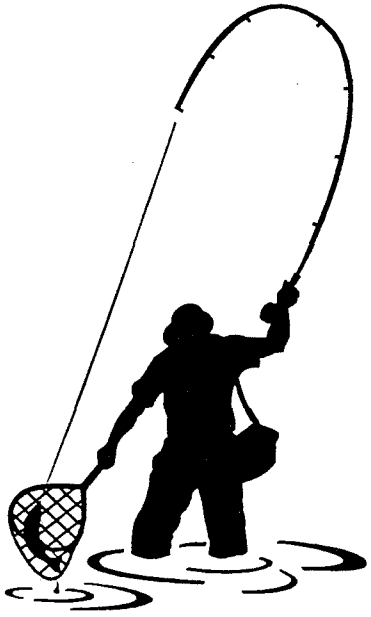
DEPLW2000-7

DIOXIN MONITORING PROGRAM

STATE OF MAINE

1997-1998



BY

BARRY MOWER

DEPARTMENT OF ENVIRONMENTAL PROTECTION

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Acknowledgements

Successful collection of the samples was accomplished directly by DEP staff or the Penobscot Indian Nation assisted at some locations by Acheron Inc. on behalf of participating facilities. The Department of Marine Resources and Department of Inland Fisheries and Wildlife also assisted in collecting samples and providing nets.

EXECUTIVE SUMMARY

Statutory Requirements

The goal of Maine's Dioxin Monitoring Program, established in 1988, is "to determine the nature of dioxin contamination in the waters and fisheries of the State". Charged with administration of the program, the Department of Environmental Protection (DEP) is required to sample fish once a year below no more than 12 bleached pulp mills, municipal wastewater treatment plants, or other known or likely sources of dioxin. DEP is also required to sample sludge from the same facilities once each quarter as one aid in the identification of sources of dioxin.

DEP is advised by the Surface Water Ambient Toxics (SWAT) Monitoring Program Technical Advisory Group in implementation of the program. DEP required to incorporate the results of all studies into a report to the Legislature's Joint Standing Committee on Natural Resources during the following March of each sample year. Costs of sample collection and analysis are assessed to the selected facilities.

In 1997 and 1998, sample collection for this program was coordinated with that of the Surface Water Ambient Toxics monitoring program to facilitate sample collection for both programs. These years were the first two years where the Dioxin Monitoring Program was modified to enhance detection of any discharge of dioxin from bleach kraft pulp mills by measuring differences in concentrations in fish above and below the mills, the so-called 'above/below fish test' established by the Maine legislature in 1997. Because the 1997 and 1998 samples were not analyzed until 1999, results for both years will be published in this one report.

Fish Consumption Advisories

Based on monitoring results through 1996, the Maine Bureau of Health revised the fish consumption advisories and issued a 'General Consumption Advisory for All Inland Surface Waters due to Mercury Contamination' in March 1997 (Appendix 1). In addition more restrictive Specific Freshwater Fish Consumption Advisories were issued for the Androscoggin River, Kennebec River below Madison, Penobscot River below Lincoln, Salmon Falls River below Berwick, East Branch of Sebasticook River below Corinna, and West Branch of Sebasticook River below Hartland due to PCBs and dioxins. An advisory on lobster tomalley was continued from 1994 along the entire coast of Maine due to PCBs and dioxins. In most of these waters dioxin concentrations alone would result in an advisory, which was made more restrictive due to the presence of substantial levels of PCBs.

Findings of the 1997-98 Program

1. In 1997 and 1998, concentrations of dioxin toxic equivalents (DTEh) in fish from the Androscoggin River, Kennebec River below Skowhegan and East Branch of the Sebasticook River below Corinna exceeded the Bureau of Health's Fish Tissue Action Level for cancer(FTALc=1.5 ppt).

2. Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's Surface Water Ambient Toxics monitoring program, may also result in an exceedance of a Fish Tissue Action Level at other locations. Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition.

3. Concentrations of 2378-TCDD (TCDD) and DTEh in all fish samples collected below certain point source discharges to the Androscoggin River, Kennebec River, Penobscot River, Salmon Falls River, and East Branch and West Branch of the Sebasticook River were significantly greater than those at reference stations unimpacted by industrial sources.

4. The concentration of TCDD or DTEh in fish from the Presumpscot River downstream of the SAPPI Westbrook mill's discharge in Westbrook was greater than in fish from its upstream station at Windham in both years. Concentrations of TCDD and/or DTEh in fish from Windham were significantly higher than in fish from all the reference stations in the state for 6 consecutive years, suggesting a local source.

5. There was no difference between concentrations of TCDD and DTEh in bass and suckers upstream and downstream of the Georgia Pacific mill on the St Croix River.

6. There have been significant decreases in concentrations of TCDD and/or DTEh in fish from Livermore Falls on the Androscoggin River, Augusta on the Kennebec River, and from the Penobscot River from 1990 to 1998. There were no other significant trends for this period although slight decreases are evident in fish from Auburn and Lisbon Falls on the Androscoggin and Fairfield on the Kennebec since 1994-5.

7. Concentrations of TCDD and DTEh in smallmouth bass, white perch and white suckers from Androscoggin Lake were lower than in 1996 but are significantly higher than in any other lake in the state and generally similar to concentrations in fish in the Androscoggin River.

8. Enhancement of the Dioxin Monitoring Program in 1997 and 1998 for the above/below fish test, required by the new statute in 1997, did not provide acceptable results. The program will be modified each year until an acceptable test is developed.

INTRODUCTION

Maine's Dioxin Monitoring Program (DMP), established in 1988, has been amended and reauthorized through 2002 by the Maine legislature. The goal of the program is "to determine the nature of dioxin contamination in the waters and fisheries of the State". Charged with administration of the program, the Department of Environmental Protection (DEP) is required to sample sludge once a quarter from no more than 12 bleached pulp mills, municipal wastewater treatment plants, or other known or likely sources of dioxin. The Department is also required to sample fish once a year below the same facilities.

The primary objective of the DMP is to continue monitoring dioxin in fish for assessment of ecological health and of human health. The data are used by the Maine Bureau of Health (BOH) to determine the need for any Fish Consumption Advisories to protect human consumers of fish from certain Maine rivers. The data are also used by DEP and other state and federal agencies in determining impacts of discharge of dioxin on wildlife species.

A second objective is to continue monitoring at some historical stations to measure trends. Trends are followed to measure progress toward reduction in environmental concentrations and effectiveness and need for further controls.

A third objective, to identify sources and magnitude of dioxin discharges, received new emphasis in 1997 when the Maine legislature enacted LD 1633 "An Act to Make Fish in Maine Rivers Safe to Eat and Reduce Color Pollution". The key requirement is that 'a (bleach kraft pulp) mill may not discharge dioxin into its receiving waters' [38 MRSA section 420(2)(I)]. Interim tests are that in effluent from the bleach plant TCDD must be below EPA's method 1613 nominal detection limit (10 ppq) by July 31, 1998 and TCDF must be below the same detection limit by December 31, 1999. As the final test, by December 31, 2002 fish below a bleached kraft pulp mill have no more dioxin than fish above the mill, the so-called "above/below (A/B) fish test". Although the DMP has successfully detected differences above and below discharges in past years, as the amount of dioxin discharged is reduced, the DMP needs to be modified to allow an enhanced ability to detect smaller differences with some known statistical confidence. Data will be tested for normality and comparisons will be made using the appropriate test at $p=0.05$.

The monitoring program is coordinated with other ongoing programs conducted by the Department, US Environmental Protection Agency (EPA), or dischargers of wastewater. The

proposed annual monitoring plan must be submitted to the Surface Water Ambient Toxics (SWAT) monitoring program Technical Advisory Group (TAG), created under 38 MRSA section 420-B, for review and advice. The selected facilities must be notified of their inclusion in the proposed program at least 30 days prior to submittal to the TAG. The Department must incorporate the results of all studies into a report due the Natural Resources Committee by March 31 of the following year. A draft of the report is reviewed by the TAG before completion of the final report. Costs of sample collection and analysis are assessed as a fee to the selected facilities. Payment of the fees is a condition of the waste discharge license granted by the state for continued operation and discharge of wastewater to waters of the State. However, if the selected facility is a publicly owned treatment works (POTW), then the fees may be assessed to the known or likely industrial generator of dioxin and payment will not be a condition of the waste discharge license of the POTW.

Due to continuing controversy over the effects of dioxin on human and ecological health, the US Environmental Protection Agency (EPA) announced that in 1991 it would begin a thorough scientific reassessment of dioxin. EPA proposed that the process would be open to the public and consequently held several meetings to share information and receive comments. Draft reports on a wide range of issues were available in 1992, 1993, and 1994. Initial results indicate that dioxin may exhibit reproductive and developmental effects, immuno-toxic effects, and neuro-toxic effects at concentrations nearly as low or lower than commonly thought to promote cancer (Frakes, 1992; Graham, 1992; Hughes, 1992; Silbergeld, 1992). In 1995 EPA's Scientific Advisory Board published its review of the draft reports recommending some revisions. New drafts scheduled for 1996 have not yet been released.

DEP has determined, from fish collected since 1984, that concentrations of dioxins and furans in fish from locations unaffected by certain industrial discharges are normally less than 0.15 ppt, while concentrations in fish below those sources of dioxin and furans are always greater than that. Consequently, as one method of determining known or likely sources of dioxin, a Fish Monitoring Threshold (FMT=0.15 ppt) is used by DEP as a monitoring threshold to determine stations that will be retained in the annual program.

For informing the public about potential risk from consuming fish contaminated with dioxin and dioxin-like compounds, the BOH publishes fish consumption advisories. These advisories are based on a comparison of a Fish Tissue Action Level (FTAL) for dioxin equivalent concentrations (TEQ) with the 95th percentile upper confidence limit on the mean TEQ in fish tissue. Should a tissue concentration exceed an FTAL,

a fish consumption rate (e.g., #meals per month) which is unlikely to result in deleterious effects is determined. Two FTALs have been derived for evaluating potential deleterious effects from exposure to dioxins and dioxin-like compounds. Both FTALs were developed using standard USEPA risk assessment methods (EPA 1997). For potential carcinogenic effects associated with long-term exposure, BOH has developed a FTALc of 1.5 ppt, while for reproductive and developmental effects potentially arising from shorter exposure durations, BOH has developed a FTALr of 1.8 ppt (Frakes, 1990). The FTALr for reproductive and developmental effects is relevant to women of child bearing age, pregnant women, and lactating women. The FTALs are compared to the concentration of TEQ in edible portions of the fish, skinless filet data. Where whole fish data are reported, the TEQ concentration is divided by a factor of 3.5, determined from previous studies with white suckers, to estimate skinless filet concentration. In this report all comparisons with TEQ in fish are made with FTALc, since that is the lower of the two and protective of both effects.

PROGRAM DESIGN

Given the fact that beginning in 1991, concentrations of dioxins and furans have declined at some stations, but not others, the primary emphasis of the 1997 and 1998 programs was to collect fish samples from the appropriate stations and species from each river such that accurate, complete, and current data are available to meet the objectives of the program. The program design included sampling at least one station below each major source to document trends and sampling of historic stations that showed dioxin above the FMT, whether or not any fish consumption advisories were issued. Another criterion was to sample fish from any new stations or important species suspected of being contaminated with dioxin. Finally the program was modified to evaluate the ability to detect minimum significant differences of the appropriate magnitude for the above/below fish test.

In order for DEP to legitimately determine whether or not there is a discharge of dioxin from a mill, in the Above/Below Fish Test the minimum significant difference that can be determined with acceptable statistical probability needs to be relatively small and relevant. Ideally the MSD would be established a priori at some absolute value or fraction of the background concentration. During debate in the legislature, 10 % of the background concentration was proposed as a goal by DEP. This could work for TCDF and DTE, where measurable quantities are determined, but not for TCDD, where background concentrations of TCDD are generally below detection. For

TCDD the detection level (0.05-0.1 ppt wet weight) itself was proposed to serve as the MSD. This results to an MSD of 100%, which, based on some limited data, seemed achievable. Therefore, the strategy was to test an enhanced sampling design to see what the MSDs would actually be in comparison to these proposed MSDs. The program would subsequently be modified annually as necessary to optimize the ability to meet the objectives.

At stations affected by a single discharger, sampling will continue yearly until there are at least two consecutive cycles for each species where dioxin is below the FMT and is not increasing. At stations affected by more than one discharger where fish concentrations are not below the FMT, each discharger will continue to be included in the annual sampling program until enough evidence has been gathered to demonstrate that dioxin is no longer present in the discharge in significant quantities. Such evidence must include, but not be limited to (1) at least 8 consecutive sludge analyses equally distributed over all seasons for a minimum of two years that show no 2378-TCDD (TCDD) detected at a suitably low detection level, (2) full congener analysis of sludge for all 2378 substituted dioxins and furans, (3) other pertinent information such as process changes, changes in hook-ups that show reductions in the level of dioxins and furans being discharged to insignificant levels.

The 1997 and 1998 programs were initially drafted by DEP according to the objectives listed above. Following a meeting with representatives of the participating facilities in May of each year, the draft program was presented to the SWAT TAG and finalized for that year.

In both years all stations were monitored for ecological and human health assessment and trends (Table 1). At least 5 game fish (bass or other important species) were collected from each station and analyzed individually as skinless fillets. In addition, to refine the DMP for the above/below fish test, 10 suckers of a relative standard size were collected from paired stations above and below each bleach kraft pulp mill and analyzed individually as whole fish. All fish were analyzed for all 2378-substituted dioxins and furans. Station locations along with specified fish species are shown in Table 1. Station location maps show exact locations of collections (Appendix 6).

Table 1. Sample stations, facilities, and species for the 1997 Dioxin Monitoring Program

STATION	FACILITY	SPECIES
Androscoggin R		
Gilead	Meade	bass, sucker
Rumford	Meade	bass, sucker
Riley	IP	bass, sucker
Liv Fls(Otis imp)	IP	bass, sucker
Turner (GIP)	BC & IP	bass
Lisbon Falls	BC & IP	bass
Kennebec R		
Madison	all Ken R sources	bass, sucker
Fairfield	SD Warren	bass, sucker
Sidney	Scott	bass
Augusta	KSTD, Tree-Free	bass
Penobscot R		
Grindstone	Lincoln P&P	bass, sucker
S Lincoln	Lincoln P&P	bass, sucker
Milford	James River Co	bass, sucker
Veazie	James River Co	bass, sucker
Presumpscot R		
Windham	SD Warren	bass, sucker
Westbrook	SD Warren	bass, sucker
Salmon Falls R		
Acton	Berwick Sewer Distr	bass
S Berwick	Berwick Sewer Distr	bass
Sebasticook R		
W Br		
Harmony	Town of Hartland	bass
Palmyra	Town of Hartland	bass
St. Croix		
Woodland (above)	Georgia Pacific	bass,suckers
Woodland (below)	Georgia Pacific	bass,suckers

Table 1 (cont). 1998 Dioxin Monitoring Program- Stations, facilities, and species

STATION	FACILITY	SPECIES
Androscoggin R		
Gilead	Mead	bass, sucker
Rumford	Mead	bass, sucker
Riley	IP	bass, sucker
Liv Fls(Otis imp)	IP	bass, sucker
Turner (GIP)	Mead & IP	bass
Lisbon Falls	Mead & IP	bass
Androscoggin Lake	Mead & IP	bass, perch, sucker
Kennebec R		
Norridgewock	SAPPI Somerset	bass, sucker
Fairfield	SAPPI Somerset	bass, sucker
Augusta	KSTD	bass
Penobscot R		
Woodville	Lincoln P&P	bass, sucker
S Lincoln	Lincoln P&P	bass, sucker
Milford	Fort James Co	bass, sucker
Veazie	Fort James Co	bass, sucker
Presumpscot R		
Windham	SAPPI Westbrook	bass, sucker
Westbrook	SAPPI Westbrook	bass, sucker
Salmon Falls R		
S Berwick	Berwick Sewer Distr	bass
Sebasticook R		
W Br Palmyra	Town of Hartland	bass
St. Croix		
Woodland (above)	Georgia Pacific	bass,suckers
Woodland (below)	Georgia Pacific	bass,suckers

The preferred sampling time is late in the summer when fish are likely to be more contaminated after being exposed to higher concentrations of dioxin during low river flows and after significant growth has occurred. At some locations there has been a problem collecting enough fish later in the summer. Here sampling began in mid-May to try to insure that a suitable sample was collected. These stations were also visited after the beginning of July. If fish were captured during the later period, those samples were submitted for analyses. Otherwise, the fish collected during the early period were used. Sampling at other stations began in July (Appendix 8).

SAMPLING PROCEDURES

Fish were collected by DEP with assistance of representatives of the participating facilities, state agencies and the Penobscot Indian Nation. Upon capture, fish were immediately killed, weighed and measured, rinsed in river water, wrapped in aluminum foil with the shiny side out, labeled, and placed in a cooler on ice for transport to the DEP lab. Chain of custody forms were used to record all field information and document all transfers. In the lab, all fish samples were frozen and later transported whole to the Water Research Institute at the University of Maine for analysis. All other procedures generally followed EPA's Sampling Guidance Manual for the National Dioxin Study (July 1984). A laboratory log was kept for an inventory of samples in the lab at any time and final disposition.

Most of the facilities in the program already sample sludge or effluent as part of their Maine Sludge Spreading Permit or Waste Discharge License or Federal NPDES permit. Data from those programs provide adequate information about sources of dioxin. Therefore, no additional sludge samples were collected as part of this program.

CALCULATIONS

In this report, DTE are shown as a range with non-detects calculated at zero (DTEo) and at the detection limit (DTEd) as a mean for all samples of a given species at each station (Table 2). For comparison with the FMT and FTALc, and comparison between years and stations, DTEh were used as calculated using non-detects at 1/2 the detection limit. The upper 95th percentile confidence limit (UCL) was used for these comparisons, consistent with the policy of the BOH. In some cases (reference stations) DTEo were also discussed since those were below the FMT while DTEh exceeded the FMT, which shows the importance of low detection limits and the treatment of non-detects. For the other stations both DTEo and DTEh were above the FMT, and DTEo were not discussed.

A related issue is that of EMPCs, estimated maximum possible concentrations. Some compounds, particularly hydroxydiphenyl ethers (DPEs) are coextracted with furans. Various steps have successfully been taken to minimize these interferences, but some DPE remains. In this report, EMPCs were treated as non-detects.

Statistical analyses of differences in TCDD and DTEh between stations were performed using the non-parametric Mann-Whitney test. Trends were determined using Kendall's tau, a rank-order correlation statistic, for the period 1990-1998. In this report only differences that are statistically significant at $p=0.05$ will be reported as significant.

RESULTS AND DISCUSSION

Not all species and numbers of fish targeted were able to be collected (Appendix 2). Mean concentrations of TCDD and DTEh for each species and station are compared to historical data in Table 2. A description of fish collected and results for each sample location with respect to the goals and objectives of the program is discussed below.

Androscoggin River

Gilead In 1997 five rainbow trout and ten white suckers were collected near Peabody Island, while in 1998 five rainbow trout were collected from the same location but the ten suckers were caught further downsteam at Rumford Point (Appendix 7). Both stations are upstream of all Maine mills on the river, but as they are downstream of the American Pulp and Paper Co's bleached kraft mill in Berlin, New Hampshire, they are therefore not reference stations unimpacted by direct discharge of dioxin. No bass have been analyzed from this station, but comparisons between brown trout and bass from other rivers has shown both to have generally similar concentrations of dioxins and furans. At this station in 1996, rainbow trout had higher concentrations than brown trout. For both years, DTEh in rainbow trout exceeded the FTALc, but DTEh in suckers were 74-75% of the FTALc for the two years respectively (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may also result in an exceedance of a Fish Tissue Action Level in suckers (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. Every year measured, TCDD and DTEh in fish have been significantly higher at this station than in fish from reference stations in Maine.

Rumford In 1997 and in 1998, five smallmouth bass and ten white suckers were collected from the river reach beginning just below the discharge from Mead's bleached kraft pulp and paper mill in Rumford and extending downstream about 4 miles to Dixfield (Appendix 7). In both years concentrations of DTEh in the bass exceeded the FTALc, but DTEh in suckers were 85% and 69% of the FTALc respectively (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may also result in an exceedance of a Fish Tissue Action Level in suckers (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. In both years TCDD and DTEh were significantly greater than reference stations on other Maine rivers. There was no significant trend at this station for the period 1990-98. No sludge data have been reported since 1989. Concentrations of TCDD met the requirements of the new law

TABLE 2. MEAN DIOXIN AND FURAN LEVELS IN MAINE FISH AND SHELLFISH (pg/g)

			NDS/NES	MAINE DIOXIN MONITORING PROGRAM							
			1984-86	1988- 1990		1991		1992		1993	
WATER/STATION	SPECIES	TIS	TCDD	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE
ANDROSCOGGIN LAKE											
Wayne	bn trout	f									
	bass	f									
	sucker	w									
ANDROSCOGGIN R											
Gilead	rb trout										
	bn trout										
	bass										
	sucker	w	1.8f/6.5w								
Rumford	bass	f				1.4	2.3-2.8	0.6	1.0-1.2	2.9	4.5-5.4
	sucker	w						3.0	7.4-8.0	5.8	13.6-14.6
Riley	bass										
	sucker	w	<2.1f/13w								
Jay	bass	f		17.6	24.0-29.1			1.2	1.9-2.3	1.4	1.8-2.2
	sucker	w						5.4	12.9-13.9	4.5	10.9-11.8
Livermore Falls	bass	f				2.4	3.1-3.3	1.1	1.4-1.5	1.4	1.6-1.8
	sucker	w						3.8	7.4-8.0	3.6	6.8-7.3
N Turner	sucker	w	6.2f/30w								
Auburn-GIP	bass	f	3.7f/24w					1.7	2.6-2.8	1.2	1.8-1.9
	lm bass	f						1.1	1.6-1.8		
	sucker	w	8.3f/29w					5.6	14.3-15.4	3.7	9.0-9.8
	bullhead	w	7.8f/29.6w							2.1	3.0-3.3
Lisbon Falls	bn trout	f		5.3	6.5-6.9						
	bass	f		4.5	5.5-5.8			0.7	1.0	1.2	1.7-1.8
	sucker	w	5.1f/12w					3.4	8.1-8.7	2.7	6.1-6.6
Brunswick	sucker	w	19.0								
	carp	f	11.0								
BEARCE LAKE											
Baring	pickerel	f	<0.1								
BRAVE BOAT HARBOR											
Kittery	lobster	m									
	lobster	t									
BROOKLYN	lobster	m									
	lobster	t									
COREA	lobster	t									
JONES CREEK											
Scarborough	clam	m						<0.1	0.02-0.3		

TABLE 2. (cont.)

			NDS/NBS	MAINE DIOXIN MONITORING PROGRAM							
			1984-86	1988-1990		1991		1992		1993	
WATER/STATION	SPECIES	TIS	TCDD	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE
KENNEBEC R											
Madison	bn trout	f									
	bass	f						<0.1	0.02-0.1		
	sucker	w						0.1	0.3		
Norridgewock	bass										
	sucker										
Fairfield	trout	f		6.2	6.9-8.0			1.4	1.6-1.8	1.4	1.6-1.9
	bass	f				1.4	1.6-1.7	0.6	0.6-0.7	1.5	1.7-2.0
	sucker	w	6.4	10.3	16.8-18.1			2.0	3.1-3.3	1.6	2.2-2.6
Sidney	bass	f	20.3w			1.0	1.4-2.4	0.4	0.6-1.0	0.6	0.8-1.4
	sucker	w	1.2f/11.4w					2.7	4.4-4.8	1.5	2.5-2.7
Augusta	bn trout	f		2.2	2.9-4.9			1.9	2.5-4.3		
	bass	f						0.4	0.6-1.0	0.6	0.9-1.5
	sucker	w		5.0	7.3-8.4			1.5	2.6-2.8	1.9	3.3-3.6
Hallowell	smelt	c						0.2	0.5-0.8		
Richmond	eel	f								0.6	0.8-1.4
Phippsburg	clam	m						0.3	0.6-0.9		
	lobster	m								0.2	0.3-1.2
	lobster	t								7.9	27.5-27.6
MESSALONSKEE LAKE											
Belgrade	bass					<0.09	0.04-0.3				
NARRAGUAGUS R											
Cherryfield	fallfish	w	<1.0								
NORTH POND											
Chesterfield	sucker	w	0.4								
	pickerel	f	<0.1								
PENOBSCOT R											
E Br Grindstone	bass	f		<0.1	0.09-0.2						
	sucker	w		<0.4	0.02-0.6						
E Millinocket	bass	f		<0.2	0.4-0.8						
	sucker	w		0.7	3.6-4.2						
Woodville	bass										
	sucker										
N Lincoln	bass	f		<0.4	0.2-0.8						
	sucker	w		<0.5-20.8	2.0-41.6						
S Lincoln	bass	f	5.0	1.7	2.3-2.7	0.9	1.2-1.3	0.7	1.0-1.2	1.2	1.6-1.8
	sucker	w		37.0	66.4-67.2			3.3	6.8	1.7	3.5-3.6
Passadumkeag	bass	f		1.8	2.9						
	sucker	w		2.8	7.6-7.7						
Milford	bass	f		0.9	1.4-1.7			0.3	0.4-0.5		
	sucker	w		9.7	19.9-20.1			2.2	4.6		
Veazie	bass	f	4.6w	1.9	2.4-2.6	1.2	1.5-1.7	0.4	0.6	0.6	0.8-1.0
	sucker	w	2.6f/7.6w	5.9	9.8-9.9	2.5	4.9-5.0	2.2	4.8-4.9	1.1	2.7-3.0
Bangor	eel	f								1.0	1.1-1.2
Bucksport	clam	m						0.1	0.8-0.9		
Stockton Springs	lobster	m								0.1	0.3-1.1
	lobster	t								4.0	28.0

TABLE 2. (cont.)

			NDS/NBS	MAINE DIOXIN MONITORING PROGRAM							
			1984-86	1985- 1990		19 91		19 92		19 93	
WATER/STATION	SPECIES	TIS	TCDD	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE
OWLS HEAD	mussel	m	<0.8								
PISCATAQUIS R											
Sangerville	bass	f				<0.2	0.03-0.3				
	bn trout	f				<0.4	0.03-0.4				
	sucker	w				0.26	0.6-0.7				
Howland	bass	f		<0.2	0.02-0.6						
PRESUMPSCOT R											
Windham	bass	f								<0.1	<0.1-0.3
	sucker	w								0.3	0.7-0.8
Westbrook	bass	f		1.8	2.4-4.5	0.2	0.2-0.4	0.1	0.2-0.4	<0.2	0.1-0.5
	pickerel	f		<2.6	0.06-5.9						
	w perch	f		1.2	2.5-3.1	0.4	0.9-1.0				
	sucker	w	5.2	5.1	8.2-9.6	0.6	1.6-1.7	0.3	0.8-0.9	1.1	1.8-2.3
Falmouth	clam	m						<0.1	0.2-0.4		
Portland	lobster	m								<0.1	0.1-0.8
	lobster	t								3.4	18.5-18.7
ST CROIX R											
Woodland	bass	f									
	sucker										
Baring	bass			0.3	0.5-1.0	<0.1	0.04-0.3				
	sucker	w	<0.7	0.6	1.0-1.1						
Robbinston	lobster	t									
ST JOHN R											
Frenchville	sucker	w									
Madawaska	y perch	f		<0.5	0.08-0.8						
	bk trout	f									
	sucker	w									
SACO R											
Dayton	sucker	w	<0.3								
SACO BAY											
Scarborough	lobster	m								<0.1	0.1-0.8
	lobster	t								2.0	11.3-14.6
SALMON FALLS R											
Acton	lm bass										
	sucker										
S Berwick	bass	f		0.4	0.5-0.6					0.2	0.2-0.9
	pickerel	f		0.2	0.3						
	sucker	w		1.5	2.1-2.2			2.4	3.4-3.6	1.9	3.6-3.8
SANDY P											
	bass	f	<1.0								

TABLE 2. (cont.)

			NDS/NBS	MAINE DIOXIN MONITORING PROGRAM							
			1984-86	1988- 1990		1991		1992		1993	
WATER/STATION	SPECIES	TIS	TCDD	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE
SEBAGO L											
Naples	bass	w	<0.6								
SEBASTICOOK R											
E Br Corinna	lm bass										
	bass										
	sucker										
Newport	bass	f						0.1	0.3-0.4		
	lm bass	f	<0.2					<0.2	0.2-0.4		
	w perch	f		1.0	1.6-2.1						
W Br Harmony	bass										
	sucker										
W Br Palmyra	bass	f		1.2	1.4-1.8			0.4	0.5-0.6	0.9	1.2-1.6
	pickerel	f	<0.1					0.2	0.2		
	sucker	w	1.6	3.3	4.3-4.6			1.1	1.4-1.6	1.0	2.6-2.7
WEBBER POND											
Vassalboro	bass	f				<0.08	0.04-0.4				

f=fillet
m=meat
t=tomalley
w=whole

DTE= dioxin toxic equivalents using WHO 98 toxic equivalency factors (TEF).
Range shown at nd=0 and nd=md1, ie DTEo-DTEd

TABLE 2. DIOXIN AND FURAN LEVELS IN MAINE FISH AND SHELLFISH (pg/g)

			1994		1995		1996		1997		1998	
WATER/STATION	SPECIES	TIS	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE
ANDROSCOGGIN LAKE												
Wayne	bn trout	f					0.7	1.1-2.3				
	bass	f					0.6	1.2-2.2			0.2	0.4-1.0
	w perch										0.5	0.6-1.2
	sucker	w					0.4	1.4-2.5			0.4	0.9-1.1
ANDROSCOGGIN R												
Gilead	rb trout				1.2	2.4-2.9	0.9	2.0-2.6	0.5	1.6-2.1	0.4	1.5-2.0
	bn trout						0.4	1.0-1.5				
	bass				0.9	3.8-4.1						
	sucker	w			1.7	6.1-6.7	0.7	4.4-5.3	0.5	3.4-3.8	0.9	3.1-3.5
Rumford	bass	f	3.8	5.7-6.2	2.2	3.5-4.1			0.5	1.2-1.8	0.4	1.1-1.5
	sucker	w	4.0	11.4-11.9			0.8	4.1-5.2	0.5	3.6-4.9	0.4	3.0-3.4
Riley	bass								0.3	1.1-2.2	0.2	0.8-1.0
	sucker	w							0.5	3.8-4.8	0.3	2.5-2.8
Jay	bass	f	1.6	2.2-2.8			0.5	1.3-1.4				
	sucker	w	4.7	11.5-12.3	2.3	6.9-7.6						
Livermore Falls	bass	f	1.4	1.6-2.3	0.5	0.8-1.3			0.3	1.2-1.4	0.2	1.1-1.2
	sucker	w	2.2	4.8-5.3			0.6	3.4-3.9	0.5	2.8-2.9	0.5	2.8-2.9
N Turner	sucker	w										
Auburn-GIP	sm bass	f	1.3	2.0-2.7			0.6	2.1-2.5	0.4	2.0-2.2	0.4	1.6-1.8
	lm bass	f										
	sucker	w	1.6	4.4-5.4	1.4	3.8-5.0						
	bullhead	w	1.3	2.3-2.8								
Lisbon Falls	bn trout	f										
	bass	f	0.6	0.8-1.7	0.9	1.4-2.4			0.6	1.3-1.8	0.5	1.1-1.5
	sucker	w	2.4	5.8-6.2			0.7	1.6-2.8				
Brunswick	sucker	w										
	carp	f										
BEARCE LAKE												
Baring	pickerel	f										
BRAVE BOAT HARBOR												
Kittery	lobster	m	<0.1	<0.1-1.2								
	lobster	t	1.3	9.7-11.5	1.6	6.7-9.9	1.7	13.8-15.5				
BROOKLYN	lobster	m			0.8	4.9-8.2						
	lobster	t										
COREA	lobster	t					0.6	6.6-7.3				
JONES CREEK												
Scarborough	clam	m										

TABLE 2. (cont.)

WATER/STATION	SPECIES	TIS	1994 TCDD	1994 DTE	1995 TCDD	1995 DTE	1996 TCDD	1996 DTE	1997 TCDD	1997 DTE	1998 TCDD	1998 DTE
KENNEBEC R												
Madison	brown trout	f			<0.1	0.1-0.7						
	bass	f					<0.1	0.1-0.8	<0.2	0.03-1.6		
	sucker	w			0.1	0.3-1.0	<0.1	0.3-1.0	<0.1	0.2-0.8		
Norridgewock	bass										<0.1	0.03-0.6
	sucker										<0.1	0.2-0.7
Fairfield	brown trout	f	2.2	2.5-3.8	1.6	1.7-2.5			1.2	1.3-1.9		
	bass	f	0.9	1.1-1.8					0.6	0.6-1.2	0.3	0.4-1.0
	sucker	w	2.2	2.9-3.8			1.6	2.1-2.7	1.2	1.7-2.1	0.9	1.4-1.8
Sidney	bass	f	0.3	0.4-1.3			0.2	0.4-1.0	0.2	0.3-0.9		
	sucker	w	2.3	3.0-4.0	1.2	1.7-2.5						
Augusta	brown trout	f			1.0	1.3-3.5			0.6	1.0-1.3		
	bass	f	1.0	1.3-3.7					0.5	0.8-1.6	0.3	0.6-0.9
	sucker	w	2.3	4.0-5.8			2.2	2.6-3.3				
Hallowell	smelt	c										
Richmond	eel	f										
Phippsburg	clam	m										
	lobster	m	<0.1	<0.1-1.6								
	lobster	t	6.5	23.4-26.6	4.6	13.5-17.1	3.6	16.7-18.6				
MESSALONSKEE LAKE												
Belgrade	bass											
NARRAGUAGUS R												
Cherryfield	fallfish	w										
NORTH POND												
Chesterfield	sucker	w										
	pickerel	f										
PENOBSCOT R												
E Br Grindstone	bass	f			<0.1	0.1-0.7	<0.1	0.1-0.8	<0.1	0.04-0.7	<0.1	0.04-0.7
	sucker	w			<0.1	0.1-0.6	<0.1	0.1-0.8	<0.1	0.07-0.7	<0.1	0.07-0.7
E Millinocket	bass	f							<0.1	0.04-0.7	<0.1	0.04-0.7
	sucker	w							<0.1	0.09-0.7	<0.1	0.09-0.7
Woodville	bass	f							<0.1	0.07-0.7	<0.1	0.06-0.7
	sucker	w							<0.1	0.09-0.7	<0.1	0.08-0.7
N Lincoln	bass	f										
	sucker	w										
S Lincoln	bass	f	0.4	0.4-1.7	0.5	0.7-1.3	0.3	0.5-1.2	0.2	0.4-1.0	0.2	0.4-0.9
	sucker	w	2.2	5.8-6.1			1.6	2.2-3.2	1.2	1.6-2.2	1	1.4-2.0
Passadumkeag	bass	f										
	sucker	w										
Milford	bass	f							0.2	0.4-0.9	0.2	0.2-0.8
	sucker	w							1.0	1.6-2.0	1	1.5-2.0
Veazie	bass	f	0.2	0.2-1.3	0.3	0.4-1.9	0.3	0.3-1.5	0.3	0.4-0.9	0.2	0.3-0.9
	sucker	w	0.6	1.6-2.8	0.5	1.4-2.5	0.4	0.9-2.0	1.1	1.3-1.9	1	1.2-1.8
Bangor	eel	f					0.3	0.4-1.5				
Bucksport	clam	m										
Stockton Springs	lobster	m	<0.1	0.1-1.0								
	lobster	t	2.3	18.1-27.9	1.3	7.2-14.6	0.9	12.5-13.2				

TABLE 2. (cont.)

WATER/STATION	SPECIES	TIS	1994 TCDD	1994 DTE	1995 TCDD	1995 DTE	1996 TCDD	1996 DTE	1997 TCDD	1997 DTE	1998 TCDD	1998 DTE
OWLS HEAD	mussel	m										
PISCATAQUIS R												
Sangerville	bass	f										
	brown trout	f										
	sucker	w										
Howland	bass	f										
PRESUMPSCOT R												
Windham	bass	f	<0.1	<0.1-1.1			<0.1	0.5-1.5	<0.1	0.5-0.7	<0.1	0.4-0.8
	sucker	w	0.2	1.4-2.4	0.3	2.4-7.7			0.2	1.2-1.4	0.2	1.2-1.4
Westbrook	bass	f	0.2	0.3-1.2			0.2	0.4-0.9	0.1	0.4-0.9	<0.1	0.3-0.8
	pickerel	f										
	w perch	f										
	sucker	w	0.9	2.1-3.7	0.8	1.6-2.6			0.2	1.6-2.0	0.2	1.6-2.0
Falmouth	clam	m										
Portland	lobster	m	<0.1	0.2-1.0								
	lobster	t	2.5	17.2-21.3	2.2	9.5-12.8	2.7	18.9-21.6				
ST CROIX R												
Woodland	bass	f							<0.1	0.02-0.7	<0.1	0.06-0.7
	sucker	w							<0.1	0.09-0.7	<0.1	0.08-0.7
Baring	bass	f							<0.1	0.03-0.7	<0.1	0.05-0.7
	sucker	w							<0.1	0.07-0.8	<0.1	0.08-0.8
Robbinston	lobster	t					1.0	10.2-11.2				
ST JOHN R												
Frenchville	sucker	w	0.1	0.2-1.0								
Madawaska	y perch	f										
	brook trout	f	<0.3	<0.1-2.3								
	sucker	w	<0.1	0.2-0.8								
SACO R												
Dayton	sucker	w										
SACO BAY												
Scarborough	lobster	m	<0.1	<0.1-0.8								
	lobster	t	1.3	9.7-12.0								
SALMON FALLS R												
Acton	bass lm				<0.1	<0.1-0.7						
	sucker						<0.1	0.1-1.0				
S Berwick	bass sm	f	0.5	0.7-3.3	0.4	0.4-4.0			0.2	0.3-0.6		
	pickerel	f							0.6	0.8-1.0		
	sucker	w	2.1	4.7-6.1			2.0	3.2-4.5				
SANDY P												
	bass	f										

TABLE 2. (cont.)

WATER/STATION	SPECIES	TIS	1994 TCDD	1994 DTE	1995 TCDD	1995 DTE	1996 TCDD	1996 DTE	1997 TCDD	1997 DTE	1998 TCDD	1998 DTE
SEBAGO L												
Naples	bass	w										
SEBASTICOOK R												
E Br Corinna	bass lm				0.1	0.2-1.1						
	bass sm								<0.1	0.1-0.7		
	sucker											
Newport	bass sm	f										
	bass lm	f			0.3	1.1-2.0			0.2	1.2-1.4		
	w perch	f					0.3	1.6-2.3				
W Br Harmony	bass				<0.1	0.1-0.8			<0.1	0.06-0.7		
	sucker						0.1	0.1-1.2				
W Br Palmyra	bass	f	0.4	0.4-1.3	0.8	1.7-2.2			0.3	0.6-0.9	0.2	0.5-0.8
	pickerel	f										
	sucker	w	1.2	4.0-4.3			1.2	2.2-3.6				
WEBBER POND												
Vassalboro	bass	f										

f=fillet
m=meat
t=tomalley
w=whole

DTE= dioxin toxic equivalents using WHO 98 toxic equivalency factors (TEF).
Range shown at nd=0 and nd=md1, ie DTEo-DTEd

(<10ppq in bleach plant effluent by July 31, 1998) and both TCDD and TCDF in final effluent have been reported below 10 ppt since 1995. This is a higher reporting level than used before that time, making it impossible to determine any improvements in recent years (Appendix 4).

Riley In both 1997 and 1998, five smallmouth bass and ten white suckers were collected from the river above the Riley Dam, about 19 miles downstream of Mead Paper Company and upstream of International Paper Company's discharge (Appendix 7). This station has not been sampled since 1985 and has been re-established for the above/below fish test. In 1997, concentrations of DTEh in the bass exceeded the FTALc, but in 1998 DTEh were 76% of the FTALc (Appendix 2). DTEh in suckers were 87% and 60% of the FTALc for the two years respectively. Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may also result in an exceedance of a Fish Tissue Action Level in bass in 1998 and in suckers in both years (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. In both years TCDD and DTEh were significantly greater than reference stations on other Maine rivers.

Livermore Falls In 1997 and in 1998, five smallmouth bass and ten white suckers were captured in the Otis Impoundment, approximately 2 miles downstream of the discharge from International Paper Company's Jay mill (Appendix 7). Concentrations of DTEh in the bass exceeded the FTALc in 1997 and was 92% of the FTALc in 1998, while DTEh in suckers were 63% and 61% of the FTALc for the two years respectively (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may also result in an exceedance of a Fish Tissue Action Level in bass in 1998 and in suckers both years (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. In both years TCDD and DTEh were significantly greater than reference stations on other Maine rivers. There has been a significant decline in TCDD in both bass and suckers and in DTEh in suckers since 1990. There was no significant trend in DTEh in bass during that period, although DTEh appear to have declined since 1994. There were no new sludge data during these two years. Concentrations of TCDD met requirements of the new law (<10ppq in bleach plant effluent by July 31, 1998) and concentrations of TCDF have decreased, corresponding to lower levels in fish (Appendix 4).

Auburn-GIP In both 1997 and 1998, five smallmouth bass were collected in Gulf Island Pond (GIP) near the deep hole at Seagull Island, approximately 30 miles downstream of International Paper Company (Appendix 7). In both years concentrations of DTEh in the bass were above the FTALc (Appendix 2). Total toxic equivalents (TTEh), the

combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may also result in a further increase in toxic equivalents (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. In both years TCDD and DTEh were significantly greater than reference stations on other Maine rivers. There was no significant trend in either measure for the period since 1990, although there appears to have been a slight decline since 1994.

Lisbon Falls In both 1997 and 1998, five smallmouth bass were captured in the Pejepscot Impoundment, approximately 45 miles below International Paper Company (Appendix 7). In both years, concentrations of DTEh exceeded FTALc (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may also result in a further increase in toxic equivalents (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. In both years TCDD and DTEh were significantly greater than reference stations on other Maine rivers. There was no significant trend for TCDD or DTEh for the period since 1990, although there appears to have been a slight decline since 1995.

Androscoggin Lake

Wayne Androscoggin Lake in Wayne and Leeds is a 4000 acre 38 foot deep meso-trophic lake with a unique reverse delta at the outlet formed by centuries of periodic backflow from the Androscoggin River via the Dead River into the lake. There is a dam on the Dead River that reduces but does not prevent the backflow into the lake, which usually occurs once or twice every year. Significant amounts of dioxin were found in fish from the lake when first sampled in 1996. In 1998, five smallmouth bass, five white perch, and ten white suckers were collected from the lake. DTEh were 58%, 72%, and 26% of the FTALc respectively (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in an exceedance of a Fish Tissue Action Level for these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. Concentrations of TCDD and DTEh were significantly greater in all species than in similar species from all other lakes (n=8) that have been sampled and higher than in fish from all river reference stations. Concentrations are similar to those found at contaminated stations in the Androscoggin River, which is most likely the source. Concentrations of TCDD and DTEh appeared lower in 1998 than in 1996 for the two species sampled in both years, bass and suckers, although since composite samples were collected in 1996 no statistical comparisons could be made and significance could not be determined.

Kennebec River

Madison/Norridgewock

In 1997 five smallmouth bass and ten white suckers were collected from the river upstream of the dam in Madison, while in 1998 similar samples were collected downstream at Norridgewock (Appendix 7). Since there are no known point sources of dioxin upstream of the Madison station, it is considered a reference station for the Kennebec River as it has been since first sampled in 1992. Norridgewock was sampled to determine if there was any difference in fish dioxin concentrations from those at Madison that might reflect sources from Madison Paper Company just downstream of the dam in Madison. In 1997 DTEh in bass was 87% of the FTALc, but this was an artifact of unusually high detection limits as shown by DTEo at 2% of the FTALc (Appendix 2). In 1998 DTEh was 24% of FTALc, which is more similar to that of previous years, but once again inflated by high detection limits as demonstrated by DTEo of 2%. DTEh in suckers were 11 and 19% of FTALc for the two years respectively, but DTEo were 3% and 4% of the FTALc for the two years respectively. In fact, TCDD and most other congeners that add significantly to the DTE were below detection and therefore the FMT for all samples for both years. Only TCDF in bass and TCDF and 23478-PeCDF in suckers were present (in trace amounts) in most samples. The differences between DTEh and DTEo are much larger at these stations than at any station downstream of point sources on the river, and document the problem of the impact of high detection limits and treatment of non-detects. Total toxic equivalents (TTEh), the combination of DTEo and dioxin-like PCBS measured in DEP's SWAT program, may result in an increase in toxic equivalents in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. TCDD and DTEo were not any higher than previous years for the Madison station. DTEh vary among years due to different detection limits. The trace amount of DTE measured in these fish is likely due to long-range transport and atmospheric deposition from remote sources.

Fairfield In 1997, five smallmouth bass, five brown trout and ten white suckers and were collected from the river between the Shawmut Dam and the I-95 bridge, approximately 7-8 miles below SAPPI Somerset's bleached kraft pulp and paper mill in Skowhegan (Appendix 7). In 1998 five smallmouth bass and ten white suckers were collected from the same location. Concentrations of DTEh were 75% and 51% of the FTALc in bass and 43% and 37% of the FTALc in suckers for the two years respectively, but DTEh in brown trout exceeded the FTALc (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may also result in an

exceedance of a Fish Tissue Action Level in bass and suckers (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. Concentrations of TCDD and DTEh were significantly greater than those at the reference stations at Madison and Norridgewock. There was no significant trend in concentrations in bass during the period from 1990-1998, but there appears a slight reduction in both TCDD and DTEh since 1994. There was, however, a significant reduction in TCDD and DTEh in suckers during the longer period. Effluent data (Appendix 4) and sludge data (Appendix 3) document decreases in discharges over the years especially since early 1997. Concentrations of TCDD met the requirements of the new law (<10ppq in bleach plant effluent by July 31, 1998).

Sidney In 1997 five smallmouth bass were collected from the river within one mile of the Sidney boat landing, approximately 25 miles below the SAPPI Somerset mill in Skowhegan and approximately 9-10 miles below the discharges from the Kimberly-Clark mill in Winslow and the Kennebec Sanitary Treatment District's discharge in Waterville (Appendix 7). Concentrations of DTEh were 49% of the FTALc (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in an exceedance of a Fish Tissue Action Level for these fish (DEP, 2000). Concentrations of TCDD and DTEh were significantly greater than those at the reference stations at Madison and Norridgewock. There was no significant trend for TCDD or DTEh for the period since 1990, although concentrations since 1994 are lower than in the early 1990's, probably a result of reductions in discharges at all 3 sources since that time as indicated by limited sludge and effluent data (Appendix 3, Appendix 4). The Kimberly-Clark mill closed in 1997 further reducing discharges to the river.

Augusta In addition to the upstream sources at the Sidney station, Statler Tissue Company discharged effluent contaminated with dioxin just above the Edwards Dam in Augusta until closing in early 1995. Reopened in 1996 as Tree-Free Fiber Co., the mill, like Statler, was a recycle tissue mill, re-pulping white paper (but not bleaching) until it too closed in 1997. As such it received dioxins and furans in its furnish and passed some through to the river, although it may have created little of its own. In 1997 five smallmouth bass and four brown trout were captured from the river below the Edwards Dam in Augusta downstream approximately 2 miles towards Hallowell, whereas in 1998 three smallmouth bass were collected from the same location. Concentrations of DTEh in bass exceeded the FTALc in 1997 and were 60% of the FTALc in 1998, while DTEh in brown trout in 1997 were 90% of the FTALc (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may also result in an

exceedance of a Fish Tissue Action Level in bass in 1998 and in brown trout in 1997 (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. Concentrations of TCDD and DTEh in bass were significantly greater than those at the reference stations at Madison and Norridgewock. There has been a significant decline in TCDD or DTEh for brown trout since 1990, likely the result of decreases in discharges from the upstream sources. There has been no similar trend for concentrations in bass, which have been more variable over the years, but concentrations in 1997 and 1998 were slightly lower than all but one previous year. Results of a sludge test at Tree-Free in November 1997 showed concentrations of TCDD below 1 ppt, a reduction from previous years, but more data are needed for confirmation.

Penobscot River

Grindstone In both 1997 (DMP) and 1998 (DEP's SWAT program) five smallmouth bass and ten white suckers were captured from the East Branch of the Penobscot River just above Grindstone Falls (Appendix 7). This station was selected as a reference for the Penobscot River years ago since there are no known point sources of dioxin upstream. Concentrations of DTEh in bass were 24-25% of the FTALc for the two years respectively (Appendix 2), but this was an artifact of detection levels and the impact of treatment of non-detects. Concentrations of all congeners that add significantly to DTE were below detection and therefore the FMT, except for trace amounts of TCDF. As a result concentrations of DTEo were only 3% of the FTALc for both years. The same was true for suckers, where DTEh were 8% but DTEo were 1% of the FTALc for both years. Total toxic equivalents (TTEh), the combination of DTEo and dioxin-like PCBS measured in DEP's SWAT program, may result in an increase in toxic equivalents in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. Concentrations were generally similar to those of the reference station at Madison on the Kennebec River and to those of previous years, although lower detection limits result in slightly lower levels of TCDD and DTEo in 1997 and 1998. The trace amount of DTE measured in these fish is thought to represent long-range transport and atmospheric deposition from remote sources.

East Millinocket This station, the Rocabema Impoundment, is on the West Branch of the Penobscot River downstream of Great Northern Paper Company's pulp and paper mills in Millinocket (~9 miles) and East Millinocket (1-2 miles). Although these mills are not primarily bleached kraft pulp mills, fish samples collected in 1990 showed significantly more TCDD and DTE in fish from this station than found in

fish from the reference station at Grindstone on the East Branch in later years. The Millinocket mill buys some market bleached kraft pulp and the East Millinocket mill includes a recycle mill that re-pulps white paper, which could result in discharge of dioxin to the river. As part of DEP's SWAT program rather than the DMP, in 1997 and 1998 five smallmouth bass and ten white suckers were collected from this station. Similar to Grindstone, concentrations of DTEh in bass were 24-25% of the FTALc for the two years respectively (Appendix 2), but this was an artifact of detection levels and the impact of treatment of non-detects. Concentrations of all congeners that add significantly to DTE were below detection and therefore the FMT, except for trace amounts of TCDF. As a result concentrations of DTEo were only 3% of the FTALc for both years. The same was true for suckers, where DTEh were 8% but DTEo were 1% of the FTALc for both years. Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in an increase in toxic equivalents in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition.

Woodville This station is downstream of the confluence of the East and West Branches of the Penobscot River and was sampled to help determine combined effects of both branches and appropriateness as an upstream reference for Lincoln Pulp and Paper Company for the above/below fish test. As part of DEP's SWAT program in 1997 and the DMP in 1998, five smallmouth bass and ten white suckers were collected from this station. Similar to Grindstone and East Millinocket, concentrations of DTEh in bass were 27-28% of the FTALc for the two years respectively (Appendix 2), but this was an artifact of detection levels and the impact of treatment of non-detects. Concentrations of all congeners that add significantly to DTE were below detection and therefore the FMT, except for trace amounts of TCDF. As a result concentrations of DTEo were only 4% of the FTALc for both years. The same was true for suckers, where DTEh were 8% but DTEo were 1% of the FTALc for both years. Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in an increase in toxic equivalents in these fish (DEP, 2000).

South Lincoln In 1997 and in 1998 five smallmouth bass and ten white suckers (Appendix 7) were collected from the river near the boat ramp in South Lincoln, approximately 4 miles downstream of Lincoln Pulp and Paper Company's bleached kraft mill in Lincoln. Concentrations of DTEh were 52% of the FTALc in bass for both years and 39% and 35% of the FTALc in suckers for the two years respectively (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in an exceedance of a Fish Tissue Action Level in

result in an exceedance of a Fish Tissue Action Level in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. Concentrations of TCDD and DTEh were significantly greater than those at the Woodville reference station both years. There has been, however, a significant decrease in TCDD and TEQ in both bass and suckers for the period 1990-1998. This decline is likely a result of decreased discharges from the mill as documented by decreased concentrations of TCDD in effluent, which show compliance with the limit of the new law (Appendix 4), and in sludge (Appendix 3) for the period.

Milford Located at Freese Island near the boat ramp in Costigan, this station is approximately 34 miles downstream of Lincoln Pulp and Paper Company's bleached kraft mill in Lincoln. Sampled previously in 1990 and 1992, this station was re-established in 1997 and 1998 as the upstream station for the above/below test for the Fort James mill about 5 miles downstream. In both 1997 and 1998, five smallmouth bass and ten white suckers were captured from this station. Concentrations of DTEh were 48% and 38% of the FTAlc in bass and 37% and 36% of the FTALc in suckers for the two years respectively (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in an exceedance of a Fish Tissue Action Level in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. Concentrations of TCDD and DTEh were significantly greater than those at the Woodville reference station both years. Like the South Lincoln station, at this station there has been a significant decrease in TCDD and DTEh from 1990 to 1998 likely due to decreased discharges from Lincoln Pulp and Paper Company during that time.

Veazie In 1997 and in 1998 five smallmouth bass and ten white suckers (Appendix 7) were collected from the Veazie Impoundment about 7-8 miles below Fort James' bleached kraft mill in Old Town. Concentrations of DTEh were 51% and 46% of the FTALc in bass and 34% and 31% in suckers for the two years respectively (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in an exceedance of a Fish Tissue Action Level in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. Concentrations of TCDD and DTEh were significantly greater than those at the Woodville reference station both years. Like upstream stations, at this station there has been a significant decrease in TCDD and DTEh from 1990 to 1998 likely a result of decreased discharges from both upstream mills as documented by effluent (Appendix 4) and sludge (Appendix 3)

data. TCDD concentrations at the Fort James mill have met the limits of the new law.

Presumpscot River

Windham In 1997 and 1998 five smallmouth bass and ten white suckers (Appendix 7) were collected from the river below North Gorham Pond in Windham. Concentrations of DTEh were 43% and 50% of the FTALc in bass and 29-30% in suckers for the two years respectively (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in an exceedance of a Fish Tissue Action Level in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. There have been no significant trends in TCDD or DTEh during the 1990s. This station has been used as a reference station for the Presumpscot River since 1993 since there are no known point sources of dioxin upstream. However, concentrations of TCDD, TCDF, PeCDD, PeCDF and DTEh from this station have been significantly higher than all other reference stations in the program every year. These results suggest that there are other local sources of dioxin which have not yet been discovered. These concentrations must represent a combination of background from local sources and long range transport and atmospheric deposition from remote sources.

Westbrook In 1997 four smallmouth bass and 8 white suckers (Appendix 7) were collected from the river near the US Route 302 bridge about 1.5 miles downstream of the discharge from SAPPI Westbrook's bleached kraft pulp and paper mill. In 1998 four smallmouth bass and ten white suckers were collected from the same reach. Concentrations of DTEh were 46% and 43% in bass and 39% and 38% in suckers for the two years respectively (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in an exceedance of a Fish Tissue Action Level in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. Concentrations of TCDD in bass were significantly higher than at the upstream Windham station in 1997 but not in 1998, while DTEh in suckers was significantly higher than the upstream station in both years. There was no trend in TCDD or DTEh for either species for the period 1990-1998. But concentrations were lower from 1991-1998 than the base year 1990, probably a result of decreased discharges following installation of a new pulping process in 1989 as shown by effluent (Appendix 4) and sludge (Appendix 3) data.

St. Croix River

Woodland In 1997 for the first time five smallmouth bass and ten white suckers were collected from the Woodland impoundment and Grand Falls Flowage upstream of Georgia Pacific's bleached kraft pulp and paper mill in Baileyville. In 1998 four smallmouth bass and ten white suckers were collected from the same locations. Concentrations of DTEh were 24% and 28% of the FTALc in bass and 8% in suckers for both years respectively (Appendix 2), but this was an artifact of detection levels and the impact of treatment of non-detects. Concentrations of all congeners that add significantly to DTE were below detection and therefore the FMT, except for trace amounts of TCDF. As a result concentrations of DTEo were only 3% of the FTALc in bass and 1% in suckers for both years. Total toxic equivalents (TTEh), the combination of DTEo and dioxin-like PCBS measured in DEP's SWAT program, may result in an exceedance of a Fish Tissue Action Level in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. Concentrations of DTE were generally similar to those of the other reference stations in Maine. The trace amount of DTEo measured in these fish is thought to represent long-range transport and atmospheric deposition from remote sources.

Baring In 1997 and in 1998 five smallmouth bass and ten white suckers were collected from the river approximately 5 miles downstream of the discharge from Georgia Pacific's bleached kraft pulp and paper mill in Baileyville. This was the first time this station has been sampled since sampling was suspended in 1991 when concentrations fell below the FMT. Sampling was resumed in 1997 due to the requirements of the new law, increased production at the mill, and discovery of detectable levels of TCDF in sludge in 1994 and 1995. Concentrations of DTEh were 25-26% in bass and 9-8% in suckers for the two years respectively. But similar to the reference station at Woodland, this was an artifact of detection levels and the impact of treatment of non-detects. Concentrations of all congeners that add significantly to DTE were below detection and therefore the FMT, except for trace amounts of TCDF. As a result concentrations of DTEo were only 2-3% of the FTALc in bass and 1% in suckers for both years. Total toxic equivalents (TTEh), the combination of DTEo and dioxin-like PCBS measured in DEP's SWAT program, may result in an exceedance of a Fish Tissue Action Level in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. There was no significant difference in TCDD or DTEo between this station and the upstream reference station at Woodland for either year. There are no new sludge data from the mill, but effluent data document compliance with the TCDD limit of the new law and decreases in TCDF since 1996.

Salmon Falls River

South Berwick In 1997 one smallmouth bass and two chain pickerel (Appendix 7) were collected from the Rollinsford Impoundment about 2 miles below the discharge from the Berwick Sewer District's municipal wastewater treatment plant in Berwick, whose discharge is 85% effluent from Prime Tanning. In 1998 four smallmouth bass were collected from the same reach. DTEh were 31% and **???** of the FTALc in bass for the two years respectively and 80% in pickerel in 1997 (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in an exceedance of a Fish Tissue Action Level in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. Concentrations of TCDD and DTEh were significantly greater than in fish from previous years at an upstream reference station at Acton, which had concentrations similar to other reference stations in Maine. There was no significant trend for TCDD or DTEh in bass during the 1990s. There are no new sludge or effluent data from the treatment plant to show any changes in discharges.

Sebasticook River

East Branch at Corinna In 1997 five smallmouth bass (Appendix 7) were collected from Corundal Pond, an impoundment of the East Branch of the Sebasticook River, immediately upstream of the Eastland Woolen Mill and Corinna municipal wastewater treatment plant discharge in Corinna. Historically there were several industrial discharges and one municipal discharge upstream, some of types known to discharge dioxin. Concentrations of DTEh were 32% of the FTALc (Appendix 2). TCDD was detected in three of the five samples at or near the detection level and there was detectable TCDF in all samples, but no PeCDD or PeCDF were detected in any samples. Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in an exceedance of a Fish Tissue Action Level in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. This station had slightly higher levels than reference stations on other rivers indicating a small local source of dioxin in addition to the trace amount from long-range transport and atmospheric deposition from remote sources.

East Branch at Newport In 1997 five largemouth bass (Appendix 7) were collected from the river just above the County Road Bridge, a popular fishing spot at the inlet to Sebasticook Lake. This station is approximately 2 miles below the Corinna Sewer District discharge, 80% of which was

from the Eastland Woolen Mill. Although the mill ceased operation in 1996, groundwater and river sediments are contaminated with a number of pollutants from the mill. The site was placed on the National Priorities List of Superfund sites in 1999, and cleanup has begun. Concentrations of DTEh exceeded the FTALc (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in a further increase in toxic equivalents in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. TCDD and DTEh concentrations were significantly greater than in fish from the upstream station at Corinna, and similar to those from 1995. These results document a local source of dioxin to this reach of the river, most likely residues of Eastland Woolen Mill. Measurable amounts of furan were found in sludge from the Corinna Sewer District for a number of years, although there are no new sludge data since 1996 and no effluent data to show any recent changes in discharge levels. (Appendix 3).

West Branch at Hartland In 1997 five smallmouth bass (Appendix 7) were collected from Great Moose Lake in Hartland. This station was selected to serve as a reference station for the West Branch of the Sebasticook River since there are no known point sources of dioxin upstream. Concentrations of DTEh were 26% of the FTALc (Appendix 2), but this was an artifact of detection levels and the impact of treatment of non-detects. Concentrations of all congeners that add significantly to DTE were below detection and therefore the FMT, except for trace amounts of TCDF. As a result concentrations of DTEo were only 3% of the FTALc. Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in an increase in toxic equivalents in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition. Concentrations of TCDD and DTEo are similar to those of previous years and similar to those at reference stations on other Maine rivers. The trace amount of DTE measured in these fish is thought to represent long-range transport and atmospheric deposition from remote sources.

West Branch at Palmyra In 1997 and in 1998 five smallmouth bass were collected from the river near the US Route 2 bridge about 3-4 miles below the discharge from the Town of Hartland, whose effluent is about 85% effluent from Irving Tanning Company. Concentrations of DTEh were 59% and 52% of the FTALc for the two years respectively (Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's SWAT program, may result in an exceedance of a Fish Tissue Action Level in these fish (DEP, 2000). Sources of PCBs are unknown but likely include long-range transport and atmospheric deposition.

Concentrations of TCDD and DTEh were significantly greater than in fish from the reference site upstream of the discharge. There are no significant trends for TCDD or DTEh for the period 1990-1998. These results document a local source of dioxin to this reach of the river most likely the Irving Tanning discharge. Although the only sample result reported (1996) showed no detectable amount of dioxin in effluent (Appendix 4), low solubility and high bioconcentration of dioxin make effluent data less meaningful than sludge data. Sludge data from 1989 show measurable levels of TCDF (Appendix 3), but there are no newer sludge data to aid interpretation of current levels of discharge.

Above/Below Test

Analysis of the data indicates that the program as modified for 1997 and 1998 was not able to detect minimum significant differences (MSD) initially specified for the above/below fish test. For suckers wet weight TCDD MSDs were similar for both years and with a mean of 0.35 ppt (0.13-0.56 ppt) for the two years combined, much greater than the proposed MSD of 0.05-0.1 ppt (Table 3). Increasing sample size to n=20 would reduce MSDs to a mean of 0.25 ppt (0.09-0.40 ppt) for both years combined, still much higher than proposed. And lipid based MSDs were even higher and more variable likely due to inherent variation in lipid content of the fish. Comparison of wet weight bass data, however, showed better performance even though there was no effort to standardize size and the sample size was small (n-5). There was some variation between years with a mean MSD of 0.20 ppt (0.06-0.41 ppt) for both years combined. Increasing sample size to n=10 would reduce the MSD to a mean of 0.14 ppt (0.03-0.29 ppt), which is closer to the target but still too high. Lipid based MSDs for bass, however, were much higher than for suckers.

TCDF and DTEh MSDs, both on a wet weight and lipid weight basis, greatly exceeded the proposed MSD of 10% of the reference station mean concentrations. The mean for both years combined was 374% and 156% for the two compounds respectively for white sucker wet weight based MSDs, and there was not much difference between the two years. Increasing sample size to n=20 would reduce MSDs to 265% and 111% respectively. Lipid based MSDs were more variable between the years, but the combined mean for both years was lower (275% and 62% for TCDF and DTEh respectively) than the wet weight based MSDs, although it did not approach the proposed MSD. Increasing the sample size to n=20 reduced MSDs to 195% and 44% for TCDF and DTEh respectively for the combined two year period. Wet weight based MSDs were lower for bass for both TCDF and DTEh (313% and 96% respectively)

Table 3. Minimum Significant Difference for 1997-98 Above/Below Fish Test

STATION	SPECIES	N	97TCDDw		97TCDFw		97DTEhw		97TCDDL		97TCDFL		97DTEhL	
			ppt	%rs	ppt	%rs	ppt	%rs	ppt	%rs	ppt	%rs	ppt	%rs
AGL/ARF	WHS	10	0.29	581	2.77	488	0.76	172	5.40	108	104	775	24.2	137
AGL/ARF		20	0.21	410	1.96	345	0.54	122	3.82	76	73.6	548	17.1	97
ARY/ALV	WHS	10	0.33	667	3.70	652	1.10	247	4.43	89	95	708	26.8	152
ARY/ALV		20	0.24	471	2.62	461	0.77	185	3.13	63	67.2	501	18.9	107
KMD/KFF	WHS	10	0.56	1127	1.28	226	0.78	175	4.88	98	16	117	6.8	38
KMD/KFF		20	0.40	797	0.91	160	0.55	124	3.45	69	11.1	83	4.8	27
PBW/PBL	WHS	10	0.29	572	1.18	252	0.36	87	7.29	251	26	101	22.7	94
PBW/PBL		20	0.20	404	0.84	179	0.26	61	5.16	177	18.7	72	16.1	66
PBC/PBV	WHS	10	0.53	1064	1.96	420	0.47	112	13.15	452	56	217	17.4	71
PBC/PBV		20	0.38	753	1.39	297	0.33	80	9.30	320	39.9	153	12.3	51
PWD/PWB	WHS	10	0.15	67	3.77	140	0.81	62	1.07	51	27	108	2.2	15
PWD/PWB		20	0.11	47	2.67	99	0.58	44	0.76	36	19.4	77	1.5	11
	MEAN	**10**	**0.36**	**680**	**2.45**	**363**	**0.71**	**143**	**6.04**	**175**	**54.20**	**338**	**16.67**	**85**
		20	**0.25**	**480**	**1.73**	**257**	**0.50**	**103**	**4.27**	**124**	**38.32**	**239**	**11.79**	**60**
	97-98	**10**												
		20												
ARY/ALV	SMB	5	0.25	250	1.29	748	0.69	84	121	1007	978	3667	366	834
ARY/ALV		10	0.18	177	0.91	529	0.49	59	85.5	712	691	2593	259	589
KMD/KFF	SMB	5	0.41	414	0.45	260	1.13	137	397	3311	269	1009	428	975
KMD/KFF		10	0.29	293	0.32	184	0.80	97	280.9	2341	190	714	303	689
PBW/PBL	SMB	5	0.13	258	0.86	345	0.20	52	33	650	234	593	59	199
PBW/PBL		10	0.09	183	0.61	244	0.14	37	23.0	460	166	420	42	141
PBC/PBV	SMB	5	0.26	522	0.70	282	0.25	65	77	1542	206	522	102	344
PBC/PBV		10	0.18	369	0.50	199	0.18	46	54.5	1091	146	369	72	243
PWD/PWB	SMB	5	0.12	244	2.90	233	1.26	210	24	486	748	213	103	72
PWD/PWB		10	0.09	172	2.05	165	0.89	149	17.2	344	529	151	73	51
	MEAN	**5**	**0.24**	**338**	**1.24**	**374**	**0.71**	**110**	**130.42**	**1399**	**487.05**	**1201**	**211.69**	**485**
		10	**0.17**	**239**	**0.88**	**264**	**0.50**	**78**	**92.22**	**990**	**344.40**	**849**	**149.69**	**343**
	97-98	**10**												
		20												

%rs=MSD/ mean of reference station x 100

w=wet weight, L=lipid weight, h=nd at l/2 mdl

Table 3. Minimum Significant Difference for 1997-98 Above/Below Fish Test

STATION	SPECIES	N	98TCDDw		98TCDFw		98DTEhw		98TCDDL		98TCDFL		98DTEhL	
			ppt	%rs	ppt	%rs	ppt	%rs	ppt	%rs	ppt	%rs	ppt	%rs
AGL/ARF	WHS	10	0.52	1041	6.74	885	5.32	336	4.31	172	38.8	488	8.84	58
AGL/ARF		20	0.37	736	4.76	626	3.76	237	3.05	122	27.4	345	6.25	41
ARY/ALV	WHS	10	0.21	426	4.66	612	1.33	281	1.33	53	24.5	308	6.40	42
ARY/ALV		20	0.15	301	3.29	433	0.94	199	0.94	38	17.3	218	4.53	30
KNK/KFF	WHS	10	0.47	948	1.26	166	0.70	148	2.24	90	6.71	84	3.26	21
KNK/KFF		20	0.34	670	0.89	118	0.50	105	1.59	63	4.74	60	2.30	15
PBW/PBL	WHS	10	0.34	683	0.88	231	0.37	92	2.37	95	11.5	74	2.94	15
PBW/PBL		20	0.24	483	0.62	164	0.26	65	1.67	67	8.2	52	2.08	11
PBC/PBV	WHS	10	0.38	766	1.18	312	0.48	119	7.55	302	23.7	152	9.46	49
PBC/PBV		20	0.27	542	0.84	220	0.34	84	5.34	214	16.8	107	6.69	35
PWD/PWB	WHS	10	0.13	59	2.89	109	0.49	37	2.13	88	48.1	170	8.73	51
		20	0.09	41	2.05	77	0.35	26	1.51	62	34.0	120	6.17	36
	MEAN	**10**	**0.34**	**654**	**2.94**	**386**	**1.45**	**169**	**3.32**	**133**	**25.56**	**213**	**6.60**	**39**
		20	**0.24**	**462**	**2.08**	**273**	**1.02**	**119**	**2.35**	**94**	**18.07**	**150**	**4.67**	**28**
	97-98	**10**	**0.35**	**667**	**2.69**	**374**	**1.08**	**156**	**4.68**	**154**	**39.88**	**275**	**11.64**	**62**
		20	**0.25**	**471**	**1.90**	**265**	**0.76**	**111**	**3.31**	**109**	**28.20**	**195**	**8.23**	**44**
ARY/ALV	SMB	5	0.20	390	1.10	559	0.63	177	36.7	1469	176	682	70.0	353
ARY/ALV		10	0.14	276	0.78	396	0.45	125	26.0	1039	124	482	49.5	250
KNK/KFF	SMB	5	0.11	220	0.29	148	0.13	37	9.56	382	36.0	140	11.0	55
KNK/KFF		10	0.08	156	0.21	105	0.09	26	6.76	270	25.5	99	7.76	39
PBW/PBL	SMB	5	0.21	425	0.85	297	0.28	73	78.5	3140	377	591	125	346
PBW/PBL		10	0.15	300	0.60	210	0.20	52	55.5	2220	267	418	88.4	244
PBC/PBV	SMB	5	0.20	399	0.40	140	0.20	53	189	7546	767	1201	343	948
PBC/PBV		10	0.14	282	0.28	99	0.14	37	133	5336	543	849	242	670
PWD/PWB	SMB	5	0.06	94	1.37	121	0.54	70	4.08	237	41.2	75	41.2	142
PWD/PWB		10	0.03	66	0.45	86	0.12	49	3.15	167	8.29	53	8.29	100
	MEAN	**5**	**0.16**	**306**	**0.80**	**253**	**0.36**	**82**	**63.50**	**2555**	**279.53**	**538**	**117.99**	**369**
		10	**0.11**	**216**	**0.46**	**179**	**0.20**	**58**	**44.96**	**1806**	**193.49**	**380**	**79.26**	**261**
	97-98	**10**	**0.20**	**322**	**1.02**	**313**	**0.53**	**96**	**97.0**	**1977**	**383**	**869**	**165**	**427**
		20	**0.14**	**227**	**0.67**	**222**	**0.35**	**68**	**68.6**	**1398**	**269**	**615**	**114**	**302**

w=wet weight, L=lipid weight, h=nd

than for suckers, but lipid based MSDs were higher, as was the case for TCDD. Increasing sample size to n=10 would reduce wet weight based MSDs for TCDF and DTEh (222% and 68% respectively) which still did not approach the proposed MSD. Since none of the MSDs met the proposed MSDs, the test needs further development before the above/below fish test can be applied.

CONCLUSIONS

In 1997 and 1998, concentrations of dioxin toxic equivalents (DTEh) in some fish from the Androscoggin River, Kennebec River below Skowhegan and East Branch of the Sebasticook River below Corinna exceeded the Bureau of Health's Fish Tissue Action Level for cancer (FTALc=1.5 ppt). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBS measured in DEP's Surface Water Ambient Toxics monitoring program, may also result in an exceedance of a Fish Tissue Action Level at other locations. Concentrations were highest on the Androscoggin River as in years past.

Concentrations of 2378-TCDD (TCDD) and DTEh in all fish samples collected below bleached kraft pulp and paper mills, a textile mill, and tanneries to the Androscoggin River, Kennebec River, Penobscot River, Salmon Falls River, and East Branch and West Branch of the Sebasticook River were significantly greater than those at reference stations unimpacted by industrial sources. The concentration of TCDD or DTEh in fish from the Presumpscot River downstream of the SAPPI Westbrook pulp and paper mill's discharge in Westbrook was greater than in fish from its upstream station at Windham in both years. Concentrations of TCDD and/or DTEh in fish from Windham were significantly higher than in fish from all the reference stations in the state for 6 consecutive years, suggesting a local source. There was no difference between concentrations of TCDD and DTEh in bass and suckers upstream and downstream of the Georgia Pacific mill on the St Croix river.

There have been significant decreases in concentrations of TCDD and/or DTEh in fish from Livermore Falls on the Androscoggin River, Augusta on the Kennebec River, and from the Penobscot River from 1990 to 1998. There were no other significant trends for this period although slight decreases are evident in fish from Auburn and Lisbon Falls on the Androscoggin and Fairfield on the Kennebec since 1994-5.

Concentrations of TCDD and DTEh in smallmouth bass, white perch and white suckers from Androscoggin Lake were lower than in 1996 but are significantly higher than in any other lake in the state and generally similar to concentrations in fish in the Androscoggin River.

Enhancement of the Dioxin Monitoring Program in 1997 and 1998 for the above/below fish test, required by the new statute in 1997, did not provide acceptable results. Minimum significant differences were much greater than desired. The program will be modified for the 1999 program and each subsequent year until an acceptable test is developed.

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APPENDIX 1

MAINE BUREAU OF HEALTH

FISH CONSUMPTION ADVISORY, 28 MARCH 1997

LOBSTER TOMALLEY CONSUMPTION ADVISORY, 2 FEBRUARY 1994

Maine 1997 Fish Consumption Advisories
Maine Department of Human Services - Bureau of Health

General Consumption Advisory for ALL Inland Surface Waters Due to Mercury Contamination

☛ *Pregnant women, nursing mothers, women who may become pregnant, and children less than 8 years old,* should **NOT EAT warm water fish** species (bass, pickerel, perch, sunfish, crappie) caught in any of Maine's inland surface waters; Consumption of cold waters species (trout, salmon, smelt, cusk) should be limited to 1 meal per month. The consumption of older cold water fish (e.g., a large lake trout) should be avoided.
☛ *All other individuals* should limit consumption of warm water species caught in any of Maine's inland surface waters to 2 to 3 meals per month. People who eat large (older) fish are advised to use the lower limit of 2 meals per month. There is no consumption limits for cold water species.

Specific Freshwater Fish Consumption Advisories

In addition to the general statewide advisory due to mercury contamination of fish, other chemicals (PCBs and dioxins) in fish caught in specific waters of the state have been found at levels sufficient to prompt consumption advisories for these waters. The consumption advisories listed below are more restrictive than the statewide mercury advisory for the general population, and may be more stringent than the statewide advisory intended to protect the developing fetus, infant and young child.

ADVISORY AREA		MAXIMUM CONSUMPTION LEVEL	CHEMICALS OF CONCERN
Water Body	SEGMENT	[All Species]	
All Waters	Statewide	**SEE DESCRIPTION ABOVE**	mercury
Androscoggin River	Gilead to Merrymeeting Bay	6 meals per year	PCBs & dioxins
Kennebec River	Madison to Edwards Dam (Augusta)	1 to 2 meals per month*	PCBs & dioxins
	Edwards Dam (Augusta) to The Chops (Bath)	NO CONSUMPTION (freshwater fish only)	PCBs & dioxins
Penobscot River	Below Lincoln	1 to 2 meals per month*	PCBs & dioxins
Salmon Falls River	Below Berwick	6 meals per year	PCBs & dioxins
East Br. Sebasticook R.	Below Corinna	1 meal per month	PCBs & dioxins
West Br. Sebasticook R.	Below Hartland	2 meals per month	PCBs & dioxins
Little Madawaska River and all tributaries	Madawaska Dam to Grimes Mill Road	NO CONSUMPTION	PCBs
Green Pond, Chapman Pit, Greenlaw Brook	All Waters (on former Loring Air Force Base)	NO CONSUMPTION	PCBs
Red Brook	All Waters (Scarborough)	6 meals per year	PCBs

* People who eat large (older) fish are advised to use the lower consumption level, as older fish tend to accumulate PCBs, dioxins, and mercury.

Marine Fish and Shellfish Consumption Advisories

Lobster Tomalley: *Pregnant women, nursing mothers, and women who may become pregnant* should **NOT EAT tomalley** (the green substance found in the body of the lobster). *All others* should limit consumption of lobster tomalley to 1 meal per month. A tomalley meal is eating the tomalley from one lobster.
Striped Bass: *Pregnant women, nursing mothers, women who may become pregnant, and children less than 8 years old,* are advised to limit consumption of striped bass to 1 meal per month. *All others* should limit consumption to 2 to 3 meals per month, with the lower limit applying to those consuming large striped bass.
Bluefish: Consumption of bluefish should be limited to one fish meal per month.

MAINE DEPARTMENT OF HUMAN SERVICES - BUREAU OF HEALTH

1. **What is this handout about?**

- Maine fish are good for you, and good to eat. However, like most states, Maine has some consumption advisories.

- Updated fish consumption advisories are being issued for 1997 by the Maine Bureau of Health. As new data on the amounts of toxic chemicals in fish become available the Bureau of Health reassesses advisories to include the most up-to-date information.

2. **What is new in 1997?**

- Consumption advisories due to **mercury** contamination were first issued in 1994, and applied to consumption of fish from all lakes and ponds. This year, mercury advisories are being modified in two ways. First, separate consumption advisories are being issued for warm water (bass, pickerel, perch, sunfish, crappie) and cold water (trout, salmon, smelt, cusk) fish species (details are listed on the flip side of this handout). Second, consumption advisories are being expanded to include all inland surface waters of the state, including rivers and streams.

- New data on levels of PCBs (suspected cancer causing chemicals) in fish caught in specific waters are prompting the issuance of new and expanded advisories on striped bass, bluefish and certain Maine rivers (details listed on reverse).

- Sampling results show that dioxin levels in fish have declined substantially since the mid-1980s. Some rivers still have levels of dioxin that have prompted fish consumption advisories. In addition, new data on coplanar PCBs must be calculated with dioxin in issuing advisories. Coplanar PCBs are found both above and below industrial discharges on some of Maine's rivers. The exact source of these chemicals is not known (see PCBs below).

3. **Some Background:**

- <u>Why do we care about mercury, where does it come from?</u>
  Mercury causes toxic effects on the nervous system. The unborn child and young children are more susceptible than adults due to their developing nervous systems. Toxic effects of mercury depend on the amount to which you are exposed. Some fish caught in Maine have been found to have levels of mercury that <u>may</u> be harmful to health. Mercury occurs naturally in the environment at low levels. Mercury levels are increased in the environment when mercury is released into the air from coal fired power plants, municipal/medical waste incinerators, and other industrial facilities. There are currently 34 states with mercury advisories.

- <u>Why do we care about PCBs, where do they come from?</u>
  PCBs have been shown to cause cancer in laboratory animals and may cause cancer in humans.
  PCBs were once widely used in electrical transformers. Because these chemicals were used extensively, accidental leaks and spills were likely to occur, and disposal of consumer electronic products into landfills would cause PCBs to be released into the environment. Municipal waste incinerators are also suspected sources of PCBs. There are currently 31 states and the District of Columbia with fish consumption advisories for PCBs.

- <u>How are advisories issued?</u>
  The Maine Department of Environmental Protection (DEP) collects and monitors fish for toxic pollutants throughout the State. The Surface Water Ambient Toxic Monitoring Program (SWAT) allows the DEP to perform these studies. Data are given to the Bureau of Health for consideration of possible health effects if certain amounts of fish are consumed. The advisories are updated as the Bureau of Health receives and assesses the new data and the Maine Departments of Environmental Protection, Inland Fisheries and Wildlife and Marine Resources have been consulted.

- <u>For more information:</u>
  For information concerning the Surface Water Ambient Toxic Monitoring Program call the Maine Department of Environmental Protection, Office of Land and Water Quality at 287-3901. For information concerning fish consumption advisories contact the Maine Department of Human Services, Bureau of Health at 287-6455.

APPENDIX 2

DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997-8

CODES

STATIONS

AGL	ANDROSCOGGIN RIVER AT GILEAD
ARF	ANDROSCOGGIN RIVER AT RUMFORD
ARY	ANDROSCOGGIN RIVER AT RILEY
ALV	ANDROSCOGGIN RIVER AT LIVERMORE FALLS
AGI	ANDROSCOGGIN RIVER AT GULF ISLAND POND, AUBURN
ALS	ANDROSCOGGIN RIVER AT LISBON FALLS
ALW	ANDROSCOGGIN LAKE AT WAYNE
KMD	KENNEBEC RIVER AT MADISON
KNK	KENNEBEC RIVER AT NORRIDGEWOCK
KFF	KENNEBEC RIVER AT SHAWMUT, FAIRFIELD
KSD	KENNEBEC RIVER AT SIDNEY
KAG	KENNEBEC RIVER AT AUGUSTA
PBG	PENOBSCOT RIVER AT GRINDSTONE
PBR	PENOBSCOT RIVER W BR AT EAST MILLINOCKET
PBW	PENOBSCOT RIVER AT WOODVILLE
PBL	PENOBSCOT RIVER AT SOUTH LINCOLN
PBC	PENOBSCOT RIVER AT MILFORD
PBV	PENOBSCOT RIVER AT VEAZIE
PWD	PRESUMPSCOT RIVER AT WINDHAM
PWB	PRESUMPSCOT RIVER AT WESTBROOK
SFA	SALMON FALLS RIVER AT ACTON
SFS	SALMON FALLS RIVER AT SOUTH BERWICK
SEC	SEBASTICOOK RIVER E BR AT CORINNA
SEN	SEBASTICOOK RIVER E BR AT NEWPORT
SWH	SEBASTICOOK RIVER W BR AT HARTLAND
SWP	SEBASTICOOK RIVER W BR AT PALMYRA
SCW	ST CROIX RIVER AT WOODLAND
SCB	ST CROIX RIVER AT BARING

SPECIES

BNT	BROWN TROUT
CHP	CHAIN PICKEREL
LMB	LARGEMOUTH BASS
SMB	SMALLMOUTH BASS
WHP	WHITE PERCH
WHS	WHITE SUCKER

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997 DIOXIN MONITORING PROGRAM											
DEP ID	DL pg/g	AGI-SMB-1 pg/g	AGI-SMB-2 pg/g	AGI-SMB-3 pg/g	AGI-SMB-4 pg/g	AGI-SMB-5 pg/g	AGL-RBT-1 pg/g	AGL-RBT-2 pg/g	AGL-RBT-3 pg/g	AGL-RBT-4 pg/g	AGL-RBT-5 pg/g
Compound											
2378-tcdf	0.11	7.21	8.66	7.39	9.44	10.6	8.37	10.5	8.25	11.3	9.81
12378-pecdf	0.25	4.32	5.10	3.85	3.61	4.87	1.02	1.48	1.06	0.86	0.94
23478-pecdf	0.25	4.32	0.26	0.31	0.32	0.45	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	4.32	0.84	0.66	1.03	0.95	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	4.32	0.39	0.51	0.42	0.39	<DL	<DL	<DL	<DL	<DL
234678-hxcdf	0.25	4.32	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	4.32	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	4.32	0.82	0.47	0.51	0.36	0.45	0.31	0.29	0.44	0.37
1234789-hpcdf	0.5	4.32	0.41	0.62	0.59	0.72	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	4.32	2.09	3.15	2.77	2.06	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.31	0.52	0.54	0.38	0.49	0.62	0.71	0.49	0.58	0.31
12378-pecdd	0.25	<DL	0.25	0.20	0.26	<DL	0.23	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.95	0.82	0.76	1.15	1.06	<DL	<DL	<DL	<DL	<DL
ocdd	0.5	1.21	1.34	1.66	1.08	1.94	<DL	<DL	<DL	<DL	<DL
DTEo		1.6	2.2	2.0	2.1	2.2	1.7	1.8	1.4	1.8	1.3
DTEd		2.0	2.3	2.1	2.2	2.6	2.1	2.4	1.9	2.3	1.9
DTEh		1.8	2.2	2.0	2.2	2.4	1.9	2.1	1.7	2.0	1.6
% Lipids		0.30	0.33	0.46	0.47	0.25	1.06	1.11	1.40	1.21	1.51
Sample weight (g)		49.9	48.9	50.6	50.2	50.5	50.1	49.9	49.2	50.1	49.8
Values less than the established MDLs are to be considered estimated values.											
* = Values are influenced by the presence of diphenyl ethers and are considered maximum concentrations.											
** = DL increased due to sample size											

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	AGL-WHS-1 pg/g	AGL-WHS-2 pg/g	AGL-WHS-3 pg/g	AGL-WHS-4 pg/g	AGL-WHS-5 pg/g	AGL-WHS-6 pg/g	AGL-WHS-7 pg/g	AGL-WHS-8 pg/g	AGL-WHS-9 pg/g	AGL-WHS-10 pg/g
Compound											
2378-tcdf	0.11	15.6	18.2	14.7	16.6	13.9	16.9	15.2	18.3	17.4	16.2
12378-pecdf	0.25	1.82	1.95	3.02	2.66	1.75	2.35	2.04	3.11	2.84	2.17
23478-pecdf	0.25	2.88	2.42	2.06	1.58	1.06	2.33	1.74	2.95	1.66	1.14
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.52	1.06	0.42	0.36	0.24	0.85	1.44	1.14	0.76	1.51
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.61	0.48	0.33	0.51	0.28	0.47	0.60	0.42	0.59	0.34
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	1.23	<DL	0.75	0.51	0.34	<DL	<DL	0.62	1.17	<DL
2378-tcdd	0.10	0.51	0.72	0.66	0.49	0.32	0.41	0.69	0.23	0.71	0.52
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdd	0.5	0.85	1.21	0.96	1.02	0.71	0.53	0.31	1.28	0.85	0.66
DTEo		3.7	4.0	3.4	3.1	2.4	3.5	3.3	3.8	3.5	3.0
DTEd		4.1	4.4	3.8	4.2	2.8	3.9	3.7	4.2	3.9	3.4
DTEh		3.9	4.2	3.6	3.6	2.6	3.7	3.5	4.0	3.7	3.2
% Lipids		6.03	7.49	6.15	9.98	7.87	7.63	10.9	7.03	4.38	8.76
Sample weight (g)		49.3	50.1	49.1	49.9	49.3	50.7	50.1	51.0	50.3	50.3
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	ALS-SMB-01 pg/g	ALS-SMB-02 pg/g	ALS-SMB-03 pg/g	ALS-SMB-04 pg/g	ALS-SMB-05 pg/g	ARF-SMB-1 pg/g	ARF-SMB-2 pg/g	ARF-SMB-3 pg/g	ARF-SMB-4 pg/g	ARF-SMB-5 pg/g
Compound											
2378-tcdf	0.11	3.62	4.11	5.28	4.05	3.18	4.33	5.10	3.95	3.42	4.05
12378-pecdf	0.25	0.62	0.48	0.33	0.51	0.29	0.38	0.62	0.41	0.26	0.31
23478-pecdf	0.25	0.48	0.41	0.39	0.52	0.41	0.63	0.48	0.71	0.39	0.28
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.26	0.33	0.27	0.21	0.19	0.26	0.31	0.18	0.33	0.42
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.77	0.82	0.61	0.43	0.55	0.63*	0.71*	0.52	0.48	0.81*
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.62	0.59	0.48	0.70	0.66	0.52	0.41	0.60	0.44	0.58
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdd	0.5	4.23	6.65	2.89	3.66	4.70	2.67	3.99	4.57	4.06	3.85
DTEo		1.3	1.3	1.3	1.4	1.2	1.3	1.2	1.4	1.0	1.2
DTEd		1.7	1.7	1.7	1.8	1.9	1.7	1.6	1.8	1.4	2.3
DTEh		1.5	1.5	1.5	1.6	1.6	1.5	1.4	1.6	1.2	1.8
% Lipids		0.27	0.45	0.23	0.89	0.40	0.40	0.41	0.36	0.27	0.28
Sample weight (g)		49.9	49.8	50.2	49.6	49.8	49.7	50.3	50.1	49.9	49.2
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	ARF-WHS-1 pg/g	ARF-WHS-2 pg/g	ARF-WHS-3 pg/g	ARF-WHS-4 pg/g	ARF-WHS-5 pg/g	ARF-WHS-6 pg/g	ARF-WHS-7 pg/g	ARF-WHS-8 pg/g	ARF-WHS-9 pg/g	ARF-WHS-10 pg/g
Compound											
2378-tcdf	0.11	14.6	15.1	14.0	12.6	16.1	13.9	17.8	15.4	14.9	16.6
12378-pecdf	0.25	0.95	1.26	1.14	1.66	0.87	0.76	0.91	1.26	1.44	1.02
23478-pecdf	0.25	2.85	3.61	2.74	3.06	3.39	2.55	2.19	3.08	2.86	4.10
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.95*	1.06*	0.77*	0.50	0.62	0.84*	0.42	0.39	1.06*	1.61*
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.62	0.71	0.48	0.59	0.51	0.77	0.81	0.36	0.42	0.67
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	0.66	<DL	0.48	0.36	<DL	<DL	0.47	0.61	<DL
2378-tcdd	0.10	0.61	0.51	0.48	0.66	0.73	0.42	0.59	0.33	0.31	0.52
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	<DL	<DL	0.48	0.36	<DL	0.28	0.46	<DL	0.33	0.49
ocdd	0.5	0.96	1.12	0.75	0.80	1.03	1.51	2.06	1.14	0.33	0.81
DTEo		3.6	3.9	3.3	3.6	4.2	3.1	3.6	3.5	3.3	4.3
DTEd		4.7	5.2	4.6	4.6	5.1	4.5	4.7	4.9	4.8	5.6
DTEh		4.1	4.6	4.0	4.1	4.6	3.8	4.1	4.2	4.1	5.0
% Lipids		12.3	8.33	8.47	11.3	14.3	8.35	9.06	11.8	9.07	11.9
Sample weight (g)		50.1	50.4	50.6	51.1	50.6	49.3	49.5	49.5	50.7	50.7
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	ARY-SMB-1 pg/g	ARY-SMB-2 pg/g	ARY-SMB-3 pg/g	ARY-SMB-4 pg/g	ARY-SMB-5 pg/g	ARY-WHS-1 pg/g	ARY-WHS-2 pg/g	ARY-WHS-3 pg/g	ARY-WHS-4 pg/g	ARY-WHS-5 pg/g
Compound											
2378-tcdf	0.11	2.06	2.9	1.84	2.33	1.96	16.3	18.7	20.3	15.2	13.4
12378-pecdf	0.25	<DL	<DL	<DL	0.18	0.21	0.32	0.66	0.95	0.84	0.38
23478-pecdf	0.25	0.36	0.48	0.51	0.59	0.42	2.34	1.96	3.08	2.66	2.04
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	0.21	0.33	<DL	<DL
123678-hxcdf	0.25	0.25	0.18	0.24	0.17	0.23	0.51	0.42	0.31	0.60	0.48
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.47	0.51	0.42	0.33	0.49	0.61	0.70	1.06*	0.88	0.61
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	0.52	1.06	0.43	<DL
2378-tcdd	0.10	0.32	0.27	0.31	0.40	0.32	0.61	0.48	0.72	0.35	0.41
12378-pecdd	0.25	0.20	0.29	0.24	0.30	0.26	0.34	0.51	0.48	0.29	0.60
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	<DL	<DL	<DL	<DL	<DL	0.36	0.42	0.51	0.49	0.26
ocdd	0.5	0.42	0.61	0.32	0.48	0.55	1.01	0.78	1.91	1.31	1.61
DTEo		0.9	1.1	1.0	1.3	1.0	3.8	4.0	4.9	3.6	3.5
DTEd		2.1	2.3	2.2	2.3	2.2	4.7	4.9	5.6	4.7	4.5
DTEh		1.5	1.7	1.6	1.8	1.6	4.3	4.4	5.3	4.2	4.0
% Lipids		0.20	0.39	0.52	0.59	0.79	8.18	9.21	11.2	9.02	8.30
Sample weight (g)		50.2	49.8	49.8	50.2	50.0	52.3	50.5	49.8	50.6	51.5
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	ARY-WHS-6 pg/g	ARY-WHS-7 pg/g	ARY-WHS-8 pg/g	ARY-WHS-9 pg/g	ARY-WHS-10 pg/g	ALV-WHS-01 pg/g	ALV-WHS-02 pg/g	ALV-WHS-03 pg/g	ALV-WHS-04 pg/g	ALV-WHS-05 pg/g
Compound											
2378-tcdf	0.11	16.6	17.0	14.6	15.8	17.9	9.81	11.2	10.5	11.3	8.35
12378-pecdf	0.25	0.61	0.72	0.46	0.31	0.52	0.51	<DL	<DL	0.64	0.33
23478-pecdf	0.25	1.87	2.26	2.48	1.95	2.78	0.67	0.51	0.96	1.05	0.86
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	0.32	0.41	0.75	0.68	<DL
123678-hxcdf	0.25	0.57	0.49	0.32	0.26	0.50	0.61	0.31	0.54	0.47	0.33
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	0.51	0.44	0.31	0.52	0.48
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	0.26	0.51	0.43	0.68	0.21
1234678-hpcdf	0.5	0.47	0.73	0.52	0.49	0.61	0.68	1.35*	0.47	1.02*	0.71
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.49	<DL
ocdf	0.5	<DL	0.62	<DL	<DL	0.83	3.65	1.51	2.08	2.41	0.96
2378-tcdd	0.10	0.66	0.29	0.42	0.50	0.33	0.82	0.62	0.44	0.58	0.26
12378-pecdd	0.25	0.53	0.21	0.45	0.63	0.41	0.24	0.31	0.48	0.71	0.96
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	0.96	0.74	1.05	1.62	0.55
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	0.65	0.81	0.35	<DL	0.28
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	0.38	<DL	<DL	0.21	0.33
1234678-hpcdd	0.5	<DL	0.40	0.29	0.31	0.44	0.51	0.85	0.91	1.02	0.45
ocdd	0.5	0.85	1.38	1.22	1.08	0.96	1.65	2.31	0.95	1.45	1.08
DTEo		3.9	3.4	3.6	3.7	4.0	2.8	2.6	2.8	3.4	2.7
DTEd		4.7	4.6	4.7	4.7	5.1	2.8	2.7	2.9	3.4	2.8
DTEh		4.3	4.0	4.2	4.2	4.6	2.8	2.7	2.8	3.4	2.7
% Lipids		8.85	12.2	8.40	8.52	6.04	5.01	4.78	5.90	6.16	2.98
Sample weight (g)		51.1	50.8	50.0	53.2	53.9	49.5	50.8	50.9	52.8	51.3
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	ALV-WHS-06 pg/g	ALV-WHS-07 pg/g	ALV-WHS-08 pg/g	ALV-WHS-09 pg/g	ALV-WHS-10 pg/g	ALV-SMB-01 pg/g	ALV-SMB-02 pg/g	ALV-SMB-03 pg/g	ALV-SMB-04 pg/g	ALV-SMB-05 pg/g
Compound											
2378-tcdf	0.11	6.29	10.1	7.33	12.6	9.60	3.51	2.48	3.33	2.21	3.05
12378-pecdf	0.25	<DL	0.41	<DL	0.86	0.43	<DL	<DL	0.35	<DL	<DL
23478-pecdf	0.25	0.45	0.71	0.63	1.25	0.96	0.26	0.41	0.75	0.58	0.62
123478-hxcdf	0.25	<DL	0.31	0.21	0.88	0.61	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL	0.71	<DL	0.55	0.37	<DL	<DL	<DL	<DL	<DL
234678-hxcdf	0.25	0.61	0.26	0.47	0.88	0.50	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	0.35	0.48	<DL	0.57	0.44	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.63	0.52	0.41	1.68*	0.85*	<DL	<DL	<DL	<DL	<DL
1234789-hpcdf	0.5	<DL	<DL	<DL	0.61	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	1.66	2.85	1.05	2.69	1.43	<DL	0.42	<DL	0.35	0.55
2378-tcdd	0.10	0.31	0.38	0.24	0.77	0.46	0.21	0.18	0.48	0.36	0.24
12378-pecdd	0.25	0.44	0.61	0.31	1.06	0.71	0.18	0.25	0.51	0.29	0.33
123478-hxcdd	0.25	<DL	0.63	<DL	2.25	0.34	0.35	0.51	0.66	0.17	0.41
123678-hxcdd	0.25	0.45	0.61	<DL	0.79	0.26	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	0.44	<DL	0.85	0.46	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.31	<DL	<DL	2.15	0.65	<DL	<DL	<DL	<DL	<DL
ocdd	0.5	0.99	0.65	1.52	3.66	2.11	0.35	0.28	0.77	0.41	0.67
DTEo		1.8	2.7	1.7	4.5	2.9	0.9	0.9	1.8	1.2	1.2
DTEd		2.3	2.7	1.8	4.5	3.0	1.1	1.1	2.0	1.4	1.4
DTEh		2.0	2.7	1.7	4.5	2.9	1.0	1.0	1.9	1.3	1.3
% Lipids		2.94	3.29	2.79	9.84	3.26	0.26	0.30	1.44	0.24	0.38
Sample weight (g)		49.7	50.6	50.5	49.8	51.0	50.6	50.6	50.5	50.2	49.7
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	KAG-BNT-01 pg/g	KAG-BNT-02 pg/g	KAG-BNT-03 pg/g	KAG-BNT-04 pg/g	KAG-SMB-01 pg/g	KAG-SMB-02 pg/g	KAG-SMB-03 pg/g	KAG-SMB-04 pg/g	KAG-SMB-05 pg/g	KFF-BNT-01 pg/g
Compound											
2378-tcdf	0.11	1.36	1.68	2.35	1.21	0.96	0.82	1.06	1.15	0.87	1.14
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.50)	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.50)	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.50)	<DL	<DL
123678-hxcdf	0.25	<DL	0.31	0.20	0.25	0.35	0.20	0.26	0.41	0.52	0.21
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.50)	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.50)	<DL	<DL
1234678-hpcdf	0.5	0.21	0.31	0.42	0.28	0.18	<DL	0.24	<DL(1.0)	0.36	0.61
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(1.0)	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(1.0)	<DL	<DL
2378-tcdd	0.10	0.40	0.81	0.63	0.57	0.32	0.54	0.46	0.58	0.65	1.23
12378-pecdd	0.25	0.14	0.25	0.18	0.20	<DL	0.15	0.30	<DL(0.50)	0.24	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.50)	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.50)	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(1.0)	<DL	<DL
1234678-hpcdd	0.5	0.31	0.52	0.61	0.57	0.30	0.25	0.41	0.39	0.21	0.35
ocdd	0.5	0.68	1.02	0.96	0.74	0.75	1.98	1.17	0.85	2.25	1.83
DTEo		0.7	1.3	1.1	0.9	0.5	0.8	0.9	0.7	1.0	1.4
DTEd		1.0	1.6	1.4	1.2	1.0	1.1	1.2	3.4	1.3	1.9
DTEh		0.8	1.4	1.2	1.1	0.7	0.9	1.0	2.1	1.2	1.6
% Lipids		2.46	3.81	3.15	3.02	2.13	2.63	2.42	1.81	2.99	3.35
Sample weight (g)		49.6	49.2	49.6	49.8	50.1	50.3	49.8	26.3	50.4	50.4
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	KFF-BNT-02 pg/g	KFF-BNT-03 pg/g	KFF-BNT-04 pg/g	KFF-BNT-05 pg/g	KFF-SMB-01 pg/g	KFF-SMB-02 pg/g	KFF-SMB-03 pg/g	KFF-SMB-04 pg/g	KFF-SMB-05 pg/g	KFF-WHS-01 pg/g
Compound											
2378-tcdf	0.11	1.23	0.95	0.86	1.06	0.95	0.61	0.45	0.35	0.48	3.50
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.36
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.24	<DL	<DL	0.18	0.31	<DL	<DL	<DL	<DL	0.51
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.42
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.85	0.42	0.50	0.69	0.82*	0.51	0.42	0.33	0.49	0.43
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	1.41	1.06	1.11	0.98	0.62	0.45	0.36	0.51	0.93	1.65
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.14	0.21
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.51	0.24	0.18	0.36	0.52	0.38	0.26	0.31	0.55	0.69
ocdd	0.5	2.26	1.28	0.87	1.65	2.06	0.85	0.61	0.96	1.06	3.55
DTEo		1.6	1.2	1.2	1.1	0.8	0.5	0.4	0.6	1.0	2.3
DTEd		2.1	1.9	1.8	1.7	1.3	1.1	1.0	1.1	1.5	2.7
DTEh		1.8	1.5	1.5	1.4	1.0	0.8	0.7	0.8	1.3	2.5
% Lipids		3.63	3.42	1.11	2.04	2.36	0.21	0.29	0.09	0.37	11.9
Sample weight (g)		50.3	50.0	49.9	49.5	51.1	49.7	50.2	45.2	49.8	49.5
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	KFF-WHS-02 pg/g	KFF-WHS-03 pg/g	KFF-WHS-04 pg/g	KFF-WHS-05 pg/g	KFF-WHS-06 pg/g	KFF-WHS-07 pg/g	KFF-WHS-08 pg/g	KFF-WHS-09 pg/g	KFF-WHS-10 pg/g	KMD-SMB-01 pg/g
Compound											
2378-tcdf	0.11	2.75	1.66	1.87	2.68	1.94	2.15	3.06	2.57	4.85	0.21
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.75)
23478-pecdf	0.25	0.25	0.14	0.26	0.20	<DL	<DL	0.32	0.24	0.41	<DL(0.75)
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.75)
123678-hxcdf	0.25	0.36	0.21	0.29	0.42	0.15	<DL	0.21	0.37	0.61	0.18
234678-hxcdf	0.25	0.45	0.37	0.18	0.22	<DL	<DL	0.30	0.41	0.55	<DL(0.75)
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.75)
1234678-hpcdf	0.5	0.37	0.27	0.33	0.41	0.11	0.26	0.39	0.27	0.51	0.26
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(1.5)
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(1.5)
2378-tcdd	0.10	1.42	0.75	1.06	1.56	0.95	0.74	1.03	1.13	2.05	<DL(0.30)
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.75)
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.75)
123678-hxcdd	0.25	0.15	<DL	0.33	0.41	0.25	0.16	0.31	0.28	0.39	<DL(0.75)
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.75)
1234678-hpcdd	0.5	0.47	0.35	0.59	0.41	0.62	0.50	0.74	0.41	0.88	0.31
ocdd	0.5	3.07	1.16	2.75	2.81	1.74	1.25	2.06	2.26	3.95	0.75
DTEo		1.9	1.1	1.5	2.0	1.2	1.0	1.6	1.6	2.9	0.0
DTEd		2.3	1.4	1.9	2.4	1.7	1.5	2.0	2.0	3.3	2.0
DTEh		2.1	1.2	1.7	2.2	1.5	1.3	1.8	1.8	3.1	1.0
% Lipids		11.8	3.34	9.26	10.3	9.46	7.38	6.92	8.77	12.7	0.81
Sample weight (g)		49.3	49.9	49.6	52.7	50.2	49.4	50.0	50.3	50.1	16.0
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997 DIOXIN MONITOR											
DEP ID	DL	KMD-SMB-02	KMD-SMB-03	KMD-SMB-04	KMD-SMB-05	KMD-WHS-01	KMD-WHS-03	KMD-WHS-04	KMD-WHS-05	KMD-WHS-06	KMD-WHS-07
	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g
Compound											
2378-tcdf	0.11	0.15	0.11	0.16	0.23	0.87	0.61	0.48	0.52	0.38	0.41
12378-pecdf	0.25	<DL(1.25)	<DL(0.50)	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL(1.25)	<DL(0.50)	<DL	<DL	0.24	0.15	<DL	0.30	<DL	0.24
123478-hxcdf	0.25	<DL(1.25)	<DL(0.50)	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL(1.25)	<DL(0.50)	0.11	0.20	0.23	0.12	<DL	0.17	<DL	0.21
234678-hxcdf	0.25	<DL(1.25)	<DL(0.50)	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL(1.25)	<DL(0.50)	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.30	0.17	0.21	0.28	0.51	0.73	0.55	0.62	0.24	0.33
1234789-hpcdf	0.5	<DL(2.5)	<DL(1.0)	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL(2.5)	<DL(1.0)	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL(0.50)	<DL(0.20)	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL(1.25)	<DL(0.50)	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL(1.25)	<DL(0.50)	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL(1.25)	<DL(0.50)	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL(1.25)	<DL(0.50)	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.25	0.36	0.21	0.40	0.28	0.59	0.36	0.20	0.14	0.29
ocdd	0.5	0.98	1.06	0.82	0.91	0.86	1.31	0.92	0.75	0.63	0.77
DTEo		0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.0	0.2
DTEd		3.4	1.4	0.7	0.7	0.8	0.7	0.7	0.7	0.7	0.7
DTEh		1.7	0.7	0.4	0.4	0.5	0.4	0.4	0.5	0.4	0.5
% Lipids		0.51	0.96	1.60	0.41	4.00	9.51	6.82	5.16	1.57	4.26
Sample weight (g)		9.90	23.3	49.9	49.9	50.3	49.9	50.1	50.3	49.8	50.2
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	KMD-WHS-08 pg/g	KMD-WHS-09 pg/g	KMD-WHS-10 pg/g	KSD-SMB-01 pg/g	KSD-SMB-02 pg/g	KSD-SMB-03 pg/g	KSD-SMB-04 pg/g	KSD-SMB-05 pg/g	PBC-SMB-01 pg/g	PBC-SMB-02 pg/g
Compound											
2378-tcdf	0.11	0.73	0.35	0.76	1.06	0.94	0.77	1.75	1.15	0.95	1.23
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.40)	<DL	<DL
23478-pecdf	0.25	0.18	<DL	0.33	<DL	<DL	<DL	0.19	<DL(0.40)	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.40)	<DL	<DL
123678-hxcdf	0.25	0.26	<DL	0.24	0.15	0.21	0.17	0.35	0.26	<DL	0.31
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.40)	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.40)	<DL	<DL
1234678-hpcdf	0.5	0.40	0.15	0.36	0.21	0.26	0.11	0.29	0.34	0.52*	0.61*
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.80)	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.80)	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	0.15	0.11	0.09	0.24	0.19	0.18	0.16
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.40)	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.40)	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.40)	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL(0.40)	<DL	<DL
1234678-hpcdd	0.5	0.31	<DL	0.44	0.31	0.22	0.18	0.38	0.29	<DL	<DL
ocdd	0.5	1.03	0.85	1.65	1.01	0.75	0.66	1.21	0.85	1.63	1.44
DTEo		0.2	0.0	0.3	0.3	0.2	0.2	0.6	0.3	0.3	0.3
DTEd		0.7	0.7	0.8	0.8	0.8	0.7	1.0	1.2	0.9	0.9
DTEh		0.5	0.4	0.5	0.6	0.5	0.5	0.8	0.8	0.6	0.6
% Lipids		4.04	1.97	5.24	0.39	0.26	0.21	0.65	0.67	0.28	0.84
Sample weight (g)		50.1	50.0	49.8	50.2	50.5	50.0	50.3	31.3	49.7	50.6
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	PBC-SMB-03 pg/g	PBC-SMB-04 pg/g	PBC-SMB-05 pg/g	PBC-WHS-01 pg/g	PBC-WHS-02 pg/g	PBC-WHS-03 pg/g	PBC-WHS-04 pg/g	PBC-WHS-05 pg/g	PBC-WHS-06 pg/g	PBC-WHS-07 pg/g
Compound											
2378-tcdf	0.11	1.85	1.66	1.51	4.91	5.32	6.10	4.22	3.69	5.71	6.37
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.24	0.19	<DL	0.31	0.26	0.30	<DL	<DL	0.28	0.33
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.48	0.41	0.50	0.61	0.72	0.48	0.35	0.31	0.47	0.52
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.31	0.24	0.18	1.31	0.95	0.95	0.86	1.05	0.83	0.92
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	0.48	0.57	0.47	0.35	0.51	0.30	0.62
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	<DL	<DL	<DL	0.95	0.88	1.21	1.05	0.96	0.74	1.33
ocdd	0.5	1.05	0.96	1.17	2.96	3.05	3.22	2.75	2.55	2.06	2.85
DTEo		0.4	0.4	0.3	1.9	1.6	1.7	1.3	1.5	1.5	1.6
DTEd		1.1	1.0	0.9	2.4	2.1	2.2	1.9	1.1	2.0	2.2
DTEh		0.8	0.7	0.6	2.2	1.8	1.9	1.6	1.3	1.7	1.9
% Lipids		0.94	1.01	0.66	3.95	3.00	5.27	4.54	4.43	3.91	6.13
Sample weight (g)		50.1	50.2	49.9	50.3	50.0	50.1	49.8	50.2	50.3	50.3
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	PBC-WHS-08 pg/g	PBC-WHS-09 pg/g	PBC-WHS-10 pg/g	PBV-SMB-01 pg/g	PBV-SMB-02 pg/g	PBV-SMB-03 pg/g	PBV-SMB-04 pg/g	PBV-SMB-05 pg/g	PBV-WHS-01 pg/g	PBV-WHS-02 pg/g
Compound											
2378-tcdf	0.11	3.22	2.89	4.01	0.53	0.68	0.85	0.72	0.61	3.81	2.96
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL	<DL	0.18	0.53	0.31	0.48	0.35	0.28	0.51	0.36
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.22	<DL	0.48	0.48	0.61	0.32	0.52	0.49	0.66	0.58
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	1.04	1.63	0.85	0.28	0.31	0.42	0.17	0.49	0.49	0.86
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	0.71	0.49	0.51	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	1.51	0.94	1.07	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdd	0.5	3.06	1.98	2.51	0.95	0.88	1.32	1.05	1.24	0.61	1.45
DTEo		1.5	2.0	1.3	0.4	0.4	0.6	0.3	0.3	0.9	1.2
DTEd		2.0	2.0	1.9	0.9	1.0	1.1	0.8	0.9	1.5	1.8
DTEh		1.7	2.0	1.6	0.7	0.7	0.8	0.6	0.6	1.2	1.5
% Lipids		6.33	4.68	5.23	0.61	1.31	0.37	0.47	1.46	4.61	5.32
Sample weight (g)		50.1	49.9	50.0	50.6	50.1	49.5	50.4	50.1	50.2	50.0
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997 DIOXIN MONITOR										
DEP ID	DL pg/g	PBV-WHS-03 pg/g	PBV-WHS-04 pg/g	PBV-WHS-05 pg/g	PBV-WHS-06 pg/g	PBV-WHS-07 pg/g	PBV-WHS-08 pg/g	PBV-WHS-09 pg/g	PBV-WHS-10 pg/g	PBW-SMB-01 pg/g
Compound										
2378-tcdf	0.11	2.67	1.84	2.06	1.42	1.08	1.33	2.04	1.67	0.21
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.32	0.51	0.47	0.36	0.28	0.41	0.21	0.33	0.24
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.61	0.47	0.39	0.50	0.47	0.61	0.72	0.49	<DL
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.95	1.08	0.97	1.21	1.36	0.94	1.62	1.30	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	<DL	0.32	0.41	0.22	0.31	0.47	<DL	<DL	<DL
ocdd	0.5	2.06	0.69	0.79	1.23	0.88	1.64	1.27	0.91	0.48
DTEo		1.3	1.3	1.2	1.4	1.5	1.1	1.9	1.5	0.1
DTEd		1.8	1.9	1.8	1.9	2.1	1.7	2.4	2.1	0.7
DTEh		1.5	1.6	1.5	1.7	1.8	1.4	2.1	1.8	0.4
% Lipids		6.04	3.9	4.76	4.64	5.34	3.13	5.78	5.65	0.29
Sample weight (g)		49.5	50.3	50.6	50.5	50.0	48.8	49.6	50.2	50.4
Values less than the esta										
* = Values are influenced										
** = DL increased due to										

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	PBW-SMB-02 pg/g	PBW-SMB-03 pg/g	PBW-SMB-04 pg/g	PBW-SMB-05 pg/g	PBW-WHS-01 pg/g	PBW-WHS-02 pg/g	PBW-WHS-03 pg/g	PBW-WHS-04 pg/g	PBW-WHS-05 pg/g	PBW-WHS-06 pg/g
Compound											
2378-tcdf	0.11	0.18	0.22	0.38	0.26	0.36	0.58	0.49	0.41	0.31	0.52
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	0.51	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.35	0.19	0.28	0.17	0.32	0.44	0.41	0.26	0.22	0.32
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.48	0.42	<DL	0.37	0.61	0.48	0.55	0.41	0.58	0.36
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	<DL	<DL	<DL	<DL	0.49	0.51	0.38	0.54	0.42	0.61
ocdd	0.5	0.56	0.35	0.44	0.61	1.03	1.15	0.98	1.22	1.87	1.30
DTEo		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
DTEd		0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.7
DTEh		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
% Lipids		0.44	1.36	0.92	1.09	1.07	2.49	2.06	2.79	3.09	3.31
Sample weight (g)		49.7	50.2	49.9	50.1	50.1	50.6	50.2	49.8	50.6	49.6
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	PBW-WHS-07 pg/g	PBW-WHS-08 pg/g	PBW-WHS-09 pg/g	PBW-WHS-10 pg/g	PBL-SMB-01 pg/g	PBL-SMB-02 pg/g	PBL-SMB-03 pg/g	PBL-SMB-04 pg/g	PBL-SMB-05 pg/g	PBL-WHS-01 pg/g
Compound					0.47						
2378-tcdf	0.11	0.60	0.47	0.39	0.55	0.95	1.25	1.86	2.07	1.48	4.82
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.38	0.51	0.46	0.38	0.24	0.31	0.18	0.29	0.25	0.41
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.61	0.47	0.56	0.50	0.51	0.35	0.48	0.56	0.24	0.78
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	0.24	0.18	0.27	0.33	0.16	1.12
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.48
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.49	0.72	0.58	0.63	<DL	<DL	<DL	<DL	<DL	0.86
ocdd	0.5	1.08	1.24	1.17	1.00	1.95	1.66	1.74	2.06	1.55	3.06
DTEo		0.1	0.1	0.1	0.1	0.4	0.3	0.5	0.6	0.3	1.7
DTEd		0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.1	0.9	2.2
DTEh		0.4	0.4	0.4	0.4	0.6	0.6	0.8	0.8	0.6	2.0
% Lipids		2.32	1.77	0.67	1.91	1.00	0.47	0.46	0.60	0.73	9.05
Sample weight (g)		50.4	49.9	50.1	51.0	50.5	49.5	50.3	50.7	50.0	49.7
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	PBL-WHS-02 pg/g	PBL-WHS-03 pg/g	PBL-WHS-04 pg/g	PBL-WHS-05 pg/g	PBL-WHS-06 pg/g	PBL-WHS-07 pg/g	PBL-WHS-08 pg/g	PBL-WHS-09 pg/g	PBL-WHS-10 pg/g	PBG-SMB-01 pg/g
Compound											
2378-tcdf	0.11	5.71	3.66	4.02	3.26	2.89	3.78	4.45	3.08	3.25	0.19
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.25	0.30	0.24	0.16	0.28	0.33	0.41	0.25	0.17	0.23
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.48	1.35*	0.62	0.55	0.42	0.32	0.58	0.66	0.47	0.26
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	1.47	0.96	1.30	1.51	0.97	1.09	1.24	0.86	1.14	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	0.35	0.61	0.52	0.44	0.35	0.48	0.26	0.18	0.31	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	1.21	1.09	1.16	0.97	1.29	1.07	0.79	0.96	1.21	<DL
ocdd	0.5	2.88	3.15	2.41	2.69	3.05	2.66	2.09	3.41	2.88	0.55
DTEo		2.1	1.4	1.8	1.9	1.3	1.6	1.8	1.2	1.5	0.0
DTEd		2.6	2.0	2.3	2.4	1.9	2.1	2.3	1.8	2.1	0.7
DTEh		2.4	1.7	2.1	2.2	1.6	1.8	2.0	1.5	1.8	0.4
% Lipids		7.42	7.73	11.3	5.98	8.91	10.9	10.1	11.1	9.70	1.26
Sample weight (g)		49.6	49.7	49.4	51.2	50.3	50.0	50.3	51.0	50.8	49.8
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	PBG-SMB-02 pg/g	PBG-SMB-03 pg/g	PBG-SMB-04 pg/g	PBG-SMB-05 pg/g	PBG-WHS-01 pg/g	PBG-WHS-02 pg/g	PBG-WHS-03 pg/g	PBG-WHS-04 pg/g	PBG-WHS-05 pg/g	PBG-WHS-06 pg/g
Compound											
2378-tcdf	0.11	0.14	0.21	0.16	0.25	0.41	0.33	0.54	0.39	0.42	0.47
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.16	0.20	0.13	0.16	0.24	0.19	0.23	0.14	0.26	0.17
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.17	0.18	0.14	0.21	0.25	0.24	0.48	0.31	0.42	0.38
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	<DL	<DL	<DL	<DL	0.51	0.38	0.58	0.25	0.36	0.27
ocdd	0.5	0.42	0.49	0.31	0.62	1.32	1.01	1.47	0.99	1.22	1.06
DTEo		0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
DTEd		0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
DTEh		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
% Lipids		0.70	1.01	0.55	1.43	5.86	3.77	8.72	3.84	5.00	4.13
Sample weight (g)		40.9	50.1	49.3	49.5	49.6	49.9	49.9	49.8	50.1	50.0
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

1997 DIOXIN MONITOR											
DEP ID	DL pg/g	PBG-WHS-07 pg/g	PBG-WHS-08 pg/g	PBG-WHS-09 pg/g	PBG-WHS-10 pg/g	PBR-SMB-01 pg/g	PBR-SMB-02 pg/g	PBR-SMB-03 pg/g	PBR-SMB-04 pg/g	PBR-SMB-05 pg/g	PBR-WHS-01 pg/g
Compound											
2378-tcdf	0.11	0.56	0.37	0.28	0.41	0.18	0.15	0.16	0.12	0.17	0.41
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.30	0.16	0.12	0.19	0.22	0.29	0.14	0.21	0.16	0.41
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.47	0.29	0.33	0.27	0.25	0.31	0.14	0.22	0.21	0.18
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.40	0.39	0.32	0.29	<DL	<DL	<DL	<DL	<DL	0.35
ocdd	0.5	1.39	1.26	1.14	0.88	0.61	0.72	0.45	0.57	0.63	1.12
DTEo		0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
DTEd		0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
DTEh		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
% Lipids		5.49	4.42	4.41	4.01	0.86	0.63	0.36	0.35	0.33	5.71
Sample weight (g)		50.4	49.7	49.7	49.4	49.8	50.2	49.5	47.5	49.6	50.3
Values less than the esta											
* = Values are influenced											
** = DL increased due to											

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1997 DIOXIN MONITOR										
DEP ID	DL pg/g	PBR-WHS-02 pg/g	PBR-WHS-03 pg/g	PBR-WHS-04 pg/g	PBR-WHS-05 pg/g	PBR-WHS-06 pg/g	PBR-WHS-07 pg/g	PBR-WHS-08 pg/g	PBR-WHS-09 pg/g	PBR-WHS-10 pg/g
Compound										
2378-tcdf	0.11	0.52	0.46	0.39	0.42	0.36	0.32	0.47	0.55	0.68
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.27	0.38	0.29	0.31	0.26	0.40	0.38	0.41	0.51
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.31	0.42	0.58	0.51	0.47	0.32	0.41	0.39	0.51
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.64	0.58	0.74	0.46	0.32	0.25	0.47	0.32	0.66
ocdd	0.5	1.54	1.66	1.24	1.37	1.09	1.15	1.21	1.42	1.67
DTEo		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
DTEd		0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8
DTEh		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
% Lipids		10.2	9.45	11.1	10.9	9.59	7.26	9.39	8.61	14.4
Sample weight (g)		50.9	50.9	49.4	49.7	49.8	49.6	48.6	49.6	49.6
Values less than the esta										
* = Values are influenced										
** = DL increased due to										

1997 DMP										
DEP ID WRI ID	DL pg/g	PWB-SMB-01 97-1060	PWB-SMB-02 97-1061	PWB-SMB-03 97-1062	PWB-SMB-04 97-1063	PWB-WHS-01 97-1064	PWB-WHS-02 97-1065	PWB-WHS-03 97-1066	PWB-WHS-04 97-1067	PWB-WHS-05 97-1068
Compound										
2378-tcdf	0.11	1.98	1.25	2.36	1.11	6.84	7.31	10.2	7.89	5.32
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	0.21	0.35	0.18	0.41	1.03	1.41	0.85	0.66	0.75
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.24	0.18	0.17	0.15	0.33	0.41	0.85	0.21	0.18
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.51	0.62	0.35	0.47	0.62	0.41	0.71	0.38	0.46
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.14	0.07	0.12	0.11	0.26	0.31	0.17	0.15	0.22
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.24	0.34	0.38	0.14	0.78	1.06	1.15	0.64	0.24
ocdd	0.5	0.61	0.42	0.74	0.33	2.31	1.97	1.44	1.65	1.03
TEQo		0.475	0.398	0.470	0.447	1.51	1.81	1.72	1.30	1.15
TEQd		0.892	0.815	0.888	0.865	1.92	2.22	2.14	1.72	1.57
TEQh										
% Lipids		0.62	0.28	0.71	0.27	10.5	10.7	9.18	8.82	6.51
Sample weight (g)		50.1	49.8	50.0	51.0	50.2	49.6	50.0	49.9	49.9
Values less than the est										
* = Values are influenced by the presence of diphenyl ethers and are considered maximum concentrations.										
** = DL increased due to										

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH 1997-8

1997 DMP										
DEP ID WRI ID	DL pg/g	PWB-WHS-06 97-1069	PWB-WHS-07 97-1070	PWB-WHS-08 97-1071	PWD-SMB-01 97-154	PWD-SMB-02 97-155	PWD-SMB-03 97-156	PWD-SMB-04 97-157	PWD-SMB-05 97-158	PWD-WHS-01 97-676
Compound										
2378-tcdf	0.11	6.21	11.6	4.88	0.95	1.15	1.85	1.41	0.86	3.41
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	1.21	1.54	0.87	0.18	0.24	0.21	0.29	0.14	0.52
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.30	0.75	0.61	0.28	0.18	0.35	0.27	0.16	0.79
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.50	0.38	0.25	0.53	0.46	0.37	0.48	0.56	0.75
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.14	0.36	0.20	<DL	<DL	<DL	<DL	<DL	0.33
12378-pecdd	0.25	<DL	<DL	<DL	0.18	0.20	0.14	0.19	0.22	0.41
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	0.35	0.41	0.20	0.27	0.19	1.22
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.45	1.44	0.87	0.36	0.41	0.38	0.26	0.39	0.82
ocdd	0.5	1.27	2.88	1.64	1.2	1.06	0.84	0.75	0.91	2.33
TEQo		1.41	2.38	1.19	0.437	0.503	0.493	0.537	0.421	1.56
TEQd		1.82	2.80	1.61	0.680	0.745	0.735	0.780	0.663	1.70
TEQh										
% Lipids		6.36	11.2	9.35	0.44	0.45	0.37	0.33	0.23	12.6
Sample weight (g)		50.3	49.7	50.1	50.5	50.6	52.0	50.3	50.3	49.9
Values less than the est										
* = Values are influence										
** = DL increased due to										

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH 1997-8

1997 DMP										
DEP ID WRI ID	DL pg/g	PWD-WHS-02 97-677	PWD-WHS-03 97-678	PWD-WHS-04 97-679	PWD-WHS-05 97-680	PWD-WHS-06 97-681	PWD-WHS-07 97-682	PWD-WHS-08 97-683	PWD-WHS-09 97-684	PWD-WHS-10 97-685
Compound										
2378-tcdf	0.11	1.99	2.36	3.87	2.22	1.85	2.06	2.41	2.68	4.02
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	0.61	0.44	0.63	0.41	0.39	0.26	0.25	0.57	0.94
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.82	1.06	1.24*	0.95	0.77	0.68	0.94	0.83	1.45*
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.52	0.48	0.66	0.71	0.63	0.87	0.62	0.79	1.09
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.18	0.22	0.32	0.24	0.17	0.15	0.13	0.21	0.29
12378-pecdd	0.25	0.26	0.35	0.38	0.19	0.22	0.18	0.20	0.26	0.36
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	0.85	0.96	1.07	1.15	0.97	0.66	0.78	0.90	1.42
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.71	0.56	0.49	0.66	0.81	0.79	0.50	0.63	1.02
ocdd	0.5	1.85	2.91	2.47	1.68	1.22	1.19	2.68	3.09	4.21
TEQo		1.12	1.23	1.64	1.08	0.959	0.817	0.879	1.21	1.83
TEQd		1.27	1.38	1.79	1.22	1.10	0.959	1.02	1.35	1.97
TEQh										
% Lipids		8.37	11.2	12.9	10.9	9.88	9.24	7.65	9.21	13.9
Sample weight (g)		51.5	49.8	50.1	50.2	50.3	50.4	49.7	50.2	49.9
Values less than the est										
* = Values are influence										
** = DL increased due to										

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH 1997-8

1997 DMP										
DEP ID WRI ID	DL pg/g	SCB-SMB-01 97-042	SCB-SMB-02 97-044	SCB-SMB-03 97-045	SCB-SMB-04 97-046	SCB-SMB-05 97-047	SCB-WHS-01 97-555	SCB-WHS-02 97-556	SCB-WHS-03 97-557	SCB-WHS-04 97-558
Compound										
2378-tcdf	0.11	0.32	0.24	0.14	0.31	0.19	0.85	0.64	0.41	0.69
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234789-hpcdf	0.5	0.45	0.31	0.20	0.41	0.28	0.84	0.61	0.53	0.71
ocdf	0.5	0.52	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.31	0.24	<DL	0.26	<DL	0.71	0.52	0.59	0.84
ocdd	0.5	0.89	0.57	0.42	0.68	0.66	3.04	2.88	2.41	3.06
TEQo		0.035	0.031	0.017	0.036	0.023	0.095	0.078	0.053	0.083
TEQd		0.708	0.699	0.69	0.703	0.696	0.763	0.745	0.721	0.751
TEQh										
% Lipids		0.85	0.64	0.39	0.69	0.38	12.3	10.2	9.51	11.5
Sample weight (g)		50.6	11.5	15.1	36.0	50.5	49.8	50.5	50.9	49.4
Values less than the est										
* = Values are influence										
** = DL increased due to										

1997 DMP										
DEP ID WRI ID	DL pg/g	SCB-WHS-05 97-559	SCB-WHS-06 97-560	SCB-WHS-07 97-561	SCB-WHS-08 97-562	SCB-WHS-09 97-563	SCB-WHS-10 97-564	SCW-SMB-01 97-106	SCW-SMB-02 97-107	SCW-SMB-03 97-108
Compound										
2378-tcdf	0.11	0.53	0.42	0.71	0.41	0.39	0.58	0.21	0.10	0.17
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234789-hpcdf	0.5	0.58	0.47	0.72	0.41	0.36	0.61	0.31	<DL	0.25
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.61	0.72	0.66	0.25	0.34	0.41	0.25	<DL	<DL
ocdd	0.5	2.01	1.98	2.38	1.87	1.65	2.41	1.15	0.55	0.74
TEQo		0.066	0.055	0.083	0.051	0.047	0.066	0.030	0.013	0.017
TEQd		0.734	0.723	0.750	1.12	0.714	0.733	0.697	0.686	0.695
TEQh										
% Lipids		8.99	8.13	11.4	7.81	7.22	9.81	0.41	0.16	0.33
Sample weight (g)		50.2	50.1	49.7	50.7	50.7	50.1	50.3	50.1	49.8
Values less than the est										
* = Values are influence										
** = DL increased due to										

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH 1997-8

1997 DMP										
DEP ID WRI ID	DL pg/g	SCW-SMB-04 97-111	SCW-SMB-05 97-113	SCW-WHS-01 97-565	SCW-WHS-02 97-566	SCW-WHS-03 97-567	SCW-WHS-04 97-568	SCW-WHS-05 97-569	SCW-WHS-06 97-570	SCW-WHS-07 97-571
Compound										
2378-tcdf	0.11	0.22	0.24	0.52	0.63	0.51	0.46	0.66	0.50	0.35
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL	<DL	<DL	0.19	0.14	0.17	0.22	0.19	0.26
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234789-hpcdf	0.5	0.36	0.41	0.65	0.82	0.51	0.47	0.88	0.63	0.52
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.18	0.28	0.45	0.65	0.47	0.58	1.02	0.96	1.03
ocdd	0.5	0.83	0.59	2.66	3.01	1.74	1.96	2.25	1.14	1.85
TEQo		0.026	0.030	0.061	0.095	0.078	0.074	0.103	0.088	0.078
TEQd		0.694	0.698	0.728	0.738	0.721	0.717	0.746	0.730	0.720
TEQh										
% Lipids		0.46	0.45	8.88	11.2	9.48	9.66	14.7	10.8	10.7
Sample weight (g)		49.7	50.0	50.0	51.0	50.8	49.8	50.1	49.2	50.0
Values less than the est										
* = Values are influence										
** = DL increased due to										

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH 1997-8

1997 DMP										
DEP ID WRI ID	DL pg/g	SCW-WHS-08 97-572	SCW-WHS-09 97-573	SCW-WHS-10 97-574	SEC-SMB-01 97-115	SEC-SMB-02 97-117	SEC-SMB-03 97-118	SEC-SMB-04 97-119	SEC-SMB-05 97-120	SEN-LMB-01 97-125
Compound										
2378-tcdf	0.11	0.71	0.58	0.69	0.45	0.32	0.61	0.42	0.59	0.74
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.20
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.31	0.12	0.18	0.21	<DL	0.18	<DL	0.15	0.21
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.46
1234789-hpcdf	0.5	0.75	0.43	0.79	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	0.10	<DL	0.11	<DL	0.14	0.15
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.95
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.26
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.00
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	1.21	0.74	0.82	0.35	0.41	0.52	0.26	0.71	0.82
ocdd	0.5	2.97	1.66	1.78	3.61	1.06	2.85	2.24	3.46	0.71
TEQo		0.120	0.085	0.100	0.178	0.036	0.194	0.045	0.221	1.43
TEQd		0.762	0.728	0.742	0.720	0.709	0.742	0.717	0.769	1.55
TEQh										
% Lipids		14.7	9.83	10.6	0.32	0.25	0.42	0.18	0.37	0.35
Sample weight (g)		49.8	50.2	49.9	50.8	50.1	49.8	50.2	49.8	50.0
Values less than the est										
* = Values are influence										
** = DL increased due to										

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH 1997-8

1997 DMP										
DEP ID WRI ID	DL pg/g	SEN-LMB-02 97-126	SEN-LMB-03 97-127	SEN-LMB-04 97-129	SEN-LMB-05 97-131	SFS-SMB-01 97-1072	SFS-CHP-01 97-1073	SFS-CHP-02 97-1074	SWH-SMB-01 97-067	SWH-SMB-02 97-068
Compound										
2378-tcdf	0.11	0.86	0.52	0.36	0.69	1.35	2.61	3.14	0.21	0.18
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	0.39	0.18	0.24	0.32	<DL	0.24	0.18	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.26	0.16	0.12	0.28	<DL	0.17	0.22	0.28	0.26
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	0.24	0.33	0.47	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.61	0.32	0.41	0.52	0.35	0.49	0.56	0.39	0.40
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	1.21	0.84	0.28	0.37
2378-tcdd	0.10	0.19	0.12	0.11	0.21	0.15	0.74	0.51	<DL	<DL
12378-pecdd	0.25	0.84	0.65	0.54	0.88	0.13	0.26	0.18	<DL	<DL
123478-hxcdd	0.25	0.36	0.22	0.18	0.16	<DL	0.36	0.14	<DL	<DL
123678-hxcdd	0.25	0.75	0.66	0.42	0.69	0.21	0.45	0.61	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.69	0.51	0.46	0.78	<DL	0.18	0.22	<DL	<DL
ocdd	0.5	0.84	1.02	0.66	0.75	0.54	0.85	0.96	0.62	0.71
TEQo		1.46	1.02	0.887	1.45	0.297	0.789	0.803	0.053	0.048
TEQd		1.58	1.14	1.00	1.56	0.622	0.939	0.953	0.700	0.696
TEQh										
% Lipids		0.55	0.26	0.26	0.46	1.21	0.45	0.44	1.20	1.11
Sample weight (g)		50.5	50.2	50.0	50.0	49.9	49.8	50.4	50.7	50.0
Values less than the est										
* = Values are influence										
** = DL increased due to										

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH 1997-8

1997 DMP									
DEP ID WRI ID	DL pg/g	SWH-SMB-03 97-069	SWH-SMB-04 97-072	SWH-SMB-05 97-073	SWP-SMB-01 97-057	SWP-SMB-02 97-058	SWP-SMB-03 97-059	SWP-SMB-04 97-060	SWP-SMB-05 97-061
Compound									
2378-tcdf	0.11	0.13	0.22	0.18	0.39	0.26	0.41	0.39	0.35
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.31	0.35	0.40	0.45	0.56	0.55	0.32	0.29
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.32	0.52	0.48	0.85	0.91	1.05	0.96	0.67
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	0.61	0.51	0.66	1.42	0.95	1.16	1.38	1.11
2378-tcdd	0.10	<DL	<DL	<DL	0.25	0.31	0.36	0.21	0.17
12378-pecdd	0.25	<DL	<DL	<DL	0.18	0.21	0.23	0.15	0.24
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	0.95	0.87	1.05	0.92	0.63
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	<DL	<DL	<DL	0.75	1.06	0.88	0.62	1.10
ocdd	0.5	0.59	0.56	0.49	1.33	1.51	1.67	2.02	1.59
TEQo		0.047	0.062	0.063	0.625	0.709	0.811	0.539	0.555
TEQd		0.695	0.710	0.710	0.893	0.976	1.08	0.807	0.822
TEQh									
% Lipids		1.31	1.20	0.93	0.96	0.45	1.11	1.01	1.03
Sample weight (g)		50.2	50.1	50.1	50.0	50.5	50.4	49.9	49.8
Values less than the est									
* = Values are influence									
** = DL increased due to									

APPENDIX 2. DIOXIN AND FURAN CONENTRATIONS IN FISH

1998 DMP							
DEP ID WRI ID	DL pg/g	ALW-WHS-1 pg/g	ALW-WHS-2 pg/g	ALW-WHS-3 pg/g	ALW-WHS-4 pg/g	ALW-WHS-5 pg/g	ALW-WHS-6 pg/g
Compound							
2378-tcdf	0.11	3.21	4.00	1.65	5.81	2.33	1.74
12378-pecdf	0.25	0.49	0.62	0.31	0.55	0.19	0.74
23478-pecdf	0.25	0.73	0.51	0.26	0.81	0.25	0.39
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.26	0.54	0.21	0.85	0.41	<DL
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	2.65*	0.85*	1.65*	3.36*	0.75*	1.36*
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.21	0.65	<DL	0.25	0.47	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	0.58	0.32	0.21	0.98	0.62	0.54
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdd	0.50	2.85	1.44	3.69	5.89	2.65	1.88
DTEo		1.00	1.42	0.35	1.45	0.94	0.46
DTEd		1.42	1.82	0.85	1.87	1.33	0.98
DTEh							
% Lipids		5.36	4.87	6.97	10.2	6.48	5.51
Sample weight (g)		50.2	49.8	49.8	50.0	50.4	49.8
Values less than the establis	Values less than the established MDLs are to be considered estimated values.						
* = Values are influenced by the presence of diphenyl ethers and are estimated maximum concentrations.							

APPENDIX 2. DIOXIN AND FURAN CONENTRATIONS IN FISH

1998 DMP							
DEP ID WRI ID	DL pg/g	ALW-WHS-7 pg/g	ALW-WHS-8 pg/g	ALW-WHS-9 pg/g	ALW-WHS-10 pg/g	ALW-SMB-1 pg/g	ALW-SMB-2 pg/g
Compound							
2378-tcdf	0.11	1.55	4.39	2.66	1.98	1.32	0.75
12378-pecdf	0.25	0.26	0.41	0.58	0.33	<DL	<DL
23478-pecdf	0.25	0.57	0.23	0.49	0.20	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL	0.33	0.45	0.21	1.14	1.26
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.98*	2.22*	2.41*	0.55*	2.31*	1.66*
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.65	0.21	0.10	0.42	0.15	0.26
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	0.26	0.33	1.14	1.20	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdd	0.50	4.53	2.04	1.92	3.69	1.02	0.85
DTEo		1.13	0.85	0.80	0.88	0.40	0.46
DTEd		1.55	1.26	1.21	1.27	0.97	1.03
DTEh							
% Lipids		9.40	6.43	5.36	7.27	1.55	1.00
Sample weight (g)		49.8	49.9	49.9	50.3	49.8	51.1
Values less than the establis							
* = Values are influenced by							

APPENDIX 2. DIOXIN AND FURAN CONENTRATIONS IN FISH

1998 DMP							
DEP ID WRI ID	DL pg/g	ALW-SMB-3 pg/g	ALW-SMB-4 pg/g	ALW-SMB-5 pg/g	ALW-WHP-1 pg/g	ALW-WHP-2 pg/g	ALW-WHP-3 pg/g
Compound							
2378-tcdf	0.11	1.10	0.85	0.25	0.62	0.33	0.51
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	1.74	0.85	0.42	0.52	0.61	0.71
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	3.51*	4.17*	0.61	1.33*	2.15*	1.67*
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.41	0.11	<DL	0.71	0.42	0.66
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	<DL	<DL	0.35	<DL	<DL
ocdd	0.50	0.66	1.25	1.05	2.30	3.84	1.65
DTEo		0.69	0.28	0.073	0.83	0.51	0.78
DTEd		1.28	0.87	0.72	1.38	1.08	1.35
DTEh							
% Lipids		2.37	1.79	1.54	4.65	3.77	3.74
Sample weight (g)		49.8	49.3	49.8	49.2	51.1	50.1
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	ALW-WHP-4 pg/g	ALW-WHP-5 pg/g	AGL-RBT-1 pg/g	AGL-RBT-2 pg/g	AGL-RBT-3 pg/g	AGL-RBT-4 pg/g
Compound							
2378-tcdf	0.11	0.86	0.28	5.27	11.2	15.6	6.61
12378-pecdf	0.25	<DL	<DL	1.06	3.08	3.57	1.88
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.85	0.42	<DL	<DL	<DL	<DL
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	3.22*	0.85*	<DL	0.24	0.75	<DL
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.49	0.33	0.15	0.38	0.83	0.31
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.61	0.52	<DL	<DL	<DL	<DL
ocdd	0.50	4.25	2.77	<DL	<DL	<DL	<DL
DTEo		0.67	0.41	0.73	1.66	2.58	1.07
DTEd		1.24	0.96	1.30	2.22	3.14	1.63
DTEh							
% Lipids		5.17	3.90	1.51	2.78	4.04	1.64
Sample weight (g)		49.9	50.0	49.6	50.1	50.0	50.0
Values less than the establis							
* = Values are influenced by							

APPENDIX 2. DIOXIN AND FURAN CONENTRATIONS IN FISH

1998 DMP							
DEP ID WRI ID	DL pg/g	AGL-RBT-5 pg/g	ARF-SMB-1 pg/g	ARF-SMB-2 pg/g	ARF-SMB-3 pg/g	ARF-SMB-4 pg/g	ARF-SMB-5 pg/g
Compound							
2378-tcdf	0.11	9.85	2.15	2.87	8.15	3.80	3.14
12378-pecdf	0.25	1.04	0.38	0.30	0.92	0.51	0.37
23478-pecdf	0.25	<DL	0.41	0.22	0.66	0.32	0.25
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL	<DL	<DL	0.47	0.18	<DL
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.33	0.26	0.17	1.26*	0.31	0.14
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.42	0.31	0.24	1.08	0.45	0.15
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdd	0.50	<DL	2.86	3.05	4.25	3.61	1.20
DTEo		1.46	0.75	0.65	2.33	1.04	0.61
DTEd		2.02	1.19	1.09	2.74	1.45	1.04
DTEh							
% Lipids		2.20	0.28	0.22	0.81	0.28	0.10
Sample weight (g)		29.4	49.7	49.8	49.7	49.9	50.2
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	ARF-WHS-1 pg/g	ARF-WHS-2 pg/g	ARF-WHS-3 pg/g	ARF-WHS-4 pg/g	ARF-WHS-5 pg/g	ARF-WHS-6 pg/g
Compound							
2378-tcdf	0.11	9.21	19.1	15.0	17.3	14.6	15.8
12378-pecdf	0.25	0.43	0.79	0.66	0.81	0.74	0.62
23478-pecdf	0.25	0.75	1.55	1.14	2.01	1.85	0.96
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.49	0.52	0.31	0.47	0.44	0.22
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.28	0.60	0.38	0.47	0.65	0.31
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.18	0.37	0.24	0.29	0.42	0.31
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	0.42	0.21	0.51	0.33	0.38
ocdd	0.50	2.02	3.11	1.26	2.47	2.73	1.95
DTEo		1.55	3.16	2.38	3.12	2.90	2.43
DTEd		1.96	3.56	2.79	3.53	3.30	2.84
DTEh							
% Lipids		6.48	12.78	11.77	12.64	10.42	11.25
Sample weight (g)		50.0	50.2	50.3	49.8	50.0	49.8
Values less than the establis							
* = Values are influenced by							

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1998 DMP							
DEP ID WRI ID	DL pg/g	ARF-WHS-7 pg/g	ARF-WHS-8 pg/g	ARF-WHS-9 pg/g	ARF-WHS-10 pg/g	ARF-WHS-1 pg/g	ARF-WHS-2 pg/g
Compound							
2378-tcdf	0.11	18.1	16.4	20.1	19.6	13.7	14.6
12378-pecdf	0.25	0.86	0.73	0.92	1.05	1.73	1.55
23478-pecdf	0.25	1.73	2.16	2.27	2.57	1.42	1.26
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.46	0.55	0.61	0.79	0.61	0.87
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.52	0.64	0.95	1.22	1.07	1.16
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	0.95	0.72
2378-tcdd	0.10	0.43	0.51	0.48	0.66	0.91	0.75
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.61	0.57	0.88	0.81	<DL	<DL
ocdd	0.50	2.91	3.52	3.33	3.66	1.77	1.49
DTEo		3.21	3.33	3.75	4.06	3.15	3.02
DTEd		3.61	3.74	4.16	4.46	3.56	3.43
DTEh							
% Lipids		12.69	12.86	13.27	14.54	6.10	6.07
Sample weight (g)		50.1	50.1	50.2	49.9	49.7	50.0
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	ARP-WHS-3 pg/g	ARP-WHS-4 pg/g	ARP-WHS-5 pg/g	ARP-WHS-6 pg/g	ARP-WHS-7 pg/g	ARP-WHS-8 pg/g
Compound							
2378-tcdf	0.11	7.35	16.8	11.3	17.2	10.8	9.51
12378-pecdf	0.25	1.02	1.79	1.27	1.99	1.15	1.26
23478-pecdf	0.25	0.91	1.63	1.39	1.88	1.51	1.05
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.43	0.95	0.58	1.09	0.62	0.55
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.58	1.22	0.96	1.38	0.71	0.33
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	0.41	1.06	0.76	1.15	0.57	0.66
2378-tcdd	0.10	0.51	1.26	1.03	1.43	0.61	0.73
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdd	0.50	1.55	2.17	1.48	2.06	1.28	1.47
DTEo		1.80	3.95	2.99	4.31	2.57	2.33
DTEd		2.21	4.36	3.40	4.72	2.98	2.74
DTEh							
% Lipids		3.64	6.23	5.88	7.82	5.57	4.62
Sample weight (g)		49.8	50.1	50.4	49.7	49.8	50.1
Values less than the establis							
* = Values are influenced by							

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1998 DMP							
DEP ID WRI ID	DL pg/g	ARP-WHS-9 pg/g	ARP-WHS-10 pg/g	ARY-SMB-1 pg/g	ARY-SMB-2 pg/g	ARY-SMB-3 pg/g	ARY-SMB-4 pg/g
Compound							
2378-tcdf	0.11	10.2	19.7	1.26	1.48	1.53	1.95
12378-pecdf	0.25	1.09	2.15	<DL	<DL	<DL	<DL
23478-pecdf	0.25	1.13	2.06	0.31	0.48	0.42	0.51
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.83	1.21	<DL	0.14	0.18	0.25
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.62	1.44	0.36	0.47	0.36	0.51
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	0.81	1.39	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.62	1.55	<DL	0.25	0.21	0.28
12378-pecdd	0.25	<DL	<DL	0.18	0.31	0.27	0.37
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	0.35	<DL	<DL	<DL	<DL
ocdd	0.50	1.58	2.61	0.25	0.29	0.41	0.55
DTEo		2.35	4.80	0.46	0.97	0.86	1.13
DTEd		2.76	5.20	0.76	1.14	1.04	1.30
DTEh							
% Lipids		5.85	10.32	0.34	0.50	0.52	0.68
Sample weight (g)		49.7	50.4	50.1	50.0	50.0	32.0
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	ARY-SMB-5 pg/g	ARY-WHS-1 pg/g	ARY-WHS-2 pg/g	ARY-WHS-3 pg/g	ARY-WHS-4 pg/g	ARY-WHS-5 pg/g
Compound							
2378-tcdf	0.11	1.33	6.23	10.2	8.25	10.7	15.7
12378-pecdf	0.25	<DL	0.21	0.25	0.18	0.36	0.40
23478-pecdf	0.25	0.38	0.74	1.47	0.93	1.77	2.06
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.21	0.12	0.33	0.21	0.42	0.57
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.44	0.33	0.49	0.41	0.57	0.76
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.17	0.17	0.32	0.23	0.35	0.48
12378-pecdd	0.25	0.29	0.22	0.41	0.35	0.58	0.66
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	<DL	0.18	<DL	0.27	0.35
ocdd	0.50	0.37	1.27	1.41	2.06	1.35	2.26
DTEo		0.81	1.41	2.54	1.90	2.95	3.83
DTEd		0.98	2.56	2.69	2.06	3.11	3.98
DTEh							
% Lipids		0.49	6.52	8.53	7.11	9.78	11.70
Sample weight (g)		49.9	50.1	49.8	50.4	50.3	49.8
Values less than the establis							
* = Values are influenced by							

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1998 DMP							
DEP ID WRI ID	DL pg/g	ARY-WHS-6 pg/g	ARY-WHS-7 pg/g	ARY-WHS-8 pg/g	ARY-WHS-9 pg/g	ARY-WHS-10 pg/g	ALV-SMB-1 pg/g
Compound							
2378-tcdf	0.11	11.5	6.63	8.65	6.91	13.6	3.02
12378-pecdf	0.25	0.43	0.14	0.31	0.23	0.38	<DL
23478-pecdf	0.25	2.35	0.85	1.47	1.24	1.96	0.38
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.48	0.17	0.27	0.36	0.45	<DL
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.71	0.21	0.48	0.26	0.90	<DL
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	0.61
2378-tcdd	0.10	0.30	0.14	0.29	0.18	0.41	0.17
12378-pecdd	0.25	0.71	0.26	0.41	0.29	0.62	0.27
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	0.44
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.48	<DL	<DL	<DL	0.39	<DL
ocdd	0.50	2.87	0.86	1.77	1.35	2.51	1.06
DTEo		3.42	1.51	2.35	1.83	3.45	0.98
DTEd		3.57	1.67	2.51	1.99	3.60	1.15
DTEh							
% Lipids		10.64	5.62	8.46	7.48	10.79	0.51
Sample weight (g)		49.9	50.2	49.9	50.1	49.7	45.6
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	ALV-SMB-2 pg/g	ALV-SMB-3 pg/g	ALV-SMB-4 pg/g	ALV-SMB-5 pg/g	ALV-WHS-1 pg/g	ALV-WHS-2 pg/g
Compound							
2378-tcdf	0.11	3.35	2.54	2.98	2.01	10.9	9.89
12378-pecdf	0.25	<DL	<DL	<DL	<DL	0.75	0.68
23478-pecdf	0.25	0.59	0.41	0.70	0.33	1.18	0.97
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	0.64	0.48
123678-hxcdf	0.25	<DL	<DL	<DL	<DL	0.31	0.24
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	0.59	0.68
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	0.79	0.72
1234678-hpcdf	0.50	<DL	<DL	<DL	<DL	0.71	0.52
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	0.42	0.31
ocdf	0.50	0.95	0.38	0.87	0.47	2.14	1.91
2378-tcdd	0.10	0.22	0.12	0.25	0.15	0.57	0.49
12378-pecdd	0.25	0.41	0.32	0.38	0.22	0.75	0.46
123478-hxcdd	0.25	0.58	0.29	0.71	0.37	1.38	1.47
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	0.22	0.16
1234678-hpcdd	0.50	<DL	<DL	<DL	<DL	1.15	0.87
ocdd	0.50	1.31	0.91	1.42	0.71	2.24	1.86
DTEo		1.32	0.93	1.35	0.77	3.45	2.85
DTEd		1.50	1.11	1.53	0.95	3.48	2.88
DTEh							
% Lipids		0.61	0.37	0.63	0.30	8.09	7.91
Sample weight (g)		50.0	50.2	46.3	49.4	50.4	50.3
Values less than the establis							
* = Values are influenced by							

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1998 DMP							
DEP ID WRI ID	DL pg/g	ALV-WHS-3 pg/g	ALV-WHS-4 pg/g	ALV-WHS-5 pg/g	ALV-WHS-6 pg/g	ALV-WHS-7 pg/g	ALV-WHS-8 pg/g
Compound							
2378-tcdf	0.11	11.4	10.3	9.85	12.3	9.15	7.31
12378-pecdf	0.25	0.82	0.63	0.55	0.71	0.52	0.39
23478-pecdf	0.25	1.33	1.05	0.98	1.26	0.87	0.68
123478-hxcdf	0.25	0.59	0.53	0.47	0.62	0.45	0.28
123678-hxcdf	0.25	0.35	0.28	0.31	0.47	0.25	0.19
234678-hxcdf	0.25	0.72	0.66	0.51	0.70	0.39	0.37
123789-hxcdf	0.25	0.91	0.75	0.59	0.83	0.35	0.43
1234678-hpcdf	0.50	0.78	0.64	0.62	0.66	0.51	0.41
1234789-hpcdf	0.50	0.35	0.28	0.33	0.47	0.22	0.26
ocdf	0.50	2.55	1.72	1.85	2.38	1.54	1.41
2378-tcdd	0.10	0.62	0.50	0.42	0.55	0.37	0.30
12378-pecdd	0.25	0.81	0.41	0.51	0.73	0.33	0.47
123478-hxcdd	0.25	1.31	1.51	1.26	1.54	1.29	0.97
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	0.24	0.21	0.15	0.22	0.12	<DL
1234678-hpcdd	0.50	0.96	0.83	0.78	1.09	0.58	0.52
ocdd	0.50	2.57	1.54	1.61	2.06	1.40	1.23
DTEo		3.71	2.91	2.78	3.64	2.37	2.10
DTEd		3.73	2.93	2.80	3.66	2.40	2.15
DTEh							
% Lipids		8.60	7.69	6.25	8.80	6.46	5.25
Sample weight (g)		49.8	50.2	49.7	49.9	49.8	49.7
Values less than the establis							
* = Values are influenced by							

APPENDIX 2. DIOXIN AND FURAN CONENTRATIONS IN FISH

1998 DMP							
DEP ID WRI ID	DL pg/g	ALV-WHS-9 pg/g	ALV-WHS-10 pg/g	AGI-SMB-1 pg/g	AGI-SMB-2 pg/g	AGI-SMB-3 pg/g	AGI-SMB-4 pg/g
Compound							
2378-tcdf	0.11	8.66	7.67	2.95	3.66	6.32	7.06
12378-pecdf	0.25	0.31	0.48	1.87	2.05	3.75	4.22
23478-pecdf	0.25	0.61	0.75	<DL	<DL	0.12	0.15
123478-hxcdf	0.25	0.36	0.32	0.25	0.24	0.55	0.49
123678-hxcdf	0.25	0.17	0.22	0.17	0.14	0.24	0.33
234678-hxcdf	0.25	0.31	0.42	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	0.38	0.47	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.47	0.59	0.31	0.29	0.66	0.78
1234789-hpcdf	0.50	0.23	0.29	<DL	0.11	0.21	0.29
ocdf	0.50	1.49	1.65	0.69	0.87	1.54	1.71
2378-tcdd	0.10	0.26	0.48	0.33	0.29	0.38	0.55
12378-pecdd	0.25	0.41	0.52	0.21	0.17	0.27	0.36
123478-hxcdd	0.25	1.06	0.88	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	0.19	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.41	0.72	0.47	0.31	0.64	0.68
ocdd	0.50	1.46	1.52	0.46	0.66	0.95	1.25
DTEo		2.10	2.43	0.98	0.97	1.62	2.00
DTEd		2.15	2.46	1.23	1.22	1.75	2.13
DTEh							
% Lipids		5.71	6.88	0.27	0.21	0.34	0.42
Sample weight (g)		50.1	50.3	50.4	49.4	50.4	48.0
Values less than the establis							
* = Values are influenced by							

APPENDIX 2. DIOXIN AND FURAN CONENTRATIONS IN FISH

1998 DMP							
DEP ID WRI ID	DL pg/g	AGI-SMB-5 pg/g	ALS-SMB-1 pg/g	ALS-SMB-2 pg/g	ALS-SMB-3 pg/g	ALS-SMB-4 pg/g	ALS-SMB-5 pg/g
Compound							
2378-tcdf	0.11	9.85	4.33	2.15	4.10	3.87	5.14
12378-pecdf	0.25	5.66	0.51	0.21	0.34	0.39	0.58
23478-pecdf	0.25	0.31	0.42	0.14	0.19	0.33	0.57
123478-hxcdf	0.25	0.74	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.61	0.41	<DL	0.24	0.28	0.49
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.97	0.92	0.44	0.84	0.71	1.24
1234789-hpcdf	0.50	0.33	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	1.95	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.41	0.51	0.26	0.38	0.44	0.75
12378-pecdd	0.25	0.57	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.99	<DL	<DL	<DL	<DL	<DL
ocdd	0.50	2.65	4.17	2.26	3.88	3.25	5.01
DTEo		2.56	1.23	0.56	0.93	1.05	1.64
DTEd		2.69	1.64	1.00	1.34	1.46	2.05
DTEh							
% Lipids		1.26	0.64	0.26	0.46	0.43	0.71
Sample weight (g)		49.7	50.3	50.3	49.8	42.7	50.0
Values less than the establis							
* = Values are influenced by							

APPENDIX 2. DIOXIN AND FURAN CONENTRATIONS IN FISH

1998 DMP							
DEP ID WRI ID	DL pg/g	KAG-SMB-01 pg/g	KAG-SMB-02 pg/g	KAG-SMB-03 pg/g	KFF-SMB-01 pg/g	KFF-SMB-02 pg/g	KFF-SMB-03 pg/g
Compound							
2378-tcdf	0.11	0.65	0.47	0.92	0.81	0.77	0.52
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.24	0.18	0.33	<DL	<DL	<DL
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.12	<DL	0.18	0.35	0.24	0.41
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.28	0.33	0.41	0.38	0.42	0.31
12378-pecdd	0.25	0.15	<DL	0.21	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.25	0.18	0.33	0.37	0.41	0.29
ocdd	0.50	1.13	0.99	2.05	1.35	1.81	0.99
DTEo		0.523	0.397	0.750	0.468	0.504	0.369
DTEd		0.815	0.942	1.043	1.036	1.071	0.937
DTEh							
% Lipids		1.01	0.99	1.70	0.70	0.75	0.68
Sample weight (g)		50.6	35.4	35.4	49.8	50.1	49.8
Values less than the establis							
* = Values are influenced by							

APPENDIX 2. DIOXIN AND FURAN CONENTRATIONS IN FISH

1998 DMP							
DEP ID WRI ID	DL pg/g	KFF-SMB-04 pg/g	KFF-SMB-05 pg/g	KFF-WHS-01 pg/g	KFF-WHS-02 pg/g	KFF-WHS-03 pg/g	KFF-WHS-04 pg/g
Compound							
2378-tcdf	0.11	0.49	0.56	4.15	2.95	3.14	2.88
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	0.25	<DL	0.16	0.22
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL	<DL	0.47	0.22	0.26	0.24
234678-hxcdf	0.25	<DL	<DL	0.34	0.28	0.33	0.28
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.36	0.22	0.38	0.21	0.28	0.24
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.35	0.27	1.22	0.75	0.92	0.68
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	0.34	0.12	0.22	0.18
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.24	0.30	0.66	0.31	0.42	0.45
ocdd	0.50	1.22	0.75	3.01	1.77	2.25	1.88
DTEo		0.405	0.331	1.886	1.112	1.402	1.155
DTEd		0.973	0.899	2.253	1.605	1.770	1.523
DTEh							
% Lipids		0.61	0.56	10.5	6.49	8.60	7.05
Sample weight (g)		43.8	48.9	50.1	49.9	50.4	49.9
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	KFF-WHS-05 pg/g	KFF-WHS-06 pg/g	KFF-WHS-07 pg/g	KFF-WHS-08 pg/g	KFF-WHS-09 pg/g	KFF-WHS-10 pg/g
Compound							
2378-tcdf	0.11	2.47	2.05	1.75	3.51	4.33	4.41
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	0.17	0.14	<DL	0.28	0.37	0.42
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.17	0.14	<DL	0.26	0.34	0.39
234678-hxcdf	0.25	0.21	0.17	0.12	0.29	0.35	0.39
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.17	0.20	0.15	0.26	0.31	0.40
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.55	0.47	0.61	1.06	1.33	1.51
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	0.15	0.20	<DL	0.29	0.35	0.41
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.35	0.28	0.21	0.48	0.64	0.75
ocdd	0.50	2.06	1.41	1.26	2.61	2.85	3.05
DTEo		0.940	0.801	0.801	1.643	2.062	2.292
DTEd		1.308	1.168	1.343	2.010	2.429	2.659
DTEh							
% Lipids		6.93	6.69	6.08	9.39	11.6	12.5
Sample weight (g)		49.8	50.4	50.1	50.1	50.4	49.9
Values less than the establis							
* = Values are influenced by							

APPENDIX 2. DIOXIN AND FURAN CONENTRATIONS IN FISH

1998 DMP							
DEP ID WRI ID	DL pg/g	KNW-SMB-01 pg/g	KNW-SMB-02 pg/g	KNW-SMB-03 pg/g	KNW-SMB-04 pg/g	KNW-SMB-05 pg/g	KNW-WHS-01 pg/g
Compound							
2378-tcdf	0.11	0.22	0.18	0.14	0.19	0.25	0.75
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	0.18
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.12	<DL	<DL	<DL	0.15	0.29
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.28	0.11	<DL	0.13	0.19	0.66
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.35	0.18	0.12	0.22	0.31	0.44
ocdd	0.50	0.91	0.44	0.21	0.34	0.72	1.22
DTEo		0.040	0.021	0.015	0.023	0.045	0.205
DTEd		0.683	0.688	0.685	0.690	0.688	0.723
DTEh							
% Lipids		1.62	0.66	0.39	0.55	1.40	10.7
Sample weight (g)		50.6	50.2	46.4	49.7	50.4	50.2
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	KNW-WHS-02 pg/g	KNW-WHS-03 pg/g	KNW-WHS-04 pg/g	KNW-WHS-05 pg/g	KNW-WHS-06 pg/g	KNW-WHS-07 pg/g
Compound							
2378-tcdf	0.11	0.52	0.44	0.86	0.79	0.66	0.75
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	0.11	0.10	0.22	0.29	0.15	0.18
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.22	0.14	0.18	0.25	<DL	0.11
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.52	0.41	0.59	0.71	0.35	0.31
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.32	0.27	0.51	0.63	0.31	0.38
ocdd	0.50	0.84	0.66	1.51	2.05	0.91	0.74
DTEo		37.955	0.115	0.225	0.263	0.148	0.183
DTEd		0.655	0.632	0.743	0.780	0.690	0.701
DTEh							
% Lipids		8.86	7.59	11.0	12.7	6.77	7.55
Sample weight (g)		49.8	50.0	50.3	50.0	50.1	49.9
Values less than the establis							
* = Values are influenced by							

APPENDIX 2. DIOXIN AND FURAN CONENTRATIONS IN FISH

1998 DMP							
DEP ID WRI ID	DL pg/g	KNW-WHS-08 pg/g	KNW-WHS-09 pg/g	KNW-WHS-10 pg/g	PBG-SMB-01 pg/g	PBG-SMB-02 pg/g	PBG-SMB-03 pg/g
Compound							
2378-tcdf	0.11	0.91	0.87	1.06	0.19	0.14	0.21
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	0.25	0.31	0.39	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.17	0.21	0.28	0.23	0.16	0.20
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.48	0.61	0.66	0.26	0.17	0.18
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.58	0.49	0.62	<DL	<DL	<DL
ocdd	0.50	1.15	0.83	1.66	0.55	0.42	0.49
DTEo		0.244	0.274	0.342	0.045	0.032	0.043
DTEd		0.761	0.792	0.860	0.692	0.679	0.690
DTEh							
% Lipids		10.1	10.1	11.3	1.26	0.70	1.01
Sample weight (g)		50.3	50.1	50.0	49.8	40.9	50.1
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	PBG-SMB-04 pg/g	PBG-SMB-05 pg/g	PBG-WHS-01 pg/g	PBG-WHS-02 pg/g	PBG-WHS-03 pg/g	PBG-WHS-04 pg/g
Compound							
2378-tcdf	0.11	0.16	0.25	0.41	0.33	0.54	0.39
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.13	0.16	0.24	0.19	0.23	0.14
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.14	0.21	0.25	0.24	0.48	0.31
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	<DL	0.51	0.38	0.58	0.25
ocdd	0.50	0.31	0.62	1.32	1.01	1.47	0.99
DTEo		0.030	0.043	0.073	0.058	0.088	0.059
DTEd		0.678	0.691	0.715	0.701	0.730	0.701
DTEh							
% Lipids		0.55	1.43	5.86	3.77	8.72	3.84
Sample weight (g)		49.3	49.5	49.6	49.9	49.9	49.8
Values less than the establis							
* = Values are influenced by							

APPENDIX 2. DIOXIN AND FURAN CONENTRATIONS IN FISH

1998 DMP							
DEP ID WRI ID	DL pg/g	PBG-WHS-05 pg/g	PBG-WHS-06 pg/g	PBG-WHS-07 pg/g	PBG-WHS-08 pg/g	PBG-WHS-09 pg/g	PBG-WHS-10 pg/g
Compound							
2378-tcdf	0.11	0.42	0.47	0.56	0.37	0.28	0.41
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.26	0.17	0.30	0.16	0.12	0.19
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.42	0.38	0.47	0.29	0.33	0.27
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.36	0.27	0.40	0.39	0.32	0.29
ocdd	0.50	1.22	1.06	1.39	1.26	1.14	0.88
DTEo		0.076	0.071	0.095	0.060	0.047	0.066
DTEd		0.718	0.713	0.737	0.702	0.689	0.708
DTEh							
% Lipids		5.00	4.13	5.49	4.42	4.41	4.01
Sample weight (g)		50.1	50.0	50.4	49.7	49.7	49.4
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	PBR-SMB-01 pg/g	PBR-SMB-02 pg/g	PBR-SMB-03 pg/g	PBR-SMB-04 pg/g	PBR-SMB-05 pg/g	PBR-WHS-01 pg/g
Compound							
2378-tcdf	0.11	0.18	0.15	0.16	0.12	0.17	0.41
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.22	0.29	0.14	0.21	0.16	0.41
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.25	0.31	0.14	0.22	0.21	0.18
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	<DL	<DL	<DL	<DL	0.35
ocdd	0.50	0.61	0.72	0.45	0.57	0.63	1.12
DTEo		0.043	0.047	0.031	0.035	0.035	0.087
DTEd		0.690	0.695	0.679	0.683	0.683	0.730
DTEh							
% Lipids		0.86	0.63	0.36	0.35	0.33	5.71
Sample weight (g)		49.8	50.2	49.5	47.5	49.6	50.3
Values less than the establis							
* = Values are influenced by							

APPENDIX 2. DIOXIN AND FURAN CONENTRATIONS IN FISH

1998 DMP							
DEP ID WRI ID	DL pg/g	PBR-WHS-02 pg/g	PBR-WHS-03 pg/g	PBR-WHS-04 pg/g	PBR-WHS-05 pg/g	PBR-WHS-06 pg/g	PBR-WHS-07 pg/g
Compound							
2378-tcdf	0.11	0.52	0.46	0.39	0.42	0.36	0.32
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.27	0.38	0.29	0.31	0.26	0.40
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.31	0.42	0.58	0.51	0.47	0.32
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.64	0.58	0.74	0.46	0.32	0.25
ocdd	0.50	1.54	1.66	1.24	1.37	1.09	1.15
DTEo		0.109	0.094	0.081	0.083	0.070	0.078
DTEd		0.751	0.737	0.724	0.725	0.713	0.720
DTEh							
% Lipids		10.2	9.45	11.1	10.9	9.59	7.26
Sample weight (g)		50.9	50.9	49.4	49.7	49.8	49.6
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	PBR-WHS-08 pg/g	PBR-WHS-09 pg/g	PBR-WHS-10 pg/g	PBW-SMB-01 pg/g	PBW-SMB-02 pg/g	PBW-SMB-03 pg/g
Compound							
2378-tcdf	0.11	0.47	0.55	0.68	0.55	0.24	0.14
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.38	0.41	0.51	0.21	0.16	0.11
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.41	0.39	0.51	0.31	<DL	0.35
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.47	0.32	0.66	<DL	<DL	<DL
ocdd	0.50	1.21	1.42	1.67	0.75	0.56	0.71
DTEo		0.104	0.113	0.111	0.079	0.040	0.029
DTEd		0.746	0.756	0.753	0.73	0.693	0.676
DTEh							
% Lipids		9.39	8.61	14.4	0.55	0.14	0.94
Sample weight (g)		48.6	49.6	49.6	40.8	50.0	50.2
Values less than the establis							
* = Values are influenced by							

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1998 DMP							
DEP ID WRI ID	DL pg/g	PBW-SMB-04 pg/g	PBW-SMB-05 pg/g	PBW-WHS-01 pg/g	PBW-WHS-02 pg/g	PBW-WHS-03 pg/g	PBW-WHS-04 pg/g
Compound							
2378-tcdf	0.11	0.19	0.31	0.35	0.41	0.37	0.28
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	0.51	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.28	0.34	0.26	0.19	0.47	0.36
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.25	<DL	<DL	0.41	<DL	<DL
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	<DL	<DL	0.33	0.27	<DL
ocdd	0.50	0.48	0.32	0.59	0.87	1.06	1.21
DTEo		0.050	0.116	0.061	0.067	0.087	0.064
DTEd		0.697	0.744	0.714	0.710	0.734	0.717
DTEh							
% Lipids		1.83	1.30	3.01	3.54	3.02	3.33
Sample weight (g)		50.2	50.2	50.4	50.2	50.2	49.8
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	PBW-WHS-05 pg/g	PBW-WHS-06 pg/g	PBW-WHS-07 pg/g	PBW-WHS-08 pg/g	PBW-WHS-09 pg/g	PBW-WHS-10 pg/g
Compound							
2378-tcdf	0.11	0.33	0.45	0.40	0.51	0.48	0.22
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.39	0.21	0.18	0.34	0.44	0.51
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.47	0.26	<DL	0.44	0.31	<DL
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.47	0.33	0.71	0.59	0.34	0.46
ocdd	0.50	1.47	0.88	1.06	0.73	1.17	0.96
DTEo		0.082	0.072	0.065	0.095	0.099	0.078
DTEd		0.724	0.715	0.713	0.738	0.741	0.725
DTEh							
% Lipids		2.31	2.31	2.89	1.87	2.07	1.54
Sample weight (g)		50.1	50.4	49.9	50.8	50.3	50.1
Values less than the establis							
* = Values are influenced by							

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1998 DMP							
DEP ID WRI ID	DL pg/g	PBL-SMB-01 pg/g	PBL-SMB-02 pg/g	PBL-SMB-03 pg/g	PBL-SMB-04 pg/g	PBL-SMB-05 pg/g	PBL-WHS-01 pg/g
Compound							
2378-tcdf	0.11	0.65	0.82	1.35	1.71	1.06	3.65
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.15	0.17	0.26	0.31	0.45	0.28
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.44	0.21	0.39	0.48	0.52	0.51
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.17	0.11	0.26	0.24	0.41	0.98
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	0.33
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	<DL	<DL	<DL	<DL	1.32
ocdd	0.50	2.23	1.47	1.66	1.95	2.17	2.11
DTEo		0.255	0.211	0.425	0.447	0.566	1.425
DTEd		0.802	0.759	0.973	0.995	1.114	1.942
DTEh							
% Lipids		0.12	0.21	0.30	0.33	1.63	9.99
Sample weight (g)		50.1	49.8	50.0	47.8	50.3	50.1
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	PBL-WHS-02 pg/g	PBL-WHS-03 pg/g	PBL-WHS-04 pg/g	PBL-WHS-05 pg/g	PBL-WHS-06 pg/g	PBL-WHS-07 pg/g
Compound							
2378-tcdf	0.11	4.71	2.84	4.41	3.68	2.79	3.46
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.31	0.19	0.22	0.11	0.26	0.31
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.63	0.42	0.66	0.71	0.38	0.44
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	1.22	0.81	0.66	1.43	0.74	1.26
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	0.21	0.49	0.36	0.52	0.41	0.28
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	1.05	0.86	0.74	1.22	0.89	0.68
ocdd	0.50	4.26	3.35	5.71	2.09	1.66	3.35
DTEo		1.760	1.175	1.174	1.881	1.099	1.677
DTEd		2.278	1.693	1.691	2.398	1.841	2.194
DTEh							
% Lipids		11.0	9.17	9.18	10.6	9.75	12.7
Sample weight (g)		50.2	50.5	49.8	50.1	49.9	50.0
Values less than the establis							
* = Values are influenced by							

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1998 DMP							
DEP ID WRI ID	DL pg/g	PBL-WHS-08 pg/g	PBL-WHS-09 pg/g	PBL-WHS-10 pg/g	PBC-SMB-01 pg/g	PBC-SMB-02 pg/g	PBC-SMB-03 pg/g
Compound							
2378-tcdf	0.11	3.85	2.97	3.06	1.01	0.95	0.77
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.27	0.18	<DL	0.21	<DL	0.33
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.39	0.56	0.51	0.41	0.39	0.57
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	1.05	0.73	0.95	0.11	0.18	0.21
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	0.21	0.33	0.15	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.74	1.15	1.07	<DL	<DL	<DL
ocdd	0.50	1.98	2.47	4.61	2.23	1.75	0.86
DTEo		1.494	1.095	1.287	0.236	0.279	0.326
DTEd		2.012	1.613	1.830	0.784	0.852	0.873
DTEh							
% Lipids		10.1	7.79	9.26	0.71	0.54	0.72
Sample weight (g)		50.1	50.5	50.4	50.4	50.2	50.7
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	PBC-SMB-04 pg/g	PBC-SMB-05 pg/g	PBC-WHS-01 pg/g	PBC-WHS-02 pg/g	PBC-WHS-03 pg/g	PBC-WHS-04 pg/g
Compound							
2378-tcdf	0.11	1.23	0.91	3.35	2.81	4.46	3.19
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL	<DL	0.42	<DL	0.35	0.21
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.24	0.44	0.42	0.33	0.51	0.29
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	0.10	0.94	0.88	1.31	0.74
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	0.35	0.42	0.51	0.21
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	<DL	0.74	0.91	0.66	1.21
ocdd	0.50	0.74	0.97	1.64	3.35	2.86	0.91
DTEo		0.125	0.195	1.364	1.216	1.854	1.116
DTEd		0.798	0.768	1.881	1.758	2.372	1.634
DTEh							
% Lipids		0.41	0.57	6.33	7.16	5.18	6.04
Sample weight (g)		47.2	50.3	49.9	49.8	50.2	50.0
Values less than the establis							
* = Values are influenced by							

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1998 DMP							
DEP ID WRI ID	DL pg/g	PBC-WHS-05 pg/g	PBC-WHS-06 pg/g	PBC-WHS-07 pg/g	PBC-WHS-08 pg/g	PBC-WHS-09 pg/g	PBC-WHS-10 pg/g
Compound							
2378-tcdf	0.11	3.09	2.47	4.16	4.51	2.71	3.66
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL	<DL	0.26	0.35	<DL	0.18
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.37	0.26	0.48	0.51	0.31	0.39
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.96	1.15	1.27	1.34	0.86	1.06
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	0.36	0.17	0.50	0.41	0.27	0.36
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	1.16	0.91	0.67	1.03	1.29	0.88
ocdd	0.50	1.75	3.39	4.21	1.66	2.08	3.15
DTEo		1.320	1.426	1.774	1.883	1.174	1.493
DTEd		1.863	1.969	2.291	2.400	1.717	2.011
DTEh							
% Lipids		6.84	6.45	11.5	10.1	9.21	8.67
Sample weight (g)		50.0	50.2	50.3	50.1	50.0	50.1
Values less than the establis							
* = Values are influenced by							

1998 DMP							
DEP ID WRI ID	DL pg/g	PBV-SMB-01 pg/g	PBV-SMB-02 pg/g	PBV-SMB-03 pg/g	PBV-SMB-04 pg/g	PBV-SMB-05 pg/g	PBV-WHS-01 pg/g
Compound							
2378-tcdf	0.11	0.71	0.63	0.52	0.71	0.41	2.61
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.32	0.41	0.25	0.33	0.31	0.31
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.26	0.34	0.27	0.46	0.23	0.52
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.25	0.21	0.33	0.29	0.11	1.26
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdd	0.50	1.35	1.61	1.47	2.55	0.75	1.34
DTEo		0.356	0.318	0.410	0.399	0.184	1.557
DTEd		0.903	0.865	0.957	0.946	0.732	2.105
DTEh							
% Lipids		0.45	0.68	0.45	0.25	0.04	5.02
Sample weight (g)		49.9	49.7	50.3	45.7	37.5	50.2
Values less than the establis							
* = Values are influenced by							

APPENDIX 2. DIOXIN AND FURAN CONENTRATIONS IN FISH

1998 DMP							
DEP ID WRI ID	DL pg/g	PBV-WHS-02 pg/g	PBV-WHS-03 pg/g	PBV-WHS-04 pg/g	PBV-WHS-05 pg/g	PBV-WHS-06 pg/g	PBV-WHS-07 pg/g
Compound							
2378-tcdf	0.11	1.23	1.35	1.51	1.95	1.42	2.26
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.66	0.24	0.29	0.35	0.31	0.45
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.50	0.71	0.48	0.33	0.39	0.52	0.41
1234789-hpcdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.76	1.12	0.85	0.75	1.24	1.17
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.50	0.44	0.36	<DL	0.33	<DL	0.51
ocdd	0.50	2.23	1.51	0.88	1.24	1.06	1.36
DTEo		0.961	1.288	1.033	0.987	1.418	1.450
DTEd		1.503	1.830	1.581	1.530	1.966	1.993
DTEh							
% Lipids		2.80	3.88	3.95	3.47	4.29	5.42
Sample weight (g)		50.3	50.3	49.9	49.9	49.8	50.2
Values less than the establis							
* = Values are influenced by							

1998 DMP				
DEP ID WRI ID	DL pg/g	PBV-WHS-08 pg/g	PBV-WHS-09 pg/g	PBV-WHS-10 98-622
Compound				
2378-tcdf	0.11	1.14	2.33	1.81
12378-pecdf	0.25	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL
123678-hxcdf	0.25	0.37	0.24	0.20
234678-hxcdf	0.25	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL
1234678-hpcdf	0.50	0.58	0.39	0.31
1234789-hpcdf	0.50	<DL	<DL	<DL
ocdf	0.50	<DL	<DL	<DL
2378-tcdd	0.10	0.84	1.15	1.00
12378-pecdd	0.25	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL
1234678-hpcdd	0.50	<DL	<DL	<DL
ocdd	0.50	0.98	2.26	1.22
DTEo		0.997	1.411	1.204
DTEd		1.544	1.959	1.752
DTEh				
% Lipids		2.73	3.99	3.85
Sample weight (g)		50.1	50.0	50.1
Values less than the establis				
* = Values are influenced by				

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1998 DMP										
DEP ID WRI ID	DL pg/g	PWB-SMB-01 pg/g	PWB-SMB-02 pg/g	PWB-SMB-03 pg/g	PWB-SMB-04 pg/g	PWB-WHS-01 pg/g	PWB-WHS-02 pg/g	PWB-WHS-03 pg/g	PWB-WHS-04 pg/g	PWB-WHS-05 pg/g
Compound										
2378-tcdf	0.11	0.76	1.33	1.81	1.58	10.6	8.71	5.33	6.69	11.20
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	0.15	0.33	0.21	1.44	0.95	0.77	1.16	1.32
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL	0.20	0.22	0.17	0.71	0.52	0.33	0.81	0.47
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.21	0.35	0.66	0.49	0.61	0.42	0.18	0.37	0.66
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	<DL	0.10	<DL	0.33	0.15	0.10	0.21	0.18
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.16	0.27	0.41	0.38	1.25	0.95	1.07	0.86	0.52
ocdd	0.5	0.42	0.67	0.81	0.96	2.95	2.06	1.55	2.16	2.54
DTEo		0.080	0.234	0.479	0.289	2.200	1.562	1.064	1.553	2.019
DTEd		0.747	0.752	0.896	0.806	2.617	1.979	1.481	1.970	2.437
DTEh		0.41	0.49	0.69	0.55	2.41	1.77	1.27	1.76	2.23
% Lipids		0.48	0.83	1.14	1.15	5.45	6.34	6.34	5.48	5.81
Sample weight (g)		34.2	44.4	50.2	25.4	49.9	50.2	50.0	50.3	50.0
Values less than the established MDLs are to be considered estimated values.										
* = Values are influenced by the presence of diphenyl ethers and are estimated maximum concentrations.										

1998 DMP										
DEP ID WRI ID	DL pg/g	PWB-WHS-06 pg/g	PWB-WHS-07 pg/g	PWB-WHS-08 pg/g	PWB-WHS-09 pg/g	PWB-WHS-10 pg/g	PWD-SMB-01 pg/g	PWD-SMB-02 pg/g	PWD-SMB-03 pg/g	PWD-SMB-04 pg/g
Compound										
2378-tcdf	0.11	7.51	8.05	9.74	4.91	6.09	0.58	0.95	1.74	0.69
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	0.74	1.06	0.98	1.12	0.84	<DL	0.14	0.31	0.16
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.16	0.32	0.59	0.15	0.24	0.12	0.19	0.29	0.18
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.14	0.29	0.53	0.40	0.26	0.16	0.33	0.51	0.37
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	0.28	0.31	0.32	<DL	0.27	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	0.13	0.22	0.21
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	0.11	0.14	0.48	0.23
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.31	0.84	0.22	0.69	1.06	0.16	0.23	0.59	0.14
ocdd	0.5	1.17	1.68	1.58	2.29	1.87	0.55	0.83	1.04	0.71
DTEo		1.422	1.688	1.851	1.077	1.336	0.084	0.334	0.637	0.405
DTEd		1.839	2.106	2.268	1.595	1.754	0.702	0.576	0.880	0.648
DTEh		1.63	1.90	2.06	1.34	1.55	0.39	0.45	0.76	0.53
% Lipids		5.15	5.11	6.78	4.56	5.76	0.17	0.32	0.84	0.15
Sample weight (g)		49.7	50.2	49.8	50.2	50.1	41.0	26.8	30.2	40.1
Values less than the estab										
* = Values are influenced b										

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1998 DMP										
DEP ID WRI ID	DL pg/g	PWD-SMB-05 pg/g	PWD-WHS-01 pg/g	PWD-WHS-02 pg/g	PWD-WHS-03 pg/g	PWD-WHS-04 pg/g	PWD-WHS-05 pg/g	PWD-WHS-06 pg/g	PWD-WHS-07 pg/g	PWD-WHS-08 pg/g
Compound										
2378-tcdf	0.11	1.89	4.66	2.59	1.42	2.66	1.63	3.25	3.01	2.96
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	0.28	1.05	0.60	0.33	0.67	0.55	1.26	0.77	0.64
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.39	1.12	0.57	0.62	0.95	0.41	0.85	0.53	1.06
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.61	0.95	0.49	0.25	0.58	0.32	0.65	0.41	0.83
1234789-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
2378-tcdd	0.10	<DL	0.38	0.16	0.15	0.30	0.13	0.21	0.18	0.29
12378-pecdd	0.25	0.27	0.42	0.21	0.12	0.27	0.16	0.27	0.25	0.16
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	0.36	1.51	0.81	0.52	1.15	0.68	1.26	1.07	1.47
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.47	1.21	0.77	0.61	1.26	0.42	0.89	0.63	0.95
ocdd	0.5	0.95	3.68	2.78	1.23	1.97	1.15	2.85	2.57	3.36
DTEo		0.685	2.076	1.080	0.700	1.400	0.845	1.662	1.287	1.337
DTEd		0.927	2.219	1.222	0.842	1.542	0.987	1.804	1.429	1.480
DTEh		0.81	2.15	1.15	0.77	1.47	0.92	1.73	1.36	1.41
% Lipids		1.12	15.9	8.30	5.89	10.8	5.81	10.6	9.10	9.60
Sample weight (g)		43.8	49.8	50.1	50.0	49.9	49.8	49.8	50.0	49.8
Values less than the estab										
* = Values are influenced b										

1998 DMP										
DEP ID WRI ID	DL pg/g	PWD-WHS-09 pg/g	PWD-WHS-10 pg/g	SCB-SMB-01 pg/g	SCB-SMB-02 pg/g	SCB-SMB-03 pg/g	SCB-SMB-04 pg/g	SCB-SMB-05 pg/g	SCB-WHS-01 pg/g	SCB-WHS-02 pg/g
Compound										
2378-tcdf	0.11	2.36	2.05	0.47	0.31	0.58	0.22	0.33	0.59	0.75
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	0.58	0.49	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.63	0.73	<DL	<DL	<DL	<DL	<DL	<DL	<DL
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	0.48	0.58	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234789-hpcdf	0.5	<DL	<DL	0.53	0.28	0.75	0.25	0.44	0.42	0.66
ocdf	0.5	<DL	<DL	0.27	0.33	0.41	<DL	0.25	<DL	0.72
2378-tcdd	0.10	0.22	0.20	<DL	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	0.25	0.18	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	0.78	0.83	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.63	0.72	0.47	0.28	0.51	0.22	0.33	0.71	0.81
ocdd	0.5	2.08	1.85	1.23	0.77	1.66	0.57	1.02	3.04	3.06
DTEo		1.148	0.999	0.057	0.037	0.071	0.027	0.041	0.071	0.090
DTEd		1.291	1.142	0.725	0.704	0.738	0.694	0.708	0.738	0.758
DTEh		1.22	1.07	0.39	0.37	0.40	0.36	0.37	0.40	0.42
% Lipids		7.97	7.05	1.25	0.89	1.39	0.64	0.97	7.47	9.32
Sample weight (g)		50.0	50.3	50.0	49.9	50.2	33.4	50.2	49.9	50.2
Values less than the estab										
* = Values are influenced b										

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1998 DMP										
DEP ID WRI ID	DL pg/g	SCB-WHS-03 pg/g	SCB-WHS-04 pg/g	SCB-WHS-05 pg/g	SCB-WHS-06 pg/g	SCB-WHS-07 pg/g	SCB-WHS-08 pg/g	SCB-WHS-09 pg/g	SCB-WHS-10 pg/g	SCW-SMB-01 pg/g
Compound										
2378-tcdf	0.11	0.91	0.61	0.82	0.75	0.71	0.65	0.69	0.44	0.24
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234789-hpcdf	0.5	0.51	0.56	0.78	0.42	0.72	0.41	0.36	0.35	0.29
ocdf	0.5	0.55	0.32	0.66	0.47	0.36	0.21	<DL	<DL	0.20
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.79	0.64	0.75	0.67	0.81	0.93	0.71	0.45	0.25
ocdd	0.5	2.41	1.88	2.95	1.98	2.38	1.87	1.65	1.56	0.66
DTEo		0.104	0.073	0.098	0.086	0.087	0.079	0.080	0.052	0.029
DTEd		0.772	0.741	0.765	0.754	0.754	0.746	0.747	0.720	0.697
DTEh		0.44	0.41	0.43	0.42	0.42	0.41	0.41	0.39	0.36
% Lipids		8.05	6.36	9.80	8.50	8.55	8.41	7.99	5.29	0.56
Sample weight (g)		49.9	49.9	50.1	49.7	50.0	49.9	49.8	50.0	50.0
Values less than the estab										
* = Values are influenced b										

1998 DMP										
DEP ID WRI ID	DL pg/g	SCW-SMB-02 pg/g	SCW-SMB-03 pg/g	SCW-SMB-04 pg/g	SCW-WHS-01 pg/g	SCW-WHS-02 pg/g	SCW-WHS-03 pg/g	SCW-WHS-04 pg/g	SCW-WHS-05 pg/g	SCW-WHS-06 pg/g
Compound										
2378-tcdf	0.11	0.47	0.51	0.75	0.62	0.47	0.68	0.86	0.28	0.95
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	<DL	<DL	<DL	0.28	<DL	0.35	0.30	<DL	0.22
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234789-hpcdf	0.5	0.51	0.43	1.15	0.71	0.51	0.63	0.42	0.21	0.73
ocdf	0.5	0.45	0.31	0.73	0.66	0.48	0.75	0.69	0.26	0.86
2378-tcdd	0.10	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
12378-pecdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.59	0.77	0.81	0.48	0.31	0.52	0.67	0.13	0.72
ocdd	0.5	1.28	1.01	2.58	2.26	1.93	3.01	3.26	1.05	3.61
DTEo		0.058	0.063	0.095	0.102	0.055	0.115	0.127	0.032	0.132
DTEd		0.726	0.731	0.762	0.745	0.723	0.757	0.770	0.699	0.774
DTEh		0.39	0.40	0.43	0.42	0.39	0.44	0.45	0.37	0.45
% Lipids		1.01	0.77	1.70	5.74	4.80	6.72	7.93	2.85	9.08
Sample weight (g)		50.2	49.8	45.4	50.1	50.2	50.2	50.0	50.3	50.1
Values less than the estab										
* = Values are influenced b										

APPENDIX 2. DIOXIN AND FURAN CONCENTRATIONS IN FISH

1998 DMP										
DEP ID WRI ID	DL pg/g	SCW-WHS-07 pg/g	SCW-WHS-08 pg/g	SCW-WHS-09 pg/g	SCW-WHS-10 pg/g	SWP-SMB-01 pg/g	SWP-SMB-02 pg/g	SWP-SMB-03 pg/g	SWP-SMB-04 pg/g	SWP-SMB-05 pg/g
Compound										
2378-tcdf	0.11	0.53	0.24	0.61	0.49	0.33	0.28	0.41	0.48	0.37
12378-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
23478-pecdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123478-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdf	0.25	0.12	<DL	0.29	0.15	0.25	0.19	0.31	0.36	0.26
234678-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123789-hxcdf	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdf	0.5	<DL	<DL	<DL	<DL	1.05	0.77	0.87	1.31	0.91
1234789-hpcdf	0.5	0.36	0.17	0.41	0.32	<DL	<DL	<DL	<DL	<DL
ocdf	0.5	0.39	0.15	0.58	0.51	1.14	0.59	0.96	1.25	0.84
2378-tcdd	0.10	<DL	<DL	<DL	<DL	0.17	0.14	0.22	0.25	0.16
12378-pecdd	0.25	<DL	<DL	<DL	<DL	0.14	0.18	0.26	0.20	0.12
123478-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
123678-hxcdd	0.25	<DL	<DL	<DL	<DL	1.02	0.68	0.94	1.26	0.75
123789-hxcdd	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
1234678-hpcdd	0.5	0.28	0.16	0.47	0.41	0.55	0.47	0.51	0.78	0.63
ocdd	0.5	1.74	0.88	2.28	1.95	2.26	1.59	2.08	2.91	1.85
DTEo		0.072	0.027	0.099	0.072	0.486	0.448	0.660	0.681	0.434
DTEd		0.714	0.695	0.742	0.714	0.754	0.715	0.928	0.949	0.701
DTEh		0.39	0.36	0.42	0.39	0.62	0.58	0.79	0.82	0.57
% Lipids		4.86	2.65	6.17	5.45	1.02	0.61	0.87	1.32	0.78
Sample weight (g)		50.2	50.0	50.0	49.8	42.8	31.8	50.2	49.8	31.7
Values less than the estab										
* = Values are influenced b										

1998 DMP			
DEP ID WRI ID	DL pg/g		
Compound			
2378-tcdf	0.11		
12378-pecdf	0.25		
23478-pecdf	0.25		
123478-hxcdf	0.25		
123678-hxcdf	0.25		
234678-hxcdf	0.25		
123789-hxcdf	0.25		
1234678-hpcdf	0.5		
1234789-hpcdf	0.5		
ocdf	0.5		
2378-tcdd	0.10		
12378-pecdd	0.25		
123478-hxcdd	0.25		
123678-hxcdd	0.25		
123789-hxcdd	0.25		
1234678-hpcdd	0.5		
ocdd	0.5		
DTEo			
DTEd			
DTEh			
% Lipids			
Sample weight (g)			
Values less than the estab			
* = Values are influenced b			

APPENDIX 3

2378-TCDD AND 2378-TCDF IN SLUDGE FROM MAINE WASTEWATER TREATMENT PLANTS

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREATMENT PLANTS (dw)

LOCATION	DATE	%MOIST	TCDD ppt	TCDF ppt
AUBURN VPS	951005		1.3	17.9
AUBURN FIBER	970806		<0.9	9.9
AUGUSTA SANITARY DISTRICT	900409		<1.2	1.3
	900608		<3.9	2.5
	900608		E2.1	10.2
	900914		<20.0	E20.0
	900809		<20	
	910108		<5	5.0
	910220		<1.9	0.8
	910301		<1.9	4.8
	920416		1.9	1.9
	920427		<1.0	1.9
	930223		<1.3	<1.3
	940215		<1.0	<1.0
			<0.02	0.0
			<0.23	1.8
	950227		1.9	<1
	960228		<1	<1
	970408		0.9	<0.9
	980514		<1	<1
ANSON-MADISON SANITARY DISTRICT	910408		<1.3	2.2
	911001		1.7	4.6
BANGOR	950104		20.6	20.7
	950104		20.3	20.2
BERWICK SEWER DISTRICT	861111		<2.5	<4.0
	890301	76.4	14.0	19.9
	890927	75.3	<12.1	<12.1
	891208	87.5	1152.0	872.0
BIDDEFORD	900208		7.2	30.0
	900208		39.0	310.0
	910501		<0.86	3.7
	910703		<0.57	<0.95
	920204		<1.5	2.9
	930121		<2.4	<3.2
	940209		<0.19	<0.48
	940913		<1.0	<2.9
	950815		<.22	1.6
	970218		<0.8	<1.7
BREWER	920520		<2.1	36.0
	920901		<6.0	110.0
	921116		3.8	19.0
	930202		<3.7	11.0
	930511		1.2	9.8
	930810		4.1	24.0
	931118		3.8	26.0
	940201		3.2	24.0
	940517		<0.9	14.0
	940823		4.5	26.0
	941108		5.2	36.0
	950613		<1	18.0
	960611		2.1	17.0
	970212		3.4	22.0
	980622		<1	<1

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREATMENT PLANTS (dw)

LOCATION	DATE	%MOIST	TCDD ppt	TCDF ppt
BOWATER MILLINOCKET	850618		<0.4	
	880602		<1.9	7.3
	940414		<7.4	<8.9
	940506		<.9	6.7
	950316		<.6	4.0
	960711		<1	<1
			<1	4.0
	960914		<0.4	4.4
			<0.3	1.5
	960917		<1	<1
CORINNA SEWER DISTRICT	850506			
	871117		<11.9	<28.8
	880301		<3.0	8.5
	890222		<13.0	
	890510		<5.0	
	900131		2.3	127.0
	900606		<4.0	85.4
	900606		<4.9	82.2
	900919		<10.0	50.0
	901009		<1.5	<.8
	901024		<8.0	
	910313		<5.0	
	910514			
	920304		<3.9	<8.4
	930405		<4.8	19.9
	930811		<9.9	68.6
	940308		<13.1	46.0
	940810		<5.6	7.8
	950321		<2.1	13.3
	960206		<1.8	12.7
American Pulp and Paper BERLIN NH	88		104.0	2930.0
FORT JAMES OLD TOWN	880801		12.0	34.0
	881225	78.6	301.0	963.0
	890423	78.7	380.0	1197.0
	890718	68.8	50.6	478.0
	950103		8.8	65.0
FRASER PAPER LTD MADAWASKA	880903	68.3	13.9	233.0
	890106	79.1	E23.4	204.0
	890406	71.3	E3.83	12.9
	890930	80.1	5.0	E26.6
	940426		<.1	0.8
GARDINER WATER DISTRICT	900918		<0.87	4.6
	910401		1.4	4.4
	911002		<0.54	5.1
	920504		<3.5	9.4
	921116		<.93	<6.4
	930407		<0.13	0.9
	931115		<1.6	<18
	931115			
	931115		<0.9	
	940329		<0.2	<1.1
	941018		<1.2	<4.3
	950221		<2.8	5.2
	951003		<1.7	
	960326		4.1	27.0
	961015		0.8	11.0
	970331		<1.1	<5.8

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREATMENT PLANTS (dw)

LOCATION	DATE	%MOIST	TCDD ppt	TCDF ppt
GEORGIA PACIFIC CO WOODLAND	890113	75.8	<6.2	<3.55
	890424	74.7	<0.63	<4.74
	890718	66.0	<1.76	12.9
	891217		0.9	3.2
	910630		<1	2.0
	910630		<1	1.0
	910630		<1	<1
	910630		1.0	4.0
	910630		<1	<1
	910630		<1	2.0
	911231		<1	2.0
	911231		2.0	5.0
	911231		<1	3.0
	911231		<1	2.0
	930108		<1	<1
	940530		<5.0	<5.0
	941222		<5.0	11.9
	950331		<5.0	14.3
	950630		<5.0	<5.0
	950930		<5.0	24.5
	951231		<1.0	3.4
HARTLAND WASTEWATER TREATMENT PLANT	881007	65.0	<2.86	<1.71
	881221	65.5	<7.25	E6.09
	890312	64.3	<0.28	5.6
	890627	63.3	<1.36	6.5
HAWK RIDGE COMPOST UNITY (compost)	1989-90	mean n=6	6.6	15.9
	1991	(1.6-13)		mean n=4
	900420		2.9	15.0
	900507		3.4	6.0
	900628		3.4	31.0
	900712		5.0	40.0
	900817		3.4	31.0
	900820		3.0	30.0
	900820		5.0	40.0
	901010		<5	30.0
	910115		0.6	6.4
	910207		4.0	59.5
	910806		1.6	15.0
	920123		2.6	18.0
	920318		<1	
	920715		<2.0	34.0
	920818		<1.0	18.0
	921007		2.2	23.0
	930111		<2.2	12.0
	930406		1.7	16.0
	930629		1.7	22.0
	931213		3.4	28.0
	940101		2.6	27.0
	940422		<1.0	12.0
	940422		<1	9.1
	940725		1.6	13.0
	941024		<2.4	13.0
			4.9	33.0
	950724		<1	12.0
	951012		1.1	12.0
	960131		<1	8.8
	960501		<1	6.6
	960709		<1	7.6
	961007		1.4	10.0
HAWK RIDGE COMPOST UNITY	970110		<1	1.5
	970305		<1	3.6
	970725		<1	3.8
	971014		<1	3.8

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREATMENT PLANTS (dw)

LOCATION	DATE	%MOIST	TCDD ppt	TCDF ppt
INTERNATIONAL PAPER CO JAY	850621		51.3W	
	870115		190.0	760.0
	880218		24.0	130.0
	880219		23.0	121.0
	880223		14.0	75.0
	880225		57.0	250.0
	880226		15.0	79.0
	880227		13.0	79.0
	881231		16.6W	143W
	890124		15W	77W
	890126		28.0	112.0
	890323		7.7W	42.6W
	890417		24.0	150.0
	950712		7.2	39.0
	960125		2.6	16.0
	960126		2.8	16.0
	960227		<1.0	14.0
	960228		2.3	14.0
	961015		<1	4.0
	961016		<1	5.4
	961126		4.6	22.0
	961127		2.7	12.0
KENNEBEC SANITARY TREATMENT DISTRICT WATERVILLE	870713			
	871105			
	880118			
	880322			
	880518			
	880921			
	890711			
	891011			
	900410		E7.9	121.0
	900824		3.3	54.0
	901101		3.6	12.0
	901221		3.5	6.7
	901221		3.5	19.0
	910408		<2.3	<3.3
	910606		<2.9	<5.0
	910808		2.3	53.0
	910911		3.1	4.1
	920226		2.6	20.0
	920708		<1.0	11.0
	930914		1.1	6.3
	941021		<1.0	8.2
	951113		<1	1.3
	960924		<1	<1
	971010		<1	12.0
KIMBERLY-CLARK WINSLOW	871008		36.0	
	871201		13.5	
	880331		25.0	219.0
	880630		19.0	177.0
	880930		22.0	189.0
	881231		17.0	181.0
	890331		18.0	177.0
	890628		14.0	89.0
	890927		11.0	67.0
	891231		13.0	115.0
	900201		12.0	86.0
	900628		12.0	94.0
	900928		9.4	76.0
	901231		7.2	63.0
	910214		12.0	86.0
	910411		8.3	100.0
	910630		4.6	62.0
	910930		6.5	69.0
	911101		6.5	63.2

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREATMENT PLANTS (dw)

LOCATION	DATE	%MOIST	TCDD ppt	TCDF ppt
KIMBERLY-CLARK	911203		6.3	68.1
WINSLOW	920225		6.5	72.1
	920623		5.2	55.0
	921006		5.1	60.0
	921228		7.2	59.0
	930317		4.7	47.0
	930629		4.2	37.0
	930917		3.9	42.0
	931231		5.2	44.0
	940101		3.5	31.0
	940401		3.7	27.0
	940909		4.9	33.0
	941231			30.0
	950331		4.4	42.0
	950608		<1	24.0
	950930		2.2	25.0
	951231		3.0	34.0
	960122	RWT	3.0	34.0
	960410		3.1	29.0
	960702		4.4	36.0
	960702D		1.6	17.0
	961030		2.4	18.0
	961030D		<1	17.0
	970318	RWT	2.4	16.0
	970616	RWT	1.4	16.0
	971104	RWT	1.3	23.0
LEWISTON-AUBURN	871231		<1.0	an for year (n=
TREATMENT PLANT	881031		0.0	
	900809		E10	9.0
	910306		<7.3	<7.3
	920610		<0.8	4.5
	930625		<1	4.4
	930922		<2.7	<2.5
	950405		<2.2	0.8
	960625		<1	<1
	961202		<1	21.0
LINCOLN PULP & PAPER CO	881119		48W	223W
LINCOLN	890123	80.9	44.0	203.0
	890123		44.0	173.0
	890407	85.1	49.0	298.0
	890407		41.0	219.0
	890831	83.5	182.0	640.0
	890831		156.0	625.0
	890831		41.0	220.0
	890831		59.0	294.0
	921231		20.4	91.6
	931014		9.1	187.5
	940331	PRI SL	14.9	154.0
	940331	SEC SL	97.1	734.0
	960302		<0.4	<0.3
	960419		4.2	21.7
	960431		4.2	25.1
	970831		3.7	12.7
	971130		<1.5	3.7
	980930		<0.7	1.2
MEADE PAPER	850621		32.0	
RUMFORD	880602		105.0	674.0
	890108	77.1	114.0	569.0
	890407	73.1	46.5	184.0
	890628	76.8	E9.91	134.0

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREATMENT PLANTS (dw)

LOCATION	DATE	%MOIST	TCDD ppt	TCDF ppt
OAKLAND TREATMENT PLANT	910304		<2.5	10.0
	910329		<5	10.0
	920415		<1.0	<1.0
	920415		<1	<1
	930408		<1.0	<1.0
	930501		<1.0	11.0
	940426		<1.0	<1.0
OLD TOWN	880525		<3.0	<3.0
	900212		<2.2	16.7
	910918		<2.9	6.6
	910918		<2.2	
ORONO TREATMENT PLANT	900316		2.1	
	900412		8.5	
	901001		3.5	9.2
	901021		3.9	
	910324		<2.1	9.5
	910918		<2.9	6.6
	920323		<0.6	7.6
	920328		9.4	
	920915		<0.5	5.4
	921015		1.1	
	930427		1.3	
	930427		<0.5	3.4
	940502		<0.6	2.5
PERC	910417		<2.0	9.9
PORTLAND WATER DISTRICT PORTLAND	861205			
	870402			
	871124			
	880913			
	891206		E1.2	11.3
	891206		1.6	14.5
	901002		<3	10.0
	901002		<3	20.0
	910826		<64	<32
	910828		<66	<140
	920715		<1.1	6.4
	920715		0.9	7.6
	930719		<1	2.3
	930719		<1.1	<3.2
	940718		<1.0	0.8
	950727		0.5	1.0
	960807		<0.7	<0.1
	980811		<0.4	3.4
	980514		<1	<1
WESTBROOK WWTF	861205			
	870402			
	871119			
	891205		E1.6	14.5
	901001		<3.0	9.0
	910826		<64	<32
	920714		<1.1	7.6
	930719		<1.0	3.2
	980811		<0.2	4.1
REGIONAL WASTE SYSTEMS PORTLAND	890111	ash	5.5	28.0
	890112	ash	6.0	24.0
	890113	ash	10.0	50.0
	890114	ash	10.0	20.0
	890121	ash	6.0	90.0
	900211	ash	E20	210.0

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREATMENT PLANTS (dw)

LOCATION	DATE	%MOIST	TCDD ppt	TCDF ppt
ROBINSON MANUFACTURING OXFORD	870113		10.1	17.5
	880419		<0.4	<0.2
	881004		<7.3	<9.6
	890119		<0.39	<1.2
	890119D		<2.1	<1.1
	910226		<3.0	<3.0
	910305		<3	<0.3
	910308		<3	<3
	910323		<5	<5
	910323		<3	<3
	920610		<1.2	<1.0
	960216		<1	0.1
	960315		<1	4.2
	970220		<1	<1
	980218		<1	<1
SAPPI -SOMERSET	861217		<2	47.0
	870519		13.0	21.0
	870930			
	871215		60.0	
	880325		27.0	88.0
	880630	EPA	67.0	33.0
	881014		40.0	98.0
	881220		54.0	177.0
	890303		54.0	92.0
	890629		23.0	53.0
	890926		<.8	16.0
	891205		18.0	52.0
	900314		<18	23.0
	900620		35.0	73.0
	900916		45.0	86.0
	901215		39.5	115.0
	910324		23.1	51.0
	910626		39.4	146.0
	910910		69.9	260.0
	920624		33.0	856.0
	920923		20.0	39.0
	921218		15.0	45.0
	930107		11.0	31.0
	930616		23.0	73.0
	930916		56.0	170.0
	931229		42.0	110.0
	940108		31.0	95.0
	940627		33.0	89.0
	940926		12.0	36.0
	941212		11.0	20.0
	950313		3.6	15.0
	950510		3.3	11.0
	950914		9.6	25.0
	951120	comb	1.2	4.2
	960304		?	68.0
	960625		4.5	49.0
	960805		?	52.0
	961210		?	32.0
	970224		2.8	64.0
	970319		5.5	26.0
	970519		?	38.0
	970624		8.5	36.0
			4.9	
	970917		<.71	2.0
	971216		<.28	0.7
	980316		<.79	<6.2
	980527		1.0	2.5
	980928	dredging	6.6	18.0
	981208		<.4	0.7

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREATMENT PLANTS (dw)

LOCATION	DATE	%MOIST	TCDD ppt	TCDF ppt
SAPPI - WESTBROOK	850620		17.2	
	870929		31.0	
	871231		21.0	135.0
	880331		5.6	21.0
	880401		8.7	3.9
	880630		13.0	55.0
	881207		19.0	127.0
			19.0	69.0
	890106		<1.8	31.0
	890600		<1.2	13.0
	890600		5.3	35.0
	890600		<.2	0.2
	890600		<.4	8.8
	890600		69.9	60.0
	891031		5.0	30.0
	891130		3.0	30.0
	891231		7.0	50.0
	900131		6.0	20.0
	900228		2.7	24.6
	900331		5.1	33.6
	900430		5.9	34.6
	900531		5.3	25.8
	900630		19.0	26.0
	900730		5.2	20.6
	900831		2.9	12.1
	900930		2.5	10.0
	901231		7.7	35.7
	910917		70.0	275.0
	910331		3.4	21.5
	910630		2.9	19.6
	910930		3.8	14.2
	911231		2.4	25.1
	920331		1.2	19.4
	920505		1.6	10.8
	920821			24.5
	940131		0.9	11.6
	940324			12.3
	940728		2.1	17.3
	941213		5.3	29.2
	950329		1.2	20.0
	950602		1.0	10.1
	950911			18.3
	951120		1.1	23.3
	960327		2.0	9.6
S PORTLAND STP	880000		<8.65	<48
	900314		<5.3	<3.5
	900314		<2.7	<5.4
	910508			<10
	910531		<5	
	920401		<1.0	<0.8
	920428		<0.8	1.4
	920714		0.9	6.4
	930324		<2.8	<2.8
	940315		<1.0	3.9
	941005		8.7	48.0
	950405		<1	3.3
	960610		<1	5.3
	970616		<1	15.0
STATLER TISSUE CO AUGUSTA	880930	62.6	36.9	414.0
	881223	61.4	37.6	326.0
	890403	61.6	34.6	242.0
	890628	65.5	17.7	414.0

D=duplicate analysis

APPENDIX 4

2378-TCDD AND 2378-TCDF IN EFFLUENT FROM MAINE WASTEWATER TREATMENT PLANTS

APPENDIX 4. 23378-TCDD AND 23378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
ANSON MADISON	920408		<3		<3
MADISON	921001		<3		20
BREWER	920624		<5.9		
	930429		<3.9		
	941129		7.4		
	950503		<3.6		
	960416		<10		
GEORGIA PACIFIC	880101		6.8		25
WOODLAND	900316		<5		4
	900423		<3		<6
	900531		<8		<5
	900619		<3		<1
	900716		<1		<3
	900807		<2		<5
	910630		<10		<10
	910630		<10		<10
	910630		<11		<11
	910630		<11		<11
	910630		<11		<11
	910630		<11		<11
	910630		<10		<10
	910630		<11		<11
	910630		<11		<11
	911231		<10		<10
	911231		<10		<10
	911231		<11		<11
	911231		<11		<11
	911231		<10		<10
	911231		<11		<11
	911231		<10		<10
	911231		<11		<11
	911231		<11		<11
	930408		<10		<10
	930506		<10		<10
	930713		<10		<10
	940530		<10		<10
	941222		<10		<10
	950331		<10		<10
	950630		<10		<10
	950930		<10		<10
	951231		<10		<10
	980330				60
	980421		<10		60
	980825	BP<10	<10	BP10	40
	981230	BP<10	<10	BP<10	<10

APPENDIX 4. 23378-TCDD AND 23378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)	TCDF (pg/l)
INTERNATIONAL PAPER	880101		88	420
JAY	880715		30	150
	890307		30	100
			E6	E20
			E20	E20
	890310		16	74
	890616		<8	980
	890621		17	140
	890713		<16	50
	890720	DEP	30	150
	890818		20	110
	900413		<10	90
	910924		<10	60
	910926		<10	60
	911129		50	210
	911219		<20	<80
	920125		20	110
	920126		20	110
	920127		30	100
	920128		30	100
	920129		13.7	49.9
	920312		19.3	65.6
	920320		14.8	73.9
	920423		<13.9	59.1
	920610		<5.7	29.5
	920617		<6.3	30.8
	920723		<8.4	33.6
	920819		6.6	29.7
	920923		<2.6	<2.0
	921111		<6.1	22.4
	921202		<2.6	<14.4
	930125		5.4	19.6
	930222		<5.3	25.5
	930420		<2.0	16.7
	930527		4.3	10.3
	930716		<5.2	28.9
	930826		<5.3, <6.5	21.5, 19.2
	930910		<8.6	9.4
	931022			19.5
	931119		<3.6	19.5
	931224		10.9	31.1
	940125		<4.1	21.6
	940226		7.3	38
	940422		7.7	41.1
	940520		4.1	25.6
	940722		<3.4	16.7
	940829		<7.9	31.8
	941027		<3.4	25.3
	941125		<6.8	24.4

APPENDIX 4. 23378-TCDD AND 23378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/1)		TCDF (pg/1)
INTERNATIONAL PAPER	950126		<5.0		20.9
JAY	950222		<3.6		21.4
	950420		<2.5		25.6
	950527		<1.8		24.1
	950724		<3.2		16.1
	950826		<4.9		7.5
	950929		<6.0		15.4
	951020		<8.5		12.9
	951122		<3.8		10.5
	960228		<10		6.5
	960430		<10		12.8
	960530		<10		15.7
	961030		<10		7.7
	961130		<10		<10
	970130		<10		<10
	970228		<10		11.5
	970330		<10		<10
	970330	BPA	<6.2	BPA	<6.3
	970330	BPB	<5.1	BPB	<3.7
	970430		<10		14.4
	970522	BPA	4.9	BPA	5.6
	970522	BPB	10.9	BPB	9.6
	970406	BPA	<4.9	BPA	10.9
	970406	BPB	<5.6	BPB	9.6
	970630		<10		6.8
	970730		<10		<10
	970728	BPA	<5.2	BPA	11.5
	970728	BPB	<5.4	BPB	6.3
	970830		<10		<10
	971030		<10		
	971013	BPA	<4.3	BPA	<5
	971013	BPB	<7.2	BPB	<8.3
	971130		<10		
	980117		<2.1		7.1
	980126	BPA	<3.5		<3.2
		BPB	<1.2		<1.7
	980221		<3.7		<3.7
	980406	BPA	<0.6		<2.3
		BPB	<1.4		<1.3
	980516		<3		8
	980613		<1.4		<2.2
	980706	BPA	<2.8		19
		BPB	<1.2		4.8
	980711		<2.3		4.9
	980814		<2.2		<1.1
	981012	BPA	<2.0		45
		BPB	<2.9		<1.6
	981016		<2		5.1
	981116	BPA	<6.8		9.9
	981119		<7		<8.6
	981130	BPB	<3.3		<5.2

APPENDIX 4. 23378-TCDD AND 23378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE	TCDD (pg/l)	TCDF (pg/l)
FORT JAMES	880630	39	
OLD TOWN	890131	27	120
	890222	210	340
	890223	92	290
	890224	77	340
	890320		34
	890324		24
	890325	36	73
	890405	30	110
	890410	17	52
	890411	32	89
	890824	32	94
	890831	13	150
	890911	<4.1	14
	890915	<3.3	<8.1
	890921	<5.7	13
	890927	<5.3	9.7
	891011	<3	11
	891019	<5.2	14
	891102	<6	18
	891106	6.7	22
	891114	<9.5	<7.1
	891127	<6.4	20
	891206	<8.4	13
	891213	<8.3	20
	891221	<4.7	23
	900105	<6.8	<8.3
	900111	<9	<8.5
	900118	<5.9	6.1
	900125	<6.7	10
	900207	<4.6	17
	900214	<6.6	23
	900222	<7.3	15
	900301	<6	11
	900308	<3	12
	900315	<4	16
	900329	<7.4	14
	900407	<7.2	24
	900502	<7	19
	900729	<9.9	49
	910330	17	70
	910430	19	65
	910530	9.5	41
	910630	6.8	43
	910830	11	66
	911030		7.9
	911130	<7.7	<16
	920330	<5.7	50
	920730	16	69
	920830	<4.9	23

APPENDIX 4. 23378-TCDD AND 23378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
FORT JAMES	921030		<3.0		
OLD TOWN	921230		4.8		
	930130		<5.0		14
	930330		<4.9		12
	930530		<4.2		11
	930630		<2.8		15
	930830		<1.6		9.2
	930930		<3.5		7.6
	931130		<3.1		32
	931230		<3.2		19
	940230		<4.8		7.7
	940330		<4.6		12
	940530		<1.5		<4.5
	940630		<3.5		9.2
	940830		<2.0		<4.8
	940930		<4.6		<6.8
	941130		<9.5		<10
	941230		<1.1		5.8
	942730		<1.1		5.8
	950130		<2.4		8.2
	950119		<2.4		8.2
	951230		<1.1		5.8
	950430		<1.4		5.6
	950430		8		36
	950421		<1.4		5.6
	950622		<2		6.8
	950928		<3.8		8.1
	951129		<5.4		13
	951228		<1.4		6.2
	980115	BPA	<2.8		<5.8
		BPB	<11		53
	980130		<3		9.4
		BPA	<2.9		18
		BPB	<2.8		8.9
	980219	BPA	<1.7		12
		BPB	<3.9		39
	980230		<2.6		8.7
	980328	BPA	<5.8		11
		BPB	<5.2		13
	980330		<2		9.1
	980730		<3		<4
	980830	BP	<3.5	BP	<4.2
	980930		<3.2		<4.8
		BP	5.9	BP	28
	981030		<3.2		<4.8
		BP	<3.5	BP	<4.2
	981130		<5.5		<5.4
		BP	<3.4	BP	<4.6
	981230		<1.6		8.7
		BP	<3.1	BP	6.5

APPENDIX 4. 23378-TCDD AND 23378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
HARTLAND	960530		<0.06		
KIMBERLY-CLARK	930308		<10		<12
WINSLOW	930623		<4.6		<3.9
LINCOLN PULP AND PAPER	881130		32		130
LINCOLN	920817		11.2		69.8
	920908		<11		27.3
	921117		7.7		39.1
	921216		<1.9		9.5
	931230		<5.5		<17.3
	940417		1.9		7.5
	950824		1.3		8.5
	960409		1.3		8.5
	970116	BP	25.4	BP	103
	970212	BP	11	BP	43.1
	970522	BP	11.4	BP	27.6
	970813	BP	6.4	BP	14.4
	971001	BP	1.6	BP	1.9
	971231	BP	<2.4	BP	<3.83
	980331	BP	<3.4	BP	<3.7
	980430	BP	<10	BP	13.2
	980630	BP	<8.9	BP	<4.0
	980831	BP	<7.1	BP	<7.6
	980930	BP	<2.3	BP	<2.3
	980930	BP	<4.1	BP	<3.2
	981130	BP	<2.6	BP	<2.7
	981130	BP	<4.9	BP	<3.6
	981231	BP	<1.5	BP	<1.3
MEADE PAPER	880518		120		570
RUMFORD	890301		25		80
	890807		<6		20
	890810		<13		20
	890814		<5		13
	890817		<5		18
	890821		<8		21
	890824		<5		10
	890829		<5		18
	890831		<11		20
	890905		<11		20
	890907		<9		18
	891023		<3		7
	891026		<5		6
	891222		<5		20
	900216		<2		6
	900216		<1		7
	900515		<10		<8
	900515		<1		5
	900627		<3		8

APPENDIX 4. 23378-TCDD AND 23378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE	TCDD (pg/l)	TCDF (pg/l)
MEADE PAPER	900627	<3	9
RUMFORD	920217	<4.6	14
	920221	<4.6	13
	920311	<4.6	9.9
	920316	3.2	8.7
		3.5	12
		4.6	17
	920326	4.5	8.5
	920412	6.3	24
	920613	<4.6	6.8
	920708	<4.6	<5.8
	920831	<4.6	3.5
	920904	<3.8	
	921104	<3.7	
	921201	<2.4	
	930105	<2.4	
	930201	<2.4	<10
	930401	<2.8	<10
	930501	<2.4	<10
	930701	<3.9	12
	930801	<2.8	<3.4
	931001	<3.2	<10
	931101	<3.9	<3.6
	940130	<2.8	<5.2
	940219	<1.9	<1.3
	940417	<3.3	<2.4
	940509	<3.6	<1.2
	940728	<3.7	<1.7
	940829	<2.7	<2.0
	941024	<2.1	<1.1
	941205	<2.7	<1.8
	950131	<10	<10
	950229	<10	<10
	950430	<10	<10
	950531	<10	<10
	950731	<10	<10
	950831	<10	<10
	951031	<10	<10
	951130	<10	<10
	960130	<10	<10
	960330	<10	<10
	960430	<10	<10
	960530	<10	<10
	960730	<10	<10
	960830	<10	<10
	961030	<10	<10
	961130	<10	<10
	970317	<10	<10
	980130	<10	<10
	980230	<10	<10
	980430	<10	<10

APPENDIX 4. 23378-TCDD AND 23378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
MEADE PAPER	980530		<10		<10
RUMFORD	980609	BP	<10		<10
	980730		<10		<10
	980830	BP	<10		<10
	981030	BP	<10		<10
	981130	BP	<10		<10
PULP & PAPER OF AMERICA	970130		<4.2		no data
BERLIN OF NEW HAMPSHIRE	970230		<1.6		<2.2
	970330		<1.8		<1.5
	970430		<1.4		2.8
	970530	BP	<2.7	BP	<2.4
	970730	BP	<1.9	BP	<1.5
	970830	BP	<6.1	BP	<4.8
	971030	BP	<1.6	BP	<1.7
	971130	BP	<1	BP	<.79
	980130		<2.3		4.8
	980230	BP	<4.8	BP	<1.8
	980430	BP	<1.1	BP	<.60
	980530	BP	<2	BP	<1.5
	980730	BP	<2.6	BP	<1.2
	980830	BP	<2.9	BP	<1.7
	981030	BP	<1.9	BP	<4.3
	981130	BP	<6.4	BP	<5.1
SAPPI SOMERSET	880630		16,19		63,100
SKOWHEGAN	900710		<7.1		8.4
	900716		<6.1		5.9
	dup		<5.5		<7.3
	900724		<3.6		<3.9
	930105		<3.4		9.2
	930224		<4.7		15
	930311		<4.0		10
	930409		6.8		18
	930616		6.3		14
	930917		7		17
	931203		7.6		19
	940107		<3.8		9.2
	940624		<10		13
	940923		<11		8.7
	941209		<4.6		6.6
	950310		9		11.6
	950505		<10.3		6.6
	950616		<3.9		<9.4
	950807		5.8		14.5
	950911		2.8		15.3
	951124		<4.2		38.7
	951208		<7.4		29
	960112		<1.6		<2.3
	960209		<3.2		<4.8

APPENDIX 4. 23378-TCDD AND 23378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)	TCDF (pg/l)
SAPPI SOMERSET	960405		<2.7	<2.7
SKOWHEGAN	960610		<3.6	6.5
	960712		<3.0	4.2
	960809		5.8	15
	961108		<4.9	11
	961206		<4.1	9.7
	970103		<4.3	6.2
	970207		<2.0	7.5
	970411		<2.2	5.7
	970509		8.2	12
	970708	BP	<3.0	
	970711		<3.2	<2.9
	970805	BP	<2.9	
	970807	BP	<3.5	
	970815		<3	<3.3
	970820	BP	<3.7	
	970825	BP	<2.3	
	970916	BP	<2.6	
	971017		<9.1	<6.3
	971114		<3.8	<0.51
	980109		<3.5	<1.9
	980112	BP	<3.2	
	980206		<4.3	<2
	980410		<1.6	<1.6
	980608		<5.7	<1.7
	980810		<1.6	<2.5
	980911		<1.9	<2
	981009		<1.9	<1.9
	981106		<2.2	<1
SAPPI WESTBROOK	880101		6.3	
WESTBROOK	1989		1	
	901118		<3	8
	910425		<5	<5
	910716		<8	<5
	911203		<8	<5
	920218		<2.8	7
	920507		<1.2	4.6
	920715		<5.8	<4.9
	921114		<1.8	3.9
	930303		<7.8	16
	930617		<1.5	<6.4
	930915		<2.4	5.7
	931208		<3.4	<7.3
	940130		<6.5	<9.8
	940324			<5.9
	940727		3.6	7.8
	941212		<6.0	<15.8
	950730		<5.4	9.8
	950615		<2.8	<9.9
	950815		<4.3	<21.9

APPENDIX 4. 23378-TCDD AND 23378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
SAPPI WESTBROOK	970519	BP	<7.9	BP	<10
WESTBROOK	970808	BP	5.05	BP	<8.2
	971002	BP	<	BP	13.46
	980324		<1.6		5.9
	980914	BP	13.4	BP	130
	980915		<1.0		11
	980921		<1.9		<1.9
		BP	<10	BP	110
	981118		<10		<10
		BP	<10	BP	130
	981208	BP	<10	BP	140
	981209		<11		<11

BP=BLEACH PLANT

APPENDIX 5

2378-TCDD AND 2378-TCDF IN SEDIMENTS FROM VARIOUS STATIONS ON THE ANDROSCOGGIN RIVER

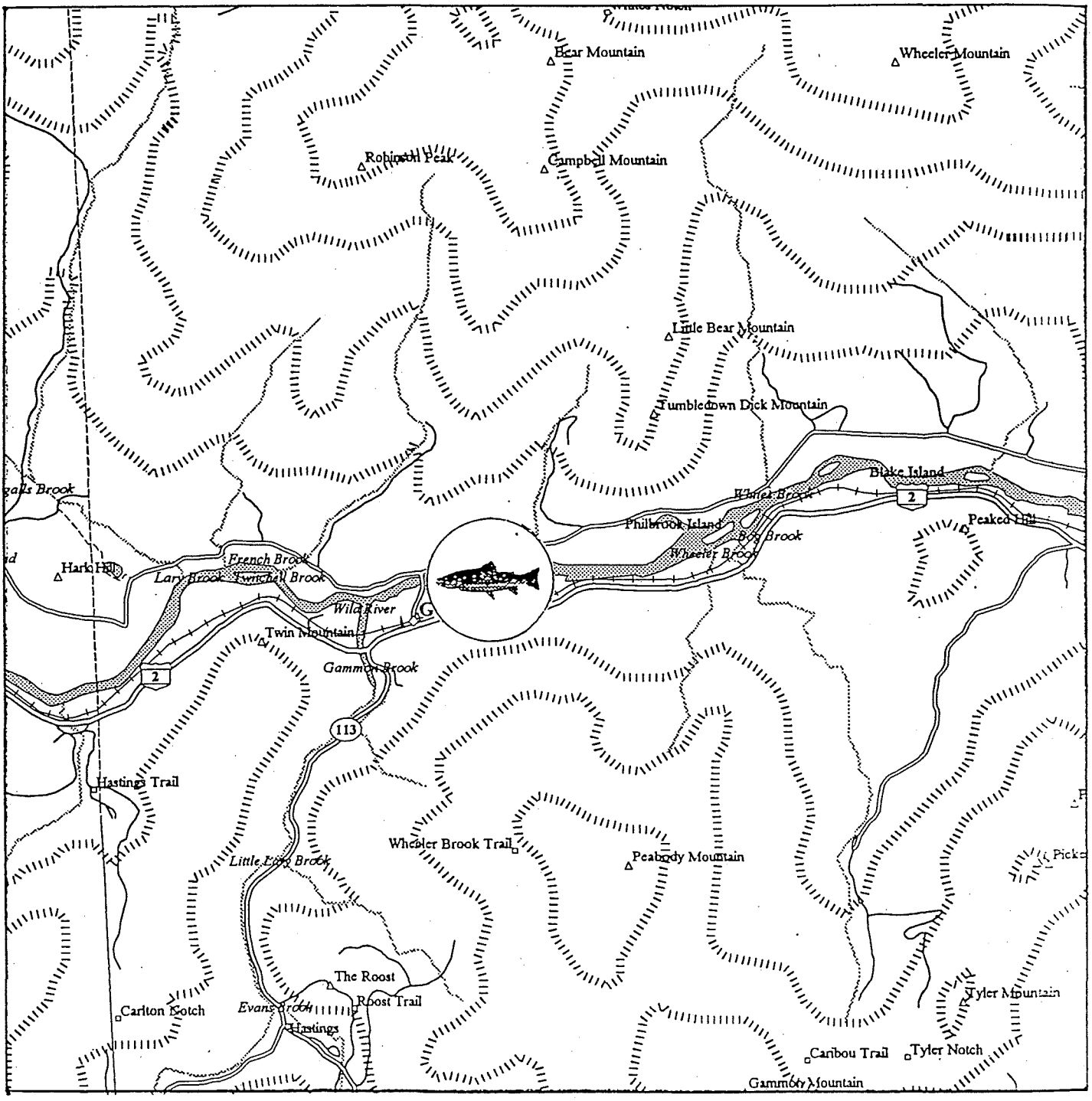
APPENDIX 5. 2378-TCDD AND 2378-TCDF IN SEDIMENTS FROM STATIONS ON THE ANDROSCOGGIN RIVER (pg/g)

LOCATION	DATE	2378 TCDD	2378 TCDF	% MOISTURE	% DOC
Virginia Impoundment Rumford N443147 W703217	910308	4.4	185		2.35
Riley Impoundment Jay N443002 W701458	910306	5.3	168		3.31
Otis Impoundment Livermore Falls N442846 W701213	910327	E6.8	162		2.85
Gulf Island Pond Turner N441520 W701050	850711	23.1			
Gulf Island Pond Turner N441420 W701125	850711	30.3			
Gulf Island Pond Turner N441225 W701210	850711	20.4			
Gulf Island Pond Greene N441040 W701240	850711	39.5 42.6dup			
Gulf Island Pond Greene N440932 W701222	910313	27.4	371		6.79
Worumbo Impound. Lisbon Falls N435950 W700405	910327	4.7	64.2		2.31
Brunswick below dam N435445 W695550	850711	2.5			
Brunswick Cow Island N435520 W695745	850711	1.7			

APPENDIX 6

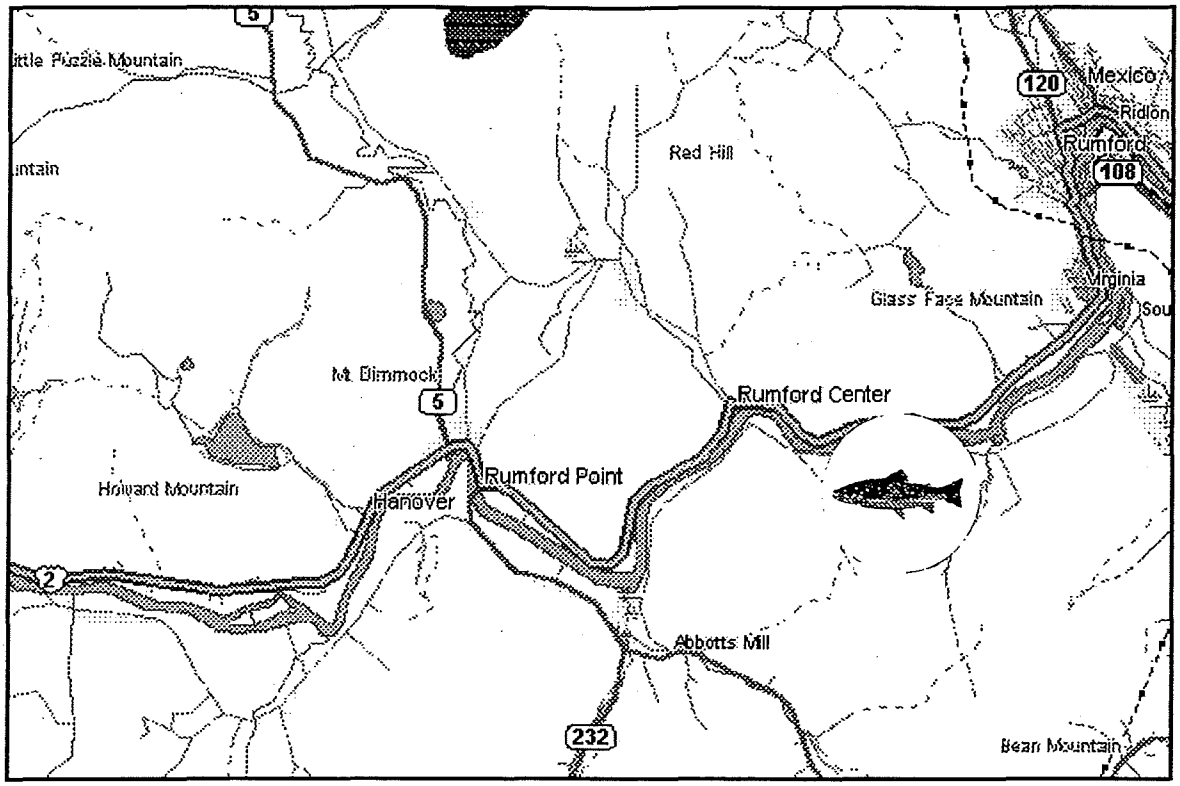
SAMPLE LOCATION MAPS

AGL ANDROSCOGGIN RIVER AT GILEAD

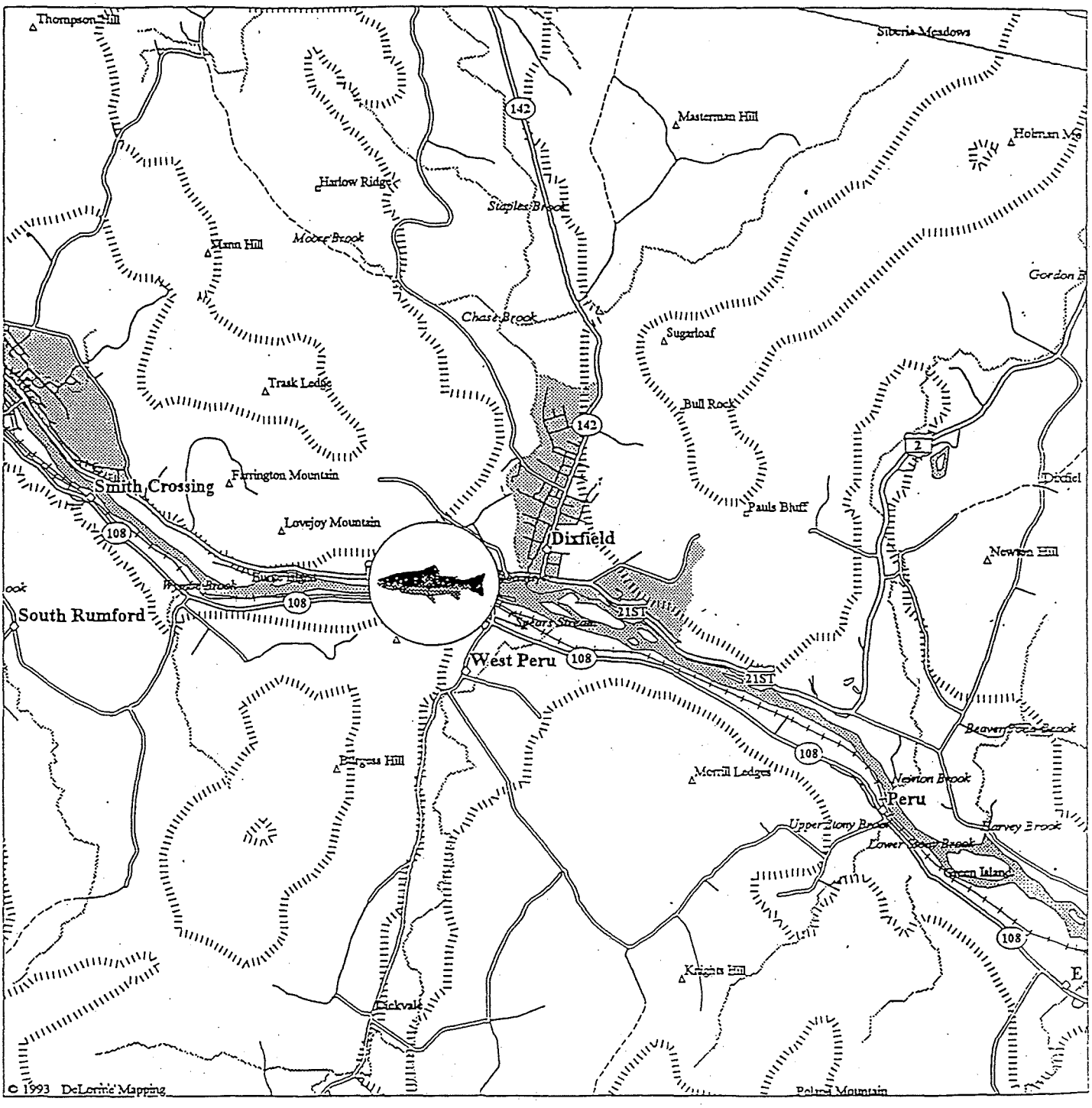


Androscoggin River at Rumford Point

ARP

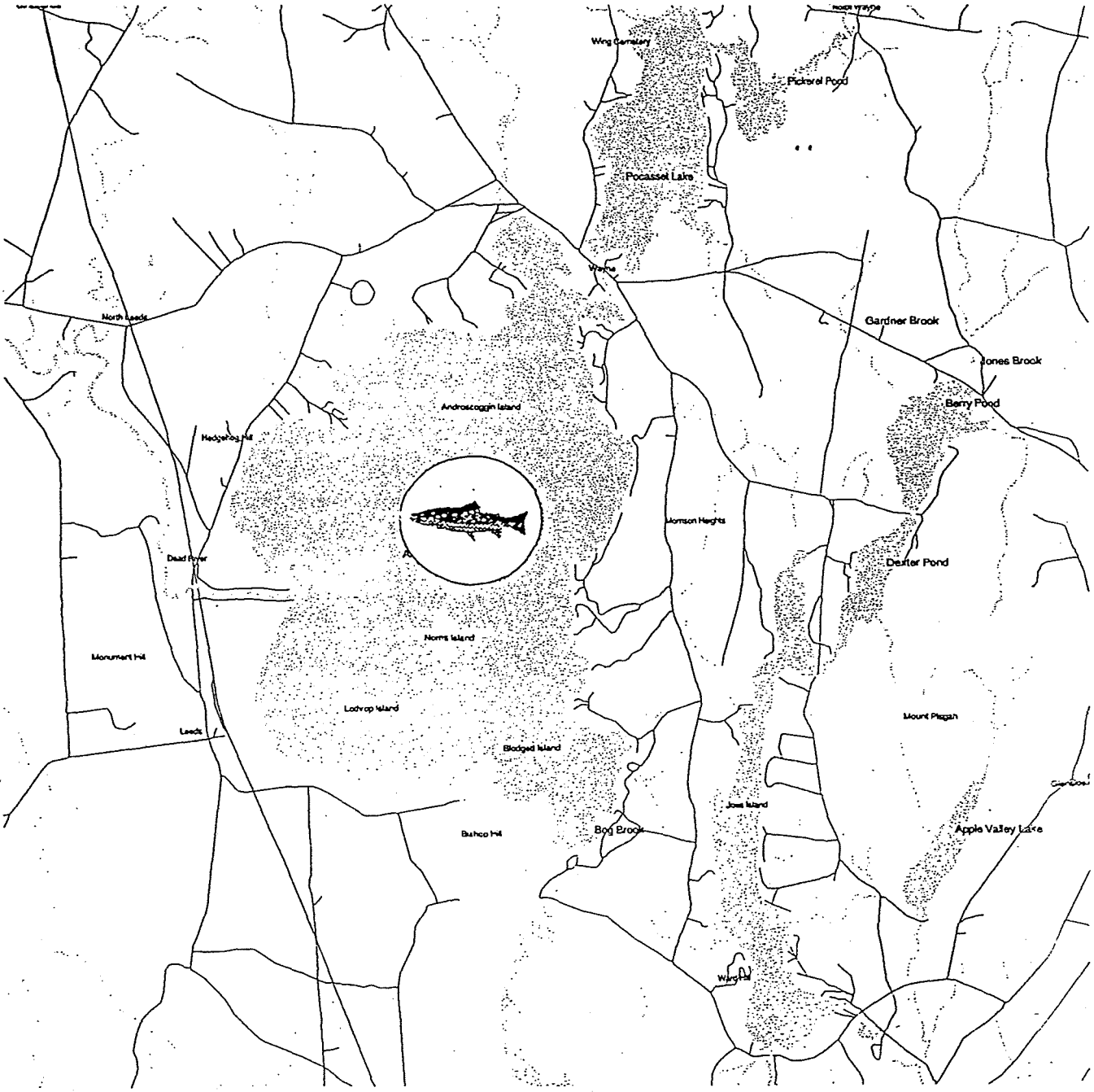


ARF ANDROSCOGGIN RIVER AT RUMFORD



ALV ANDROSCOGGIN RIVER AT LIVERMORE FALLS
ARY ANDROSCOGGIN RIVER AT RILEY

ALW Androscoggin Lake

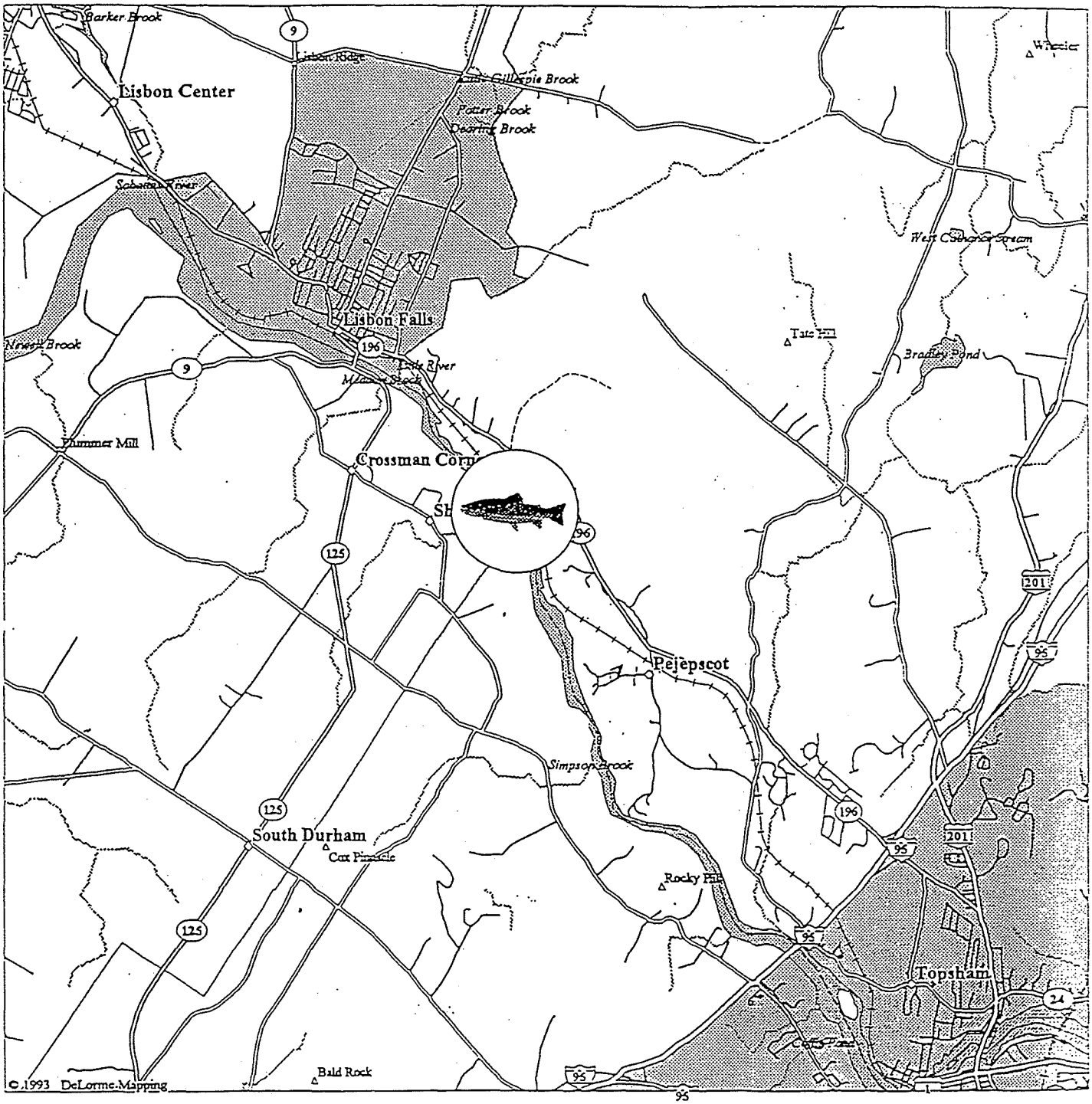


MDEP BL&WQ DEA

AGI ANDROSCOGGIN RIVER AT GULF ISLAND POND, AUBURN

ALS

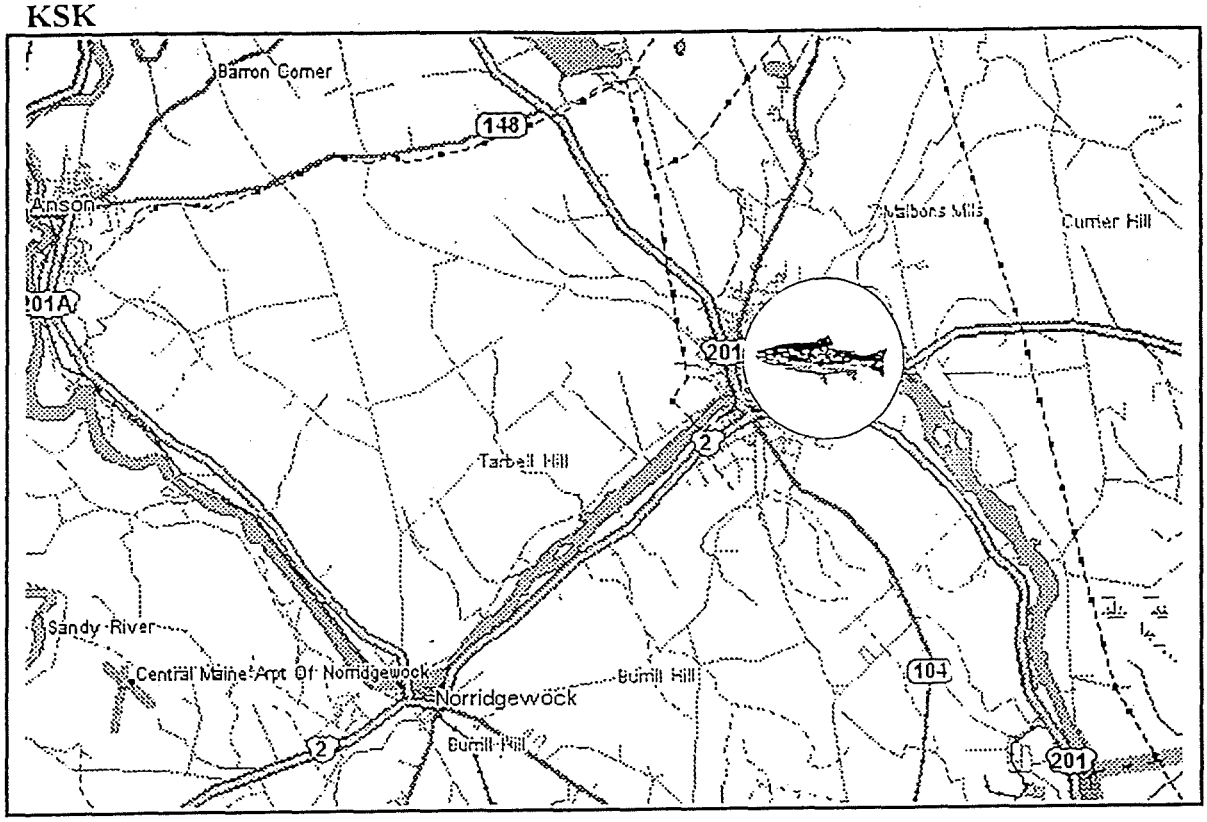
ANDROSCOGGIN RIVER AT LISBON FALLS



KMD KENNEBEC RIVER AT MADISON

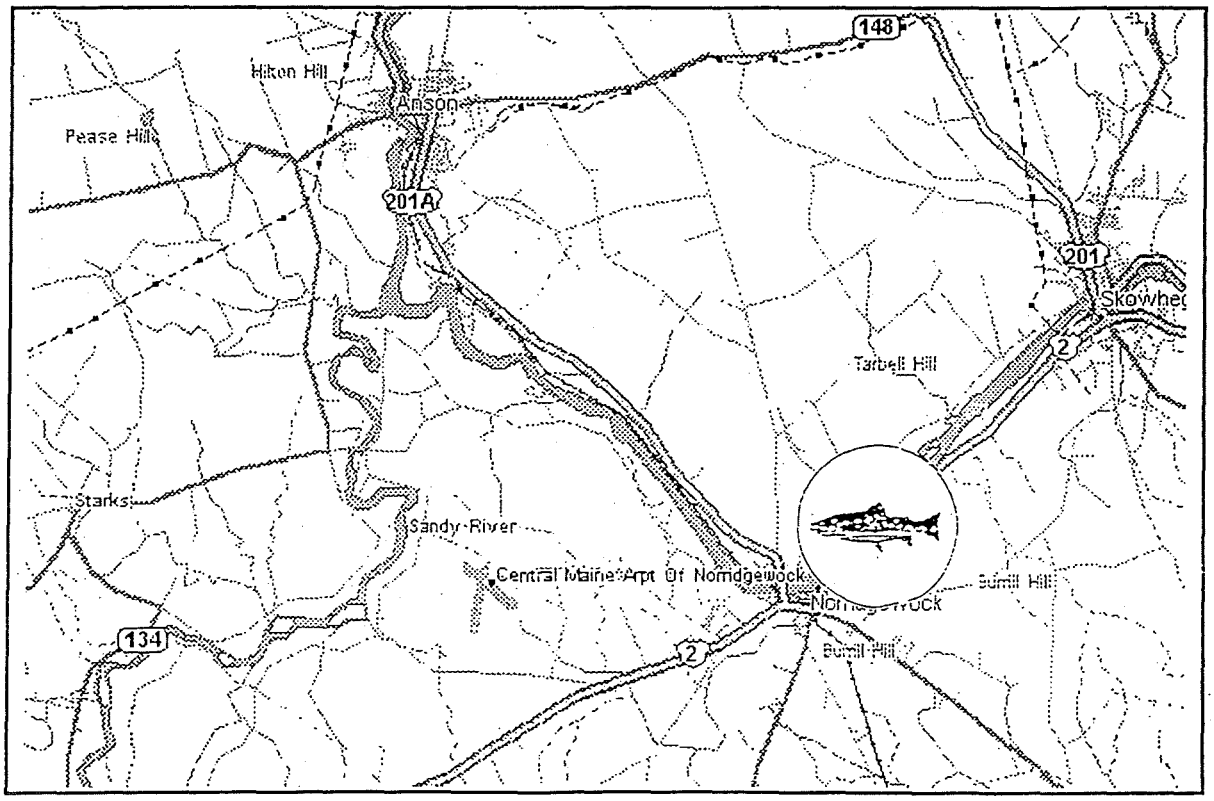
Kennebec River
Skowhegan

KSK



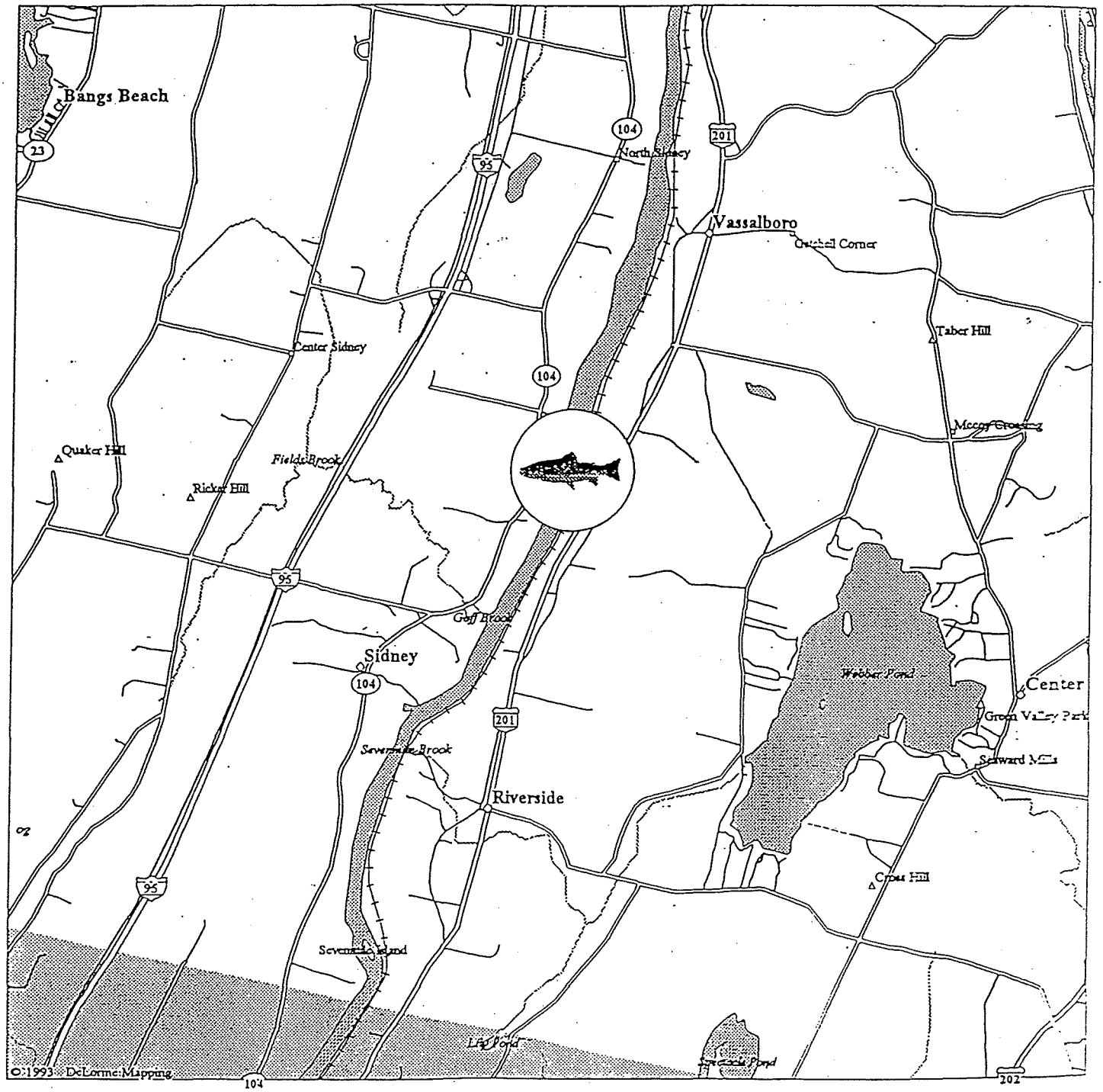
Kennebec River
Norridgewock

KNW



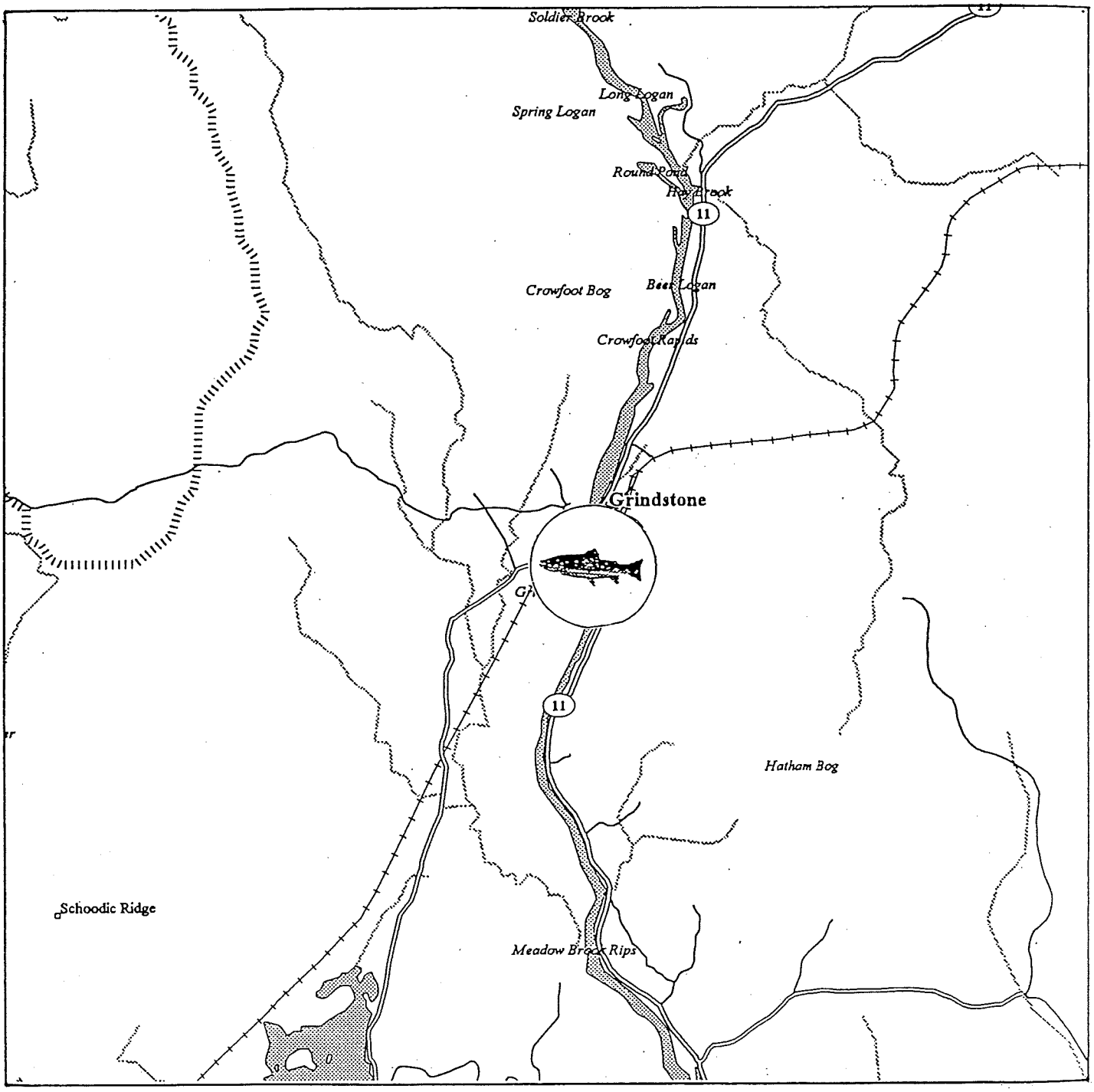
KFF KENNEBEC RIVER AT SHAWMUT, FAIRFIELD

KSD KENNEBEC RIVER AT SIDNEY



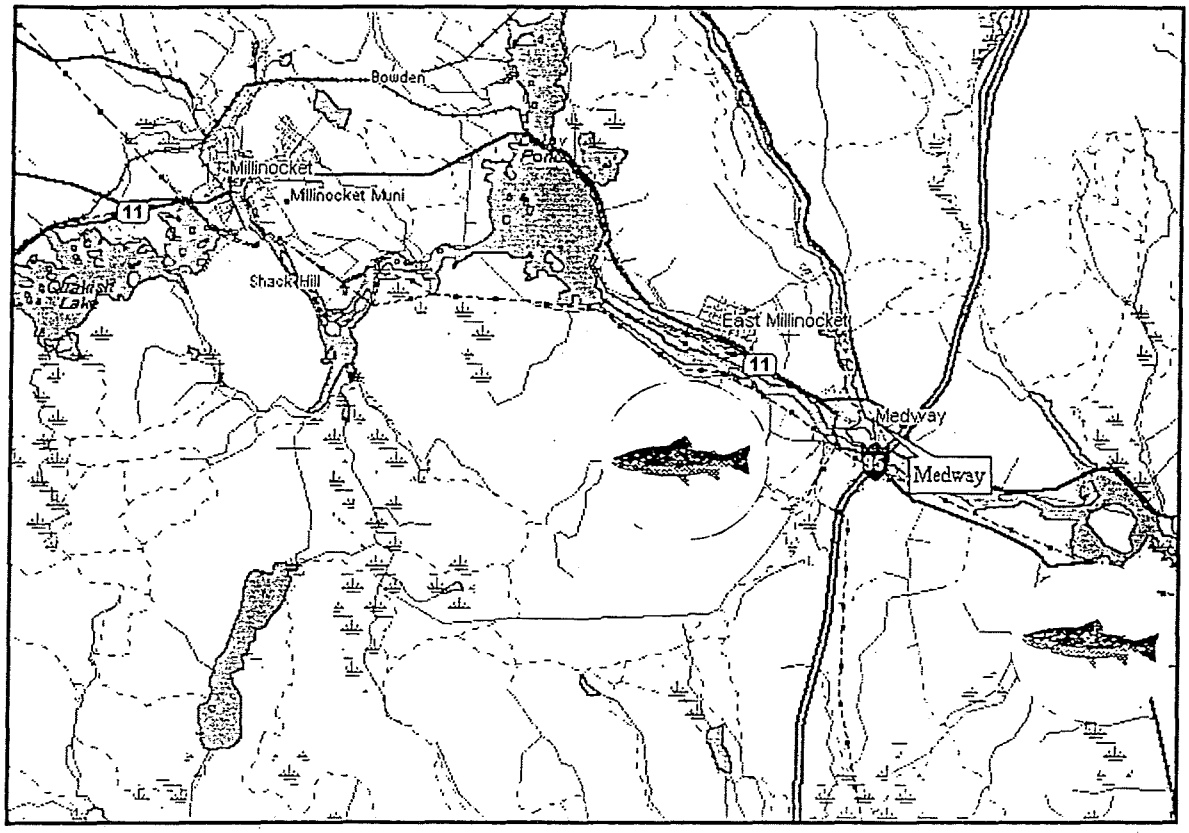
KAG KENNEBEC RIVER AT AUGUSTA

PBG PENOBSCOT RIVER AT GRINDSTONE

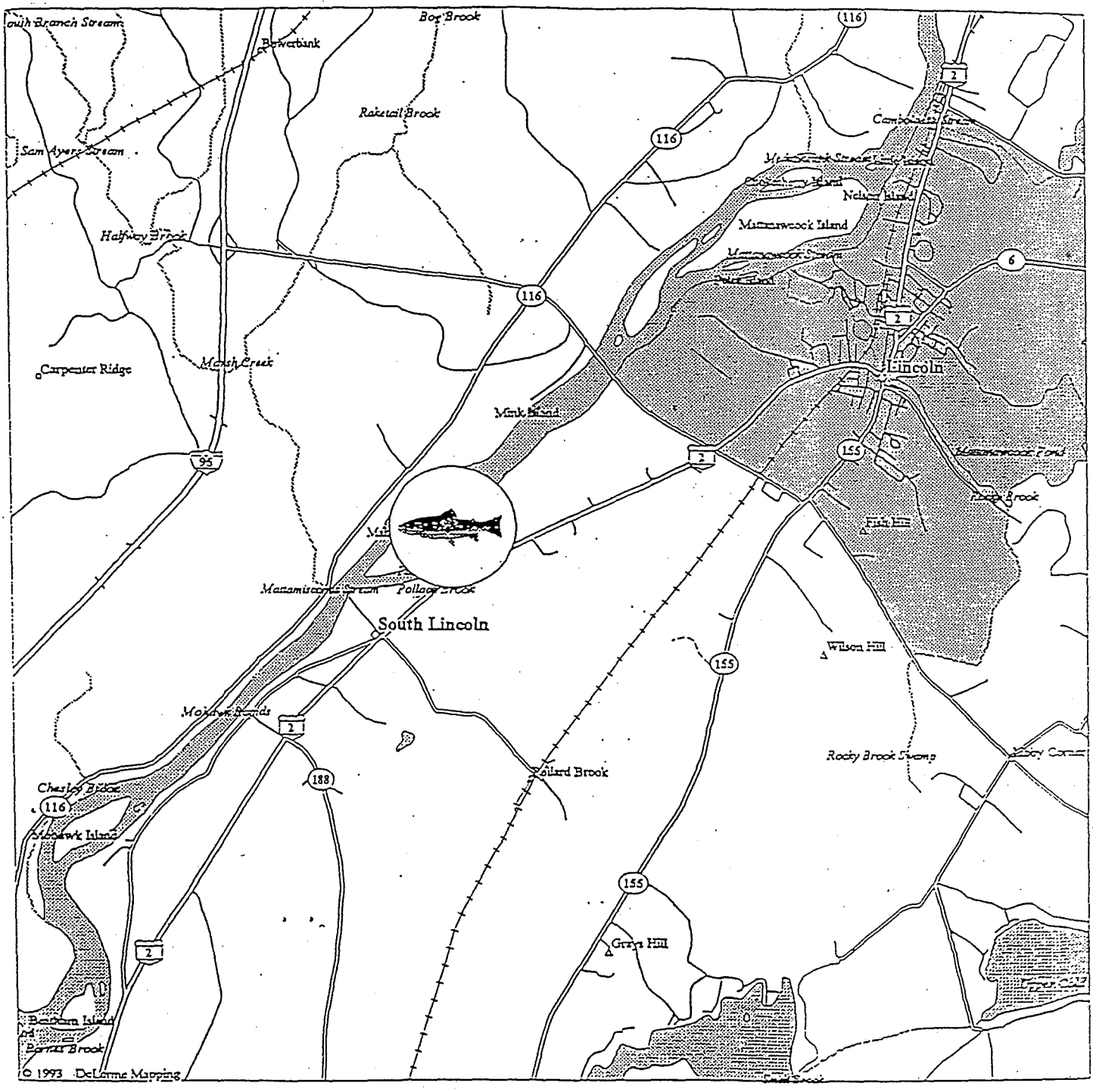


PBR **Penobscot River**
E.Millinocket

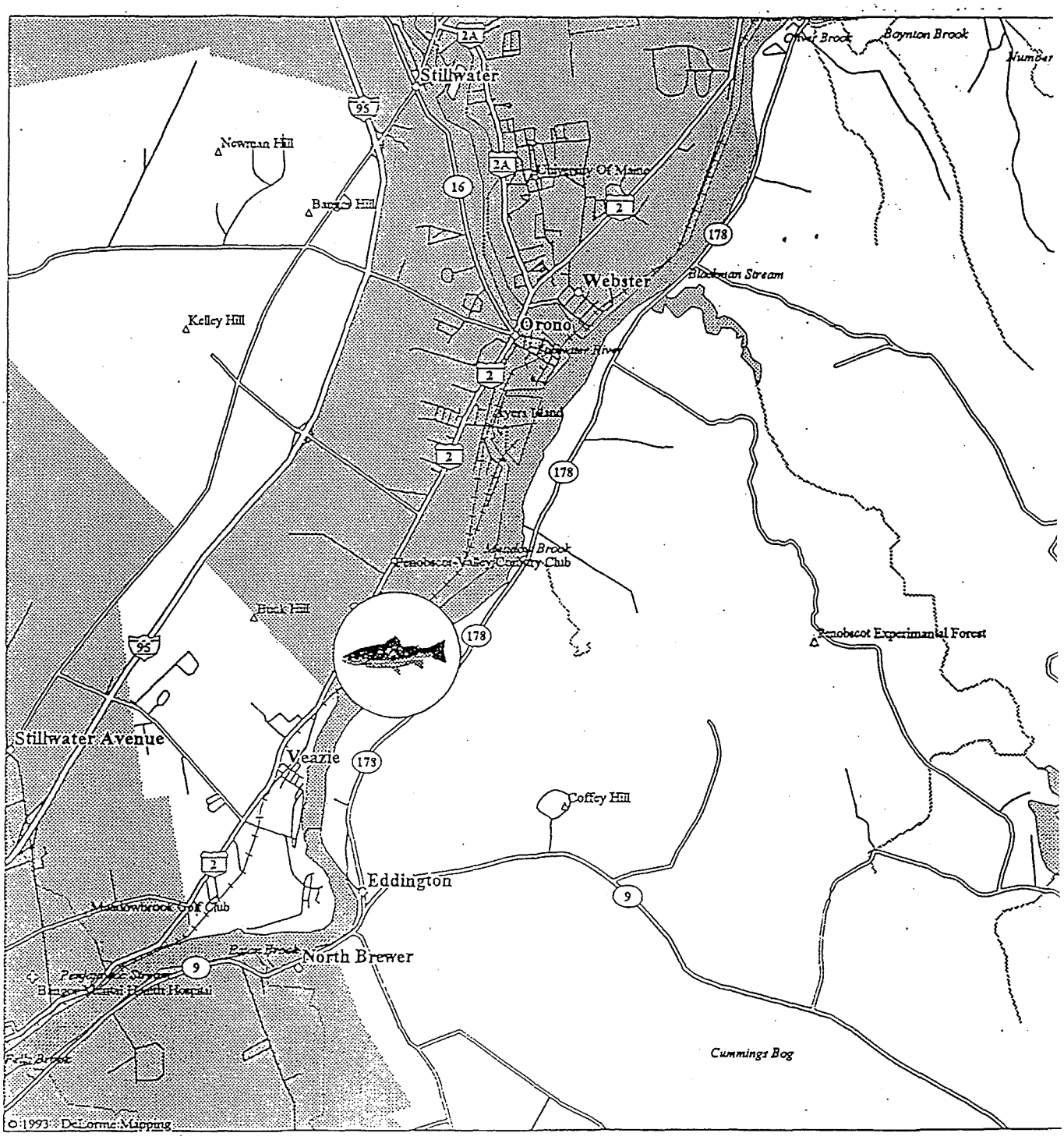
PBW **Penobscot River**
Woodville



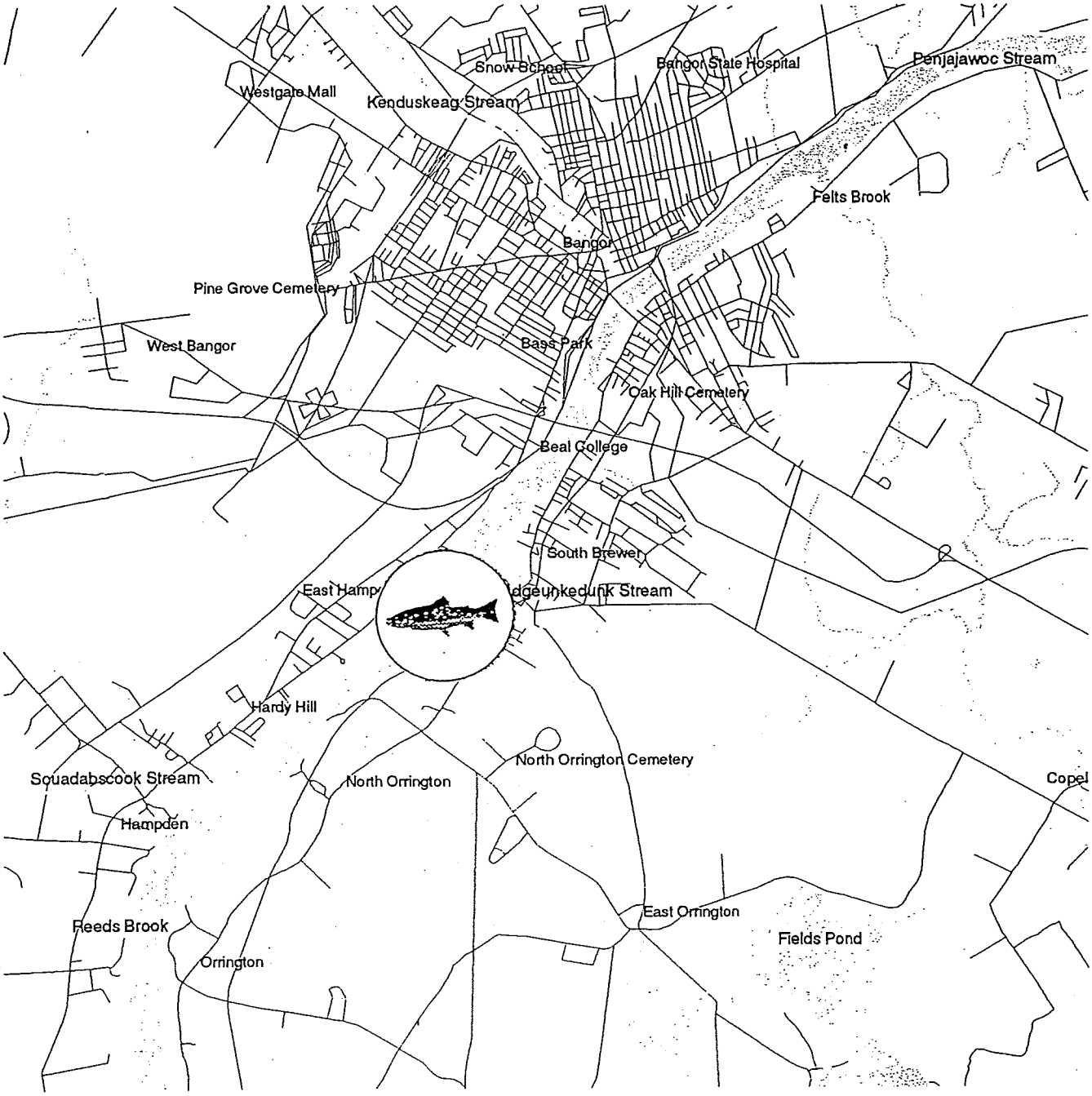
PBL PENOBSCOT RIVER AT SOUTH LINCOLN



PBV PENOBSCOT RIVER AT VEAZIE

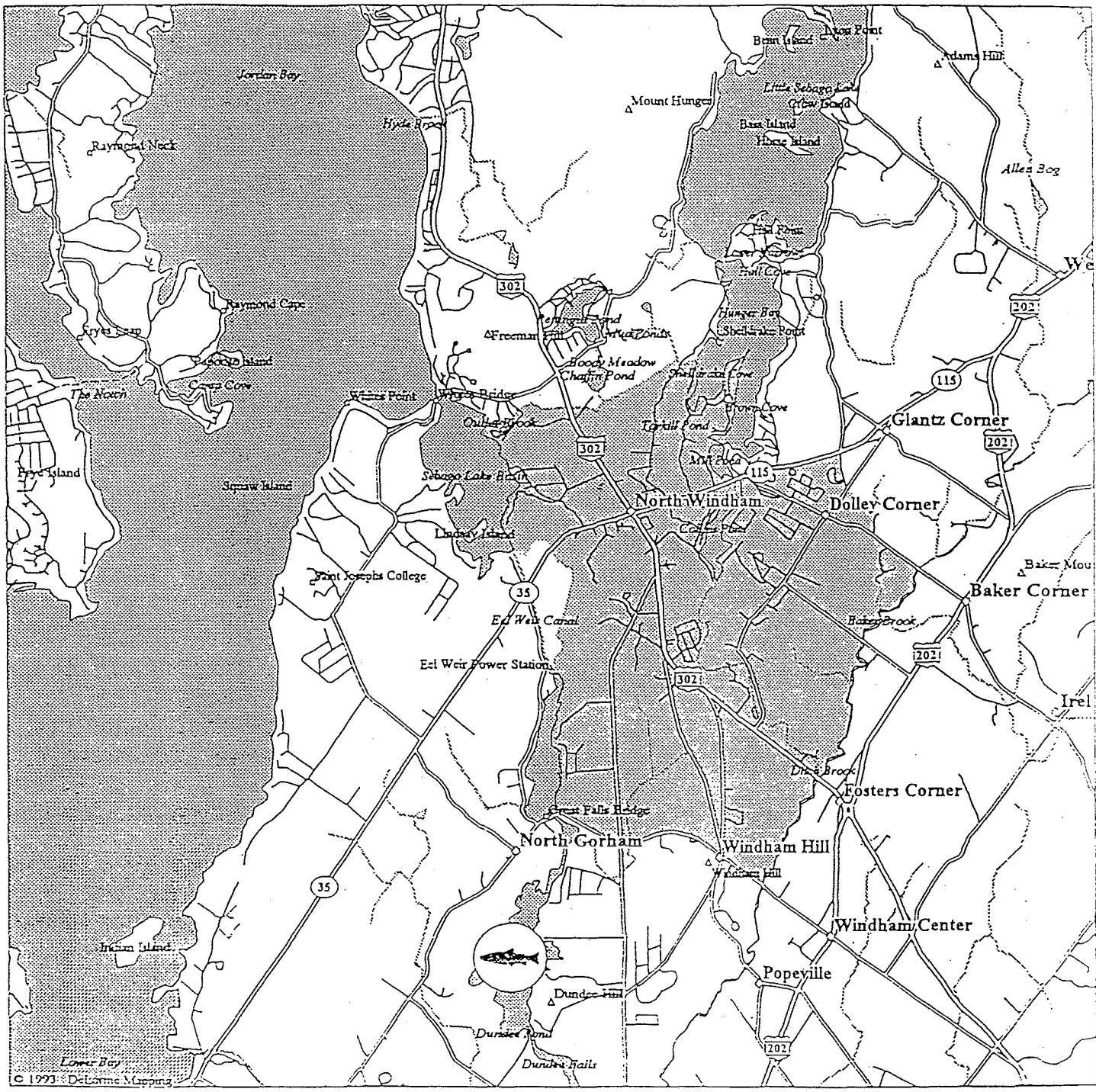


PBB Penobscot River: Bangor



MDEP BL&WQ DEA

PWD PRESUMPSCOT RIVER AT WINDHAM



PWB PRESUMPSCOT RIVER AT WESTBROOK

SFS SALMON FALLS RIVER AT SOUTH BERWICK

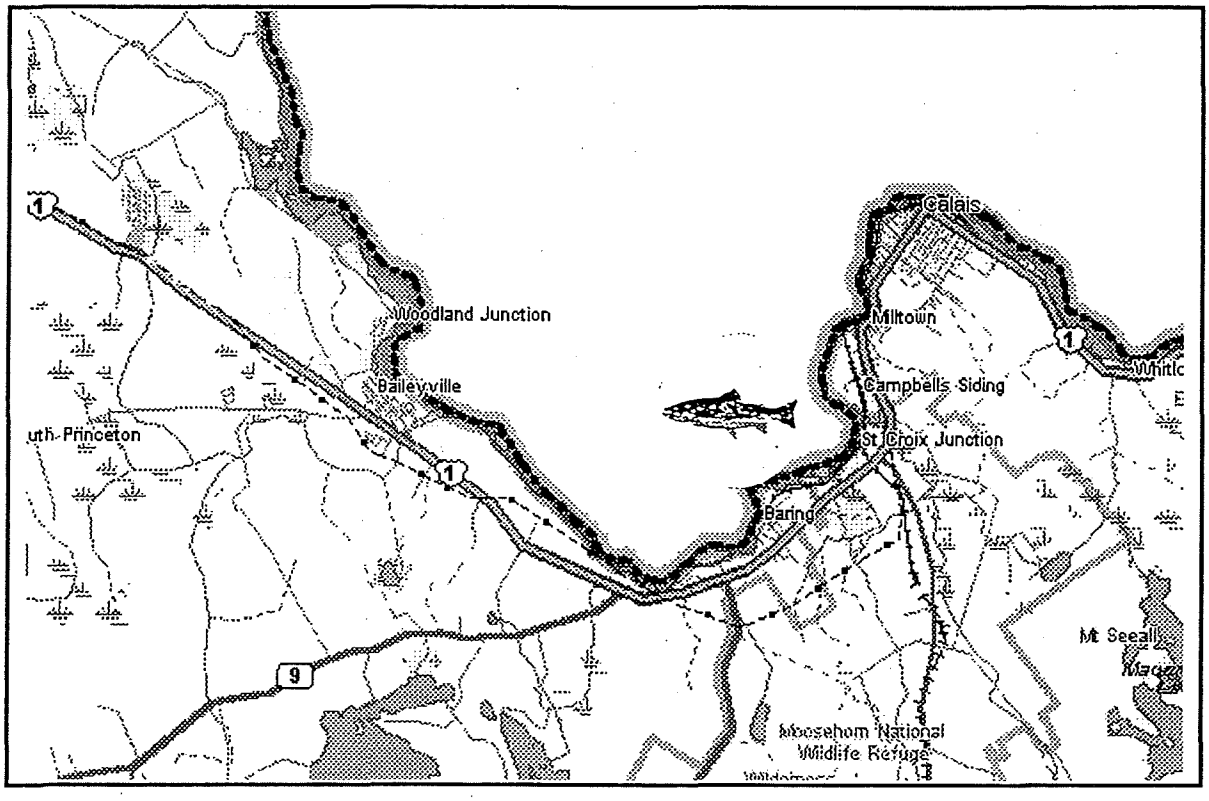
SEN E.BR.SEBASTICOOK RIVER AT NEWPORT

SWH W.BR.SEBASTICOOK RIVER AT HARTLAND

SWP W BR SEBASTICOOK RIVER AT PALMYRA

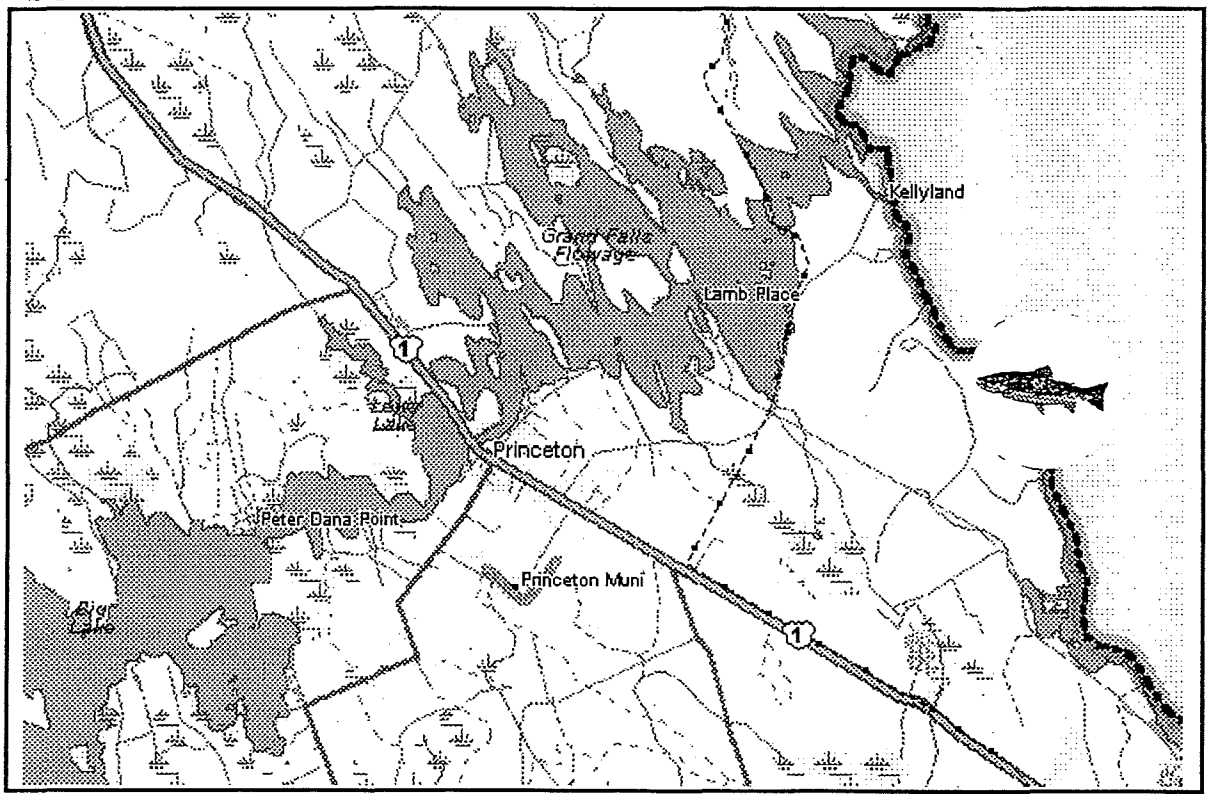
St. Croix River
Baring

SCB



St. Croix River
Woodland

SCW



APPENDIX 7

LENGTHS AND WEIGHTS

IN 1997-8 FISH SAMPLES

Appendix 7. Lengths and weights of 1997 fish

field ID	date yymmdd	length mm	weight gm
ANDROSCOGGIN RIVER			
Gilead			
AGL-RBT-1 T	97/06/13	335	550
AGL-RBT-2 T	97/06/13	292	340
AGL-RBT-3	97/06/16	262	280
AGL-RBT-4	97/06/16	287	330
AGL-RBT-5	97/06/16	272	280
AGL-RBT-8	97/10/17	284	260
AGL-WHS-1	97/06/16	455	1650
AGL-WHS-2	97/06/16	445	1300
AGL-WHS-3	97/06/16	452	1430
AGL-WHS-4 T	97/06/16	427	1140
AGL-WHS-5	97/06/16	434	1130
AGL-WHS-6 T	97/06/16	467	NA
AGL-WHS-7	97/06/16	480	NA
AGL-WHS-8	97/06/16	470	NA
AGL-WHS-9	97/06/16	485	NA
AGL-WHS-10	97/16/06	467	NA
Rumford			
ARF-SMB-1	97/07/08	460	1210
ARF-SMB-2	97/07/08	460	1230
ARF-SMB-3	97/07/08	424	890
ARF-SMB-4	97/07/08	414	750
ARF-SMB-5	97/07/08	307	380
ARF-WHS-1	97/07/07	460	1010
ARF-WHS-2	97/07/07	445	960
ARF-WHS-3	97/07/07	450	930
ARF-WHS-4	97/07/07	442	920
ARF-WHS-5	97/07/08	470	1250
ARF-WHS-6	97/07/08	462	1060
ARF-WHS-7	97/07/08	452	1080
ARF-WHS-8	97/07/08	455	1080
ARF-WHS-9	97/07/08	450	1060
ARF-WHS-10	97/07/08	455	1090
Riley			
ARY-SMB-1	97/07/08	373	580
ARY-SMB-2	97/07/08	394	650
ARY-SMB-3	97/07/08	389	750
ARY-SMB-4	97/07/08	318	360
ARY-SMB-5	97/07/09	422	870

Appendix 7. Lengths and weights of 1997 fish

field ID	date yy/mm/dd	length mm	weight gm
ARY-WHS-1	97/07/08	419	820
ARY-WHS-2	97/07/08	409	860
ARY-WHS-3	97/07/08	419	860
ARY-WHS-4	97/07/08	467	1110
ARY-WHS-5	97/07/08	406	840
ARY-WHS-6	97/07/08	417	870
ARY-WHS-7	97/07/08	406	880
ARY-WHS-8	97/07/08	394	800
ARY-WHS-9	97/07/08	427	880
ARY-WHS-10	97/07/08	434	1050
Livermore Falls Otis			
ALV-SMB-1	97/07/10	384	540
ALV-SMB-2	97/07/10	356	490
ALV-SMB-3	97/07/10	378	540
ALV-SMB-4	97/07/10	384	580
ALV-SMB-5	97/07/10	328	380
ALV-WHS-1	97/07/10	424	960
ALV-WHS-2	97/07/10	411	890
ALV-WHS-3	97/07/10	414	900
ALV-WHS-4	97/07/10	406	880
ALV-WHS-5	97/07/10	406	720
ALV-WHS-6	97/07/10	429	890
ALV-WHS-7	97/07/10	409	980
ALV-WHS-8	97/07/10	406	720
ALV-WHS-9	97/07/10	404	840
ALV-WHS-10	97/07/10	434	900
Auburn			
AGI-SMB-1	97/06/25	315	340
AGI-SMB-2	97/06/25	310	355
AGI-SMB-3	97/06/25	306	315
AGI-SMB-4	97/06/25	276	220
AGI-SMB-5	97/06/25	306	340
AGI-WHS-6	97/06/26	398	615
AGI-WHS-7	97/06/26	370	575
AGI-WHS-8	97/06/26	395	710
AGI-WHS-9	97/06/26	405	765
AGI-WHS-10	97/06/26	400	730
AGI-WHS-11	97/06/26	405	755
AGI-WHS-12	97/06/26	335	465
AGI-WHS-13	97/06/26	369	600
AGI-WHS-14	97/06/26	366	585
AGI-WHS-15	97/06/26	364	625

Appendix 7. Lengths and weights of 1997 fish

field ID	date yymmdd	length mm	weight gm
Lisbon Falls			
ALS-SMB-01	97/07/15	325	460
ALS-SMB-2	97/07/15	378	710
ALS-SMB-3	97/07/15	363	630
ALS-SMB-4	97/07/15	450	1050
ALS-SMB-5	97/07/15	411	1060
ALS-WHS-1	97/07/15	414	740
ALS-WHS-3	97/07/15	396	730
ALS-WHS-4	97/07/15	424	890
ALS-WHS-6	97/07/15	417	880
ALS-WHS-7	97/07/15	424	820
ALS-WHS-8	97/07/15	422	880
ALS-WHS-9	97/07/15	424	860
ALS-WHS-10	97/07/15	427	900
ALS-WHS-11	97/07/15	429	790
ALS-WHS-12	97/07/15	432	810
KENNEBEC RIVER			
Madison			
KMD-SMB-1	97/09/19	213	120
KMD-SMB-2	97/09/19	338	440
KMD-SMB-3	97/09/19	401	1000
KMD-SMB-4	97/10/01	239	180
KMD-SMB-5	97/10/01	226	180
KMD-SMB-6	97/10/01	267	240
KMD-SMB-7	97/10/04	244	190
KMD-SMB-8	97/10/04	234	150
KMD-SMB-9	97/10/04	239	180
KMD-SMB-10	97/10/04	274	280
KMD-WHS-1	97/07/18	450	950
KMD-WHS-2	97/07/18	455	1040
KMD-WHS-3	97/07/18	455	1070
KMD-WHS-4	97/07/18	445	930
KMD-WHS-5	97/07/18	447	980
KMD-WHS-6	97/07/18	467	1170
KMD-WHS-7	97/07/18	455	980
KMD-WHS-8	97/07/18	447	980
KMD-WHS-9	97/07/18	452	930
KMD-WHS-10	97/07/18	460	990

Appendix 7. Lengths and weights of 1997 fish

field ID	date yymmdd	length mm	weight gm
Fairfield			
KFF-BNT-14	97/07/16	478	1350
KFF-BNT-15	97/07/16	422	950
KFF-BNT-16	97/07/16	405	900
KFF-BNT-17	97/07/16	444	1030
KFF-BNT-18	97/07/20	515	1520
KFF-BNT-19	97/07/20	466	1180
KFF-BNT-22	97/08/02	558	2000
KFF-BNT-23	97/08/03	454	1025
KFF-SMB-1	97/07/11	312	400
KFF-SMB-2	97/07/11	343	500
KFF-SMB-4	97/07/11	287	320
KFF-SMB-8	97/07/14	331	460
KFF-SMB-10	97/07/16	340	470
KFF-SMB-11	97/07/16	310	300
KFF-SMB-12	97/07/16	354	560
KFF-SMB-13	97/07/16	350	500
KFF-SMB-20	97/07/20	364	610
KFF-SMB-21	97/07/20	313	400
KFF-WHS-1	97/07/11	430	1150
KFF-WHS-2	97/07/11	490	1595
KFF-WHS-3	97/07/11	454	1225
KFF-WHS-4	97/07/11	436	1300
KFF-WHS-5	97/07/11	449	1225
KFF-WHS-6	97/07/11	453	1200
KFF-WHS-7	97/07/11	483	1200
KFF-WHS-8	97/07/11	460	1275
KFF-WHS-9	97/07/11	459	1300
KFF-WHS-10	97/07/11	499	1475
Sidney			
KSD-SMB-1	97/07/23	315	370
KSD-SMB-2	97/07/23	325	430
KSD-SMB-3	97/07/23	340	420
KSD-SMB-4	97/07/23	323	390
KSD-SMB-5	97/07/23	361	550
KSD-SMB-7	97/07/23	328	370
KSD-SMB-8	97/07/23	310	340
KSD-SMB-9	97/07/23	292	260
KSD-SMB-11	97/07/23	429	960
KSD-SMB-12	97/07/23	462	1260

Appendix 7. Lengths and weights of 1997 fish

field ID	date yymmdd	length mm	weight gm
KSD-WHS-1	97/07/23	411	860
KSD-WHS-2	97/07/23	422	900
KSD-WHS-3	97/07/23	386	800
KSD-WHS-4	97/07/23	401	840
KSD-WHS-5	97/07/23	394	760
KSD-WHS-6	97/07/23	409	820
KSD-WHS-7	97/07/23	401	780
KSD-WHS-8	97/07/23	409	890
KSD-WHS-9	97/07/23	404	890
KSD-WHS-10	97/07/23	483	1290
Augusta			
KAG-BNT-14	97/07/07	572	1850
KAG-BNT-15	97/07/07	516	1275
KAG-BNT-16	97/07/07	350	475
KAG-BNT-17	97/07/07	335	325
KAG-SMB-11	97/07/07	423	800
KAG-SMB-12	97/07/07	350	560
KAG-SMB-13	97/07/07	325	405
KAG-SMB-18	97/07/07	270	200
KAG-SMB-19	97/07/07	335	425
KAG-SMB-20	97/07/07	257	175
KAG-SMB-21	97/07/07	248	160
KAG-WHS-1	97/07/07	398	690
KAG-WHS-2	97/07/07	433	830
KAG-WHS-3	97/07/07	355	480
KAG-WHS-4	97/07/07	354	535
KAG-WHS-5	97/07/07	423	820
KAG-WHS-6	97/07/07	338	435
KAG-WHS-7	97/07/07	358	475
KAG-WHS-8	97/07/07	370	540
KAG-WHS-9	97/07/07	323	365
KAG-WHS-10	97/07/07	333	380
PENOBSCOT RIVER			
Woodsville			
PBW-SMB-1	97/08/27	350	480
PBW-SMB-2	97/08/27	325	390
PBW-SMB-3	97/08/27	438	1140
PBW-SMB-4	97/08/27	359	620
PBW-SMB-5	97/08/27	425	1060

Appendix 7. Lengths and weights of 1997 fish

field ID	date yymmdd	length mm	weight gm
PBW-WHS-1	97/08/27	460	880
PBW-WHS-2	97/08/27	483	1080
PBW-WHS-3	97/08/27	473	1010
PBW-WHS-4	97/08/27	413	790
PBW-WHS-5	97/08/27	425	890
PBW-WHS-6	97/08/27	467	980
PBW-WHS-7	97/08/27	470	1050
PBW-WHS-8	97/08/27	470	1010
PBW-WHS-9	97/09/03	457	920
PBW-WHS-10	97/09/03	432	820
PBW-WHS-11	97/09/03	406	640
PBW-WHS-12	97/09/4	457	970
PBW-WHS-13	97/09/4	457	1010
PBW-WHS-14	97/09/4	463	920
Lincoln			
PBL-SMB-1	97/08/20	432	1040
PBL-SMB-2	97/08/20	394	880
PBL-SMB-3	97/08/20	381	700
PBL-SMB-4	97/08/20	438	1100
PBL-SMB-5	97/08/21	438	1090
PBL-WHS-1	97/08/20	457	1140
PBL-WHS-2	97/08/20	457	1040
PBL-WHS-4	97/08/20	482	1220
PBL-WHS-5	97/08/20	470	1200
PBL-WHS-6	97/08/21	444	1100
PBL-WHS-7	97/08/22	502	1260
PBL-WHS-8	97/08/22	457	1060
PBL-WHS-9	97/08/22	394	810
PBL-WHS-10	97/08/26	470	1150
PBL-WHS-11	97/08/26	444	1000
PBL-WHS-14	97/08/27	457	1090
PBL-WHS-15	97/08/27	444	1070
PBL-WHS-16	97/08/27	444	1010
Milford			
PBC-SMB-1	97/09/09	375	630
PBC-SMB-2	97/09/09	444	1140
PBC-SMB-3	97/09/09	381	820
PBC-SMB-4	97/09/09	368	740
PBC-SMB-5	97/09/09	394	800

Appendix 7. Lengths and weights of 1997 fish

field ID	date yymmdd	length mm	weight gm
PBC-WHS-1	97/09/09	457	1090
PBC-WHS-2	97/09/09	444	1090
PBC-WHS-3	97/09/09	444	930
PBC-WHS-4	97/09/09	432	990
PBC-WHS-5	97/09/09	432	960
PBC-WHS-6	97/09/09	432	1050
PBC-WHS-7	97/09/09	457	1090
PBC-WHS-8	97/09/09	476	1240
PBC-WHS-9	97/09/09	406	890
PBC-WHS-10	97/09/09	432	1050
PBC-WHS-11	97/09/09	451	1200
PBC-WHS-12	97/09/09	432	950
Veazie			
PBV-SMB-1	97/09/04	356	540
PBV-SMB-2	97/09/10	356	540
PBV-SMB-3	97/09/10	279	280
PBV-SMB-4	97/09/11	356	540
PBV-SMB-5	97/09/11	362	720
PBV-WHS-1	97/09/04	381	710
PBV-WHS-2	97/09/04	381	800
PBV-WHS-3	97/09/04	381	680
PBV-WHS-4	97/09/04	406	890
PBV-WHS-5	97/09/5	381	800
PBV-WHS-6	97/09/5	406	880
PBV-WHS-7	97/09/5	394	860
PBV-WHS-8	97/09/5	419	1070
PBV-WHS-9	97/09/09	387	780
PBV-WHS-10	97/09/09	381	780
PBV-WHS-11	97/09/09	394	720
PBV-WHS-12	97/09/09	362	640
PRESUMPSCOT RIVER			
Windham			
PWD-SMB-01	97/06/19	338	NA
PWD-SMB-02	97/06/19	381	NA
PWD-SMB-03	97/06/19	417	NA
PWD-SMB-04	97/06/19	333	NA
PWD-SMB-05	97/06/20	424	NA

Appendix 7. Lengths and weights of 1997 fish

field ID	date yymmdd	length mm	weight gm
PWD-WHS-1	97/06/19	538	NA
PWD-WHS-2	97/06/19	495	NA
PWD-WHS-3	97/06/19	480	NA
PWD-WHS-4	97/06/19	445	NA
PWD-WHS-5	97/06/19	472	NA
PWD-WHS-6	97/06/19	434	NA
PWD-WHS-7	97/06/19	490	NA
PWD-WHS-8	97/06/20	401	NA
PWD-WHS-9	97/06/20	437	NA
PWD-WHS-10	97/06/20	483	NA
Westbrook			
PWB-SMB-1	97/06/23	295	320
PWB-SMB-2	97/06/23	290	300
PWB-SMB-3	97/06/24	272	280
PWB-SMB-4	97/06/24	279	260
PWB-WHS-1	97/06/23	437	1060
PWB-WHS-2T	97/06/23	434	1070
PWB-WHS-3	97/06/23	457	1140
PWB-WHS-4	97/06/23	417	910
PWB-WHS-5T	97/06/23	356	540
PWB-WHS-6T	97/06/23	351	530
PWB-WHS-7	97/06/23	348	500
PWB-WHS-8	97/06/23	414	810
SALMON FALLS RIVER			
Acton			
SFA-SMB-1	97/07/24	376	710
SFA-SMB-2	97/07/24	371	660
SFA-SMB-3	97/07/24	422	940
SFA-SMB-4	97/07/24	343	480
SFA-SMB-5	97/07/29	381	720
SFA-SMB-6	97/07/29	462	1590
SFA-SMB-7	97/07/30	513	2020
SFA-SMB-8	97/07/30	351	540
SFA-WHS-1	97/07/24	432	920
SFA-WHS-5	97/10/05	460	1200
SFA-WHS-6	97/10/05	467	1100
SFA-WHS-7	97/10/05	442	1070
SFA-WHS-8	97/10/05	455	1020
SFA-WHS-9	97/10/05	434	980
SFA-WHS-10	97/10/05	437	1000
SFA-WHS-11	97/10/05	439	960
SFA-WHS-12	97/10/05	437	980
SFA-WHS-13	97/10/05	445	1010

Appendix 7. Lengths and weights of 1997 fish

field ID	date yymmdd	length mm	weight gm
S. Berwick			
SFS-SMB-1MIA	97/07/31	409	850
SFS-SMB-2	97/08/01	424	1040
SFS-LMB-01MIA	97/07	338	440
SFS-CHP-1	97/10	419	500
SFS-CHP-2	97/10	498	860
SFS-WHS-1	97/07/31	439	970
SFS-WHS-2	97/07/31	414	790
SFS-WHS-3	97/07/31	434	880
SFS-WHS-5	97/08/01	419	820
SFS-WHS-6	97/08/01	445	950
SFS-WHS-7	97/10/05	465	1020
SFS-WHS-8	97/10/05	406	820
SFS-WHS-9	97/10/05	429	980
SFS-WHS-10	97/10/05	422	920
SFS-WHS-11	97/10/05	427	930
SEBASTICOOK RIVER			
E BR-Corinna			
SEC-LMB-1	97/06/12	389	940
SEC-LMB-2	97/06/12	343	650
SEC-LMB-3	97/06/12	417	1440
SEC-LMB-4	97/06/12	376	920
SEC-LMB-5	97/06/12	343	600
SEC-LMB-6	97/06/12	414	1250
SEC-LMB-7	97/06/12	335	600
SEC-LMB-8	97/06/12	356	700
SEC-LMB-9	97/06/12	371	1000
SEC-LMB-10	97/06/12	259	340
E BR- Newport			
SEN-LMB-1	97/06/06	422	1570
SEN-LMB-2	97/06/06	390	1200
SEN-LMB-3	97/06/06	300	500
SEN-LMB-4	97/06/09	437	1520
SEN-LMB-5	97/06/09	401	1290
SEN-LMB-6	97/06/09	376	1000
SEN-LMB-7	97/06/09	318	570
SEN-LMB-8	97/06/09	251	300
SEN-LMB-9	97/06/09	384	980
SEN-LMB-10	97/06/09	419	1300

Appendix 7. Lengths and weights of 1997 fish

field ID	date yymmdd	length mm	weight gm
SEN-WHP-1	97/06/02	220	200
SEN-WHP-2	97/06/02	238	240
SEN-WHP-3	97/06/02	227	200
SEN-WHP-4	97/06/06	225	220
SEN-WHP-5	97/06/06	235	220
SEN-WHP-6	97/06/06	240	250
SEN-WHP-7	97/06/06	235	225
SEN-WHP-8	97/06/06	250	260
SEN-WHP-9	97/06/06	236	240
SEN-WHP-10	97/06/06	220	200
W BR- Harmony			
SWH-SMB-1	97/08/04	404	920
SWH-SMB-2	97/08/04	434	1130
SWH-SMB-3	97/08/04	409	930
SWH-SMB-4	97/08/04	417	920
SWH-SMB-5	97/08/04	422	980
SWH-SMB-6	97/08/05	475	1300
SWH-SMB-7	97/08/05	417	920
SWH-SMB-8	97/08/05	457	1180
SWH-SMB-9	97/08/05	389	750
SWH-WHS-1	97/08/04	439	890
SWH-WHS-2	97/08/04	455	960
SWH-WHS-3	97/08/04	437	820
SWH-WHS-4	97/08/05	447	990
SWH-WHS-5	97/08/05	445	940
SWH-WHS-6	97/08/05	429	780
SWH-WHS-7	97/08/05	439	950
SWH-WHS-8	97/08/05	445	970
SWH-WHS-9	97/08/05	450	1000
SWH-WHS-10	97/08/05	452	1040
W BR -Palmyra			
SWP-SMB-1	97/07/08	437	1170
SWP-SMB-2	97/07/08	445	1080
SWP-SMB-3	97/07/08	498	1740
SWP-SMB-4	97/07/08	457	1250
SWP-SMB-5	97/07/08	297	320
SWP-SMB-7	97/07/08	257	240
SWP-SMB-8	97/07/08	259	250
SWP-SMB-9	97/07/08	269	270
SWP-SMB-10	97/07/08	363	620
SWP-SMB-11	97/07/08	267	270

Appendix 7. Lengths and weights of 1997 fish

field ID	date yymmdd	length mm	weight gm
SWP-WHS-1	97/07/08	432	860
SWP-WHS-2	97/07/08	455	1140
SWP-WHS-3	97/07/08	432	1000
SWP-WHS-4	97/07/08	452	1090
SWP-WHS-5	97/07/08	457	1020
SWP-WHS-6	97/07/08	457	1150
SWP-WHS-7	97/07/08	455	1010
SWP-WHS-8	97/07/08	452	1030
SWP-WHS-9	97/07/08	432	910
SWP-WHS-10	97/07/08	429	940
ST CROIX R			
Woodland			
SCW-SMB-1	97/08/01	376	660
SCW-SMB-2	97/08/01	328	420
SCW-SMB-3	97/08/01	295	290
SCW-SMB-4	97/08/01	282	280
SCW-SMB-5	97/08/01	290	280
SCW-SMB-6	97/09/17	355	580
SCW-SMB-7	97/09/17	283	240
SCW-SMB-8	97/09/17	265	240
SCW-SMB-9	97/09/17	347	610
SCW-WHP-1	97/09/18	315	440
SCW-WHP-2	97/09/18	275	300
SCW-WHP-3	97/09/18	280	340
SCW-WHP-4	97/09/18	245	200
SCW-WHP-5	97/09/18	240	170
SCW-WHP-6	97/09/18	245	220
SCW-WHP-7	97/09/18	240	180
SCW-WHP-8	97/09/18	220	130
SCW-WHP-9	97/09/18	250	220
SCW-WHP-10	97/09/18	230	150
SCW-WHS-1	97/09/19	460	1000
SCW-WHS-2	97/09/19	465	1020
SCW-WHS-3	97/09/19	435	840
SCW-WHS-4	97/09/19	475	1210
SCW-WHS-5	97/09/19	500	1220
SCW-WHS-6	97/09/19	475	1020
SCW-WHS-7	97/09/19	426	920
SCW-WHS-8	97/09/19	390	660
SCW-WHS-9	97/09/19	462	1030
SCW-WHS-10	97/09/19	455	1020

Appendix 7. Lengths and weights of 1997 fish

field ID	date yymmdd	length mm	weight gm
Baring			
SCB-SMB-1	97/07/31	310	350
SCB-SMB-2	97/07/31	260	190
SCB-SMB-3	97/07/31	213	110
SCB-SMB-4	97/07/31	233	150
SCB-SMB-5	97/07/31	260	220
SCB-SMB-6	97/07/31	292	310
SCB-SMB-7	97/07/31	340	500
SCB-SMB-8	97/07/31	288	315
SCB-SMB-9	97/07/31	286	290
SCB-SMB-10	97/07/31	325	440
SCB-WHS-1	97/07/31	393	640
SCB-WHS-2	97/07/31	405	690
SCB-WHS-3	97/07/31	425	890
SCB-WHS-4	97/07/31	425	880
SCB-WHS-5	97/07/31	390	640
SCB-WHS-6	97/07/31	395	670
SCB-WHS-7	97/07/31	390	640
SCB-WHS-8	97/07/31	420	760
SCB-WHS-9	97/07/31	405	710
SCB-WHS-10	97/07/31	400	680

Appendix 7. Lengths and weights of 1998 fish

field ID	Date	Length cm.	Weight gm.
ANDROSCOGGIN RIVER			
Gilead			
AGL-RBT-1	05/26/1998	386	570
AGL-RBT-2	05/26/1998	305	320
AGL-RBT-3	05/26/1998	343	420
AGL-RBT-4	05/26/1998	292	230
AGL-RBT-5	05/26/1998	274	230
Rumford Point			
ARP-SMB-1	05/28/1998	348	640
ARP-SMB-2	05/28/1998	267	290
ARP-SMB-3	05/28/1998	249	160
ARP-SMB-4	05/28/1998	269	260
ARP-WHS-11	05/27/1998	406	800
ARP-WHS-12	05/27/1998	434	980
ARP-WHS-13	05/27/1998	422	880
ARP-WHS-14	05/27/1998	406	720
ARP-WHS-15	05/27/1998	427	900
ARP-WHS-16	05/27/1998	429	920
ARP-WHS-17	05/27/1998	424	930
ARP-WHS-18	05/27/1998	411	810
ARP-WHS-19	05/27/1998	424	890
ARP-WHS-20	05/27/1998	427	1000
Rumford			
ARF-SMB-1	07/16/1998	450	1330
ARF-SMB-2	07/16/1998	414	1150
ARF-SMB-3	07/16/1998	345	660
ARF-SMB-4	07/16/1998	439	1290
ARF-SMB-5	07/16/1998	409	980
ARF-SMB-6	07/16/1998	404	990
ARF-SMB-7	07/16/1998	320	570
ARF-SMB-8	07/16/1998	315	540
ARF-SMB-9	07/16/1998	315	510
ARF-SMB-10	07/16/1998	323	510
ARF-WHS-1	07/15/1998	419	1090
ARF-WHS-2	07/15/1998	429	1240
ARF-WHS-3	07/15/1998	417	1150
ARF-WHS-4	07/15/1998	424	1170
ARF-WHS-5	07/15/1998	427	1210
ARF-WHS-6	07/15/1998	429	1160
ARF-WHS-7	07/15/1998	419	1210
ARF-WHS-8	07/15/1998	429	1280
ARF-WHS-9	07/15/1998	414	1150
ARF-WHS-10	07/15/1998	417	1280

Appendix 7. Lengths and weights of 1998 fish

field ID	Date	Length cm.	Weight gm.
Riley			
ARY-SMB-1	07/15/1998	386	780
ARY-SMB-2	07/15/1998	292	360
ARY-SMB-3	07/15/1998	307	440
ARY-SMB-4	07/15/1998	373	600
ARY-SMB-5	07/15/1998	287	320
ARY-SMB-6	07/15/1998	315	500
ARY-SMB-7	07/15/1998	376	840
ARY-SMB-8	07/15/1998	345	560
ARY-SMB-9	07/15/1998	267	220
ARY-SMB-10	07/15/1998	348	500
ARY-WHS-2	07/16/1998	417	1100
ARY-WHS-3	07/16/1998	424	1040
ARY-WHS-4	07/16/1998	432	1280
ARY-WHS-5	07/16/1998	409	1000
ARY-WHS-6	07/16/1998	406	1040
ARY-WHS-7	07/16/1998	414	1060
ARY-WHS-8	07/16/1998	429	1270
ARY-WHS-9	07/16/1998	424	1190
ARY-WHS-10	07/16/1998	427	1280
ARY-WHS-11	07/16/1998	427	1240
Livermore Falls			
ALV-SMB-1	07/13/1998	325	460
ALV-SMB-2	07/14/1998	343	560
ALV-SMB-3	07/14/1998	333	460
ALV-SMB-4	07/14/1998	305	400
ALV-SMB-5	07/14/1998	292	380
ALV-SMB-6	07/14/1998	335	560
ALV-SMB-7	07/14/1998	414	960
ALV-SMB-8	07/14/1998	284	320
ALV-SMB-9	07/14/1998	290	360
ALV-SMB-10	07/14/1998	330	480
ALV-WHS-1	07/14/1998	417	1150
ALV-WHS-2	07/14/1998	424	1190
ALV-WHS-3	07/14/1998	411	940
ALV-WHS-4	07/14/1998	427	1290
ALV-WHS-5	07/14/1998	419	1080
ALV-WHS-6	07/14/1998	427	1280
ALV-WHS-7	07/14/1998	424	1260
ALV-WHS-8	07/14/1998	417	1210
ALV-WHS-9	07/14/1998	411	990
ALV-WHS-10	07/14/1998	409	1090

Appendix 7. Lengths and weights of 1998 fish

field ID	Date	Length cm.	Weight gm.
Androscoggin Lake			
ALW-SMB-1	08/31/1998	315	420
ALW-SMB-2	08/31/1998	376	680
ALW-SMB-3	08/31/1998	389	820
ALW-SMB-4	08/31/1998	315	520
ALW-SMB-5	08/31/1998	399	970
ALW-SMB-6	08/31/1998	373	630
ALW-SMB-7	08/31/1998	394	850
ALW-SMB-8	08/31/1998	353	640
ALW-SMB-9	08/31/1998	386	800
ALW-SMB-10	08/31/1998	305	400
ALW-WHP-1	08/31/1998	297	400
ALW-WHP-2	08/31/1998	297	380
ALW-WHP-3	08/31/1998	297	400
ALW-WHP-4	08/31/1998	287	370
ALW-WHP-5	08/31/1998	282	300
ALW-WHP-6	08/31/1998	287	330
ALW-WHP-7	08/31/1998	284	360
ALW-WHP-8	08/31/1998	272	280
ALW-WHP-9	08/31/1998	282	340
ALW-WHP-10	08/31/1998	297	340
ALW-WHS-1	08/31/1998	414	750
ALW-WHS-10	08/31/1998	422	960
ALW-WHS-2	08/31/1998	406	870
ALW-WHS-3	08/31/1998	414	860
ALW-WHS-4	08/31/1998	409	820
ALW-WHS-5	08/31/1998	429	900
ALW-WHS-6	08/31/1998	429	880
ALW-WHS-7	08/31/1998	419	840
ALW-WHS-8	08/31/1998	417	830
ALW-WHS-9	08/31/1998	417	760
Turner			
AGI-SMB-1	07/22/1998	399	1160
AGI-SMB-2	07/22/1998	381	1070
AGI-SMB-3	07/22/1998	345	730
AGI-SMB-5	07/22/1998	338	640
AGI-SMB-8	07/22/1998	292	450
AGI-SMB-11	07/22/1998	404	1250
AGI-SMB-12	07/22/1998	292	420
AGI-SMB-13	07/22/1998	348	750
AGI-SMB-14	07/22/1998	307	560
AGI-SMB-15	07/22/1998	429	1540

Appendix 7. Lengths and weights of 1998 fish

field ID	Date	Length cm.	Weight gm.
Lisbon Falls			
ALS-SMB-1	07/21/1998	348	780
ALS-SMB-2	07/21/1998	340	840
ALS-SMB-3	07/21/1998	373	950
ALS-SMB-4	07/21/1998	366	780
ALS-SMB-5	07/21/1998	325	640
ALS-SMB-6	07/21/1998	315	560
ALS-SMB-7	07/21/1998	318	610
ALS-SMB-8	07/21/1998	330	590
ALS-SMB-9	07/21/1998	284	410
ALS-SMB-11	07/21/1998	366	950
KENNEBEC RIVER			
Norridgewock			
KNW-SMB-1	08/21/1998	419	940
KNW-SMB-2	08/21/1998	356	590
KNW-SMB-3	08/21/1998	312	370
KNW-SMB-4	08/21/1998	348	550
KNW-SMB-5	08/21/1998	406	840
KNW-WHS-2	08/21/1998	422	860
KNW-WHS-3	08/21/1998	409	810
KNW-WHS-4	08/21/1998	406	880
KNW-WHS-5	08/21/1998	409	890
KNW-WHS-6	08/21/1998	406	880
KNW-WHS-7	08/21/1998	432	890
KNW-WHS-8	08/21/1998	424	1010
KNW-WHS-9	08/21/1998	432	1040
KNW-WHS-10	08/21/1998	406	830
KNW-WHS-11	08/21/1998	406	800
Fairfield			
KFF-SMB-1	08/20/1998	455	1280
KFF-SMB-3	08/20/1998	305	370
KFF-SMB-4	10/23/1998	305	370
KFF-SMB-5	10/23/1998	290	310
KFF-SMB-6	10/23/1998	277	270
KFF-WHS-2	10/23/1998	414	880
KFF-WHS-3	10/23/1998	432	960
KFF-WHS-4	10/23/1998	432	1100
KFF-WHS-5	10/23/1998	409	910
KFF-WHS-6	10/23/1998	427	1030
KFF-WHS-7	10/23/1998	411	940
KFF-WHS-8	10/23/1998	417	950
KFF-WHS-9	10/23/1998	414	940
KFF-WHS-10	10/23/1998	417	930
KFF-WHS-11	10/23/1998	432	1160

Appendix 7. Lengths and weights of 1998 fish

field ID	Date	Length cm.	Weight gm.
Augusta			
KAG-SMB-1	09/24/1998	310	415
KAG-SMB-2	09/24/1998	280	250
KAG-SMB-3	09/24/1998	279	300
PENOBSCOT RIVER			
Grindstone			
PBG-SMB-1	09/29/1998	362	650
PBG-SMB-2	09/29/1998	380	760
PBG-SMB-3	09/29/1998	395	910
PBG-SMB-4	09/29/1998	385	770
PBG-SMB-5	09/29/1998	408	870
PBG-WHS-1	09/29/1998	426	810
PBG-WHS-2	10/06/1998	418	830
PBG-WHS-3	10/08/1998	423	880
PBG-WHS-4	10/13/1998	433	830
PBG-WHS-5	10/13/1998	456	1000
PBG-WHS-6	10/13/1998	456	960
PBG-WHS-7	10/13/1998	419	760
PBG-WHS-8	10/13/1998	404	740
PBG-WHS-9	10/13/1998	421	770
PBG-WHS-10	10/13/1998	366	530
Rockabema			
PBR-SMB-1	09/10/1998	341	510
PBR-SMB-2	09/10/1998	386	820
PBR-SMB-3	09/10/1998	306	360
PBR-SMB-4	09/10/1998	368	560
PBR-SMB-5	09/10/1998	330	420
PBR-WHS-1	09/10/1998	450	1030
PBR-WHS-2	09/10/1998	445	1050
PBR-WHS-3	09/10/1998	423	900
PBR-WHS-6	09/10/1998	445	1000
PBR-WHS-7	09/10/1998	445	1140
PBR-WHS-10	09/10/1998	443	1210
PBR-WHS-11	09/10/1998	420	880
PBR-WHS-12	09/10/1998	445	1080
PBR-WHS-13	09/10/1998	437	1140
PBR-WHS-14	09/10/1998	441	1100
Woodsville			
PBW-SMB-1	09/15/1998	325	390
PBW-SMB-2	09/15/1998	347	500
PBW-SMB-3	09/17/1998	382	730
PBW-SMB-4	09/17/1998	412	1005
PBW-SMB-5	09/17/1998	449	1200

Appendix 7. Lengths and weights of 1998 fish

field ID	Date	Length cm.	Weight gm.
PBW-WHS-1	09/15/1998	460	1020
PBW-WHS-2	09/15/1998	428	770
PBW-WHS-3	09/15/1998	447	980
PBW-WHS-4	09/17/1998	442	950
PBW-WHS-5	09/18/1998	459	930
PBW-WHS-6	09/18/1998	459	1080
PBW-WHS-7	09/23/1998	460	1100
PBW-WHS-8	09/24/1998	445	890
PBW-WHS-9	09/24/1998	434	780
PBW-WHS-10	09/24/1998	445	940
Lincoln			
PBL-SMB-1	09/03/1998	418	875
PBL-SMB-2	09/03/1998	370	675
PBL-SMB-3	09/03/1998	386	720
PBL-SMB-4	09/03/1998	355	550
PBL-SMB-5	09/16/1998	365	580
PBL-WHS-1	09/03/1998	470	1075
PBL-WHS-2	09/03/1998	457	1075
PBL-WHS-3	09/03/1998	452	1000
PBL-WHS-4	09/03/1998	473	1120
PBL-WHS-5	09/03/1998	452	1070
PBL-WHS-6	09/03/1998	465	1010
PBL-WHS-7	09/03/1998	438	960
PBL-WHS-8	09/03/1998	423	880
PBL-WHS-9	09/03/1998	455	1140
PBL-WHS-12	09/03/1998	455	1180
Costigan			
PBC-SMB-1	10/20/1998	434	1130
PBC-SMB-2	10/20/1998	357	600
PBC-SMB-3	10/20/1998	398	880
PBC-SMB-4	10/20/1998	363	630
PBC-SMB-5	10/20/1998	426	1020
PBC-WHS-1	10/20/1998	442	1120
PBC-WHS-2	10/20/1998	441	1160
PBC-WHS-3	10/20/1998	435	850
PBC-WHS-4	10/20/1998	444	1140
PBC-WHS-5	10/20/1998	428	1130
PBC-WHS-6	10/20/1998	445	1050
PBC-WHS-7	10/20/1998	442	1110
PBC-WHS-8	10/20/1998	427	980
PBC-WHS-9	10/20/1998	426	1050
PBC-WHS-10	10/20/1998	445	1140

Appendix 7. Lengths and weights of 1998 fish

field ID	Date	Length cm.	Weight gm.
Veazie			
PBV-SMB-1	09/03/1998	360	580
PBV-SMB-2	09/09/1998	420	810
PBV-SMB-3	09/22/1998	355	560
PBV-SMB-8	09/29/1998	350	470
PBV-SMB-9	09/29/1998	350	500
PBV-WHS-1	09/03/1998	330	440
PBV-WHS-8	09/25/1998	329	450
PBV-WHS-11	09/29/1998	325	410
PBV-WHS-12	09/29/1998	310	390
PBV-WHS-13	09/29/1998	330	480
PBV-WHS-14	09/29/1998	330	560
PBV-WHS-15	09/29/1998	330	460
PBV-WHS-16	09/29/1998	330	410
PBV-WHS-17	09/29/1998	315	380
PBV-WHS-18	09/29/1998	315	390
PRESUMPSCOT RIVER			
Windham			
PWD-SMB-1A	06/08/1998	335	470
PWD-SMB-3A	06/08/1998	315	360
PWD-SMB-1	11/06/1998	394	720
PWD-SMB-2	11/06/1998	320	440
PWD-SMB-3	11/06/1998	312	400
PWD-WHS-3	06/08/1998	470	1310
PWD-WHS-4	06/08/1998	495	1420
PWD-WHS-5	06/08/1998	445	1060
PWD-WHS-6	06/08/1998	452	1070
PWD-WHS-9	06/08/1998	493	1360
PWD-WHS-10	06/08/1998	478	1270
PWD-WHS-11	06/08/1998	445	1040
PWD-WHS-12	06/08/1998	467	1330
PWD-WHS-13	06/08/1998	442	1110
PWD-WHS-14	06/08/1998	462	1300
Westbrook			
PWB-SMB-1	06/10/1998	284	300
PWB-SMB-2	06/10/1998	290	330
PWB-SMB-3	09/28/1998	310	390
PWB-SMB-4	09/28/1998	272	250

Appendix 7. Lengths and weights of 1998 fish

field ID	Date	Length cm.	Weight gm.
PWB-WHS-3	09/28/1998	480	1400
PWB-WHS-4	09/28/1998	460	1140
PWB-WHS-7	09/28/1998	483	1490
PWB-WHS-8	09/28/1998	447	1210
PWB-WHS-9	09/28/1998	419	950
PWB-WHS-10	09/28/1998	437	1080
PWB-WHS-11	09/28/1998	409	850
PWB-WHS-12	09/28/1998	427	940
PWB-WHS-13	09/28/1998	411	900
PWB-WHS-14	09/28/1998	424	890
SALMON FALLS RIVER			
S. Berwick			
SFS-SMB-1	08/27/1998	272	280
SFS-SMB-2	08/27/1998	381	810
SFS-SMB-3	08/27/1998	343	570
SFS-SMB-4	08/27/1998	269	300
SEBASTICOOK RIVER			
W BR -Palmyra			
SWP-SMB-1	09/21/1998	300	390
SWP-SMB-2	09/21/1998	272	260
SWP-SMB-3	09/21/1998	333	490
SWP-SMB-4	09/21/1998	363	600
SWP-SMB-5	09/21/1998	279	280
ST CROIX R			
Woodland above			
SCW-SMB-1	10/20/1998	373	800
SCW-SMB-2	10/20/1998	472	1700
SCW-SMB-3	10/20/1998	361	740
SCW-SMB-4	10/20/1998	328	480
SCW-WHS-2	10/20/1998	429	950
SCW-WHS-3	10/20/1998	422	760
SCW-WHS-6	10/20/1998	419	950
SCW-WHS-8	10/20/1998	419	900
SCW-WHS-9	10/20/1998	419	820
SCW-WHS-10	10/20/1998	422	1030
SCW-WHS-12	10/20/1998	424	900
SCW-WHS-16	10/20/1998	424	840
SCW-WHS-17	10/20/1998	424	910
SCW-WHS-18	10/20/1998	419	880

Appendix 7. Lengths and weights of 1998 fish

field ID	Date	Length cm.	Weight gm.
Baring			
SCB-SMB-1	10/20/1998	312	450
SCB-SMB-2	10/20/1998	368	630
SCB-SMB-3	10/20/1998	345	540
SCB-SMB-4	10/20/1998	274	230
SCB-SMB-6	10/20/1998	302	500
SCB-WHS-1	10/20/1998	429	1040
SCB-WHS-2	10/20/1998	450	1090
SCB-WHS-3	10/20/1998	445	1160
SCB-WHS-4	10/20/1998	452	1130
SCB-WHS-5	10/20/1998	445	1180
SCB-WHS-6	10/20/1998	427	960
SCB-WHS-7	10/20/1998	439	950
SCB-WHS-8	10/20/1998	432	960
SCB-WHS-9	10/20/1998	442	960
SCB-WHS-10	10/20/1998	424	700

APPENDIX 8

SAMPLING SCHEDULE FOR THE 1997-8 DIOXIN MONITORING PROGRAM

Sampling schedule for the Dioxin Monitoring Program

May (early stations)

Androscoggin R at Lisbon Falls for brown trout
Kennebec R above Madison for brown trout
Kennebec R at Augusta for brown trout
Kennebec R at Fairfield for brown trout
E Br Sebasticook R at County Rd, Newport for bass/wh perch
W Br Sebasticook R at Rt 2 Palmyra for bass

JULY-AUGUST (all rivers in order, beginning at upstream stations)

Androscoggin R - July
Kennebec R - July
Penobscot R - August
Presumpscot R - August
Salmon Falls R - August
Sebasticook R (East and West Branches) - August

APPENDIX 9

TOXIC EQUIVALENCY FACTORS FOR PCDDS AND PCDFS

TOXIC EQUIVALENCY FACTORS FOR PCDDS AND PCDFS (Van den Berg et al, 1998)

congener	TEF
2378TCDF	0.1
12378PeCDF	0.05
23478PeCDF	0.5
123478HxCDF	0.1
123678HxCDF	0.1
234678HxCDF	0.1
123789HxCDF	0.1
1234678HpCDF	0.01
1234789HpCDF	0.01
2378OCDF	0.0001
2378TCDD	1
12378 PeCDD	1
123478HxCDD	0.1
123678HxCDD	0.1
123789HxCDD	0.1
1234678HpCDD	0.01
2378OCDD	0.0001