 2.1 8.7 4.6 2.2 2.2 2.2 2.2 3.1 5.8	HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02
Ave ± SD NPN Ave ± SD NPN Ave ± SD BaP Hylebos-Sept English sole 94-3271 94-3272 94-3273 94-3275 94-3275 94-3276 94-3276 94-3278 94-3280 94-3281 94-3282 94-3282 94-3283 94-3284 94-3284	(ng/g bile) (ng/g bile) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 1 1 1 1	459,000 6,050	± 278,000 ± 6,150 29,000 93,000 39,000 47,000 200,000 170,000 220,000 91,000 220,000 140,000 150,000 93,000 170,000 180,000	AVE AVE 130,000 330,000 160,000 170,000 720,000 470,000 120,000 73,000 190,000 680,000 310,000 300,000 530,000 530,000	50 NPWP 50 BaP/P 50 BaP/P 500 1,000 5,100 1,600 800 300 1,500 4,200 3,800 4,200 1,000 2,100 2,100 3,200	ROT (ng/mg ROT (ng/mg 3,200 10,700 39,000 14,200 40,80 60,700 9,300 13,80 10,50 47,80 63,60 68,20 30,00 29,30 46,20	protein) protein) protein) 0 14,100 0 37,900 0 160,000 0 51,500 0 146,900 0 42,900 0 42,900 0 34,800 0 21,800 0 147,800 0 136,400 0 136,400 0 86,200 0 135,000	70 1,460 ± 1,290 1,460 ± 1,290 1,100 322 1,100 303 1,041 571 300 143 1,727 913 1,727 1,909 323 362 846	9.2 8.7 1.0 3.3 4.9 2.8 2.1 8.7 4.6 2.2 2.2 3.1 5.8 3.9	HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro01 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02 HylRepro02

Reproductive	Toxicology	in	Flatfish	-	Bile	Data
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	ID#	REPL I	NVEST#	PHN	NPH	BaP	PHN/PROT	NPH/PROT	BaP/PROT	PROTEIN	QCBATCH
	94-3286	1		110,000	320,000	1,800	28,200	82,100	462	3.9	HylRepro02
	94-3287	1		240,000	620,000	5,300	. 50,000	129,200	1,104	4.8	HylRepro02
	94-3288	1		180,000	530,000	2,400	69,200	203,800	923	2.6	HylRepro02
	94-3289	1		48,000	180,000	900	15,000	56,300	294	3.2	HylRepro02
	94-3290	1		230,000	660,000	2,100	54,800	157,100	500	4.2	HylRepro02
	94-3291	1		210,000	540,000	4,700	63,600	163,600	1,424	3.3	HylRepro02
	94-3291	2		220,000	560,000	4,600	66,700	169,700	1,394	3.3	HylRepro02
	94-3292	1		250,000	830,000	5,200	31,600	105,100	658	7.9	HylRepro02
	94-3295	1		66,000	130,000	1,500	94,300	185,700	2,143	0.7	HylRepro02
	94-3299	ì		250,000	730,000	3,400	48,100	140,400	654	5.2	HylRepro02
	94-3304	1		340,000	800,000	10,000	54,000	127,000	1,587	6.3	HylRepro02
	94-3305	1		740,000	2,200,000	21,000	50,000	148,600	1,419	14.8	HylRepro02
	94-3308	1	-	200,000	580,000	5,200	29,900	86,600	776	6.7	HylRepro02
Fo	r English sol	e from Hylebos-Ser	đ	n= 28	n (protein) = 2	28	Protein ave: 4	.7±3.0 mg/mi			
	AVE ± SD F	PHN (ng/g bile)	170,000	± 137,000	AVE	± SD PHN	PROT (ng/mg	protein)	40,800 ± 22,5	00	
	AVE ± \$D	NPH (ng/g bile)	485,000	± 401,000	AVE	± SD NPH	/PROT (n g/m g	protein)	113,000 ± 53,0	00	
	AVE ± SD	BaP (ng/g blie)	3,630	± 3,940	AVE	± SD BaP	/PROT (ng/mg	protein)	840 ± 560		

*		PHN	NPH	BaP	REPL	QCBatch	
HylRep	<u>ro01</u>						
Bile R	eference Materia						
		50,620 47,243	92,327 99,650	394 400	3-34 3-34	HylRepro01 HylRepro01	
	For Bile Reference	AVE ±	SD PHN (ng/g bile)	48,93	2 ± 1,689	RSD = 3.5%	
	n =2	AVE ±	SD NPH (ng/g bile)	95,98	9 ± 3.662	RSD = 3.8%	
		AVE	t SD BaP (ng/g bile)	39	7 ± 3	RSD = 0.8%	
Blank			· ·				
		110	240	7		HylRepro01	
	For Blank	AVE ±	SD PHN (ng/g bile)	11(0 ± 0	RSD = 0.0%	
	n = 1	AVE ±	SD NPH (ng/g bile)	24	0 ± 0	RSD = 0.0%	
		AVE :	E SD BaP (ng/g bile)		7±0	RSD = 0.0%	
Contin	uing Calibration					······································	
	-	6,086	15,701	98		HviRepro01	
		5,844	15,784	98		HylRepro01	
		6,348	15,818	98	,	HylRepro01	
		5,902	15,778	102		HylRepro01	
		6,345	15,651	99		HylRepro01	
		6,121	15,816	98		HylRepro01	
		6,071	15,803	99		HylRepro01	
		5,918	15,753	101		HylRepro01	
		5,925	15,543	102		HylRepro01	
	For Continuing	AVE ±	SD PHN (ng/g bile)	6.06	2 ± 176	RSD = 2.9%	
	n - 0		SO NPH (nale bita)	15 72	9 + 87	RSD = 0.6%	
		AVE 1	SD BaP (ng/g bile)	9	9±2	RSD = 1.6%	
Initial (Calibration Stand	lard					
		5.722	16 227	90			
		6 979	15 920	99 101			
		0,210	10,008	101		Πγιηθρίου Ι	

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Quality	Assurance	Bile	Results	-	Reproductive	Toxicology	In	Flatfish
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Bile R	eference	<u>Material_(</u> HI	storical/li
	NPH	PHN	BaP
X	99,000	48,000	420
SD	11,000	4,600	110
UCL	121,000	57,200	640
LCL	77,000	39,800	200

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 \overline{X} = Mean, SD = Standard Deviation, UCL = Upper Control Limit, LCL = Lower Control Limit

viRepro Bile Refe	For Initial Calibration = 2 002 Prence Material For Bile Reference n = 2	AVE 4 AVE 46,835 51,180 AVE 4 AVE AVE	E SD PHN (ng/g bile) ± SD NPH (ng/g bile) ± SD BaP (ng/g bile) 104,685 101,255 E SD PHN (ng/g bile) ± SD NPH (ng/g bile) ± SD BaP (ng/g bile)	5,998 ± 16,033 ± 100 ± 523 473 49,008 ± 102,970 ±	± 276 ± 194 ± 1 334 334 ± 2,173 ± 1,715	RSD = 4.6% RSD = 1.2% RSD = 1.0% HylRepro02 HylRepro02 RSD = 4.4%
IviRepro Bile Refe	n = 2 002 Prence Material For Bile Reference n = 2	AVE AVE 46,835 51,180 AVE AVE AVE	± SD NPH (ng/g bile) ± SD BeP (ng/g bile) 104,685 101,255 E SD PHN (ng/g bile) ± SD NPH (ng/g bile) ± SD BeP (ng/g bile)	16,033 = 100 = 523 473 49,008 = 102,970 =	± 194 ± 1 334 334 ± 2,173 ± 1,715	RSD = 1.2% RSD = 1.0% HylRepro02 HylRepro02 RSD = 4.4%
IylRepro Bile Refe	502 For Bile Reference n = 2	AVE 46,835 51,180 AVE AVE AVE	104,685 101,255 : SD PHN (ng/g bile) ± SD NPH (ng/g bile) ± SD BaP (ng/g bile)	523 473 49,008 ± 102,970 ±	334 334 334 ± 2,173 ± 1,715	RSD = 1.0% HylRepro02 HylRepro02 RSD = 4.4%
IviRepro Bile Refe	02 Prence Material For Bile Reference n = 2	46,835 51,180 Ave 4 Ave Ave	104,685 101,255 : SD PHN (ng/g bile) ± SD NPH (ng/g bile) ± SD BeP (ng/g bile)	523 473 49,008 ± 102,970 ±	334 334 ± 2,173 ± 1,715	HylRepro02 HylRepro02 RSD = 4.4%
Bile Refe	<u>PUZ</u> Prence Material For Bile Reference n = 2	46,835 51,180 AVE AVE AVE	104,685 101,255 ± SD PHN (ng/g bile) ± SD NPH (ng/g bile) ± SD BeP (ng/g bile)	523 473 49,008 ± 102,970 ±	334 334 ± 2,173 ± 1,715	HylRepro02 HylRepro02 RSD = 4.4%
Bile Refe	For Bile Reference	46,835 51,180 AVE AVE AVE	104,685 101,255 ± SD PHN (ng/g bile) ± SD NPH (ng/g bile) ± SD BaP (ng/g bile)	523 473 49,008 ± 102,970 ±	334 334 ± 2,173 ± 1,715	HylRepro02 HylRepro02 RSD = 4.4%
1	For Bile Reference n = 2	46,835 51,180 Ave 4 Ave Ave	104,685 101,255 ± SD PHN (ng/g bile) ± SD NPH (ng/g bile) ± SD BeP (ng/g bile)	523 473 49,008 ± 102,970 ±	334 334 ± 2,173 ± 1,715	HylRepro02 HylRepro02 RSD = 4.4%
	For Bile Reference n = 2	51,180 AVE 4 AVE AVE	101,255 ± SD PHN (ng/g bile) ± SD NPH (ng/g bile) ± SD BaP (ng/g bile)	473 49,008 ± 102,970 ±	334 ± 2,173 ± 1,715	HylRepro02 RSD = 4.4%
1	For Bile Reference n = 2	AVE A	± SD PHN (ng/g bile) ± SD NPH (ng/g bile) ± SD BeP (ng/g bile)	49,008 ±	± 2,173 ± 1,715	RSD = 4.4%
	For Bile Reference n = 2	AVE d	t SD PHN (ng/g bile) ± SD NPH (ng/g bile) ± SD BeP (ng/g bile)	49,008 ±	£ 2,173 £ 1,715	RSD = 4.4%
· 1	n =2	AVE	± SD NPH (ng/g bile) ± SD BaP (ng/g bile)	102,970	± 1,715	
		AVE	± SD BaP (ng/g bile)	400		$\mathbf{RSD} = 1.7\%$
				490 1	£ 25	RSD = 5.0%
Blank						
		140	550	0		HylRepro02
i	For Blank	AVE :	: SD PHN (ng/g blie)	140 :	± 0	RSD = 0.0%
1	n = 1	AVE	± SD NPH (ng/g bile)	550 :	± 0	RSD = 0.0%
		AVE	± SD BaP (ng/g bile)	0 :	± 0	RSD = ?
Continui	ng Calibration	•	······································		· · · · · · · · · · · · · · · · · · ·	
	• · · · · · · · · · · · · · · · · · · ·	6,165	16,200	104		HylRepro02
		6,326	15,764	100		HylRepro02
		6,146	16,036	102		HylRepro02
		6,057	15,962	100		HylRepro02
		5,962	16,014	101		HylRepro02
		5,765	16,047	95		HylRepro02
		6,102	16,189	97		HylRepro02
		5,828	16,065	98		HylRepro02
		6,235	16,393	100		HylRepro02
ļ	For Continuing	AVE :	t SD PHN (ng/g bile)	6,065	± 174	RSD = 2.9%
1	n = 9	AVE	± SD NPH (ng/g bile)	16,074	± 165	RSD = 1.0%
		AVE	± SD BaP (ng/g bile)	100	± 3	RSD = 2.5%
Initial Ca	libration Stand	lard	·····			
		5,991	15,977	100		HylRepro02
lile Reference	Material (Historical	/Interiab.):				
NPH	PHN BaP	-				
99,000	48,000 420)				
D 11,000	4,600 110	•				
CL 121,000	57,200 640					

Quality Assurance Bile Results – Reproductive Toxicology In Flatfish

X = Mean, SD = Standard Deviation, UCL = Upper Control Limit, LCL = Lower Control Limit

1	PHN	NPH	BaP	REPL	QCBatch
	5,996	16,080	100		HylRepro02
For Initia	I Calibration AVE	± SD PHN (ng/g bile)	5,994 ±	: 3	RSD = 0.0%
n=2	AVE	t ± SD NPH (ng/g bile)	16,029 ±	: 52	RSD = 0.3%
	AVE	± SD BeP (ng/g blie)	100 ±	: 0	RSD = 0.0%
<u>lylRepro03</u>					
Bile Reference	Material				
	46,693	86,828	402	334	HylRepro03
	49,414	97,316	558	334	HyiRepro03
For Bile	Reference AVE	± SD PHN (ng/g bile)	48,054 ±	1,361	RSD = 2.8%
n=2	AVE	± SD NPH (ng/g bile)	92,072 ±	5,244	RSD = 5.7%
	AVE	± SD BaP (ng/g bile)	480 ±	78	RSD = 16.3%
Blank					
	425	825	1		HylRepro03
For Blan	K AVE	± SD PHN (ng/g bile)	425 ±	0	RSD = 0.0%
n = 1	AVE	± SD NPH (ng/g bile)	825 ±	0	RSD = 0.0%
	AVE	± SD BaP (ng/g bile)	1±	0	RSD = 0.0%
Continuing Cali	bration				
	5,494	16,164	98		HylRepro03
	5,833	16,154	100		HylRepro03
	6,008	15,288	98		HylRepro03
	5,924	15,845	99		HylRepro03
	•		_	_	
For Conti	nuing AVE :	± SD PHN (ng/g bile)	5,815 ±	195	RSD = 3.4%
n=4	AVE	± SD NPH (ng/g bile)	15,863 ±	356	RSD = 2.2%
	AVE	± SD BaP (ng/g bile)	99 ±	1	RSD = 0.8%
Initial Calibratio	n Standard				
	5,932	15,985	99		HylRepro03
	6,053	16,078	101		HylRepro03

Quality Assurance	Bile	Results	-	Reproductive	Toxicology	In	Flatfish
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Bile	Reference		Material (HI
	NPH	PH	IN
X	99,000	48,000	
SD	11,000	4,60)
UCL	121,000	57,200	ļ.
LCL	77,000	39,800	ð

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 \overline{X} = Mean, SD = Standard Deviation, UCL = Upper Control Limit, LCL = Lower Control Limit

		PHN	NPH	BaP	REPL	QCBatch	
	For Initial Calibra	tion AVE	+ SD PHN (pg/g bile)	5 002 + 61		Dep 1.0%	
				5,995 ± 01		HSD = 1.0%	
	n=2	AVE	± SD NPH (ng/g bile)	16,032 ± 47		RSD = 0.3%	
		AVE	± SD BaP (ng/g bile)	100 ± 1		RSD = 1.0%	
<u>HylRepr</u>	004						
Bile Re	ference Materi	ial					
		49,727	99,693	392	3-34	HviRepro04	
		54,905	107,279	472	3-34	HyiRepro04	
	For Bile Reference	AVE :	E SD PHN (ng/g bile)	52,316 ± 2,5	89	RSD = 4.9%	
	n = 2	AVE	± SD NPH (ng/g bile)	103,486 ± 3,7	93	RSD = 3.7%	
	· · ·	AVE	± SD BaP (note bile)	432 + 40		Ben - 0 3%	
Blank				402 2 40		Had = 3.3 /6	
Digitik		16	37	. A		HudBooroOd	
				•		Пупаріооч	
	For Blank	AVE :	t SD PHN (ng/g bile)	16 ± 0		RSD = 0.0%	
	n = 1	AVE	± SD NPH (ng/g bile)	37 + 0		ReD - 0.0%	
	•• •	AVE					
Continui			1 SU BEP (ngrg Dile)	0±0		HSD = 0.0%	
Continu	ing Calibration	1					
		6,107	16,168	101		HylRepro04	
		6,050	16,353	100		HylRepro04	
		6,517	17,508	109	ν.	HylRepro04	
		6,053	16,312	102		HylRepro04	
		7,039	19,138	110		HylRepro04	
		6,809	17,768	121		HylRepro04	
		5,511	17,222	87		HylRepro04	
		5,901	16,362	96		HylRepro04	
	For Continuing			6 040 - 474			
i.		AVE 1	SU FIN (ng/g bile)	0,248 ± 4/1		NSD = /.3%	
	n =8	AVE	± 3D NPH (ng/g bile)	17,104 ± 960	•	RSD = 5.6%	
		AVE	± SD BeP (ng/g bile)	103 ± 10		RSD = 9.2%	
Initial Ca	alibration Stan	dard					
		6,175	16,368	104		HylRepro04	
		5,969	15,932	99		HylRepro04	
ile Reference	Material (Historic	ai/interiab.):	· ·				
NPH	PHN Bai	P					
99,000	48,000 42	20					
D 11,000	4,600 11	10					

Quality Assurance Bile Results – Reproductive Toxicology In Flatfish

X = Mean, SD = Standard Deviation,

121,000

77,000

UCL

LCL

UCL = Upper Control Limit, LCL = Lower Control Limit

640

200

57,200

39,800

		PHN	NPH	BaP	REPL	QCBatch	
	For Initial Calibration	ON AVE ±	SD PHN (ng/g bile)	6,072	2 ± 103	RSD = 1.7%	
	n = 2	AVE :	: SD NPH (ng/g bile)	16,15	0 ± 218	RSD = 1.3%	
		AVE :	: SD BaP (ng/g bile)	10	2 ± 3	RSD = 2.5%	
HylRep	r <u>o05</u>		-				
Bile Re	ference Materia	8					
	•	48,181	96,364	375	3-34	HylRepro05	
		51,846	105,287	444	3-34	HylRepro05	
	For Bile Reference	AVE ±	SD PHN (ng/g bile)	50,014	4 ± 1,833	RSD = 3.7%	
	n=2	AVE 1	SD NPH (ng/g bile)	100,82	6 ± 4,462	RSD = 4.4%	
	,	AVE :	E SD BaP (ng/g bile)	41	0 ± 35	RSD = 8.4%	
Blank			•				
		0	0	11		HylRepro05	
			· · ·				
	For Blank	AVE ±	SD PHN (ng/g bile)	C	0 ± 0	RSD = ?	
	n = 1	AVE :	SD NPH (ng/g bile)	(0 ± 0	RSD = ?	
	•	AVE :	t SD BaP (ng/g bile)	1	1 ± 0	RSD = 0.0%	
Continu	uing Calibration						
		5,909	16,829	90		HylRepro05	
		6,159	22,454	102		HylRepro05	
		5,859	17,390	96		HylRepro05	
		6,177	17,212	101		HylRepro05	
	For Continuing	AVE ±	SD PHN (ng/g bile)	6,02	6 ± 143	RSD = 2.4%	
	n =4	AVE :	SD NPH (ng/g bile)	18,47	1 ± 2,308	RSD = 12.5%	
		AVE :	± SD BaP (ng/g bile)	9	7±5	RSD = 4.9%	
Initial (Calibration Stand	dard					
		6,189	16,038	101		HylRepro05	
		5,998	15,879	102		HylRepro05	

Quality Assurance Bile Results – Reproductive Toxicology In Flatfish

<u>Bile_</u>	Reference	<u>Material (</u> Hi	storical/Interla	Ь.) :
	NPH	PHN	BaP	
X	99,000	48,000	420	
SD	11,000	4,600	110	
UCL	121,000	57,200	640	
LCL	77,000	39,800	200	

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 \overline{X} = Mean, SD = Standard Deviation, UCL = Upper Control Limit, LCL = Lower Control Limit

	PHN	NPH	BaP	REPL	QCBatch	
· · · · · · · · · · · · · · · · · · ·						
For Initial Calibration	AVE ± SD	PHN (ng/g bile)	6,094 ± 9	96	RSD = 1.6%	
n = 2	AVE ± SD	NPH (ng/g bile)	15 ,9 59 ± 8	30	RSD = 0.5%	
	AVE ± SD	BaP (ng/g bile)	102 ± 1		RSD = 0.5%	

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Quality Assurance Bile Results -- Reproductive Toxicology In Flatfish

Bile	Reference	Material (Historical/Interlab.):				
	NPH	PHN	BaP			
X	\$9,000	48,000	420			
SD	11,000	4,800	110			
UCL	121,000	57,200	640			
LCL	77,000	39,800	200			

 $\overline{\mathbf{X}}$ = Mean, SD = Standard Deviation,

UCL = Upper Control Limit, LCL = Lower Control Limit