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

Juvenile Salmon Injury

Semivolatile Organics (Tables 1, 2)

Calibrations

The calibration data used to quantitate the analytes met the initial (Tables U, 2G) and continuing (Tables lK, 1L and 2H) calibration criteria detailed in the "Commencement Bay Quality Assurance Plan, 12/95" (QAP).

Method Blank Analysis

Method blanks were analyzed for CHs (Tables 1E, IF) and AHs (Table 21)). The criteria in the QAP for method blanks were met (no more than 4 analytes to exceed 3 X the MDLs listed in Tables 1M, 21).

Surrogate Recoveries

Surrogate recoveries for samples analyzed by GC/MS for AlIs and by GC/ECD for PCBs, DDTs and pesticides (Tables 1A, 11), 2A, and 2C) were within the guidelines detailed in the QA Plan (50-125% recovery).

SRMAnalyses

An aliquot of NIST tissue SRM 1974a was analyzed with each of the sample sets, and the results (Tables 1E, IF, and 2D) met the criteria in the QA plan (>70% of concentrations for the certified analytes that were present in NIST SRM 1974a in concentrations greater than 10 times the MIDL were within 35% of either end of the NIST values. Noncertified values for the other analytes in the SRM are also shown in the tables.

Sample Duplicates

Four samples were analyzed in duplicate (Tables 1H, 11, and 217) and the criteria in the QAP were met (QA plan, Table 6.2). In several instances, the concentrations of analytes were so low that they were not detected in one sample but were detected in the duplicate--in these cases the RSD may be >50%, but is irrelevant.

Matrix Spike Analyses

The recoveries for the spiked analytes (AHs, PCBs, DDTs, and pesticides; Tables 1M, 21) were within the 50-125% range for at least 80% of the spiked analytes as set forth in the QAP.

Reanalyses

There is no plan to reanalyze any samples.

GUMS Confirmations

Four samples (Table 1 N, 10) were analyzed using GOMS to confirm the presence of the pesticides and PCBs determined previously by GOECD.

Hylebos Juvenile Salmon Injury Study

Analyses for Chlorinated Hydrocarbons
Table 1 Notes

The concentrations of analytes were calculated using 4,4'-dibromooctafluorobiphenyl as the surrogate standard.

The “less than” symbol (<) indicates that the analyte was not detected in concentrations above the stated value.

Results were determined by gas chromatography with electron capture detection (GC/ECD).

Concentrations less than 10 ng/g are rounded to two significant figures; concentrations greater than or equal to 10 ng/g are rounded to three significant figures.

The percent recoveries of the surrogate standard were calculated using tetrachloro-o-xylene to correct for the fraction of the total extract used for the HPLC cleanup step.

The concentration reported for “Total PCBs” is the sum of the 17 PCB congeners multiplied by 2 (as defined in the QA Plan).

Set # and Sample # designations are intended for internal lab use and identification only. Jar # and site name represent Hylebos Damage Assessment official sample identification designations.

The sample weights used to calculate concentrations for the method blank are the mean sample weights calculated for the field samples in the same set.

Table 1A-p1: Sample information for salmon liver and stomach contents analyzed for chlorinated hydrocarbons as part of the Hylebos Juvenile Salmon Injury Study.

Set #	Sample#	Sample Type	Species	Jar #*	Site	Collection Date	Sample Wt. (g)	DOB Rec. (%)
H278	110-319	Tissue - liver	chum	HY94.076	PUYALLUP TRIBAL HATCHERY	5/11/94	0.76	94
H278	110-320	Tissue - liver	chum	HY94.077	PUYALLUP TRIBAL HATCHERY	5/11/94	1.11	97
H278	110-321	Tissue - liver	chum	HY94.078	PUYALLUP TRIBAL HATCHERY	5/11/94	0.76	96
H278	110-322	Tissue - liver	chum	HY94.079	PUYALLUP TRIBAL HATCHERY	5/12/94	1.11	97
H278	110-323	Tissue - liver	chum	HY94.080/081	SKOHOMISH ESTUARY	5/13/94	0.59	95
H278	110-324	Tissue - liver	chum	HY94.082/083	SKOHOMISH ESTUARY	5/16/94	1.55	97
H278	110-325	Tissue - liver	chum	HY94.084, 088	HYLEBOS WATERWAY	5/26/94	1.25	95
H278	110-326	Tissue - liver	chum	HY94.085/086	HYLEBOS WATERWAY	5/25/94	0.79	92
H278	110-327	Tissue - liver	chum	HY94.087	HYLEBOS WATERWAY	5/26/94	0.67	90
H278	110-328	Tissue - liver	chum	HY94.116	HYLEBOS WATERWAY	6/1/94	0.78	93
H279	110-333	Tissue - liver	chum	HY94.117	HYLEBOS WATERWAY	6/1/94	1.06	99
H279	110-335	Tissue - liver	chum	HY94.118	HYLEBOS WATERWAY	6/2/94	1.07	99
H279	110-336	Tissue - liver	chum	HY94.119	HYLEBOS WATERWAY	6/2/94	1.58	98
H279	110-337	Tissue - liver	chinook	HY94.120	HYLEBOS WATERWAY	6/2/94	1.10	98
H281	110-367	Tissue - liver	chinook	HY94.122	NISQUALLY ESTUARY	5/18/94	3.03	107
H281	110-370	Tissue - liver	chinook	HY94.123	NISQUALLY ESTUARY	5/31/94	3.05	104
H281	110-368	Tissue - liver	chinook	HY94.124	NISQUALLY ESTUARY	5/20/94	3.01	103
H281	110-369	Tissue - liver	chinook	HY94.124	NISQUALLY ESTUARY	5/20/94	3.02	101
H281	110-364	Tissue - liver	chinook	HY94.125	NISQUALLY HATCHERY	5/9/94	3.02	102
H281	110-366	Tissue - liver	chinook	HY94.126	NISQUALLY HATCHERY	5/13/94	3.04	105
H281	110-365	Tissue - liver	chinook	HY94.127	NISQUALLY HATCHERY	5/13/94	3.02	100
H279	110-334	Tissue - liver	chinook	HY94.152	HYLEBOS WATERWAY	6/1/94	1.14	97
H279	110-338	Tissue - liver	chum	HY94.162	HYLEBOS WATERWAY	6/8/94	1.28	102
H279	110-339	Tissue - liver	chum	HY94.163	HYLEBOS WATERWAY	6/8/94	1.39	100
H279	110-340	Tissue - liver	chinook	HY94.164,167	HYLEBOS WATERWAY	6/8/94	0.31	99
H279	110-341	Tissue - liver	chum	HY94.165	HYLEBOS WATERWAY	6/9/94	0.65	100

DOB = dibromooctafluorobiphenyl

*Jar #s represent official Hylebos Damage Assessment sampling numbers. If more than one jar # is given, the sample analyzed was a composite of those jars.

Table 1A-p2: Sample information for salmon liver and stomach contents analyzed for chlorinated hydrocarbons as part of the Hylebos Juvenile Salmon Injury Study.

Set #	Sample#	Sample Type	Species	Jar #*	Site	Collection Date	Sample Wt. (g)	DOB Rec. (%)
H279	110-342	Tissue - liver	chum	HY94.165	HYLEBOS WATERWAY	6/9/94	0.73	101
H280	110-347	Tissue - liver	chum	HY94.166	HYLEBOS WATERWAY	6/9/94	1.39	101
H280	110-348	Tissue - liver	chinook	HY94.226	PUYALLUP STATE HATCHERY	6/13/94	1.67	100
H280	110-349	Tissue - liver	chinook	HY94.227	PUYALLUP STATE HATCHERY	6/13/94	1.69	101
H280	110-350	Tissue - liver	chinook	HY94.228	PUYALLUP STATE HATCHERY	6/13/94	1.01	99
H280	110-351	Tissue - liver	chinook	HY94.228	PUYALLUP STATE HATCHERY	6/13/94	0.91	102
H280	110-352	Tissue - liver	chinook	HY94.229	PUYALLUP STATE HATCHERY	6/13/94	1.60	100
H280	110-353	Tissue - liver	chinook	HY94.230	PUYALLUP STATE HATCHERY	6/13/94	1.35	101
H280	110-354	Tissue - liver	chum	HY94.231,234,235	HYLEBOS WATERWAY	6/15/94	1.35	100
H280	110-355	Tissue - liver	chinook	HY94.232/238	HYLEBOS WATERWAY	6/15/94	0.53	101
H280	110-356	Tissue - liver	chinook	HY94.236	HYLEBOS WATERWAY	6/15/94	0.65	98
H281	110-361	Tissue - liver	chinook	HY94.261	HYLEBOS WATERWAY	6/22/94	1.07	96
H281	110-362	Tissue - liver	chinook	HY94.264	HYLEBOS WATERWAY	6/23/94	0.71	97
H281	110-363	Tissue - liver	chinook	HY94.268	HYLEBOS WATERWAY	6/29/94	0.53	99
H282	110-305	Tissue - stomach contents	chum	HY94.050	PUYALLUP TRIBAL HATCHERY	5/11/94	1.82	108
H282	110-306	Tissue - stomach contents	chum	HY94.053/056	SKOHOMISH ESTUARY	5/13/94	0.62	102
H282	110-312	Tissue - stomach contents	chinook	HY94.128	NISQUALLY ESTUARY	5/18/94	2.46	102
H282	110-313	Tissue - stomach contents	chinook	HY94.128	NISQUALLY ESTUARY	5/18/94	2.50	101
H282	110-307	Tissue - stomach contents	chum	HY94.154	HYLEBOS WATERWAY	6/8/94	2.97	101
H282	110-308	Tissue - stomach contents	chinook	HY94.218/219	PUYALLUP STATE HATCHERY	6/13/94	2.39	101
H282	110-309	Tissue - stomach contents	chum	HY94.220,223/224	HYLEBOS WATERWAY	6/15/94	2.97	100
H282	110-310	Tissue - stomach contents	chinook	HY94.225	HYLEBOS WATERWAY	6/16/94	3.02	101
H282	110-311	Tissue - stomach contents	chinook	HY94.262	HYLEBOS WATERWAY	6/22/94	3.01	101

DOB = dibromooctafluorobiphenyl

*Jar #s represent official Hylebos Damage Assessment sampling numbers. If more than one jar # is given, the sample analyzed was a composite of those jars.

Table 1B-p1: Concentrations (ng/g, wet weight) of pesticides in salmon liver and stomach contents samples analyzed as part of the Hylebos Juvenile Salmon Injury Study.

Sample#	HCBD	HCB	LIND	HEPT	Aldrin	α + γ Chlordane	Dieldrin	p,p'-DDE	p,p'-DDD	p,p'-DDT
110-319	<0.12	0.68	<0.24	<0.33	<0.18	1	0.38	5.7	1.8	<0.47
110-320	0.11	0.61	<0.14	<0.19	0.44	0.94	0.35	6.1	1.7	0.51
110-321	<0.11	0.68	<0.22	<0.3	<0.16	1.1	0.42	6.1	1.9	0.61
110-322	0.14	0.68	<0.14	<0.2	<0.1	1	0.4	7.1	1.7	0.64
110-323	<0.13	0.24	<0.26	<0.36	<0.19	0.62	0.29	3.1	0.6	0.79
110-324	<0.11	0.23	<0.22	<0.3	0.94	0.62	0.27	3	0.6	0.76
110-325	2.9	6.6	0.31	<0.2	0.19	2.7	1.2	12.4	5.4	4.9
110-326	3.6	7.5	0.37	<0.29	0.24	2.9	1.1	10.9	4.8	4.3
110-327	2.3	5.9	0.32	<0.34	0.3	3	1.3	7.3	5	5.2
110-328	1.9	4.3	0.21	<0.19	<0.1	2.4	1.3	11.3	5.6	5.6
110-333	2	3.7	0.18	<0.17	0.31	2.4	1.6	8.8	5.2	5.3
110-335	2.3	4.4	0.21	<0.2	<0.1	2.6	1.6	6.2	5.1	5.6
110-336	1.8	4	<0.23	<0.31	0.39	2.4	1.4	7.3	5	5.7
110-337	1.4	2.3	<0.28	<0.39	0.45	1.7	1.8	9.8	2.2	1.8
110-367	<0.052	0.57	0.12	<0.13	0.089	0.57	0.36	10.7	1.7	0.74
110-370	<0.056	1.2	0.22	<0.14	0.22	1.9	1.4	32.9	4.6	1.9
110-368	<0.06	0.72	0.15	<0.15	0.14	1.1	0.56	15.3	2.4	1
110-369	<0.054	0.71	0.16	<0.13	0.16	1	0.53	15.4	2.4	1
110-364	<0.062	0.47	<0.13	<0.15	0.15	0.55	0.43	8	1.1	0.26
110-366	<0.076	0.48	<0.16	<0.18	<0.11	0.46	0.42	8.5	1.3	0.31
110-365	<0.067	0.47	<0.14	<0.16	<0.093	0.46	0.39	8	1.3	0.24
110-334	0.82	1.2	0.2	<0.19	1	1.2	1.2	8.3	1.8	1.4
110-338	2.1	5.5	<0.36	<0.49	<0.26	3	2.3	4.8	5.6	4.7
110-339	4.3	5.2	0.26	<0.18	0.37	2	1.3	6.9	4.1	3.6
110-340	1.5	2.2	<0.49	<0.68	<0.36	3.1	1.9	10.8	3.4	2.5
110-341	2	4.8	<0.22	<0.3	0.46	2.5	1.7	5.4	5.3	4.4
110-342	2.1	4.8	<0.21	<0.29	0.44	2.5	1.9	5.3	5.3	4.4
110-347	2.9	7.7	0.26	0.24	0.43	2.4	1.8	5	4.7	3.3
110-348	<0.12	0.6	<0.23	<0.31	<0.17	0.95	0.88	5.5	1.8	1
110-349	<0.098	0.56	<0.19	<0.25	0.22	0.89	0.84	5.2	1.7	0.98

HCBD = hexachlorobutadiene; HCB = hexachlorobenzene; HEPT = heptachlor.

Table 1B-p2: Concentrations (ng/g, wet weight) of pesticides in salmon liver and stomach contents samples analyzed as part of the Hylebos Juvenile Salmon Injury Study.

Sample#	HCBD	HCB	LIND	HEPT	Aldrin	α + γ Chlordane	Dieldrin	p,p'-DDE	p,p'-DDD	p,p'-DDT
110-350	<0.067	0.54	<0.13	<0.17	0.41	0.83	0.78	6.1	1.7	1
110-351	<0.078	0.55	<0.15	<0.2	0.4	0.8	0.82	5.9	1.7	1
110-352	<0.11	0.57	<0.21	<0.28	0.18	0.83	0.87	5.4	1.7	1.1
110-353	0.69	0.51	0.12	<0.13	0.15	0.7	0.72	5.6	1.4	0.89
110-354	1.8	3.9	0.32	0.4	0.51	3	1.3	7.2	7.3	5.8
110-355	7.6	1.7	0.47	<0.43	0.47	2	1.1	12.7	3.9	2.9
110-356	0.72	1.7	0.41	0.28	<0.14	1.9	1.2	12.6	3.7	2.5
110-361	3	5.1	0.4	<0.19	0.49	1.6	0.93	13.2	2.7	1.5
110-362	2.6	3.3	0.38	<0.29	0.38	1.8	1.1	15.2	3.1	1.7
110-363	<0.16	0.86	<0.33	<0.38	0.83	2.4	1.3	11.6	3.7	2.2
110-305	<0.1	1.3	<0.17	<0.16	0.19	2.1	0.62	19.7	2.8	0.85
110-306	<0.2	<0.2	<0.34	<0.31	0.33	<0.4	<0.21	0.69	<0.32	<0.3
110-312	<0.12	0.28	<0.2	<0.19	<0.14	0.36	0.28	1.7	0.32	<0.18
110-313	<0.17	0.28	<0.29	<0.27	<0.2	0.47	0.3	3	0.62	<0.26
110-307	1.8	3.3	0.25	0.64	0.62	1	0.76	1.2	1.2	0.55
110-308	<0.12	2.5	<0.21	<0.19	<0.14	4.3	4.3	59.5	10.3	4.1
110-309	0.95	5.4	<0.1	0.54	4	2.1	1.8	1.3	1.1	0.43
110-310	0.57	1.8	0.72	<0.12	<0.084	0.96	3.3	13.1	2.1	0.9
110-311	1.5	3.8	0.88	0.39	2.1	2	1.5	5.7	1.3	0.8

HCBD = hexachlorobutadiene; HCB = hexachlorobenzene; HEPT = heptachlor.

Table 1C-p1: **Concentrations (ng/g, wet weight) of chlorobiphenyl congeners (chlorination level/IUPAC number) in salmon liver and stomach contents samples analyzed as part of the Hylebos Juvenile Salmon Injury Study.**

Sample#	3/18	3/28	4/44	4/52	4/66	5/101	5/105	5/118	6/128	6/138	6/153	7/170	7/180	7/187	8/195	9/206	10/209	Total PCBs*
110-319	2.1	1.5	2.7	1.7	1.2	2.3	0.53	1.6	0.6	2.7	3.2	0.34	0.29	0.84	< 0.12	< 0.12	0.37	44
110-320	0.94	0.9	1.8	1.2	0.84	1.9	0.39	1.3	0.5	2.2	2.8	0.33	0.26	0.77	< 0.069	0.087	0.22	33
110-321	1.8	1.7	2.9	1.9	1.3	2.6	0.55	1.8	0.61	2.8	3.4	0.34	0.33	0.84	< 0.11	< 0.11	0.25	46
110-322	0.86	0.91	1.7	1.2	0.95	2.1	0.51	1.4	0.57	2.4	3	0.36	0.29	0.81	< 0.072	0.084	0.22	35
110-323	1.8	1.5	3.1	1.6	1.2	2.2	0.58	2.1	0.52	3.1	4	0.35	0.36	0.85	< 0.13	< 0.13	0.24	47
110-324	1.1	0.93	2.2	1.1	0.81	1.9	0.42	1.6	0.45	2.6	3.4	0.31	0.3	0.73	< 0.11	< 0.11	0.3	36
110-325	1.7	1.9	5.4	7.1	8.3	18.3	4	14.6	3.8	22.7	30.1	3.8	7.3	9.7	0.54	2.2	1.9	290
110-326	1.7	1.9	6.3	7.4	8.1	17.9	4	14.3	3.5	20.7	27	3.4	6.7	8.7	0.52	2.5	2.5	270
110-327	2.4	2.5	7.3	8.3	9.1	19.6	4.3	15.4	3.9	23.5	32.4	4.4	8.1	12	0.68	2.7	2.5	320
110-328	1.8	2.1	7	8.6	10.6	24.8	5.9	20.7	5.1	30	37.4	4.4	8	9.8	0.56	2.2	1.8	360
110-333	1.7	2.2	5.6	7.2	9.6	20.1	5.6	15.6	4	23.6	27.6	3.6	6.6	7.8	0.48	1.7	1.4	290
110-335	1.6	2.3	5.9	7.7	11	21.1	4.8	16	3.9	23.9	30.4	3.9	7.2	9.4	0.56	2.1	1.6	310
110-336	1.6	2.2	6.2	7.7	10	19.6	6.6	15.2	4	23.3	27.4	4	6.7	9.6	0.59	2.2	1.8	300
110-337	1.2	0.98	2.7	2.5	0.83	4.8	1.2	3.7	1.1	6.2	7.5	1.2	1.3	3.1	0.28	1.3	1.3	83
110-367	0.66	0.47	1.1	1.2	0.63	2.2	0.69	1.7	0.54	3.4	4	0.5	2.3	1.1	0.038	0.33	0.5	43
110-370	0.76	0.83	1.4	2.4	1.1	4.7	1.4	3.5	1.1	6.9	7.9	0.95	4.2	2.1	0.079	0.23	0.53	80
110-368	0.77	0.52	1.2	1.5	0.76	2.9	0.88	2.3	0.71	4.3	5	0.61	2.8	1.4	0.044	0.43	0.61	53
110-369	0.84	0.65	1.2	1.5	0.76	2.8	0.93	2.2	0.7	4.2	4.9	0.59	2.8	1.4	0.042	0.39	0.55	53
110-364	0.88	0.36	1.2	0.68	0.42	1.2	0.42	0.87	0.28	1.8	2.3	0.32	1.1	0.67	< 0.042	0.37	0.49	27
110-366	0.74	0.39	1.1	0.88	0.37	1.3	0.36	0.95	0.33	2	2.2	0.34	1.1	0.73	< 0.051	0.41	0.53	28
110-365	0.81	0.32	1.1	0.78	0.36	1.1	0.26	0.86	0.28	1.8	2.1	0.3	1.1	0.69	< 0.045	0.4	0.6	26
110-334	0.94	0.72	2.1	2.1	1.8	3.8	1.4	3.2	1	5.2	6.3	1	1.2	2.5	0.23	0.9	0.91	71
110-338	1.4	1.9	7.1	8.7	2.7	25.2	6.3	20.6	5.5	31.4	38	5.4	8	12.5	1	4.6	4	370
110-339	1	1.2	5.3	6.2	8.9	20.4	4	17.8	4.7	28.8	36	5	8.6	11.7	0.91	4.3	3.8	340
110-340	2.7	2.6	6.9	5.4	5.2	10.5	2.6	9.2	2.5	12.7	16.3	2.1	2.8	4.8	0.38	1.8	2.3	180
110-341	1.8	2.6	7.7	8.6	9.4	25.1	5.9	21.5	5.7	33.1	38.7	5.2	8	11.8	1	4.9	5	390

* The concentration reported for "Total PCBs" is the sum of the 17 PCB congeners multiplied by 2 (as defined in the QA Plan).

Table 1C-p2: **Concentrations (ng/g, wet weight) of chlorobiphenyl congeners (chlorination level/IUPAC number) in salmon liver and stomach contents samples analyzed as part of the Hylebos Juvenile Salmon Injury Study.**

Sample#	3/18	3/28	4/44	4/52	4/66	5/101	5/105	5/118	6/128	6/138	6/153	7/170	7/180	7/187	8/195	9/206	10/209	Total PCBs*
110-342	1.7	1.7	7.1	8.2	7.7	25	4.5	21.6	5.8	33.2	40.2	5.2	7.8	11.6	1	5	5.1	380
110-347	2.3	1.6	3.8	6.5	8.3	22	5.8	18.2	4.8	29.1	32.9	4.8	8.1	10.1	0.92	4.8	4.8	340
110-348	0.58	0.7	2	1.2	0.9	2	0.5	1.4	0.46	2.6	3.3	0.36	0.35	0.89	< 0.12	< 0.12	0.37	35
110-349	0.55	1.2	1.9	1.2	0.84	1.9	0.46	1.3	0.41	2.4	3	0.32	0.31	0.84	< 0.097	0.1	0.33	34
110-350	0.87	0.86	1.8	1.4	0.98	2	0.49	1.5	0.44	2.5	3.1	0.33	0.31	0.86	< 0.066	0.1	0.27	36
110-351	0.92	0.96	2	1.4	0.94	2	0.5	1.6	0.46	2.7	3.3	0.34	0.32	0.88	< 0.077	0.1	0.33	38
110-352	1.1	0.9	2.1	1.3	0.87	2	0.51	1.5	0.45	2.8	3.3	0.36	0.34	0.89	< 0.11	0.14	0.35	38
110-353	0.86	0.68	1.4	1.3	0.87	1.8	0.47	1.3	0.45	2.2	2.6	0.3	0.32	0.76	< 0.051	0.081	0.22	31
110-354	1.3	3.8	5.2	8.9	13.4	35.1	12	32.1	8	48	51	7.3	11.8	15	1.2	5.6	5.1	530
110-355	1.8	3.4	3.9	4.3	4	10	3.2	9.3	2.4	12.8	15	2	2.4	4.4	0.33	1.2	1.5	160
110-356	1.3	2.3	3.1	3.2	3.7	7.7	2.5	6.8	2	10.7	12.5	2	2.4	4.2	0.35	1.3	1.5	140
110-361	1.6	1.3	3.3	2.6	2.2	5.8	2	5.4	1.7	8.9	10.4	1.7	8.1	3.8	0.29	1.6	2.1	130
110-362	1.8	1.2	3.5	2.6	2.1	6.5	1.9	5.3	1.6	9.2	12.5	1.8	10	5.8	0.27	1.2	1.7	140
110-363	1.8	1.7	4.1	2.8	1.9	6.4	1.6	6	1.7	9.5	11.7	1.6	8.6	2.7	0.13	0.55	0.99	130
110-305	0.55	1.3	2	1.4	1	3.7	0.56	1.9	0.82	4.2	5.1	0.42	1.7	1	< 0.077	< 0.081	< 0.1	51
110-306	1.5	1.1	2.9	1.2	1	1.5	0.47	1.6	0.22	1.9	2	< 0.16	0.41	< 0.19	< 0.15	< 0.16	< 0.21	31
110-312	0.64	0.47	1.2	0.52	0.59	1.3	0.3	0.98	0.26	1.5	1.8	0.25	0.74	0.39	< 0.092	< 0.097	0.14	22
110-313	0.9	1.1	1.3	1.1	0.73	1.8	0.35	1.2	0.28	2	2.4	0.23	0.9	0.44	< 0.13	< 0.14	< 0.18	29
110-307	0.55	1.6	2.1	2.8	1.8	7.9	1.4	6.8	1.4	9.6	11	1.5	7.8	3.3	0.25	1.5	1.7	130
110-308	0.9	0.84	1.7	4.5	2.1	9	0.91	5.4	1.8	12.8	16.6	1.3	6.7	4	< 0.094	0.23	0.17	140
110-309	1.1	0.78	1.6	3	2.8	9.1	1.8	8.2	1.7	11.1	12.3	7	8	4.1	0.33	1.4	1.2	150
110-310	0.46	0.65	1.3	2.2	2.4	5.3	1.1	4.7	0.93	7.4	9.1	11.4	6.1	2.9	0.14	0.53	0.48	110
110-311	0.79	1.4	2.1	2	1.2	3.8	< 0.074	3.3	1.1	4.7	5.9	2.1	4.7	1.9	0.26	0.77	0.72	73

* The concentration reported for "Total PCBs" is the sum of the 17 PCB congeners multiplied by 2 (as defined in the QA Plan).

Table 1D-p1: Quality assurance sample information in method blanks and standard reference material (SRM 1974a) analyzed for chlorinated hydrocarbons as part of the Hylebos Juvenile Salmon Injury Study.

Set #	Sample #	Sample Type	Sample Wt (g)	DOB Rec (%)
Method Blank				
H282	110-315	Method Blank	2.42	94
H278	110-330**	Method Blank	0.94	93
H279	110-344	Method Blank	1.03	96
H280	110-358	Method Blank	1.22	104
H281	110-372	Method Blank	2.35	88
SRM 1974a				
H282	110-314	SRM 1974a	3.01	105
H278	110-329	SRM 1974a	2.98	92
H279	110-343	SRM 1974a	3.01	97
H280	110-357	SRM 1974a	3.01	99
H281	110-371	SRM 1974a	3.03	100

DOB = dibromooctafluorobiphenyl

Table 1E-p1: QA: Concentrations (ng/g, wet weight) of pesticides in method blanks and standard reference material (SRM 1974a) analyzed as part of the Hylebos Juvenile Salmon Injury Study.

Sample #	Sample Type	HCBD	HCB	Lindane	HEPT	Aldrin	α + γ Chlordane	Dieldrin	p,p'-DDE	p,p'-DDD	p,p'-DDT
Method Blank											
110-315	Method Blank	< 0.035	< 0.035	< 0.059	< 0.054	< 0.04	< 0.07	< 0.037	< 0.032	< 0.056	< 0.053
110-330**	Method Blank	< 0.2	< 0.2	< 0.39	< 0.54	< 0.29	< 0.59	< 0.32	< 0.26	< 0.62	< 0.76
110-344	Method Blank	< 0.073	< 0.073	< 0.15	< 0.2	< 0.11	< 0.22	< 0.12	< 0.098	< 0.23	< 0.28
110-358	Method Blank	< 0.069	< 0.069	< 0.13	< 0.18	< 0.1	< 0.2	< 0.11	< 0.092	< 0.21	< 0.25
110-372	Method Blank	< 0.04	< 0.04	< 0.085	0.53	< 0.055	0.15	0.28	< 0.053	< 0.11	< 0.12
	Average*	0.00	0.00	0.00	0.11	0.00	0.04	0.06	0.00	0.00	0.00
	SD	0.00	0.00	0.00	0.21	0.00	0.06	0.11	0.00	0.00	0.00
	RSD	?	?	?	200.0%	?	141.5%	200.0%	?	?	?
SRM 1974a											
110-314	SRM 1974a	< 0.12	< 0.12	< 0.19	< 0.18	< 0.13	2.8	1.1	3.1	4.5	0.29
110-329	SRM 1974a	< 0.045	0.12	< 0.09	< 0.12	< 0.065	2.8	0.96	3.7	5.9	0.6
110-343	SRM 1974a	< 0.055	< 0.055	< 0.11	< 0.15	< 0.081	2.9	0.96	3	6	0.35
110-357	SRM 1974a	< 0.044	< 0.044	< 0.085	< 0.11	< 0.064	2.7	0.81	2.8	5.7	0.35
110-371	SRM 1974a	< 0.076	< 0.076	< 0.16	< 0.18	< 0.1	3.1	< 0.11	4.1	6	0.25
	Average*	0.00	0.02	0.00	0.00	0.00	2.86	0.76	3.32	5.61	0.37
	SD	0.00	0.05	0.00	0.00	0.00	0.15	0.39	0.49	0.59	0.12
	RSD	?	200.0%	?	?	?	5.2%	51.3%	14.8%	10.5%	34.0%
SRM 1974a Certified concentrations (ng/g, wet wt)	$\bar{x}$	---	---	---	---	---	---	0.7	5.84	4.90	0.45
	95% CI								0.63	0.72	0.07
	UCL								6.73	7.59	0.69
	LCL								3.39	2.72	0.25

HCBD = hexachlorobutadiene; HCB = hexachlorobenzene; HEPT = heptachlor.

$\bar{x}$ is the average concentration (ng/g, wet wt)
95% CI is the 95% confidence interval
UCL is the upper confidence limit (95% confidence limit + 35%)
LCL is the lower confidence limit (95% confidence limit - 35%)

Dieldrin is given as a noncertified value.

* When an analyte was detected in some, but not all of the method blanks, the average concentration is based on the concentration when detected and zero when not detected. When an analyte was not detected in any of the method blanks or SRMs, zero is reported for the average and the SD and a "?" is reported for the RSD.

**The sample weights of samples analyzed in the set with method blank 110-330 were near to or less than 1g. The average sample weight for the set (0.94g) is used in calculating the concentrations in the method blank. The sample weight needs to be adjusted to 3g for comparison to MDLs.

Table 1F-p1: QA: Concentrations (ng/g, wet weight) of chlorobiphenyl congeners (chlorination level/IUPAC number) in method blanks and standard reference material (SRM 1974a) analyzed as part of the Hylebos Juvenile Salmon Injury Study.

Sample #	3/18	3/28	4/44	4/52	4/66	5/101	5/105	5/118	6/128	6/138	6/153	7/170	7/180	7/187	8/195	9/206	10/209	Total PCBs
Method Blank																		
110-315	0.43	0.46	0.84	0.41	0.42	0.45	0.12	0.4	0.072	0.51	0.55	< 0.028	0.081	0.089	< 0.027	< 0.028	< 0.036	9.7
110-330**	< 0.91	1.4	3.4	1.4	1.1	1.6	0.34	1.5	< 0.23	1.6	1.9	< 0.2	< 0.23	< 0.3	< 0.2	< 0.2	< 0.24	29
110-344	0.57	0.58	1.5	0.5	0.43	0.48	0.13	0.41	< 0.085	0.5	0.5	< 0.076	< 0.086	< 0.11	< 0.073	< 0.074	< 0.088	11
110-358	0.44	0.47	1.3	0.52	0.36	0.52	0.13	0.42	< 0.079	0.46	0.49	< 0.07	< 0.081	< 0.1	< 0.068	< 0.069	< 0.082	10
110-372	0.59	1.2	1.5	0.61	0.39	0.57	0.17	0.59	< 0.045	0.53	0.55	< 0.039	< 0.044	< 0.058	< 0.027	< 0.034	< 0.041	13
Average*	0.41	0.83	1.71	0.68	0.54	0.73	0.18	0.66	0.01	0.72	0.79	0.00	0.03	0.02	0.00	0.00	0.00	14.63
SD	0.21	0.41	0.89	0.35	0.28	0.44	0.08	0.41	0.03	0.44	0.54	0.00	0.04	0.04	0.00	0.00	0.00	7.09
RSD	52.6%	49.0%	51.9%	51.0%	51.6%	61.0%	47.1%	62.6%	200.0%	61.1%	68.2%	?	123.0%	200.0%	?	?	?	48.5%
SRM 1974a																		
110-314	4	8	9.6	13.9	14.1	15.9	4.5	15.2	2.1	16.1	20.7	0.45	3.3	3.9	0.12	< 0.092	< 0.12	260
110-329	3.2	9.2	8.7	12.3	12.4	14.8	4.6	15.3	2.2	15.8	20.2	0.68	1.1	3.9	0.12	0.16	0.19	250
110-343	3.2	8.8	8.4	12.3	11.9	14	4.5	13.9	2	14.4	18.3	0.52	0.84	3.6	0.082	0.077	0.11	230
110-357	2.9	8	7.9	11.3	10.3	12.9	4.5	12.9	1.9	13.4	16.9	0.5	0.8	3.3	0.075	0.067	0.099	220
110-371	3.8	9.3	9.7	14.1	13.7	16	4.6	15.3	2.3	16.1	20.5	0.74	3.3	4.2	0.084	< 0.064	< 0.079	270
Average*	3.42	8.67	8.85	12.78	12.50	14.70	4.55	14.52	2.10	15.15	19.31	0.58	1.87	3.78	0.10	0.06	0.08	246.00
SD	0.40	0.55	0.68	1.07	1.36	1.17	0.06	0.94	0.15	1.07	1.49	0.11	1.17	0.28	0.02	0.06	0.07	19.16
RSD	11.6%	6.4%	7.7%	8.3%	10.9%	8.0%	1.2%	6.5%	7.3%	7.1%	7.7%	19.4%	62.4%	7.5%	21.1%	96.6%	90.8%	7.8%
SRM 1974a $\bar{x}$	3.7	9	8.28	13.1	11.54	14.6	6.04	14.9	2.5	15.2	16.54	0.63	1.95	3.87	--	--	--	
Certified 95% CI			0.84	1.30	0.50	1.10	0.39	0.40	0.39	1.10	0.86	0.12	0.43	0.27				
concentrations UCL			12.31	19.44	16.25	21.2	8.68	20.7	3.90	22.0	23.5	1.01	3.21	5.59				
(ng/g, wet wt) LCL			4.84	7.76	7.18	8.78	3.67	9.43	1.37	9.17	10.2	0.33	0.99	2.34				

$\bar{x}$ is the average concentration (ng/g, wet wt)
95% CI is the 95% confidence interval
UCL is the upper confidence limit (95% confidence limit + 35%)
LCL is the lower confidence limit (95% confidence limit - 35%)

PCBs 3/18 and 3/28 are given as a noncertified values.

* When an analyte was detected in some, but not all of the method blanks, the average concentration is based on the concentration when detected and zero when not detected. When an analyte was not detected in any of the method blanks or SRMs, zero is reported for the average and the SD and a "?" is reported for the RSD.

**The sample weights of samples analyzed in the set with method blank 110-330 were near to or less than 1g. The average sample weight for the set (0.94g) is used in calculating the concentrations in the method blank. The sample weight needs to be adjusted to 3g for comparison to MDLs.

Table 1G-p1: QA: Sample information for salmon tissue analyzed in replicate for chlorinated hydrocarbons as part of the Hylebos Juvenile Salmon Injury Study.

Set #	Sample#	Sample Type	Species	Jar #	Site	Date Collected	Sample Wt. (g)	DOB Rec. (%)
H281	110-368	Tissue - liver	chinook	HY94.124	NISQUALLY ESTUARY	5/20/94	3.01	103
H281	110-369	Tissue - liver	chinook	HY94.124	NISQUALLY ESTUARY	5/20/94	3.02	101
H279	110-341	Tissue - liver	chum	HY94.165	HYLEBOS WATERWAY	6/9/94	0.65	100
H279	110-342	Tissue - liver	chum	HY94.165	HYLEBOS WATERWAY	6/9/94	0.73	101
H280	110-350	Tissue - liver	chinook	HY94.228	PUYALLUP STATE	6/13/94	1.01	99
H280	110-351	Tissue - liver	chinook	HY94.228	PUYALLUP STATE	6/13/94	0.91	102
H282	110-312	Tissue - stomach contents	chinook	HY94.128	NISQUALLY ESTUARY	5/18/94	2.46	102
H282	110-313	Tissue - stomach contents	chinook	HY94.128	NISQUALLY ESTUARY	5/18/94	2.50	101

DOB = dibromooctafluorobiphenyl

Replicate sample analyses are identified by jar #.

*Jar #s represent official Hylebos Damage Assessment sampling numbers. If more than one jar # is given, the sample analyzed was a composite of those jars.

Table 1H-p1: QA: Concentrations (ng/g, wet weight) of pesticides in salmon tissue analyzed in replicate as part of the Hylebos Juvenile Salmon Injury Study.

Sample #	Jar #		HCBD	HCB	Lindane	HEPT	Aldrin	α + γ Chlordane	Dieldrin	p,p'-DDE	p,p'-DDD	p,p'-DDT
Tissue - liver												
110-368	HY94.124		< 0.06	0.72	0.15	< 0.15	0.14	1.1	0.56	15.3	2.4	1
110-369	HY94.124		< 0.054	0.71	0.16	< 0.13	0.16	1	0.53	15.4	2.4	1
		Average	0.00	0.72	0.15	0.00	0.15	1.03	0.54	15.35	2.36	1.03
		SD	0.00	0.00	0.00	0.00	0.01	0.03	0.02	0.02	0.01	0.02
		RSD	?	0.7%	2.3%	?	5.2%	2.6%	2.8%	0.1%	0.3%	1.5%
110-341	HY94.165		2	4.8	< 0.22	< 0.3	0.46	2.5	1.7	5.4	5.3	4.4
110-342	HY94.165		2.1	4.8	< 0.21	< 0.29	0.44	2.5	1.9	5.3	5.3	4.4
		Average	2.05	4.78	0.00	0.00	0.45	2.51	1.83	5.34	5.28	4.41
		SD	0.01	0.03	0.00	0.00	0.01	0.01	0.09	0.03	0.03	0.01
		RSD	0.5%	0.6%	?	?	2.5%	0.4%	4.9%	0.5%	0.5%	0.1%
110-350	HY94.228		< 0.067	0.54	< 0.13	< 0.17	0.41	0.83	0.78	6.1	1.7	1
110-351	HY94.228		< 0.078	0.55	< 0.15	< 0.2	0.4	0.8	0.82	5.9	1.7	1
		Average	0.00	0.54	0.00	0.00	0.41	0.82	0.80	6.01	1.69	1.04
		SD	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.09	0.03	0.00
		RSD	?	1.1%	?	?	1.0%	2.2%	2.3%	1.5%	1.7%	0.4%
Tissue - stomach contents												
110-312	HY94.128		< 0.12	0.28	< 0.2	< 0.19	< 0.14	0.36	0.28	1.7	0.32	< 0.18
110-313	HY94.128		< 0.17	0.28	< 0.29	< 0.27	< 0.2	0.47	0.3	3	0.62	< 0.26
		Average	0.00	0.28	0.00	0.00	0.00	0.42	0.29	2.34	0.47	0.00
		SD	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.65	0.15	0.00
		RSD	?	1.0%	?	?	?	13.6%	3.6%	28.0%	31.7%	?

HCBD = hexachlorobutadiene; HCB = hexachlorobenzene; HEPT = heptachlor

Replicate sample analyses are identified by jar #.

*Jar #s represent official Hylebos Damage Assessment sampling numbers. If more than one jar # is given, the sample analyzed was a composite of those jars.

* When an analyte was detected in some, but not all of the replicates, the average concentration is based on the concentration when detected and zero when not detected. When an analyte was not detected in any of the replicates, zero is reported for the average and the SD and a "?" is reported for the RSD.

Table 1l-p1: **QA: Concentrations (ng/g, wet weight) of chlorobiphenyl congeners (chlorination level/IUPAC number) in salmon tissue analyzed in replicate as part of the Hylebos Juvenile Salmon Injury Study.**

Sample #	3/18	3/28	4/44	4/52	4/66	5/101	5/105	5/118	6/128	6/138	6/153	7/170	7/180	7/187	8/195	9/206	10/209	Total PCBs**
Tissue - liver																		
110-368	0.77	0.52	1.2	1.5	0.76	2.9	0.88	2.3	0.71	4.3	5	0.61	2.8	1.4	0.044	0.43	0.61	53
110-369	0.84	0.65	1.2	1.5	0.76	2.8	0.93	2.2	0.7	4.2	4.9	0.59	2.8	1.4	0.042	0.39	0.55	53
Average	0.81	0.58	1.21	1.51	0.76	2.87	0.90	2.25	0.71	4.24	4.98	0.60	2.77	1.38	0.04	0.41	0.58	53.19
SD	0.04	0.06	0.01	0.00	0.00	0.03	0.02	0.00	0.00	0.03	0.06	0.01	0.01	0.03	0.00	0.02	0.03	0.23
RSD	4.4%	11.1%	1.0%	0.3%	0.1%	1.1%	2.8%	0.2%	0.5%	0.7%	1.2%	1.6%	0.4%	2.1%	2.2%	4.7%	5.0%	0.4%
110-341	1.8	2.6	7.7	8.6	9.4	25.1	5.9	21.5	5.7	33.1	38.7	5.2	8	11.8	1	4.9	5	390
110-342	1.7	1.7	7.1	8.2	7.7	25	4.5	21.6	5.8	33.2	40.2	5.2	7.8	11.6	1	5	5.1	380
Average	1.78	2.17	7.38	8.38	8.53	25.03	5.22	21.58	5.77	33.11	39.41	5.22	7.90	11.69	1.02	4.94	5.05	388.37
SD	0.07	0.42	0.31	0.19	0.84	0.04	0.68	0.03	0.02	0.05	0.74	0.00	0.06	0.14	0.00	0.04	0.04	3.65
RSD	3.7%	19.3%	4.2%	2.3%	9.8%	0.2%	13.0%	0.1%	0.4%	0.2%	1.9%	0.0%	0.8%	1.2%	0.5%	0.8%	0.9%	0.9%
110-350	0.87	0.86	1.8	1.4	0.98	2	0.49	1.5	0.44	2.5	3.1	0.33	0.31	0.86	< 0.066	0.1	0.27	36
110-351	0.92	0.96	2	1.4	0.94	2	0.5	1.6	0.46	2.7	3.3	0.34	0.32	0.88	< 0.077	0.1	0.33	38
Average	0.90	0.91	1.88	1.42	0.96	1.99	0.50	1.54	0.45	2.61	3.24	0.33	0.32	0.87	0.03	0.10	0.30	36.69
SD	0.03	0.05	0.12	0.03	0.02	0.01	0.00	0.06	0.01	0.09	0.11	0.01	0.01	0.01	0.00	0.00	0.03	1.05
RSD	3.1%	5.1%	6.5%	1.9%	1.6%	0.4%	0.6%	3.8%	2.1%	3.6%	3.3%	1.6%	1.9%	1.2%	1.0%	0.0%	9.5%	2.9%
Tissue - stomach contents																		
110-312	0.64	0.47	1.2	0.52	0.59	1.3	0.3	0.98	0.26	1.5	1.8	0.25	0.74	0.39	< 0.092	< 0.097	0.14	22
110-313	0.9	1.1	1.3	1.1	0.73	1.8	0.35	1.2	0.28	2	2.4	0.23	0.9	0.44	< 0.13	< 0.14	< 0.18	29
Average	0.77	0.77	1.21	0.83	0.66	1.59	0.32	1.11	0.27	1.73	2.08	0.24	0.82	0.41	0.00	0.00	0.07	25.76
SD	0.13	0.31	0.05	0.31	0.07	0.25	0.03	0.12	0.01	0.23	0.29	0.01	0.08	0.03	0.00	0.00	0.07	3.64
RSD	16.5%	39.6%	4.1%	37.7%	11.0%	15.5%	8.8%	11.0%	3.4%	13.5%	13.8%	3.7%	9.6%	6.6%	?	?	100.0%	14.1%

* When an analyte was detected in some, but not all of the replicates, the average concentration is based on the concentration when detected and zero when not detected. When an analyte was not detected in any of the replicates, zero is reported for the average and the SD and a "?" is reported for the RSD.

** The concentration reported for "Total PCBs" is the sum of the 17 PCB congeners multiplied by 2 (as defined in the QA Plan).

Table 1J-p1: Standard curve correlation (r) from the linear regression of the concentration of the analyte to the area response for the multilevel standards.

Analyte	H278 r	H279 r	H280 r	H281 r	H282 r
hexachlorobenzene	0.9995	0.9994	0.9993	0.9994	0.9993
lindane	0.9999	0.9995	0.9991	0.9999	0.9999
3\18	0.9999	0.9998	0.9997	1.0000	0.9999
3\28	1.0000	1.0000	1.0000	1.0000	1.0000
heptachlor	0.9998	0.9971	0.9974	0.9998	0.9999
4\52	0.9999	0.9999	0.9998	1.0000	1.0000
aldrin	0.9998	0.9998	0.9998	0.9999	0.9997
4\44	0.9999	0.9999	0.9998	1.0000	0.9999
4\66	0.9997	1.0000	1.0000	1.0000	1.0000
gamma-chlordane	0.9999	1.0000	1.0000	1.0000	0.9999
5\101	1.0000	0.9999	0.9999	1.0000	1.0000
alpha-chlordane	0.9999	1.0000	1.0000	1.0000	0.9999
dieldrin	0.9999	1.0000	0.9999	1.0000	0.9999
p,p'-DDE	0.9999	0.9999	0.9999	0.9999	0.9998
5\118	1.0000	1.0000	1.0000	1.0000	0.9999
p,p'-DDD	0.9998	0.9996	0.9995	1.0000	0.9996
6\153	1.0000	1.0000	1.0000	1.0000	0.9999
5\105	0.9999	0.9999	0.9999	1.0000	0.9998
p,p'-DDT	0.9998	0.9986	0.9987	0.9999	0.9998
6\138	1.0000	1.0000	1.0000	1.0000	0.9999
7\187	1.0000	1.0000	0.9999	1.0000	0.9999
6\128	0.9999	0.9999	1.0000	1.0000	0.9998
7\180	0.9999	0.9999	1.0000	1.0000	0.9998
7\170	0.9998	0.9998	0.9999	1.0000	0.9998
8\195	0.9999	0.9998	0.9999	1.0000	0.9998
9\206	0.9998	0.9998	0.9999	0.9999	0.9997
10\209	0.9999	0.9999	0.9999	1.0000	0.9998

Based on six concentration levels of standards.

Table 1K-p1: Continuing calibration verification data* for chlorinated pesticides in standards run before, during and after the samples in a salmon tissue set analyzed as part of the Hylebos Juvenile Salmon Injury Study.

ML Name	HCB	LIND	HEPT	Adrin	α-Chlor	γ-Chlor	Dieldrin	p,p'-DDE	p,p'-DDD	p,p'-DDT
H278										
H278CH5E1-A	84	92	90	96	93	93	93	95	93	91
H278CH5E1-B	87	99	99	97	96	96	96	97	98	98
H278CH5E1-C	93	105	104	104	103	103	105	103	106	107
Average	88	99	98	99	97	97	98	98	99	99
SD	3.8	5.1	5.5	3.3	4.3	4.2	4.9	3.1	5.4	6.4
RSD	4.3%	5.1%	5.6%	3.4%	4.4%	4.3%	5.0%	3.1%	5.5%	6.5%
H279										
H279CH5E1-A	86	97	95	100	97	97	97	99	98	96
H279CH5E1-B	87	98	97	98	97	97	97	98	98	97
H279CH5E1-C	83	86	80	91	89	89	88	90	85	80
Average	85	94	91	96	94	94	94	96	94	91
SD	2.0	5.7	7.4	3.9	3.8	3.9	4.1	3.8	6.1	7.5
RSD	2.4%	6.1%	8.2%	4.0%	4.0%	4.1%	4.3%	4.0%	6.5%	8.2%
H280										
H280CH5E1-A	82	91	89	94	91	91	91	93	92	90
H280CH5E1-B	85	102	104	99	97	98	99	98	102	104
H280CH5E1-C	79	78	74	86	85	84	83	87	78	77
Average	82	90	89	93	91	91	91	92	91	90
SD	2.4	9.7	12.0	5.5	5.2	5.5	6.5	4.5	9.5	10.9
RSD	3.0%	10.7%	13.5%	5.9%	5.8%	6.1%	7.1%	4.9%	10.5%	12.1%
H281										

HCB = hexachlorobenzene; LIND = lindane; HEPT = heptachlor; Chlor = chlordane

*Data are reported as percent recovery calculated using the multilevel curve analyzed with each set.

Table 1K-p2: Continuing calibration verification data* for chlorinated pesticides in standards run before, during and after the samples in a salmon tissue set analyzed as part of the Hylebos Juvenile Salmon Injury Study.

ML Name	HCB	LIND	HEPT	Adrin	α-Chlor	γ-Chlor	Dieldrin	p,p'-DDE	p,p'-DDD	p,p'-DDT
H281CH5E1A	92	102	99	106	103	102	103	105	102	100
H281CH5E1B	85	97	95	97	96	96	97	99	97	96
H281CH5E1C	84	90	88	95	94	94	94	96	92	90
Average	87	96	94	99	98	97	98	100	97	95
SD	3.5	4.8	4.9	4.9	3.7	3.7	3.7	3.6	4.3	4.4
RSD	4.0%	5.0%	5.2%	4.9%	3.8%	3.8%	3.8%	3.6%	4.4%	4.7%
H282										
H282CH5E1-A	89	97	95	101	98	98	98	101	100	97
H282CH5E1-B	86	99	99	99	97	97	98	99	99	100
H282CH5E1-C	85	94	91	95	94	95	95	96	96	94
Average	86	96	95	98	96	96	97	99	99	97
SD	1.7	2.1	3.5	2.5	1.5	1.3	1.5	1.7	1.5	2.6
RSD	2.0%	2.2%	3.7%	2.6%	1.6%	1.4%	1.5%	1.7%	1.5%	2.7%

HCB = hexachlorobenzene; LIND = lindane; HEPT = heptachlor; Chlor = chlordane

*Data are reported as percent recovery calculated using the multilevel curve analyzed with each set.

Table 1L-p1: Continuing calibration verification data* for chlorobiphenyl congeners (chlorination level/IUPAC number) in standards run before, during and after the samples in a salmon tissue set analyzed as part of the Hylebos Juvenile Salmon Injury Study.

ML Name	3/18	3/28	4/44	4/52	4/66	5/101	5/105	5/118	6/128	6/138	6/153	7/170	7/180	7/187	8/195	9/206	10/209
H278																	
H278CH5E1-A	90	92	91	90	92	91	93	92	93	92	92	94	93	92	94	94	93
H278CH5E1-B	95	95	95	95	95	95	97	96	97	96	96	98	97	96	98	99	98
H278CH5E1-C	100	102	101	102	102	102	104	99	103	102	101	104	103	102	102	102	101
Average	95	97	96	96	96	96	98	96	98	97	96	99	98	97	98	98	98
SD	4.2	4.4	4.4	4.9	4.4	4.5	4.6	2.8	3.9	4.2	3.7	4.2	4.0	4.0	3.4	3.4	3.3
RSD	4.5%	4.5%	4.5%	5.1%	4.5%	4.7%	4.7%	3.0%	4.0%	4.3%	3.9%	4.2%	4.0%	4.2%	3.5%	3.4%	3.4%
H279																	
H279CH5E1-A	94	96	95	94	95	95	97	96	97	96	96	98	98	96	98	98	98
H279CH5E1-B	95	96	95	95	96	96	96	96	96	96	97	97	96	96	97	97	96
H279CH5E1-C	90	89	89	89	89	88	87	88	87	88	88	87	87	88	87	86	87
Average	93	94	93	93	93	93	94	93	94	93	93	94	94	93	94	94	94
SD	2.3	3.0	2.7	2.7	3.3	3.2	4.3	4.1	4.4	3.9	3.8	5.1	4.7	3.7	5.1	5.2	4.9
RSD	2.4%	3.2%	2.9%	2.9%	3.5%	3.5%	4.6%	4.4%	4.7%	4.2%	4.1%	5.4%	5.0%	3.9%	5.4%	5.6%	5.2%
H280																	
H280CH5E1-A	88	90	89	88	89	89	92	90	91	90	89	92	91	90	92	92	91
H280CH5E1-B	93	96	94	94	95	95	96	96	97	96	97	98	97	95	98	98	98
H280CH5E1-C	87	86	87	87	86	87	85	86	86	86	86	85	85	87	85	85	85
Average	89	90	90	90	90	90	91	91	91	91	91	91	91	91	92	92	92
SD	3.0	3.9	3.2	3.0	3.8	3.3	4.4	4.0	4.5	4.1	4.4	5.1	5.0	3.6	5.2	5.6	5.6
RSD	3.3%	4.3%	3.6%	3.4%	4.2%	3.7%	4.9%	4.4%	5.0%	4.6%	4.8%	5.6%	5.5%	4.0%	5.7%	6.1%	6.1%

*Data are reported as percent recovery calculated using the multilevel curve analyzed with each set.

Table 1L-p2: Continuing calibration verification data* for chlorobiphenyl congeners (chlorination level/IUPAC number) in standards run before, during and after the samples in a salmon tissue set analyzed as part of the Hylebos Juvenile Salmon Injury Study.

ML Name	3/18	3/28	4/44	4/52	4/66	5/101	5/105	5/118	6/128	6/138	6/153	7/170	7/180	7/187	8/195	9/206	10/209
H281																	
H281CH5E1A	100	101	100	100	101	100	103	101	102	101	101	102	102	101	103	103	103
H281CH5E1B	93	96	95	95	96	96	96	97	97	96	97	98	97	97	98	96	96
H281CH5E1C	93	94	94	94	95	94	95	95	95	95	96	95	95	95	95	94	94
Average	95	97	96	96	97	97	98	98	98	97	98	98	98	98	99	98	98
SD	3.3	2.9	2.8	2.7	2.5	2.6	3.4	2.8	2.9	2.9	2.1	3.0	3.2	2.6	3.2	4.1	3.9
RSD	3.4%	3.0%	2.9%	2.9%	2.6%	2.7%	3.5%	2.9%	2.9%	3.0%	2.2%	3.1%	3.3%	2.7%	3.3%	4.2%	4.0%
H282																	
H282CH5E1-A	94	96	95	95	96	96	98	97	98	97	97	98	98	97	99	98	98
H282CH5E1-B	94	95	94	95	95	95	97	96	95	95	94	95	95	94	94	94	93
H282CH5E1-C	92	94	94	93	95	95	97	95	96	95	94	97	96	96	96	101	98
Average	93	95	94	94	95	95	97	96	96	96	95	97	97	96	96	97	96
SD	0.9	1.0	0.5	0.9	0.7	0.4	0.7	0.7	1.3	0.8	1.4	1.2	1.3	0.9	1.8	3.0	2.3
RSD	0.9%	1.1%	0.5%	0.9%	0.7%	0.4%	0.8%	0.8%	1.4%	0.9%	1.5%	1.3%	1.3%	1.0%	1.9%	3.0%	2.4%

*Data are reported as percent recovery calculated using the multilevel curve analyzed with each set.

Table 1M-p1: Concentrations of analytes in 7 replicates of spiked clean matrix and calculated method detection limits (MDL, ng/g, wet weight) for pesticides, DDTs and chlorobiphenyl congeners. MDLs were calculated by the method in appendix B of 40CFR part 136 (sample set H288, 3/95).

Sample#	HCB	LIND	HEPT	Aldrin	alpha chlordan	gamma chlordan	Dieldrin	p,p'-DDD	p,p'-DDE	p,p'-DDT	3\18	3\28	4\44	4\52
110-288	6.7	6.5	7.3	5.8	6.5	0.2	6.5	6.9	7.3	7.4	6.7	6.7	7.1	6.9
110-289	6.6	6.2	7.1	5.4	6.2	0.1	6.1	6.4	7.0	7.2	6.7	6.5	7.1	7.0
110-290	6.4	6.2	7.2	5.5	6.3	0.1	6.2	6.5	7.1	7.4	6.4	6.5	7.0	6.8
110-291	6.5	6.4	7.4	5.7	6.4	0.1	6.4	6.8	7.3	7.6	6.1	6.8	7.1	6.9
110-292	6.6	6.8	7.7	5.9	6.5	0.2	6.6	7.8	7.5	7.7	6.1	6.7	7.2	6.8
110-293	6.3	6.6	7.5	5.4	6.3	0.2	6.3	6.8	7.2	7.4	6.4	6.4	7.1	6.8
110-294	6.5	6.4	7.4	5.5	6.4	0.1	6.3	6.7	7.2	7.8	6.6	6.5	7.1	6.9
Average	6.5	6.4	7.4	5.6	6.4	0.2	6.4	6.8	7.2	7.5	6.4	6.6	7.1	6.9
Std Dev	0.13	0.22	0.19	0.21	0.13	0.02	0.18	0.45	0.17	0.22	0.25	0.15	0.05	0.07
MDL	0.41	0.68	0.58	0.65	0.41	0.06	0.57	1.41	0.54	0.70	0.78	0.46	0.16	0.21
3XMDL	1.22	2.03	1.75	1.95	1.24	0.18	1.70	4.23	1.63	2.11	2.34	1.38	0.48	0.63

Sample#	4\66	5\101	5\105	5\118	6\128	6\138	6\153	7\170	7\180	7\187	8\195	9\206	10\209
110-288	6.8	6.7	6.2	5.6	6.3	6.9	6.9	6.4	6.3	6.4	6.1	6.2	6.3
110-289	6.7	6.7	5.8	5.4	6.1	6.8	6.9	6.1	6.1	6.3	5.9	6.0	6.2
110-290	6.6	6.6	6.0	5.5	6.1	6.8	6.7	6.1	6.0	6.3	6.0	6.1	6.1
110-291	6.8	6.7	6.2	5.6	6.2	7.1	6.9	6.3	6.1	6.4	6.1	6.2	6.3
110-292	6.8	6.6	6.2	5.5	6.3	7.0	6.9	6.3	6.2	6.4	6.2	6.3	6.3
110-293	6.7	6.7	6.2	5.7	6.1	7.0	6.6	6.4	6.2	6.2	6.1	6.3	6.4
110-294	6.7	6.7	6.2	5.5	6.2	7.0	6.8	6.3	6.3	6.4	6.1	6.2	6.3
Average	6.7	6.7	6.1	5.5	6.2	7.0	6.8	6.3	6.2	6.3	6.1	6.2	6.3
Std Dev	0.06	0.06	0.15	0.08	0.09	0.11	0.10	0.12	0.11	0.09	0.08	0.10	0.09
MDL	0.20	0.18	0.48	0.26	0.28	0.34	0.32	0.38	0.33	0.27	0.27	0.31	0.29
3XMDL	0.60	0.55	1.43	0.77	0.85	1.03	0.96	1.14	1.00	0.82	0.80	0.92	0.86

HCB = Hexachlorobutadiene, LIND = Lindane, HEPT = Heptachlor.

MDLs were determined using 3g of tissue. MDLs for samples that are smaller that 3g will need to be adjusted for the difference in sample weight.

Table 1N-p1: GC/MS confirmation of pesticides in 10% of the salmon tissue samples analyzed as part of the Hylebos Juvenile Salmon Injury Study. (Concentrations shown are those determined by GC/ECD and reported in Tables 1B.)

Set#	Sample#	Jar #	HCBD[1]	HCB[1]	LIND[2]	HEPT[2]	α + γ Aldrin[2]	Chlordane[1]	Dieldrin[2]	p,p'-DDE[1]	p,p'-DDD[1]	p,p'-DDT[3]
H278	110-326	HY94.085/086	3.6	7.5	0.37	< 0.29	0.24	2.9	1.1	10.9	4.8	4.3
H280	110-354	HY94.231,234,235	1.8	3.9	0.32	0.4	0.51	3	1.3	7.2	7.3	5.8
H282	110-309	HY94.220,223/224	0.95	5.4	< 0.1	0.54	4	2.1	1.8	1.3	1.1	0.43
H279	110-339	HY94.163	4.3	5.2	0.26	< 0.18	0.37	2	1.3	6.9	4.1	3.6

HCBD = hexachlorobutadiene; HCB = hexachlorobenzene; LIND = lindane; HEPT = heptachlor

*Jar #s represent official Hylebos Damage Assessment sampling numbers. If more than one jar # is given, the sample analyzed was a composite of those jars.

[1] The presence of this analyte has been confirmed by GC/MS using a selected ion monitoring mode for the samples listed.
[2] The concentration of this analyte was too low to be confirmed by GC/MS in these sediments.
[3] The concentration of this analyte was confirmed by GC/MS using a selected ion monitoring mode in samples 110-326, 110-354 and 110-339.

Approximate detection limits determined by GC/MS (based on the CH3E1 ML Std. for chlorinated pesticides) range from ≈0.5 to ≈ 3 ng/g.

Table 1O-p1: GC/MS confirmation of chlorobiphenyl congeners (chlorination level/IUPAC number) in 10% of the salmon tissue samples analyzed as part of the Hylebos Juvenile Salmon Injury Study. (Concentrations shown are those determined by GC/ECD and reported in Tables 1C.)

Sample#	3/16[2]	3/28[3]	4/44[1]	4/52[1]	4/66[1]	5/101[1]	5/105[1]	5/118[1]	6/128[1]	6/138[1]	6/153[1]	7/170[1]	7/180[1]	7/187[1]	8/195[1]	9/206[1]	10/209[1]
110-326	1.7	1.9	6.3	7.4	8.1	17.9	4	14.3	3.5	20.7	27	3.4	6.7	8.7	0.52	2.5	2.5
110-354	1.3	3.8	5.2	8.9	13.4	35.1	12	32.1	8	48	51	7.3	11.8	15	1.2	5.6	5.1
110-309	1.1	0.78	1.6	3	2.8	9.1	1.8	8.2	1.7	11.1	12.3	7	8	4.1	0.33	1.4	1.2
110-339	1	1.2	5.3	6.2	8.9	20.4	4	17.8	4.7	28.8	36	5	8.6	11.7	0.91	4.3	3.8

[1]The presence of this analyte has been confirmed by GC/MS using a selected ion monitoring mode for the samples listed.
[2]The concentration of this analyte was confirmed by GC/MS using a selected ion monitoring mode in samples 110-326, 110-354 and 110-309.
[3]The concentration of this analyte was confirmed by GC/MS using a selected ion monitoring mode in samples 110-326, 110-354 and 110-339.

Detection limits determined by GC/MS (based on the CH3E1 ML Std. for chlorobiphenyl congeners) range from ≈0.5 to ≈1 ng/g.

Table 1O-p1: GC/MS confirmation of chlorobiphenyl congeners (chlorination level/IUPAC number) in 10% of the flatfish tissue samples analyzed as part of the Hylebos Toxicopathic Conditions in Flatfish Study. (Concentrations shown are originally reported data determined by GC/ECD, Table 1C.)

Sample#	3/18[1]	3/28[1]	4/44[1]	4/52[1]	4/66[1]	5/101[1]	5/105[1]	5/118[1]	6/128[1]	6/138[1]	6/153[1]	7/170[1]	7/180[1]	7/187[1]	8/195[1]	9/206[1]	10/209[1]
110-397R	10.8	19.8	49.2	167	54.3	581	116	< 0.21	66	437	561	37.5	38	58.9	4.2	21.2	13.8
110-419	17.1	15.1	34.1	110	30.9	437	63.1	345	43.2	348	443	26.2	22	39.6	2.9	16.4	10.8
110-433	0.58	0.95	2.2	3.5	2.8	12.2	2.3	10.7	3.7	27.6	36.2	5.3	8.4	14	1	3.7	2.3
110-443	56.7	3.7	7.7	28.9	19.3	83.2	23.8	89.8	20	176	255	44.3	72.9	73.8	10	120	42.4
110-402	4.5	7.4	10.8	20.2	10.7	47.7	8.5	38.5	5.6	33	43.6	2.9	1.8	4.3	0.23	0.8	0.61
110-465	6.8	6.7	36.2	110	35.2	286	59.2	190	14.4	100	111	9.2	3.2	6.6	0.35	2.6	1.9

[1]The presence of this analyte has been confirmed by GC/MS using a selected ion monitoring mode for the samples listed.

Detection limits determined by GC/MS (based on the CH3E1 ML Std, for chlorobiphenyl congeners) range from ≈0.5 to ≈1 ng/g.

Table 2A-p1: Sample information for salmon stomach contents analyzed for aromatic hydrocarbons as part of the Hylebos Juvenile Salmon Injury Study.

Set #	Sample#	Sample Type	Species	Jar #	Site	Date Collected	Sample Wt. (g)	DNPH Rec. (%)	DACE Rec. (%)	DBAP Rec. (%)
H282	110-305	Tissue - stomach contents	chum	HY94.050	PUYALLUP TRIBAL HATCHERY	5/11/94	1.82	70	76	78
H282	110-306	Tissue - stomach contents	chum	HY94.053/056	SKOHOMISH ESTUARY	5/13/94	0.62	81	83	91
H282	110-312	Tissue - stomach contents	chinook	HY94.128	NISQUALLY ESTUARY	5/18/94	2.46	81	84	89
H282	110-313	Tissue - stomach contents	chinook	HY94.128	NISQUALLY ESTUARY	5/18/94	2.50	81	82	84
H282	110-307	Tissue - stomach contents	chum	HY94.154	HYLEBOS WATERWAY	6/8/94	2.97	67	75	85
H282	110-308	Tissue - stomach contents	chinook	HY94.218/219	PUYALLUP STATE HATCHERY	6/13/94	2.39	67	80	79
H282	110-309	Tissue - stomach contents	chum	HY94.220,223/224	HYLEBOS WATERWAY	6/15/94	2.97	67	76	86
H282	110-310	Tissue - stomach contents	chinook	HY94.225	HYLEBOS WATERWAY	6/16/94	3.02	69	75	83
H282	110-311	Tissue - stomach contents	chinook	HY94.262	HYLEBOS WATERWAY	6/22/94	3.01	73	77	84

DNPH = naphthalene-d8; DACE = acenaphthene-d10; DBAP = benzo[a]pyrene-d12

*Jar #s represent official Hylebos Damage Assessment sampling numbers. If more than one jar # is given, the sample analyzed was a composite of those jars.

Table 2B-p1: Concentrations (ng/g, wet weight) of aromatic hydrocarbons in stomach contents analyzed as part of the Hylebos Juvenile Salmon Injury Study.

Sample #	NPH	2MN	ACY	ACE	FLU	PHN	ANT	ΣLAHs	FLA	PYR	BAA	CHR	BFLA	BAP	IDP	DBA	BZP	ΣHAHs
110-305	9.28	7.47	< 0.593	< 0.886	1.14	5.45	< 0.501	23.3	1.89	1.75	< 0.374	1.25	0.944	< 0.337	< 0.29	< 0.282	< 0.268	5.82
110-306	10.6	8.24	1.31	< 1.26	1.26	4.36	< 0.711	25.8	1.74	1.85	< 0.501	< 0.498	< 0.418	< 0.451	< 0.388	< 0.378	< 0.359	3.59
110-312	4.04	3.42	< 0.407	< 0.609	< 0.528	1.72	< 0.344	9.18	1.1	0.66	< 0.251	0.538	< 0.21	< 0.226	< 0.194	< 0.189	< 0.18	2.29
110-313	4.16	3.56	< 0.438	< 0.654	< 0.567	1.96	< 0.37	9.68	1.6	0.739	< 0.277	0.588	< 0.231	< 0.249	< 0.214	< 0.208	< 0.198	2.93
110-307	8.89	12.6	1.59	13	13.1	86.6	10	146	184	106	41.7	94.8	102	36.6	17.4	3.72	16.7	603
110-308	21.6	26.4	0.781	6.64	5.99	10.3	1.28	73	1.82	1.61	0.368	0.769	< 0.269	< 0.29	< 0.25	< 0.243	< 0.231	4.57
110-309	18.2	37.6	4.15	51.5	74.5	704	39.7	930	908	563	126	178	208	51.4	28.6	6	24.6	2090
110-310	44.9	109	10.5	226	270	1060	50.4	1780	964	582	147	596	294	61.1	43.6	9.76	37	2740
110-311	36	68.4	4.75	77.6	74.6	308	29.6	599	342	199	69.7	119	109	34.4	21.6	4.86	20.2	921

NPH = naphthalene; 2MN = 2-methylnaphthalene; ACY = acenaphthylene; ACE = acenaphthene; FLU = fluorene; PHN = phenanthrene; ANT = anthracene; FLA = fluoranthene; PYR = pyrene; BAA = benz[a]anthracene; CHR = chrysene; BFLA = benzo[b]fluoranthene + benzo[k]fluoranthene; BAP = benzo[a]pyrene; IDP = indeno[1,2,3-cd]pyrene; DBA = dibenz[a,h]anthracene; BZP = benzo[ghi]perylene.

∑LAHs = NPH + 2MN + ACY + ACE + FLU + PHN + ANT; ∑HAHs = FLA + PYR + BAA + CHR + BLFA + BAP + IDP + DBA + BZP.

† Chrysene (CHR) and triphenylene are not resolved by our gas chromatographic procedure. In addition, the two compounds have very similar mass spectra, therefore we report their combined concentrations as "CHR."

Table 2C-p1: Quality assurance sample information in method blanks and standard reference material (SRM 1974a) analyzed for aromatic hydrocarbons as part of the Hylebos Juvenile Salmon Injury Study.

Set #	Sample #	Sample type	Sample Wt. (g)	DNPH Rec. (%)	DACE Rec. (%)	DBAP Rec. (%)
Method Blank						
H282	110-315	Method Blank	2.42	81	83	65
SRM 1974a						
H282	110-314	SRM 1974a	3.01	78	85	88

DNPH = naphthalene-d8; DACE = acenaphthene-d10; DBAP = benzo[a]pyrene-d12.

Table 2D-p1: QA: Concentrations (ng/g, wet weight) of aromatic hydrocarbons in method blanks and standard reference material (SRM 1974a) analyzed as part of the Hylebos Juvenile Salmon Injury Study.

Sample #	Sample Type	NPH	2MN	ACY	ACE	FLU	PHN	ANT	ΣLAHs	FLA	PYR	BAA	CHR†	BFLA	BAP	IDP	DBA	BZP	ΣHAHs
Method Blank																			
110-315	Method Blank	1.69	1.25	<0.213	<0.319	<0.277	0.61	<0.18	3.55	0.217	<0.144	<0.177	<0.176	<0.148	<0.159	<0.137	<0.133	<0.127	.217
SRM 1974a																			
110-314	SRM 1974a	2.27	1.88	0.395	<0.461	<0.4	2.12	0.464	7.13	22.7	20.9	3.26	10.9	9.24	1.81	1.45	0.351	2.84	73.5
SRM 1974a	$\bar{x}$	2.68	1.16	0.598	0.359	0.65	2.68	0.69		18.6	17.3	3.7	5.04	7.58	1.78	1.62	0.142	2.50	
Certified Concentrations (ng/g, wet wt)	95% CI	0.50					0.28	0.20		1.0	0.74	0.54	0.26		0.073	0.32		0.25	
	UCL	4.29					4.00	1.20		26.5	24.3	5.74	7.16		2.50	2.62		3.71	
	LCL	1.42					1.56	0.32		11.4	10.7	2.06	3.11		1.11	0.85		1.46	

NPH = naphthalene; 2MN = 2-methylnaphthalene; ACY = acenaphthylene; ACE = acenaphthene; FLU = fluorene; PHN = phenanthrene; ANT = anthracene; FLA = fluoranthene; PYR = pyrene; BAA = benz[a]anthracene; CHR = chrysene; BFLA = benzo[b]fluoranthene + benzo[k]fluoranthene; BAP = benzo[a]pyrene; IDP = indeno[1,2,3-cd]pyrene; DBA = dibenz[a,h]anthracene; BZP = benzo[ghi]perylene.

ΣLAHs = NPH + 2MN + ACY + ACE + FLU + PHN + ANT; ΣHAHs = FLA + PYR + BAA + CHR + BLFA + BAP + IDP + DBA + BZP.

† = Chrysene (CHR) and triphenylene are not resolved by our gas chromatographic procedure, whereas these compounds are resolved by the NIST procedure. In addition, the two compounds have very similar mass spectra, therefore we report their combined concentrations as "CHR." Consequently, the value we report for CHR is higher than the NIST value.

$\bar{x}$ is the average concentration (ng/g, wet wt)
95% CI is the 95% confidence interval
LCL is the lower confidence limit (95% confidence limit - 35%)
UCL is the upper confidence limit (95% confidence limit + 35%)

2MN, ACY, ACE, FLU, BFLA, and DBA are reported as noncertified values.

* When an analyte was detected in some, but not all of the method blanks, the average concentration is based on the concentration when detected and zero when not detected. When an analyte was not detected in any of the method blanks or SRMs, zero is reported for the average and the SD and a "?" is reported for the RSD.

Table 2E-p1: QA: Sample information for salmon stomach contents analyzed in replicate for aromatic hydrocarbons as part of the Hylebos Juvenile Salmon Injury Study.

Set #	Sample #	Sample Type	Species	Jar #	Site	Date Collected	Sample Wt. (g)	DNPH Rec. (%)	DACE Rec. (%)	DBAP Rec. (%)
H282	110-312	Tissue - stomach contents	chinook	HY94.128	NISQUALLY ESTUARY	5/18/94	2.46	81	84	89
H282	110-313	Tissue - stomach contents	chinook	HY94.128	NISQUALLY ESTUARY	5/18/94	2.50	81	82	84

DNPH = naphthalene-d8; DACE = acenaphthene-d10; DBAP = benzo(a)pyrene-d12

Replicate sample analyses are identified by jar #.

*Jar #s represent official Hylebos Damage Assessment sampling numbers. If more than one jar # is given, the sample analyzed was a composite of those jars.

Table 2F-p1: QA: Concentrations (ng/g, wet weight) of aromatic hydrocarbons in salmon stomach contents analyzed in replicate as part of the Hylebos Juvenile Salmon Injury Study.

Sample #	NPH	2MN	ACY	ACE	FLU	PHN	ANT	ΣLAHs	FLA	PYR	BAA	CHR	BFLA	BAP	IDP	DBA	BZP	ΣHAHs
Tissue - stomach contents																		
110-312	4.04	3.42	< 0.407	< 0.609	< 0.528	1.72	< 0.344	9.18	1.1	0.66	< 0.251	0.538	< 0.21	< 0.226	< 0.194	< 0.189	< 0.18	2.29
110-313	4.16	3.56	< 0.438	< 0.654	< 0.567	1.96	< 0.37	9.68	1.6	0.739	< 0.277	0.588	< 0.231	< 0.249	< 0.214	< 0.208	< 0.198	2.93
Average	4	3	0	0	0	2	0	9.43	1	1	0	1	0	0	0	0	0	2.61
SD	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.25	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.32
RSD	1.5%	2.0%	?	?	?	6.4%	?	2.6%	18.7%	5.6%	?	4.4%	?	?	?	?	?	12.1%

NPH = naphthalene; 2MN = 2-methylnaphthalene; ACY = acenaphthylene; ACE = acenaphthene; FLU = fluorene; PHN = phenanthrene; ANT = anthracene; FLA = fluoranthene; PYR = pyrene; BAA = benz[a]anthracene; CHR = chrysene; BFLA = benzo[b]fluoranthene + benzo[k]fluoranthene; BAP = benzo[a]pyrene; IDP = indeno[1,2,3-cd]pyrene; DBA = dibenz[a,h]anthracene; BZP = benzo[ghi]perylene.

ΣLAHs = NPH + 2MN + ACY + ACE + FLU + PHN + ANT; ΣHAHs = FLA + PYR + BAA + CHR + BLFA + BAP + IDP + DBA + BZP.

Replicate sample analyses are identified by jar #.

† Chrysene (CHR) and triphenylene are not resolved by our gas chromatographic procedure. In addition, the two compounds have very similar mass spectra, therefore we report their combined concentrations as "CHR."

Table 2G-p1: Standard curve correlation (r) from the linear regression of the concentration of the analyte to the area response for the multilevel standards.

Analyte	Set H282 r
naphthalene	0.9914
2-methylnaphthalene	0.9907
acenaphthylene	0.9926
acenaphthene	0.9911
fluorene	0.9924
phenanthrene	0.9909
anthracene	0.9927
fluoranthene	0.9908
pyrene	0.9907
benz[a]anthracene	0.9919
chrysene	0.9911
benzofluoranthenes (b+k)	0.9904
benzo[a]pyrene	0.9917
indeno[1,2,3-cd]pyrene	0.9914
dibenz[a,h]anthracene	0.9910
benzo[ghi]perylene	0.9906
d8-naphthalene	0.9965
d10-acenaphthene	0.9965
d12-benzo[a]pyrene	0.9976

Based on four concentration levels of standards.

Table 2H-p1: Continuing calibration verification data* for aromatic hydrocarbons in standards run before, during and after the samples in a tissue set analyzed as part of the Hylebos Juvenile Salmon Injury Study.

ML Name	NPH	MN2	ACY	ACE	FLU	PHN	ANT	FLA	PYR	BAA	CHR	BFLA	BAP	IDP	DBA	BZP
H282																
H282AH4J2A	100	99	98	100	99	99	94	99	104	91	98	99	101	98	99	103
H282AH4J2B	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
H282AH4J2C	99	101	99	99	101	102	94	101	104	96	101	96	101	100	99	102
Average	100	100	99	100	100	100	96	100	103	96	100	98	101	99	99	102
SD	0.3	0.9	0.8	0.2	0.6	1.2	2.9	0.6	1.9	3.6	0.9	1.7	0.5	0.9	0.6	1.1
RSD	0.3%	0.9%	0.8%	0.2%	0.6%	1.2%	3.1%	0.6%	1.9%	3.7%	0.9%	1.7%	0.5%	1.0%	0.6%	1.1%

NPH = naphthalene; 2MN = 2-methylnaphthalene; ACY = acenaphthylene; ACE = acenaphthene; FLU = fluorene; PHN = phenanthrene; ANT = anthracene; FLA = fluoranthene; PYR = pyrene; BAA = benz[a]anthracene; CHR = chrysene; BFLA = benzo[b]fluoranthene + benzo[k]fluoranthene; BAP = benzo[a]pyrene; IDP = indeno[1,2,3-cd]pyrene; DBA = dibenz[a,h]anthracene; BZP = benzo[ghi]perylene.

*Data are reported as percent recovery calculated using the -B standard.

Table 2I-p1: Concentrations of analytes in 7 replicates of spiked clean matrix and calculated method detection limits (MDL, ng/g, wet weight) for aromatic hydrocarbons. MDLs were calculated by the method in appendix B of 40CFR part 136 (sample set H288, 3/95).

Sample	NPH	2MN	ACY	ACE	FLU	PHN	ANT	FLA	PYR	BAA	CHR	BBF	BKF	BAP
110-288	10.1	8.2	5.8	6.3	6.4	7.2	4.9	7.1	6.8	4.4	4.9	5.0	5.3	4.6
110-289	11.0	8.1	5.9	6.6	6.6	7.3	4.9	7.1	7.0	4.5	5.1	5.1	5.6	4.7
110-290	9.6	7.8	5.6	6.3	6.3	6.9	4.6	6.7	6.6	4.4	5.0	4.9	5.2	4.5
110-291	9.9	7.9	5.7	6.5	6.3	7.1	4.8	6.9	6.8	4.7	5.3	5.0	5.5	4.8
110-292	10.4	8.0	5.8	6.6	6.6	7.3	4.9	7.2	7.2	4.7	5.5	5.1	5.6	4.7
110-293	10.0	7.7	5.8	6.6	6.5	7.3	4.8	7.0	6.9	4.6	5.4	4.8	5.7	4.6
110-294	9.9	7.6	5.3	6.2	6.2	7.0	4.6	7.0	6.8	4.4	5.2	4.6	5.6	4.5
Average	10.1	7.9	5.7	6.5	6.4	7.1	4.8	7.0	6.9	4.5	5.2	4.9	5.5	4.6
Std Dev	0.47	0.21	0.18	0.18	0.16	0.16	0.15	0.16	0.18	0.14	0.20	0.20	0.19	0.12
MDL	1.47	0.66	0.57	0.55	0.51	0.51	0.48	0.52	0.56	0.45	0.64	0.62	0.60	0.37
3XMDL	4.40	1.99	1.70	1.66	1.54	1.52	1.44	1.55	1.67	1.35	1.91	1.85	1.80	1.12

Sample	IDP	DBA	BZP
110-288	4.1	3.7	4.4
110-289	4.8	3.8	4.4
110-290	4.6	3.9	4.4
110-291	4.6	3.9	4.5
110-292	4.6	3.8	4.5
110-293	4.1	3.7	4.4
110-294	3.8	3.1	3.6
Average	4.4	3.7	4.3
Std Dev	0.37	0.28	0.33
MDL	1.17	0.87	1.03
3XMDL	3.50	2.62	3.08

NPH = naphthalene; 2MN = 2-methylnaphthalene; ACY = acenaphthylene; ACE = acenaphthene; FLU = fluorene; PHN = phenanthrene; ANT = anthracene; FLA = fluoranthene; PYR = pyrene; BAA = benz[a]anthracene; CHR = chrysene; BBF = benzo[b]fluoranthene; BBK = benzo[k]fluoranthene; BAP = benzo[a]pyrene; IDP = indeno[1,2,3-cd]pyrene; DBA = dibenz[a,h]anthracene; BZP = benzo[ghi]perylene.

MDLs were determined using 3g of tissue. MDLs for samples that are smaller that 3g will need to be adjusted for the difference in sample weight.