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DIOXIN MONITORING PROGRAM

(Including data on Dioxin-like PCBs collected under the Surface Water Ambient Toxics Monitoring Program for fish consumption advisories)

2004

FINAL REPORT

DEPARTMENT OF ENVIRONMENTAL PROTECTION
AUGUSTA, MAINE

April 2005

DEPLW0703-2005

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OVERVIEW

This report contains the findings from the 2004 Dioxin Monitoring Program report with respect to the three primary goals of the program:

1. assessment of the nature and extent of dioxin contamination in waters and fisheries of the state and effect on human health,
2. evaluation of trends, and
3. measurement of compliance with the no discharge of dioxin provision of the 1997 Dioxin Law via the above/below (A/B) fish test.

The figures in this report also contain the (dioxin-like) coplanar PCB data gathered as part of DEP's Surface Water Ambient Toxics (SWAT) monitoring program. Coplanar PCB data are included in order to show the total exposure to dioxin-like compounds from consumption of certain fish from several Maine rivers in order to give a complete assessment of the fish consumption advisories. The coplanar PCB data are distinct from the dioxin data and the reporting requirements of the Above/Below test. Sources of the coplanar PCBs are not known, but likely include atmospheric deposition.

OVERALL FINDINGS

- All kraft pulp mills, except Lincoln Paper and Tissue, are in compliance with the Above/Below test, meaning they are no longer discharging dioxins. Lincoln could not submit a second year of data for compliance with the test in 2004 due to its shutdown.
- Trends in fish tissue levels are downward, but levels remain elevated at some locations due to residual levels of contamination from historical discharges. Any formal change in a Bureau of Health advisory would involve a comprehensive review of levels of all measured contaminants in fish tissue.

HUMAN HEALTH FINDINGS

- There are Fish Consumption Advisories for the **Androscoggin**, **Kennebec**, **Penobscot**, **Sebasticook**, and **Salmon Falls Rivers**, due to dioxins or a combination of dioxins and dioxin-like coplanar PCBs. These advisories are more restrictive than the statewide mercury advisory.

- An evaluation of the health implications of dioxin/furan concentrations in fish in Maine Rivers requires a comparison to a health benchmark. The Bureau of Health uses a health benchmark that is expressed as a specific fish tissue concentration of dioxins and furans, referred to as a "Fish Tissue Action Level" or FTAL. For the present report, the Bureau compares the most recent data on dioxins and furan levels in fish tissue to its current FTALc of 1.5 parts per trillion (ppt) for protection of cancer-related effects. The Bureau also compares dioxin, furans, and coplanar PCB levels to 1.8 parts per ppt to its FTALr for protection of noncancer or reproductive related effects. The Bureau additionally compares all data to a lower pFTALc of 0.4 ppt , which is under consideration as a potential revision to current FTALs to account for background dietary exposure to dioxins and furans.

- All sampling locations below the pulp and paper mills had average dioxin and furan concentrations in bass tissue that were below the current FTALc of 1.5 ppt (Figure 1), with the exception of the Rumford Point sampling location on the Androscoggin River.

- Most sampling locations had average levels of dioxins and furans that were above the potential lower pFTALc of 0.4 ppt. However, bass tissue samples at Riley and Livermore Falls were slightly under 0.4 ppt. Levels in sucker tissue were close to, or above, the current FTALc for all sampling locations (Figure 2).

- When the amounts of measured dioxin-like coplanar PCBs were added to the dioxin concentrations, there were exceedances for the current FTALr of 1.8 ppt at several stations on the river. These data were collected in the Surface Water Ambient Toxics (SWAT) monitoring program. Sources are unknown but likely include long-range transport and atmospheric deposition.

- Average dioxin and furan levels in Androscoggin Lake have not been reported above the current FTAL of 1.5 ppt in any species since 1996. However, with the exception of the 2000 sampling season, all other sampling seasons have yielded average levels in fish tissue near or above the potential lower-bound pFTALc of 0.4 ppt.

- Dioxin concentrations in bass from the West Branch of the Sebasticook River in Palmyra exceed the FTALc. Bass tissue from the East Branch are lower than the FTALc, but exceed the potentially lower pFTALc of 0.4 ppt.

Figure 1. Dioxin (DTE) and Coplanar PCB (CTE) toxic equivalents in smallmouth bass (and white perch WHP and rainbow trout RBT) from the Androscoggin (Axy), Kennebec (Kxy), Penobscot (Pxy), and Sebasticook (Sxy) rivers, 2004.

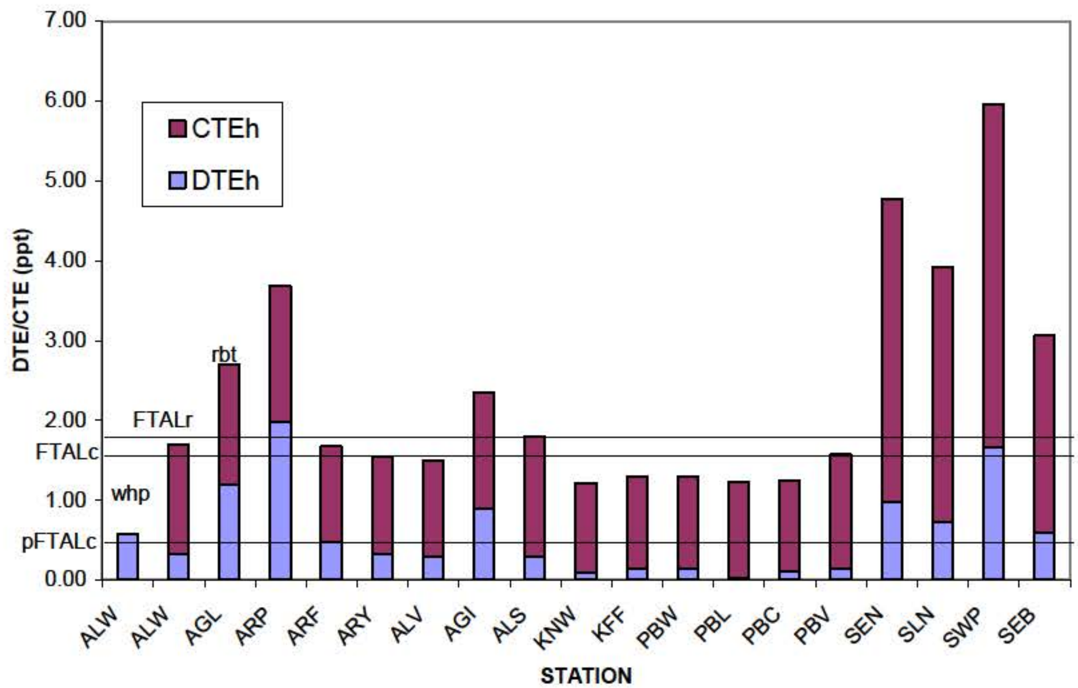
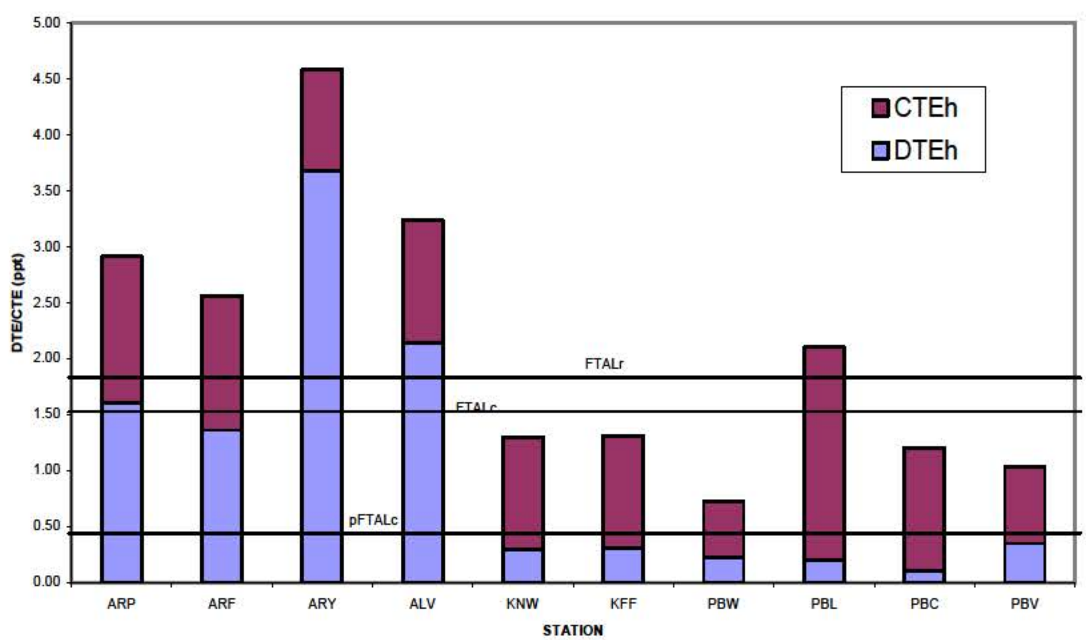


Figure 2. Dioxin (DTE) and coplanar PCB (CTE) toxic equivalents in white suckers from the Androscoggin (Axy), Kennebec (Kxy), and Penobscot (PBy) rivers, 2004.



FINDINGS ON DISCHARGES FROM BLEACHED KRAFT PULP AND PAPER MILLS

- Results of the Above/Below test (Table 2) indicate that there is no longer a discharge of dioxin from **MeadWestvaco** mill in Rumford, the **International Paper** mill in Jay, the **SAPPI-Somerset** mill in Skowhegan, or the **Georgia-Pacific** mill in Old Town.

- Continued elevated levels above background at some locations below mills in these rivers may be the legacy of the long history of discharges to the rivers.

- Results from 2003 indicate that the **Lincoln Paper and Tissue** mill may no longer be discharging dioxin. Since the mill was closed for several months at the beginning of 2004, no A/B test was conducted in 2004. Since at least 2 years data are needed, the test will continue in 2005.

- Annual compliance with the no discharge provision as currently required by 38 MRSA section 420 may be demonstrated by either of two methods. 1). Bleach plant effluent concentrations, monitored at least once per year and reported at the actual concentrations, rather than the nominal 10 ppq limit, must remain as low as in 2003 and 2004 when the A/B test indicated complance. In addition, the mills must certify, based on a list of DEP criteria, that the bleach plant and other pertinent processes continue to operate and perform in a manner similar to that in 2003 and 2004. 2) Compliance may also be demonstrated by repeating the A/B fish test.

- The Dioxin Monitoring Program will need to be continued as currently specified by 38 MRSA § 420-A to monitor continuing elevated levels of dioxin in fish from some of these rivers for the Fish Consumption Advisories

Table 2. Evidence of dioxin discharge from bleached kraft pulp and paper mills

2003	MeadWestvaco	International Paper	SAPPI Somerset	Lincoln Paper	Georgia Pacific
Bass	N	N	N	N	N
Suckers	N	N	Y	N	N
Mussels	NS	N	N	NS	NS
POE	N	N	N	N	N
2004					
Bass	N	N	N	NS	Y
Suckers	N	N	Y	NS	N
Mussels	N	N	N	NS	N
POE	N	N	N	ND	N

NS = not sampled N = no
ND = not determined Y = yes

ABOVE/BELOW (A/B) TEST

1) The test will measure contaminant concentrations in 3 separate species: a) bass b) suckers, and c) caged mussels.

2) A preponderance of evidence (POE) approach will be used where passage of 2 of the 3 tests will be used to indicate no discharge.

3) To achieve an overall 95% confidence with the POE approach, the level of significance for each individual test is 0.135 for both type I and II errors.

4) Compounds to be measured will be 2378-TCDD and 2378-TCDF, combined into a single metric, TCDD + (TEF x TCDD), to equivalently weight both congeners.

5) Concentrations of these compounds will be based on lipid normalized values if there is a significant relationship between contaminant concentration and lipid from linear regression, or wet weight values if there is no significant correlation.

6) Concentrations less than the detection limit (<DL) will be calculated at ½ the DL.

7) Where all of the values for the samples at an above or below station are <DL, no statistical determination will be made.

8) To compensate for the sensitivity of the tests, a mill must show no evidence of a discharge for 2 consecutive years before being deemed in compliance. Periodic testing at the discretion of the Department in subsequent years will also be necessary to assure continued compliance.

BACKGROUND ON DIOXIN

Due to continuing controversy over the effects of dioxin on human and ecological health, the US Environmental Protection Agency (EPA) announced 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. A draft report was issued in 1994 and subsequent review in 1995 by EPA's Science Advisory Board called for revisions of some chapters. Revised drafts published in 2000 indicate that dioxin may exhibit reproductive and developmental effects, immuno-toxic effects, neuro-toxic effects, and cancer. In addition, the reports found that concentrations of dioxin in the environment have decreased since the 1970s. Also 'EPA currently estimates that the amount of dioxin in tissues of the general human population closely approaches within a factor of 10, the levels at which adverse effects might be expected to occur'. In March 2001 EPA's Scientific Advisory Board published its draft review of EPA's new revisions and is divided on whether or not dioxin is a carcinogen, but does believe EPA has underestimated non-cancer effects. The Scientific Advisory Board also does not agree that there is enough evidence to support EPA's statement about current body burdens and probable adverse health impacts.

DIOXIN MONITORING PROGRAM

Dioxin was first discovered to be a problem in Maine in 1985, when the results of an analysis of fish collected in 1984 from the Androscoggin River by the Maine Department of Environmental Protection (the Department), used as a reference station for EPA's National Dioxin Study, documented significant concentrations of dioxin. Consequently, the Maine Bureau of Health issued Maine's first fish consumption advisory in 1985. Additional sampling in 1985 and 1986 found similar levels in fish from other rivers below bleached kraft pulp and paper mills, but not from rivers or lakes without such sources. This lead to including parts of the Kennebec River and Penobscot River in a revised fish consumption advisory in 1987. As a result there was a bill before the Maine legislature in 1988 to ban the discharge of dioxin, but the bill was amended to establish a monitoring program, Maine's Dioxin Monitoring Program (DMP) and enacted into law (38 MRSA section 420-A) to sunset in 1990. Discovery of continuing significant concentrations in fish from these and other rivers resulted in the DMP being reauthorized in 1990, 1995, 1997, and most recently in 2002 extending until 2007. The Department has issued reports of the results of monitoring annually. Fish consumption advisories have been issued or modified in 1985, 1987, 1990, 1992, 1994, 1997, and 2000.

The goal of Maine's Dioxin Monitoring 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 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. Costs for equipment, supplies, and analysis are assessed to the selected facilities annually, and could not exceed $168,000 until 1997 when the limit was raised to $250,000 to incorporate development of the Above/Below (A/B) fish test.
The Department is advised by the Surface Water Ambient Toxic (SWAT) Monitoring Program Technical Advisory Group in implementation of the program. An annual report is required to be

submitted to the Natural Resources Committee of the Maine Legislature by March 31 with the results from the previous year, including status of progress toward meeting the requirements of the Dioxin/Color law.

The primary objective of the Dioxin Monitoring Program is to monitor dioxin in fish for assessment of human health and ecological impact.

A second objective is to measure trends, progress toward reduction in environmental concentrations, and effectiveness and need for further controls.

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 Toxic (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.

1997 DIOXIN/COLOR LAW

A third objective, integrated into the DMP, comes from the Dioxin/Color law. In 1997 the Maine Legislature enacted LD 1633 "An Act to Make Fish in Maine Rivers Safe to Eat and Reduce Color Pollution", the Dioxin/Color law [38 MRSA section 420(2)(I)]. The key requirement is that ‘a (bleach kraft pulp) mill may not discharge dioxin into its receiving waters after December 31, 2002. To determine compliance, there are interim tests and a final test. Two interim tests, of effluent from the bleach plant require that 1) TCDD (2378-tetrachlorodibenzo-p-dioxin, the most toxic of the 17 toxic dioxins and furans) must be below 10 ppq, parts per quadrillion or picograms per gram, pg/g by July 31, 1998 and 2) TCDF (2378-tetrachlorodibenzofuran) must be below the same detection limit by December 31, 1999. As the final test to confirm that there is no discharge, by December 31, 2002 fish (or surrogate) below a bleached kraft pulp mill must have no more dioxin than fish (or surrogate) above the mill, the so-called "above/below (A/B) fish test".

Since contamination levels in fish are likely to be highest in late summer to early fall, sampling for compliance with the December 31, 2002 deadline could not begin until summer 2003. Because laboratory results of summer data are not available in time to report by December 31 of any given year, the legislature amended the 1997 Dioxin/Color law in 2003 to delay the date of DEP’s report by a year, to February 16, 2004. The amendment also delayed the date by which a mill must demonstrate it no longer discharges, if the Department finds that it does, for a year after that. The amendment also requires the mills to make the demonstration annually. Additional legislation has combined reporting of compliance with the law with the annual Dioxin Monitoring Program report due March 31 of the year following data collection.

ABOVE/BELOW (A/B) TEST

DEP's report 'Dioxin Monitoring Program 2002-2003, Status of Dioxin in Maine's Rivers' dated February 25, 2004 established the A/B test as follows:

1) The test will measure contaminant concentrations in 3 separate species: a) bass b) suckers, and c) caged mussels.

2) A preponderance of evidence (POE) approach will be used where passage of 2 of the 3 tests will be used to indicate no discharge.

3) To achieve an overall 95% confidence with the POE approach, the level of significance for each individual test is 0.135 for both type I and II errors.

4) Compounds to be measured will be 2378-TCDD and 2378-TCDF, combined into a single metric, TCDD + (TEF x TCDF), to equivalently weight both congeners.

5) Concentrations of these compounds will be based on lipid normalized values if there is a significant relationship between contaminant concentration and lipid from linear regression, or wet weight values if there is no significant correlation.

6) Concentrations less than the detection limit (<DL) will be calculated at ½ the DL.

7) Where all of the values for the samples at an above or below station are <DL, no statistical determination will be made.

8) To compensate for the sensitivity of the tests, a mill must show no evidence of a discharge for 2 consecutive years before being deemed in compliance. Periodic testing at the discretion of the Department in subsequent years will also be necessary to assure continued compliance.

FISH CONSUMPTION ADVISORIES

There is astatewide fish consumption advisory due to mercury in all fresh waters. There are additional advisories for a number of rivers due to dioxins and dioxin-like (coplanar) PCBs (Appendix 1).

There are 75 dioxins and 135 related furans, 17 of which are considered toxic, but with different toxicities. The total toxicity of a sample (dioxin toxic equivalents=DTE or toxic equivalents=TEQ) can be calculated as the sum of the product of the concentration and toxicity equivalency factor (TEF, relative to the most toxic dioxin, TCDD) for each of the 17 dioxin and furans.

For informing the public about potential risk from consuming fish contaminated with dioxin and dioxin-like compounds, the Maine Bureau of Health (BOH) publishes fish consumption advisories. These advisories are based on a comparison of a Fish Tissue Action Level (FTAL) for dioxin toxic equivalent (DTE) concentrations with the 95^{th} percentile upper confidence limit on the mean DTE 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 childbearing age, pregnant women, and lactating women. The FTALs are compared to the concentration of DTE in edible portions of the fish, skinless filet data. Where whole fish data are reported, the DTE 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 DTE in fish are made with FTALc, since that is the lower of the two and protective against both effects.

WORKPLAN DESIGN

The primary emphasis of the 2004 workplan was to collect fish samples from the appropriate stations and species from each river such that accurate, complete, and current data are available to assess impact to wildlife and human consumers. The workplan design included sampling at least one station below each major source to document trends and sampling of historic stations that showed dioxin above background whether or not any fish consumption advisories were issued. Finally the workplan was modified to evaluate the A/B test.

The 2004 workplan was initially drafted by DEP according to the objectives listed above and sent to participating facilities for comment on May 21, 2004. After discussion of the draft workplan at a meeting of the SWAT Technical Advisory Group (TAG) on June 29, 2004, a final workplan was determined by the Commissioner generally following the recommendations of the SWAT TAG or independent peer review panel, which were sometimes different. One difference was that the peer review panel recommended use of caged mussels, where as the TAG was divided on the issue.

In 2004 all stations were to be monitored for ecological and/or human health assessment and trends. At least 5 game fish (bass or other important species) were to be collected from each station (Table 1). We were unable to capture brown trout of the right size from the Kennebec River at Fairfield and Sidney, nor enough bass from the Salmon Falls River at Berwick. White suckers were collected at several stations for use in both ecological and human health assessment. At some stations, the fish were analyzed individually, while at other stations, fish were combined into composite samples in order to minimize cost and remain under the monetary cap.

Table 1. 2004 Dioxin Monitoring Program

STATION	SMB	WHS	MUSSELS	OTHER	FACILITY
Androscoggin R					
Gilead				5 RBT	SWAT
Rumford Point	10C3	10C3	10C10		Meadwestvaco
Rumford	10C3	10C3	10C10		Meadwestvaco
Riley	10C3	10C3	10C10		International Paper
Livermore Falls	10C3	10C3	10C10		International Paper
Turner (GIP)	5				Meadwestvaco
Lisbon	5				International Paper
Androscoggin L	2C5			2C5 WHP	Mead & IP
Kennebec R					
Norridgewock	10C3	10C3	10C10	5 BNT	SD Warren, SWAT
Fairfield	10C3	10C3	10C10	5 BNT	SD Warren
Sidney				5 BNT	KSTD
Penobscot R					
Woodville	2C5	2C5			Lincoln Paper & Tissue
S Lincoln	2C5	2C5			Lincoln Paper & Tissue
Milford	10C3	10C3	10C10		Georgia Pacific
Veazie	10C3	10C3	10C10		Georgia Pacific
Bangor					
Salmon Falls R					
S Berwick	5				Berwick Sewer Distict
W Br Sebasticook R					
Palmyra	5				Hartland

10C3 = 10 composites of 3 fish, etc.
species codes see Appendix 2

For the A/B test, the goal was to reduce the variability of results thereby decreasing the minimum significant difference (MSD) that could be detected statistically between the above and below stations. Decreasing the MSD increases the sensitivity and power of the A/B test. Two ways to reduce variability are to use composite samples instead of single fish and to use a large sample size. Given these objectives and realistic sampling effort and cost, the target was to collect 30 smallmouth bass and 30 white suckers at historical stations above and below each of the bleached kraft pulp and paper mills. The 30 fish were combined into 10 composites of 3 fish each, except on the Penobscot River at Costigan and Veazie, above and below the Georgia Pacific mill in Old Town, where we were unable to collect 30 fish of similar size at all stations.

At those two stations, 20 fish of each species was captured and combined into 10 composite samples of 2 fish each.

All samples were analyzed for all 2378-substituted dioxins and furans. All fish were analyzed for human health as skinless filets.

The preferred sampling time is late in the summer when fish are likely to be most 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. At those locations 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 there was time. 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. Actual dates of collection are shown in Appendix 6.

Caged mussels were deployed at the same A/B stations as the fish sampling. A total of 10 composite samples of 9-10 mussels each were collected from each station.

SAMPLING PROCEDURES

Fish were collected by DEP with assistance of 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 Pace Analytical Services lab in Minneapolis, Minnesota for analysis. All other procedures 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.

The caged mussel study was conducted following the protocol previously reported (Applied Biomonitoring, 2004).

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. Effluent data are also used when available to indicate sources and any trends.

CALCULATIONS

In this report, dioxins are reported in different ways for each goal of the program. Given the uncertainty of true values when results are below the detection level, for the purpose of determining the range of possible concentrations, 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 (Appendix 7). For human health assessment, DTEh, calculated using non-detects at 1/2 the detection limit consistent with the policy of BOH were compared with the FTALc. The upper 95th percentile confidence limit (UCL) was used for these comparisons, consistent with the policy of the BOH. For the A/B test, TCDD and TCDF were used. Because raw values for TCDF are much larger than those for TCDD, and in order to give more equal influence to both, TCDF was converted to TCDD equivalents using its TEF. The TCDD equivalent was then added to the TCDD concentration, essentially calculating a TEQ or DTE for TCDD and TCDF only with non-detects at ½ the detection limit (DFTEh).

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

Statistical analyses of differences in DFTEh between stations were performed using either the t-test or non-parametric Mann-Whitney test. In this report statistically significant differences are those with a p-value less than or equal to 0.135.

Trends were determined using Kendall's tau, a rank-order correlation statistic, for the period 1997-2004 at a p-value of 0.05.

RESULTS AND DISCUSSION.

Results for each sampling station are discussed with respect to the three objectives of the program, 1) human health, 2) trends, and 3) where pertinent, the no discharge provision (A/B test). See Appendix 2 for raw dioxin data for 2004, Appendix 6 for fish sample data, and Appendix 7 for all historical dioxin data.

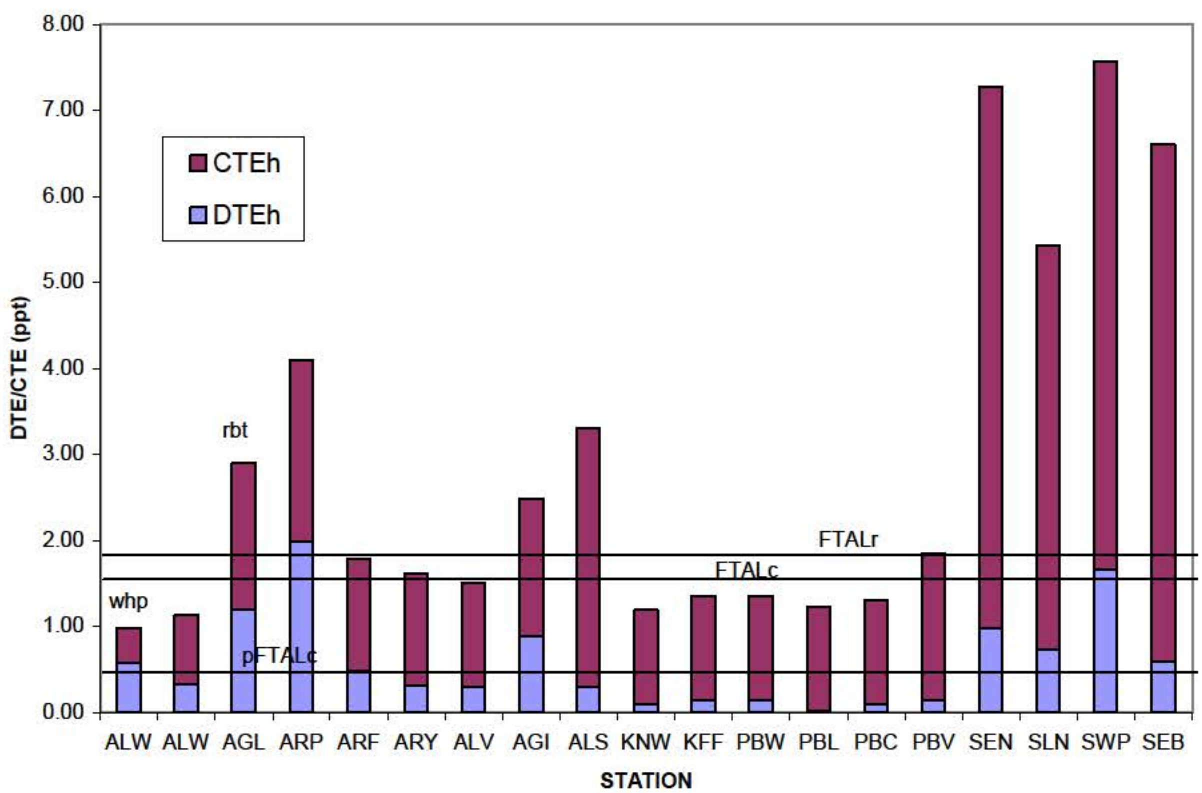
Dioxin concentrations in fish generally continued to decline from previous years, but there is some year-to-year variation in the trends. Concentrations remained elevated above natural background levels in fish at some stations, particularly on the Androscoggin and Sebasticook rivers, but approached background levels at some stations on other rivers. Dioxin toxic equivalents (DTEh), most likely from historical discharges from the mills, exceeded or, combined with (dioxin-like) coplanar PCBs (CTEh) contributed significantly to exceedances of the Bureau of Health's Fish Tissue Action Levels (FTAL) at many stations (Figures 1 & 2). DTEh are compared to existing FTALc and potentially new pFTALc for the cancer endpoint. The sum of DTEh and CTEh are compared to the existing FTALr for the reproductive endpoint. CTEh, which are measured in the SWAT program, were measured in bass, white perch, and rainbow trout in 2004. CTEh data for suckers, which was not collected in 2004, are taken from the most recent year sampled, 2001. Sources of CTEh, measured in DEP's SWAT program, are unknown but likely include combustion with long range transport and atmospheric deposition from local, regional, and national sources. Details are discussed below for each station.

Androscoggin River

<u>Gilead-</u> (AGL) and Rumford Point (ARP) A total of 5 rainbow trout were collected near Peabody Island in Gilead , while 30 bass and 30 white suckers were caught further downsteam at Rumford Point and combined into 10 composites of 3 fish each (Appendix 6). As both stations are downstream of the American Pulp and Paper Co's bleached kraft mill in Berlin, New Hampshire, they show concentrations above background. Since there are no known or potential significant sources of dioxin between them, they are considered the same station relative to point sources.

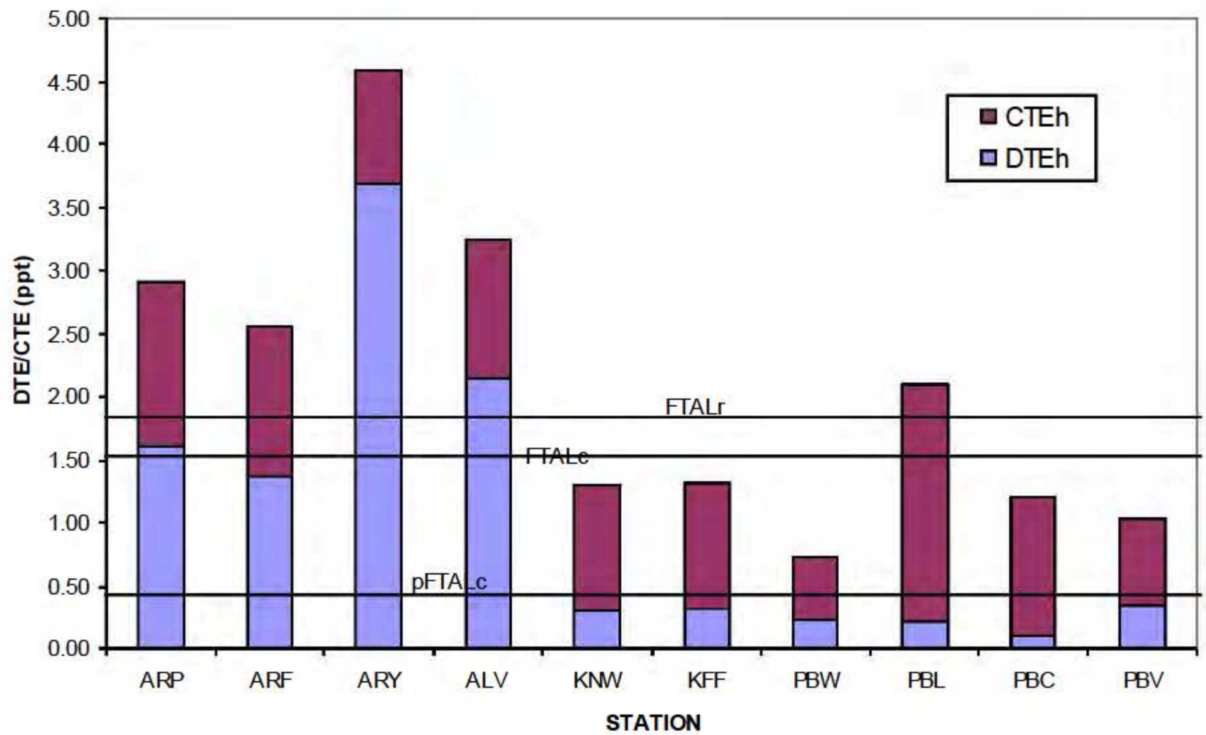
DTEh in rainbow trout, bass and suckers were 80%, 133%, and 108% of the FTALc respectively and all exceeded the pFTALc (Figures 1 & 2, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in higher levels of total toxic equivalents (TTEh) that further exceed the FTALr in bass and cause an exceedance in trout and suckers.

Figure 1. Dioxin (DTE) and Coplanar PCB (CTE) toxic equivalents in smallmouth bass (and white perch WHP and rainbow trout RBT) from the Androscoggin (Axy), Kennebec (Kxy), Penobscot (Pxy), and Sebasticook (Sxy) rivers, 2004.



Every year measured, TCDD and DTEh in fish have been significantly higher at this station than in fish from reference stations in Maine (Appendix 7). There was no significant trend for the period 1997-2004 for any species. The American Tissue mill in Berlin, New Hampshire, has reported to have switched to elemental chlorine free (ECF) bleaching (chlorine dioxide) in 1994. The mill closed in 2001 but the paper and pulp mills reopened in 2002 and 2003 respectively.

Figure 2. Dioxin (DTE) toxic equivalents in white suckers from the Androscoggin (Axy), Kennebec (Kxy), and Penobscot (PBy) rivers, 2004.



Rumford- (ARF) A total of 30 smallmouth bass and 30 white suckers were collected from the river reach from just below the discharge from MeadWestvaco Corporation's bleached kraft pulp and paper mill in Rumford downstream about 4 miles to Dixfield and combined into 10 composites of 3 fish each (Appendix 6).

Concentrations of DTEh in the bass and in the suckers were 32% and 91% of the FTALc respectively and both exceeded the pFTALc (Figures 1 and 2, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in higher levels of total toxic equivalents (TTEh) that approach the FTALr in bass and exceed the FTALr in suckers.

No sludge data have been reported since 1989. Concentrations of both TCDD and TCDF have been reported below variable detection levels in final effluent since 1993 and below a 10 ppq detection limit in bleach plant effluent since 1998 up through 2001, the latest that data are available (Appendix 4).

The 2003 Dioxin Monitoring Program report issued in February 2004 indicated higher levels of TCDDw (wet weight basis) in suckers below the mill at ARF than above at ARP. At the recommendation of the SWAT Technical Advisory Group in June 2004, data from both the above and below stations were pooled to explore the relationship with lipid, rather than exploring it at each station independently as was done for the 2003 report. The result was that the data showed that normalizing to lipid was warranted. Examination of DFTEh on a lipid normalized basis showed that concentrations were not significantly different in either bass or suckers, the 2 species tested. (Table 2, Appendix 5). Evaluation of the 2004 A/B test also shows no significant difference in concentrations of DFTEh between the above and below) stations for bass, suckers, or caged mussels. As there are now 2 consecutive years where all species tested showed no significant difference in concentrations, the mill has passed the A/B test.

ARP is in an impoundment whereas ARF is in a free flowing stretch. Hydropower studies conducted by DEP and International Paper in Jay have shown that even low head run-of-the-river dams trap sediment that may increase contaminant levels in fish. Therefore, comparison of ARP with ARY, the next station downstream from ARF, may be more relevant. Concentrations at ARY are also not significantly greater than those at ARP for either species for either 2003 or 2004.

There is a significant declining trend for TCDD and DTEo for bass and suckers during the period 1997-2004. TCDD was no longer significantly greater than reference stations unimpacted by point source discharges on other Maine rivers but DTE were in both species (Appendix 7). Continued elevated levels of DTE below the mill are likely the legacy of the long history of discharges. This fact warrants some continued monitoring, which can also be used to document continuing compliance with the no discharge provision, all within the Dioxin Monitoring Program.

Table 2. Evidence of dioxin discharge from Maine bleached kraft pulp and paper mills (Yes/No)

2003	MeadWestvaco	International Paper	SAPPI Somerset	Lincoln Paper	Georgia Pacific
Bass	N	N	N	N	N
Suckers	N	N	Y	N	N
Mussels	NS	N	N	NS	NS
POE	N	N	N	N	N
2004					
Bass	N	N	N	NS	Y
Suckers	N	N	Y	NS	N
Mussels	N	N	N	NS	N
POE	N	N	N	ND	N

NS = not sampled
ND = not determined

Riley- (ARY) A total of 30 legal sized smallmouth bass and 30 white suckers were collected from the river above the Riley Dam about 19 miles downstream of MeadWestvaco Corporation and upstream of International Paper Company's discharge and combined into 10 composites of 3 fish each (Appendix 6).

Concentrations of DTEh in the bass and suckers were 22% and 245% of the FTALc respectively (Figures 1 and 2, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in total toxic equivalents (TTEh) that approach the FTALr in bass and add to the exceedance in suckers.

TCDD in bass and DTEh in both species were significantly greater than reference stations on other Maine rivers (Appendix 7). That concentrations of dioxin in suckers are higher here than upstream at ARF, in spite of the fact that there are no known or likely sources in between, may be due to the fact that ARY is in an impoundment whereas ARF is free-flowing. Nevertheless, concentrations are lower than at ARP for both 2003 and 2004. There is a significant declining trend for TCDD in bass only for the period 1997-2004.

<u>Livermore Falls-</u> (ALV) A total of 30 legal-sized smallmouth bass and 30 white suckers were captured in the Otis Impoundment approximately 2 miles downstream of the discharge from International Paper Company's Jay mill and combined into 10 composites of 3 fish each (Appendix 6).

Concentrations of DTEh in the bass and suckers were 2% and 143% of the FTALc respectively (Figures 1 and 2, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in total toxic equivalents (TTEh) that approaches the FTALr in bass and further exceeds it in suckers.

There are no new sludge data since 1996. Concentrations of TCDD and TCDF in bleach plant effluent and final effluent are well below EPA's reporting level up through 2000, the latest data are available (Appendix 4).

The 2003 Dioxin Monitoring Program report issued in February 2004 indicated higher levels of TCDDl (lipid weight basis) in suckers below the mill at ALV than above at ARY. DFTEh were not significantly different in either bass or suckers, the 3 species tested in 2003 (Table 2, Appendix 5). Evaluation of the 2004 A/B test also shows no significant difference in concentrations of DFTEh between the above and below) stations for bass, suckers, or caged mussels. As there are now 2 consecutive year where all species tested showed no significant difference in concentrations, the mill has passed the A/B test.

There is a significant declining trend for TCDD and DTEo in bass and TCDD in suckers for the period 1997-2004. TCDD in bass was no longer significantly greater than reference stations on other Maine rivers but it was in suckers and DTEh were in both species (Appendix 7).
Continued elevation of levels of TCDD and DTE above background below the mill are likely the legacy of the long history of discharges and warrants some continued monitoring, which can also be used to document continuing compliance with the no discharge provision.

<u>Auburn-GIP-</u> (AGI) A total of 5 smallmouth bass were collected in Gulf Island Pond near the deep hole at Seagull Island, approximately 30 miles downstream of International Paper Company (Appendix 6). Concentrations of DTEh in the bass were 60% of the FTALc respectively and

exceeds the pFTALc (Figure 1, Appendix 2). The addition of dioxin-like (coplanar) PCBs, to DTEh results in higher levels of total toxic equivalents (TTEh) in these fish that exceeds the FTALr.

There is a declining trend in TCDD and DTEo in bass during the period 1997-2004. TCDD and DTEh concentrations were significantly greater than reference stations on other Maine rivers (Appendix 7). Continued elevation of levels of TCDD and DTE above background are likely the legacy of the long history of discharges. As this station is a popular fishing spot, it warrants some continued monitoring for assessment of the Fish Consumption Advisories.

<u>Lisbon Falls-</u> (ALS) A total of 5 smallmouth bass were captured in the Pejepscot Impoundment approximately 45 miles below International Paper Company (Appendix 6). Concentrations of DTEh were 20% of the FTALc (Figure 1, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in higher concentrations of total toxic equivalents (TTEh) in these fish that exceeds the FTALr.

There was no significant trend for the period 1997-2004 for bass. TCDD and DTEh were significantly greater than reference stations on other Maine rivers (Appendix 7). Continued elevation of levels of TCDD and DTE above background are likely the legacy of the long history of discharges.

Androscoggin Lake

<u>Wayne-</u> Androscoggin Lake in Wayne (ALW) 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 beginning in 1996, but have been somewhat lower since.

In 2004, 10 smallmouth bass and 10 white perch were collected from the lake and analyzed as 2 composites of 5 fish each (Appendix 6). DTEh were 22%, and 39% of the FTALc for bass and white perch respectively, whereas DTEh in white perch exceeds the pFTALc (Figure 1, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in an increase in total toxic equivalents (TTEh) in these fish, which does not exceed the FTALr.

Concentrations in bass are generally lower in the recent years compared to when first monitored in 1996, although there is no trend in recent years. Concentrations of TCDD and DTEo in bass were no longer significantly greater than in game fish from all other lakes (n=8) or river reference stations that have been sampled but DTE in white perch appear slightly higher. (Appendix 7). Concentrations in bass were similar to those in bass from ALV, the nearest station on the river, but concentrations in white perch were slightly higher. Continued monitoring is needed.

Kennebec River

Norridgewock- (KNW) A total of 30 smallmouth bass and 30 white suckers were collected from the river at Norridgewock and combined into 10 composites of 3 fish each (Appendix 6). Although these locations are downstream of the discharge from Madison Paper Industries discharge in Madison, comparison of dioxin in fish from this station in 1998 and 1999 with that from fish caught at the Kennebec River reference station above Madison previously, showed no significant difference between the two locations. These locations therefore serve both as a reference for the river and the upstream station for the SAPPI Somerset mill.

DTEh in bass and suckers were 6% and 20% of the FTALc respectively (Figures 1 and 2, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in an increase in total toxic equivalents (TTEh) that are below the FTALr.

TCDD and DTEo were similar to those from previous years for this and other reference stations. The trace amount of DTE measured in these fish is likely due to long-range transport and atmospheric deposition from remote sources.

Fairfield- (KFF) A total of 30 smallmouth bass and 30 white suckers 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 and combined into 10 composites of 3 fish each (Appendix 6).

Concentrations of DTEh in bass and suckers were 10%, and 20% of the FTALc respectively (Figures 1 and 2, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in an increase in total toxic equivalents (TTEh) that are below the FTALr.

There was a significant declining trend for TCDD and DTE for both species for the period 1997-2004.

Effluent data (Appendix 4) and sludge data (Appendix 3) document decreases in discharges over the years especially since early 1997 up to 2000, the latest data are available. Concentrations of TCDD and TCDF are well below the limits of the new law (<10ppq in the bleach plant).

Evaluation of the A/B test shows a significant increase in concentrations of DFTEh between the above station (KNW) and below station (KFF) for suckers, but not for bass or caged mussels, similar to the results in 2003 (Table 2, Appendix 5). By the preponderance of evidence approach, then, since 2 of the 3 tests show no evidence of a discharge, there is overall evidence of no discharge. As this is the second consecutive year with the same finding, the mill has passed the A/B test.

Additional periodic monitoring will be necessary to confirm continued reduced concentration and to confirm low levels in brown trout, fished heavily in this river reach.

Penobscot River

Woodville- (PBW) A total of 10 smallmouth bass and 10 white suckers were collected from the river at Woodville, downstream of Katahdin Paper's pulp and paper mills in Millinocket and East Millinocket, and combined into 2 composites of 5 fish each. Fish collected at this station in 1997 and 1998 had similarly low concentrations of dioxin as the historical reference station at Grindstone on the East Branch, uninfluenced by any mill. Therefore, this station serves as a reference station for the Penobscot River and the upstream station for Lincoln Paper and Tissue..

Concentrations of DTEh in bass and suckers were 10% and 15% of the FTALc respectively (Figures 1 and 2, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in an increase in total toxic equivalents (TTEh) that is still below the FTALr. Concentrations of TCDD and DTEh were similar to those of past years and at other reference stations (Appendix 7).

South Lincoln- (PBL) A total of 10 smallmouth bass and 10 white suckers were collected from the river near the boat ramp in South Lincoln, approximately 4 miles downstream of Lincoln Paper and Tissue Company's bleached kraft mill in Lincoln and combined into 2 composites of 5 fish each (Appendix 6).

Concentrations of DTEh in bass and suckers were 14% and 13% of the FTALc respectively (Figures 1 and 2, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in an increase in total toxic equivalents (TTEh) that is below the FTALr in bass but exceeds the FTALr in suckers due to CTEh alone.

There were no trends in TCDD or DTE either species for the period 1997-2004. This is interesting since there were decreased discharges from the mill as documented by decreased concentrations of TCDD and TCDF in sludge (Appendix 3) and in effluent since 1997. Reductions in effluent show compliance with the limits of the new law (Appendix 4) as a result of a change in the mill's bleaching process from chlorine based bleaching to primarily oxygen based bleaching in 1999.

The 2002-2003 Dioxin Monitoring Program report issued in February 2004 indicated higher levels of TCDDw (wet weight basis) in suckers below the mill at PBL than above at PBW in 2003. At the recommendation of the SWAT Technical Advisory Group in June 2004, data from both the above and below stations were pooled to explore the relationship with lipid, rather than exploring it at each station independently as was done for the 2003 report. The result was that the data showed that normalizing to lipid was warranted. Examination of DFTEh on a lipid normalized basis showed that concentrations were not significantly different in either bass or suckers, the 2 species tested. (Table 2, Appendix 5). Since the mill was closed for the first few months in 2004, no attempt was made to conduct the A/B test. Additional monitoring will be necessary.

Milford- (PBC) A total of 20 smallmouth bass and 20 white suckers were captured from the river at Freese Island near the boat ramp in Costigan, approximately 34 miles downstream of Lincoln Pulp and Paper Company's bleached kraft mill in Lincoln, and combined into 10 composites of 2 fish each (Appendix 6). This station is the upstream station for the above/below test for the Georgia Pacific mill about 5 miles downstream.

Concentrations of DTEh in bass and suckers were 7% and 28% of the FTALc (Figures 1 and 2, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in an increase in total toxic equivalents (TTEh) that is below the FTALr for both species. Trends were not evaluated.

Veazie- (PBV) A total of 20 smallmouth bass and 20 white suckers (Appendix 7) were collected from the Veazie Impoundment about 7-8 miles below Fort James' bleached kraft mill in Old Town and combined into 10 composites of 2 fish each (Appendix 6).

Concentrations of DTEh in bass and suckers were 7% and 26% of the FTALc respectively (Figures1 and 2), Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in an increase in total toxic equivalents (TTEh) that is below the FTALr in suckers but exceeds the threshold in bass primarily due to CTEh.

There was no significant trend for the period 1997-2004 for either species. This is surprising since TCDD and TCDF bleach plant effluent concentrations at the Georgia Pacific mill have continued to decline since early 1998 and have met the limits of the new law.

The 2003 Dioxin Monitoring Program report issued in February 2004 indicated higher levels of TCDFw (wet weight basis) in bass below the mill at PBV than above at PBC. At the recommendation of the SWAT Technical Advisory Group in June 2004, data from both the above and below stations were pooled to explore the relationship with lipid, rather than exploring it at each station independently as was done for the 2003 report. The result was that the data showed that normalizing to lipid was warranted. Examination of DFTEh on a lipid normalized basis showed that concentrations were not significantly different in either bass or suckers, the 2 species tested. (Table 2). Evaluation of the 2004 test shows a significant increase in concentrations of DFTEh from the above station (PBC) to the below (PBV) station for bass, but none for suckers or caged mussels (Table 2, Appendix 5). By the preponderance of evidence approach, then, since 2 of the 3 tests show no evidence of a discharge, there is overall evidence of no discharge. As there are now 2 consecutive years where all species tested showed no significant difference in concentrations, the mill has passed the test.

Additional periodic monitoring will be necessary to confirm continued reduced concentrations.

Sebasticook River

East Branch at Newport-(SEN) A total of 5 smallmouth bass (Appendix 6) 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. This facility treated the waste from the Eastland Woolen Mill in Corinna until 1996, when the mill ceased operation. Since then groundwater and river sediments have been found to be contaminated with a number of pollutants from the mill precursors to the formation of dioxin. The site was placed on the National Priorities List of Superfund sites in 1999 and is currently being remediated.. The Eastland Woolen Mill has been removed along with most of the downtown buildings and contaminated soil. There has been a pump and treat system for contaminated groundwater.

Concentrations of DTEh were 65% the FTALc and exceeds the pFTALc (Figure 1, Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBs, results in concentrations that greatly exceed the FTALr by much more than in previous years. **.** Sources of PCBs are unknown but may include the mill and/or long-range transport and atmospheric deposition.

TCDD and DTEh concentrations are similar to levels measured in 2001 and significantly greater than in fish from the upstream station above the mill at Corinna measured in 1997 (Appendix 7).

These results document a local source of dioxin to this reach of the river, most likely residues from 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). The Corinna Sewer District discharge will be removed from the river by the end of 2005.

This fish sampling was funded by Maine's SWAT monitoring program. Since this station is heavily fished, monitoring needs to continue to assess the need for the Fish Consumption Advisories and document the effectiveness of remediation and removal of the Corinna discharge.

Sebasticook Lake- (SLN) A total of 5 smallmouth bass were collected from Sebasticook Lake, just downstream from SEN (Appendix 6). Concentrations of DTEh were slightly lower than at SEN at 48% of the FTALc and exceeds the pFTALc (Figure 2, Appendix 2). Total toxic equivalents (TTEh), the combination of DTEh and dioxin-like PCBs, result in concentrations that greatly exceed the FTALr. Sources of PCBs are likely similar to those at SEN immediately upstream. As this lake is heavily fished, continued monitoring for dioxins and PCBs is warranted.

West Branch at Palmyra (SWP) A total of 5 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 (Appendix 6).

Concentrations of DTEh were 111% of the FTALc (Figure 1, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in total toxic equivalents (TTEh) that greatly exceed the FTALr in these fish, by much more than in previous years.

These results document a current or historical local source of dioxin to this reach of the river, most likely the Irving Tanning discharge. Although the only effluent 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 more recent data in 2000 show concentrations below reasonably low detection levels. If these recent data are representative of reduced discharges, concentrations in fish should decrease in time, the length of which will be determined by how much residual dioxin remains in the system.

There were no significant trends for TCDD or DTEh during the period 1997-2004. Concentrations of TCDD and DTEh were significantly greater than in fish from the reference site upstream of the discharge in Great Moose Lake in years past (Appendix 7). As this station is heavily fished, continued monitoring is warranted.

Burnham- (SEB) A total of 5 smallmouth bass were collected from the main stem of the Sebasticook River after the confluence of the East Branch and West Branch (Appendix 6). . This reach, then, receives water from SEN and SWP.

Concentrations of DTEh were 40% of the FTALc and exceeds the pFTALc (Figure 1, Appendix 2). TCDD levels were elevated above those of reference stations likely reflecting the diluted effect of the West Branch influence. The addition of dioxin-like (coplanar) PCBs to DTEh results in total toxic equivalents (TTEh) that greatly exceed the FTALr in these fish, primarily due to CTEh. Continued monitoring for dioxins and PCBs is warranted.

Annual Demonstration of No Discharge

Annual continued compliance with the no discharge (of dioxin) provision of the 1997 Dioxin and Color Law (38 MRSA section (420(2)(I)(3) may be demonstrated by 1) a combination of monitoring of bleach plant effluent and certification that the performance of the bleach plant and other pertinent processes has not lowered since 2003 and 2004 when the A/B test indicated complance or 2) repeating the A/B fish test.

Annual monitoring must be conducted at least once a year and demonstrate that actual (not nominal at 10 ppq) levels of TCDD and TCDF are as low as in 2003 and 2004.

For annual certification of the performance of the bleach plant and other pertinent processes, the mills must achieve and certify that they comply with the following requirements:

- Elemental Chlorine or hypochlorite was not and will not be used in the bleaching of pulp.
- The chlorine dioxide generating plant continues to be operated in a manner which minimizes or eliminates byproduct elemental chlorine generation.
- The chlorine dioxide generating plant continues to be operated in the supplier recommended manner.
- Any potential process changes that affect the chlorine dioxide plant and/or bleach plant operation must be reported to the Maine DEP for review. In reporting to MEDEP, the mill should explain the reason for the change and any possible adverse consequences if any.
- Mills will not use defoamers or other additives with known dioxin precursors.
- Mills must show that chlorine dioxide production or consumption based on a per ton of pulp basis has not increased.
- Effluent color numbers should be reported showing no increase from prior years.

References

Applied Biomontoring, 2004. Final report, 2003 Kennebec River caged mussel study, submitted to Friends of Merrymeeting Bay, Richmond, Me. 71 pp.

APPENDIX 1.

FISH CONSUMPTION ADVISORIES

MAINE BUREAU OF HEALTH

WARNING About Eating Freshwater Fish

Warning: Mercury in Maine freshwater fish may harm the babies of pregnant and nursing mothers, and young children.

SAFE EATING GUIDELINES

Pregnant and nursing women, women who may get pregnant, and children under age 8 SHOULD NOT EAT any freshwater fish from Maine's inland waters. Except, for brook trout and landlocked salmon, 1 meal per month is safe.

All other adults and children older than 8 CAN EAT 2 freshwater fish meals per month. For brook trout and landlocked salmon, the limit is 1 meal per week.

It's hard to believe that fish that looks, smells, and tastes fine may not be safe to eat. But the truth is that fish in Maine lakes, ponds, and rivers have mercury in them. Other states have this problem too. Mercury in the air settles into the waters. It then builds up in fish. For this reason, older fish have higher levels of mercury than younger fish. Fish (like pickerel and bass) that eat other fish have the highest mercury levels.

Small amounts of mercury can harm a brain starting to form or grow. That is why unborn and nursing babies, and young children are most at risk. Too much mercury can affect behavior and learning. Mercury can harm older children and adults, but it takes larger amounts. It may cause numbness in hands and feet or changes in vision. The Safe Eating Guidelines identify limits to protect everyone.

See http://www.maine.gov/dhs/ehu/fish/2KFCA.shtml

Warning: Some Maine waters are polluted, requiring additional limits to eating fish.

Fish caught in some Maine waters have high levels of PCBs, Dioxins or DDT in them. These chemicals can cause cancer and other health effects. The Bureau of Health recommends additional fish consumption limits on the waters listed below. Remember to check the mercury guidelines. If the water you are fishing is listed below, check the mercury guideline above and follow the most limiting guidelines.

SAFE EATING GUIDELINES

Androscoggin River Gilead to Merrymeeting Bay:-------------------6-12 fish meals a year.
Dennys River Meddybemps Lake to Dead Stream:-------------------1-2 fish meals a month.
Green Pond, Chapman Pit, & Greenlaw Brook
(Limestone):---Do not eat any fish from these waters.
Little Madawaska River & tributaries
(Madwaska Dam to Grimes Mill Road):--------------Do not eat any fish from these waters.
Kennebec River Augusta to the Chops:--------------Do not eat any fish from these waters.
Shawmut Dam in Fairfield to Augusta:-------5 trout meals a year, 1-2 bass meals a month.
Madison to Fairfield: ---1-2 fish meals a month.
Meduxnekeag River: -- 2 fish meals a month.
North Branch Presque Isle River--2 fish meals a month.
Penobscot River below Lincoln:---1-2 fish meals a month
Prestile Stream:--1 fish meal a month.
Red Brook in Scarborough: -- 6 fish meals a year.
Salmon Falls River below Berwick: -------------------------------------6-12 fish meals a year.
Sebasticook River (East Branch, West Branch & Main Stem)
(Corinna/Hartland to Winslow):---2 fish meals a month.

APPENDIX 2.

DIOXIN AND FURAN CONCENTRATIONS IN 2004 FISH AND SHELLFISH SAMPLES

DEP ID		AGL RBT 1		AGL RBT 4		AGL RBT 5		AGL RBT 6		AGL RBT 7	**AGL RBT**		ARP-SMB-C1
EXT ID		103000013		103000014		103000015		103000016		103000017	**mean**		102100051
		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg			ng/Kg
Compound													
2,3,7,8-TCDF		**4.11**		**5.03**		**4.75**		**4.77**		**1.91**	**4.11**		**2.67**
1,2,3,7,8-PeCDF		0.383		0.866		0.639		0.78	<	0.0613			0.967
2,3,4,7,8-PeCDF		0.669		0.687		0.675		1.24		0.384			1.55
1,2,3,4,7,8-HxCDF	<	0.109	<	0.108	<	0.112	<	0.0772	<	0.0771			0.136
1,2,3,6,7,8-HxCDF	<	0.0995	<	0.0994	<	0.109	<	0.0595	<	0.0717		<	0.0318
2,3,4,6,7,8-HxCDF	<	0.0827	<	0.0777	<	0.0968	<	0.0484	<	0.11		<	0.0282
1,2,3,7,8,9-HxCDF	<	0.105	<	0.117	<	0.134	<	0.0596	<	0.106		<	0.0339
1,2,3,4,6,7,8-HpCDF	<	0.132	<	0.0827	<	0.0694	<	0.102	<	0.0627			0.064
1,2,3,4,7,8,9-HpCDF	<	0.184	<	0.0787	<	0.0972	<	0.119	<	0.0923		<	0.0312
OCDF	<	0.0886		0.449		0.509		0.248		0.297		<	0.0382
2,3,7,8-TCDD	**<**	**0.14**	**<**	**0.106**	**<**	**0.144**	**<**	**0.104**	**<**	**0.0708**	**<0.11**	**<**	**0.0552**
1,2,3,7,8-PeCDD	<	0.108	<	0.0921	<	0.109		0.0622	<	0.0741		<	0.0401
1,2,3,4,7,8-HxCDD	<	0.0979	<	0.0874	<	0.152	<	0.0616	<	0.101		<	0.0583
1,2,3,6,7,8-HxCDD	<	0.077	<	0.132	<	0.0752	<	0.0456	<	0.0704		<	0.0501
1,2,3,7,8,9-HxCDD	<	0.116	<	0.0599	<	0.123	<	0.0402	<	0.0735		<	0.083
1,2,3,4,6,7,8-HpCDD		0.265		0.243		0.315	<	0.0235	<	0.0469		<	0.0387
OCDD		2.33		2.63		3	<	0.0574		0.802			0.29
DTEo		0.7676		0.892		0.8482		1.197		0.3831	**0.82**		1.105
DTEd		1.088		1.16		1.182		1.343		0.5941	**1.07**		1.23
DTEh		**0.93**		**1.03**		**1.02**		**1.27**		**0.49**	**0.95**		**1.17**
DTEh sd											**0.29**		
DTEh confidence											**0.25**		
DTEh 95 UCL											**1.20**		
% FTAL											**80**		
% Lipids		2.46		2.52		2.34		2.7		0.844	**2.17**		1.21
Sample weight (g)		25.2		25.8		25.2		25.7		25.2	**25.4**		25.5

For samples with some detects, TCDD and TCDF for all non-detects (<) calculated at 1/2 the detection limit.
If all samples are <, then the result is < mean of DLs

DEP ID		ARP-SMB-C2		ARP-SMB-C3		ARP-SMB-C4		ARP-SMB-C5		ARP-SMB-C6		ARP-SMB-C7		ARP-SMB-C8
EXT ID		102100052		102100053		102100054		102100055		102100056		102100057		102100058
		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg
Compound														
2,3,7,8-TCDF		**2.23**		**6.32**		**5.01**		**3.13**		**6.46**		**5.4**		**4.57**
1,2,3,7,8-PeCDF		0.887		1.45		1.02		0.835		1.65		1.56		0.933
2,3,4,7,8-PeCDF		1.31		2.34		1.7		1.46		3.1		2.14		1.7
1,2,3,4,7,8-HxCDF		0.144		0.263		0.292		0.194		0.405	<	0.108		0.264
1,2,3,6,7,8-HxCDF	<	0.0789	<	0.11	<	0.0727	<	0.114		0.156	<	0.139	<	0.187
2,3,4,6,7,8-HxCDF	<	0.108	<	0.115	<	0.0787	<	0.0982	<	0.0896	<	0.116	<	0.121
1,2,3,7,8,9-HxCDF	<	0.099	<	0.14	<	0.132	<	0.128	<	0.172	<	0.137	<	0.0891
1,2,3,4,6,7,8-HpCDF	<	0.0633	<	0.0823	<	0.127		0.131	<	0.129		0.152	<	0.0983
1,2,3,4,7,8,9-HpCDF	<	0.132	<	0.119	<	0.106	<	0.0858	<	0.182	<	0.138	<	0.107
OCDF	<	0.0863	<	0.134	<	0.0745	<	0.111	<	0.139	<	0.118	<	0.084
2,3,7,8-TCDD		**0.135**		**0.187**		**0.105**	**<**	**0.0825**		**0.198**		**0.145**		**0.124**
1,2,3,7,8-PeCDD	<	0.137	<	0.125	<	0.103	<	0.135		0.149	<	0.105		0.108
1,2,3,4,7,8-HxCDD	<	0.11	<	0.132	<	0.111	<	0.116	<	0.118	<	0.0981	<	0.0853
1,2,3,6,7,8-HxCDD	<	0.109	<	0.135	<	0.0852	<	0.0788	<	0.14	<	0.1	<	0.115
1,2,3,7,8,9-HxCDD	<	0.0958	<	0.135	<	0.113	<	0.111	<	0.14	<	0.0814	<	0.0769
1,2,3,4,6,7,8-HpCDD		0.134		0.138		0.123		0.168		0.152		0.133		0.122
OCDD		0.404		0.391		0.629		0.612		0.603	<	0.158	<	0.136
DTEo		1.076		2.088		1.534		1.107		2.686		1.833		1.613
DTEd		1.275		2.292		1.699		1.39		2.755		2.017		1.682
DTEh		**1.18**		**2.19**		**1.62**		**1.25**		**2.72**		**1.93**		**1.65**
DTEh sd														
DTEh confidence														
DTEh 95 UCL														
% FTAL														
% Lipids		1.07		2.12		2.31		1.53		2.22		2.11		2.17
Sample weight (g)		25.2		25.1		25.5		25.2		25.3		25		25.5

For samples with som

If all samples are <, th

DEP ID		ARP-SMB-C9		ARP-SMB-C10	**ARP-SMB**		ARP WHSC1		ARP WHSC2		ARP WHSC3		ARP WHSC4
EXT ID		102100059		102100060	**mean**		103000028		103000029		103000030		103000031
		ng/Kg		ng/Kg			ng/Kg		ng/Kg		ng/Kg		ng/Kg
Compound													
2,3,7,8-TCDF		**4.2**		**2.82**	**4.28**		**10.5**		**6.07**		**4.48**		**7.47**
1,2,3,7,8-PeCDF		1.36		0.953			0.793		0.525		0.336		0.618
2,3,4,7,8-PeCDF		2.37		1.43			1.46		0.817		0.596		0.996
1,2,3,4,7,8-HxCDF		0.276		0.25		<	0.112	<	0.0775		0.149		0.265
1,2,3,6,7,8-HxCDF	<	0.0689	<	0.027		<	0.101	<	0.0738	<	0.101		0.0878
2,3,4,6,7,8-HxCDF	<	0.0649	<	0.0455		<	0.0882	<	0.0894	<	0.102	<	0.0791
1,2,3,7,8,9-HxCDF	<	0.0663	<	0.0573		<	0.135	<	0.0951	<	0.0983	<	0.102
1,2,3,4,6,7,8-HpCDF	<	0.069		0.227		<	0.114	<	0.102	<	0.0813		0.0791
1,2,3,4,7,8,9-HpCDF	<	0.076	<	0.099		<	0.154	<	0.121	<	0.118	<	0.0839
OCDF	<	0.0743	<	0.0919			0.133	<	0.169	<	0.0689	<	0.0522
2,3,7,8-TCDD	**<**	**0.059**		**0.126**	**0.11**	**<**	**0.119**	**<**	**0.142**	**<**	**0.0997**	**<**	**0.101**
1,2,3,7,8-PeCDD	<	0.114	<	0.0788		<	0.077	<	0.137	<	0.0703	<	0.0667
1,2,3,4,7,8-HxCDD	<	0.117	<	0.0763		<	0.106	<	0.142	<	0.114	<	0.0855
1,2,3,6,7,8-HxCDD	<	0.0826	<	0.0704		<	0.164	<	0.0937	<	0.0913	<	0.0638
1,2,3,7,8,9-HxCDD	<	0.0913	<	0.138		<	0.129	<	0.118	<	0.0802	<	0.0745
1,2,3,4,6,7,8-HpCDD	<	0.0537	<	0.0405			0.118		0.116		0.126	<	0.0394
OCDD		0.439		0.316			0.454	<	0.161	<	0.0591		0.396
DTEo		1.698		1.2	**1.59**		1.824		1.043		0.7795		1.312
DTEd		1.923		1.322	**1.76**		2.107		1.393		1.01		1.522
DTEh		**1.81**		**1.26**	**1.68**		**1.97**		**1.22**		**0.89**		**1.42**
DTEh sd					**0.51**								
DTEh confidence					**0.31**								
DTEh 95 UCL					**1.99**								
% FTAL					**133**								
% Lipids		1.86		1.33	**1.79**		2.46		1.62		1.17		1.78
Sample weight (g)		25.4		25.1	**25.3**		25.7		25.2		25.5		25.2

For samples with some

If all samples are <, th

DEP ID		ARP WHSC5		ARP WHSC6		ARP WHSC7		ARP WHSC8		ARP WHSC9		ARP WHSC10	**ARP WHS**
EXT ID		103000032		103000033		103000034		103000035		103000036		103000037	**mean**
		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg	
Compound													
2,3,7,8-TCDF		**10.4**		**5.78**		**6.97**		**7.61**		**8.4**		**3.83**	**7.15**
1,2,3,7,8-PeCDF		0.755		0.437		0.458		0.645		0.602	<	0.163	
2,3,4,7,8-PeCDF		1.26		0.673		0.776		1.03		1.07		0.497	
1,2,3,4,7,8-HxCDF		0.405	<	0.0561		0.134	<	0.0838	<	0.129	<	0.0654	
1,2,3,6,7,8-HxCDF		0.182	<	0.054		0.0939	<	0.0757	<	0.0903	<	0.0742	
2,3,4,6,7,8-HxCDF	<	0.0684	<	0.0519	<	0.0891	<	0.0821	<	0.0655	<	0.104	
1,2,3,7,8,9-HxCDF	<	0.125	<	0.0791	<	0.111	<	0.0956	<	0.0863	<	0.0988	
1,2,3,4,6,7,8-HpCDF	<	0.0707	<	0.0415	<	0.0785	<	0.0663	<	0.112	<	0.122	
1,2,3,4,7,8,9-HpCDF	<	0.164	<	0.0576	<	0.0951	<	0.0752	<	0.0877	<	0.142	
OCDF		0.184		0.096	<	0.0573		0.136	<	0.119		0.0813	
2,3,7,8-TCDD		**0.169**	**<**	**0.114**	**<**	**0.0781**		**0.109**	**<**	**0.136**	**<**	**0.101**	**0.07**
1,2,3,7,8-PeCDD	<	0.064	<	0.0562	<	0.0678	<	0.0409	<	0.098	<	0.0615	
1,2,3,4,7,8-HxCDD	<	0.159	<	0.074	<	0.081	<	0.103	<	0.128	<	0.178	
1,2,3,6,7,8-HxCDD	<	0.118	<	0.078	<	0.108	<	0.0705	<	0.108	<	0.0971	
1,2,3,7,8,9-HxCDD	<	0.0915	<	0.068	<	0.102	<	0.0846	<	0.0928	<	0.104	
1,2,3,4,6,7,8-HpCDD	<	0.0752	<	0.0444		0.195		0.0966		0.365	<	0.0664	
OCDD	<	0.0892		0.389		1.07		0.517		2.02		0.519	
DTEo		1.938		0.9366		1.133		1.417		1.408		0.6314	**1.24**
DTEd		2.061		1.154		1.33		1.519		1.714		0.8779	**1.47**
DTEh		**2.00**		**1.05**		**1.23**		**1.47**		**1.56**		**0.75**	**1.36**
DTEh sd													**0.41**
DTEh confidence													**0.26**
DTEh 95 UCL													**1.61**
% FTAL													**108**
% Lipids		2.17		1.25		1.46		1.88		2.03		1.4	**1.72**
Sample weight (g)		25.6		25.6		25.4		25.6		25.5		25	**25.4**

For samples with som
If all samples are <, th

DEP ID		ARF SMBC1		ARF SMBC2		ARF SMBC3		ARF SMBC4		ARF SMBC5		ARF SMBC6		ARF SMBC7
EXT ID		103000018		103000019		103000020		103000021		103000022		103000023		103000024
		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg
Compound														
2,3,7,8-TCDF		**0.38**		**1.12**		**0.655**		**0.813**		**0.783**		**1.2**		**0.881**
1,2,3,7,8-PeCDF	<	0.11	<	0.131		0.208		0.272	<	0.102		0.233	<	0.114
2,3,4,7,8-PeCDF		0.171		0.404		0.262		0.517		0.307		0.482		0.338
1,2,3,4,7,8-HxCDF	<	0.0642	<	0.112	<	0.0644	<	0.066	<	0.0762	<	0.126	<	0.0668
1,2,3,6,7,8-HxCDF	<	0.0676	<	0.118	<	0.0805	<	0.0627	<	0.0322	<	0.103	<	0.0513
2,3,4,6,7,8-HxCDF	<	0.0609	<	0.0809	<	0.0648	<	0.0646	<	0.0675	<	0.0637	<	0.0674
1,2,3,7,8,9-HxCDF	<	0.0827	<	0.126	<	0.0702	<	0.0672	<	0.0871	<	0.112	<	0.0877
1,2,3,4,6,7,8-HpCDF	<	0.0409	<	0.0436	<	0.0503	<	0.104	<	0.0593	<	0.113	<	0.0736
1,2,3,4,7,8,9-HpCDF	<	0.0614	<	0.0541	<	0.071	<	0.0688	<	0.0813	<	0.11	<	0.11
OCDF	<	0.069	<	0.106		0.163		0.154		0.0695	<	0.106	<	0.0737
2,3,7,8-TCDD	**<**	**0.0981**	**<**	**0.111**	**<**	**0.105**	**<**	**0.0681**	**<**	**0.0764**	**<**	**0.0961**	**<**	**0.0985**
1,2,3,7,8-PeCDD	<	0.0585	<	0.0919	<	0.0743	<	0.0647	<	0.0506	<	0.111	<	0.0713
1,2,3,4,7,8-HxCDD	<	0.108	<	0.0953	<	0.0947	<	0.0867	<	0.0863	<	0.123	<	0.0745
1,2,3,6,7,8-HxCDD	<	0.0946	<	0.0783	<	0.079	<	0.0666	<	0.0986	<	0.0962	<	0.0564
1,2,3,7,8,9-HxCDD	<	0.0667	<	0.0759	<	0.097	<	0.056	<	0.079	<	0.152	<	0.0805
1,2,3,4,6,7,8-HpCDD	<	0.0675	<	0.0703	<	0.0409	<	0.09	<	0.0427	<	0.0989		0.0752
OCDD		0.661	<	0.258	<	0.0811		0.789	<	0.0549		0.327	<	0.098
DTEo		0.1236		0.3138		0.207		0.3535		0.232		0.3729		0.258
DTEd		0.3419		0.5933		0.4431		0.5359		0.4185		0.6611		0.4837
DTEh		**0.23**		**0.45**		**0.33**		**0.44**		**0.33**		**0.52**		**0.37**
DTEh sd														
DTEh confidence														
DTEh 95 UCL														
% FTAL														
% Lipids		0.433		0.583		0.575		0.573		1		0.76		0.71
Sample weight (g)		25.4		25.2		25.8		25.4		25.8		25.1		25.6

For samples with some
If all samples are <, th

DEP ID		ARF SMBC8		ARF SMBC9		ARF SMBC10	**ARF SMB**		ARF WHSC1		ARF WHSC2		ARF WHSC3
EXT ID		103000025		103000026		103000027	**mean**		103000048		103000049		103000050
		ng/Kg		ng/Kg		ng/Kg			ng/Kg		ng/Kg		ng/Kg
Compound													
2,3,7,8-TCDF		**0.415**		**1.19**		**0.942**	**0.84**		**4.07**		**6.05**		**4.45**
1,2,3,7,8-PeCDF	<	0.12		0.319		0.27			0.479		0.565	<	0.117
2,3,4,7,8-PeCDF		0.599	<	0.0717		0.681			0.521		0.768		0.404
1,2,3,4,7,8-HxCDF	<	0.0894	<	0.101	<	0.153		<	0.0594	<	0.0486	<	0.0484
1,2,3,6,7,8-HxCDF	<	0.0773	<	0.106	<	0.132		<	0.0588	<	0.0597	<	0.0316
2,3,4,6,7,8-HxCDF	<	0.0604	<	0.107	<	0.133		<	0.0652	<	0.0565		0.0624
1,2,3,7,8,9-HxCDF	<	0.0945	<	0.108	<	0.13		<	0.0851	<	0.054	<	0.0536
1,2,3,4,6,7,8-HpCDF	<	0.072	<	0.0943	<	0.0804		<	0.0529	<	0.113	<	0.0545
1,2,3,4,7,8,9-HpCDF	<	0.0992	<	0.117	<	0.087		<	0.115	<	0.115	<	0.0783
OCDF	<	0.0899	<	0.127	<	0.0875		<	0.108	<	0.107		0.159
2,3,7,8-TCDD	**<**	**0.134**	**<**	**0.14**	**<**	**0.103**	**<0.10**	**<**	**0.112**		**0.154**	**<**	**0.0743**
1,2,3,7,8-PeCDD	<	0.0976	<	0.0849	<	0.108		<	0.123	<	0.0704	<	0.06
1,2,3,4,7,8-HxCDD	<	0.0938	<	0.131	<	0.119		<	0.0847	<	0.12	<	0.1
1,2,3,6,7,8-HxCDD	<	0.0827	<	0.0823	<	0.137		<	0.111	<	0.0851	<	0.0866
1,2,3,7,8,9-HxCDD	<	0.084	<	0.102	<	0.113		<	0.128	<	0.0609	<	0.0968
1,2,3,4,6,7,8-HpCDD	<	0.0712	<	0.0676	<	0.0668			0.133		0.169		0.327
OCDD		0.339		0.392		0.434			0.568	<	0.112		1.98
DTEo		0.3409		0.1353		0.4484	**0.28**		0.6923		1.173		0.6561
DTEd		0.6392		0.4722		0.7541	**0.53**		0.9887		1.294		0.8393
DTEh		**0.49**		**0.30**		**0.60**	**0.41**		**0.84**		**1.23**		**0.75**
DTEh sd							**0.11**						
DTEh confidence							**0.07**						
DTEh 95 UCL							**0.48**						
% FTAL							**32**						
% Lipids		0.43		0.85		0.8	**0.67**		2.19		3.12		2.07
Sample weight (g)		25.3		25.4		25.2	**25.4**		25.1		25.6		25.8

For samples with some

If all samples are <, th

DEP ID	ARF WHSC4	ARF WHSC5	ARF WHSC6	ARF WHSC7	ARF WHSC8	ARF WHSC9	ARF WHSC10
EXT ID	103000051	103000052	103000053	103000054	103000055	103000056	103000057
	ng/Kg	ng/Kg	ng/Kg	ng/Kg	ng/Kg	ng/Kg	ng/Kg
Compound							
2,3,7,8-TCDF	**5.47**	**7.71**	**9.05**	**4.51**	**4.51**	**4.07**	**9.21**
1,2,3,7,8-PeCDF	0.527	< 0.111	0.645	0.339	0.46	0.375	< 0.0507
2,3,4,7,8-PeCDF	0.502	0.959	1.03	0.578	0.605	< 0.0382	1.28
1,2,3,4,7,8-HxCDF	< 0.0452	< 0.05	< 0.076	< 0.083	< 0.0343	< 0.0527	< 0.0361
1,2,3,6,7,8-HxCDF	< 0.0307	< 0.0382	< 0.0558	< 0.0217	< 0.0311	< 0.0593	< 0.0357
2,3,4,6,7,8-HxCDF	0.0801	< 0.0418	< 0.0972	< 0.0291	< 0.0297	< 0.0468	< 0.0373
1,2,3,7,8,9-HxCDF	< 0.0546	< 0.0456	< 0.0728	< 0.0258	< 0.0399	< 0.0575	< 0.0474
1,2,3,4,6,7,8-HpCDF	< 0.171	< 0.0691	< 0.119	< 0.0302	< 0.07	< 0.0658	< 0.0564
1,2,3,4,7,8,9-HpCDF	< 0.119	< 0.105	< 0.144	< 0.0708	< 0.0801	< 0.0604	< 0.1
OCDF	0.221	0.135	< 0.0868	0.148	0.119	0.136	0.131
2,3,7,8-TCDD	**< 0.0566**	**0.184**	**< 0.0915**	**0.113**	**0.089**	**< 0.0674**	**< 0.0863**
1,2,3,7,8-PeCDD	< 0.05	< 0.0732	0.141	< 0.0859	0.0622	< 0.0513	0.117
1,2,3,4,7,8-HxCDD	< 0.0631	< 0.0471	< 0.0991	< 0.063	< 0.0571	< 0.0821	< 0.0665
1,2,3,6,7,8-HxCDD	< 0.0826	0.0951	< 0.0906	< 0.0271	< 0.0659	< 0.0912	0.131
1,2,3,7,8,9-HxCDD	< 0.0773	< 0.0444	< 0.0872	< 0.034	< 0.0744	< 0.0785	< 0.0448
1,2,3,4,6,7,8-HpCDD	< 0.0478	< 0.0433	< 0.066	< 0.0388	0.196	0.191	0.236
OCDD	1.45	< 0.0769	1.82	0.453	0.949	1.1	1.46
DTEo	0.8322	1.445	1.592	0.8695	0.9295	0.4276	1.693
DTEd	0.9775	1.552	1.744	0.9852	0.9643	0.6135	1.81
DTEh	**0.90**	**1.50**	**1.67**	**0.93**	**0.95**	**0.52**	**1.75**
DTEh sd							
DTEh confidence							
DTEh 95 UCL							
% FTAL							
% Lipids	2.99	3.06	3.12	1.68	2.49	1.69	3.13
Sample weight (g)	25.3	25.4	25.5	25.2	25.1	25.2	25.1

For samples with som

If all samples are <, th

DEP ID	**ARF WHS**		ARY SMBC1		ARY SMBC2		ARY SMBC3		ARY SMBC4		ARY SMBC5		ARY SMBC6
EXT ID	**mean**		103000058		103000059		103000060		103000061		103000062		103000063
			ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg
Compound													
2,3,7,8-TCDF	**5.91**		**0.234**		**0.509**		**0.285**		**0.531**		**1.28**		**0.296**
1,2,3,7,8-PeCDF		<	0.0334	<	0.0726	<	0.0448		0.203		0.232	<	0.0585
2,3,4,7,8-PeCDF			0.123		0.211	<	0.0337		0.274		0.409		0.122
1,2,3,4,7,8-HxCDF		<	0.0162	<	0.0459	<	0.0296	<	0.035	<	0.0258	<	0.0271
1,2,3,6,7,8-HxCDF		<	0.015	<	0.0471	<	0.0304	<	0.029	<	0.0387	<	0.0256
2,3,4,6,7,8-HxCDF		<	0.0385	<	0.0447	<	0.0309	<	0.035	<	0.0285	<	0.0305
1,2,3,7,8,9-HxCDF		<	0.0442	<	0.0563	<	0.0371	<	0.0363	<	0.0391	<	0.043
1,2,3,4,6,7,8-HpCDF		<	0.0259	<	0.0332	<	0.029		0.0545	<	0.0382	<	0.0405
1,2,3,4,7,8,9-HpCDF		<	0.048	<	0.0437	<	0.0271	<	0.0481	<	0.0597	<	0.0478
OCDF		<	0.0598		0.122	<	0.0406		0.146		0.0858		0.122
2,3,7,8-TCDD	**0.08**	**<**	**0.0724**	**<**	**0.0734**	**<**	**0.0676**	**<**	**0.0622**		**0.082**	**<**	**0.0468**
1,2,3,7,8-PeCDD		<	0.0632	<	0.0695	<	0.0722	<	0.0515	<	0.0382	<	0.0566
1,2,3,4,7,8-HxCDD		<	0.0477	<	0.0499	<	0.0509	<	0.0452	<	0.0394	<	0.0466
1,2,3,6,7,8-HxCDD		<	0.0486	<	0.0534	<	0.0545	<	0.0644	<	0.0568	<	0.0469
1,2,3,7,8,9-HxCDD		<	0.0455	<	0.0544	<	0.0552	<	0.0443	<	0.0513	<	0.0442
1,2,3,4,6,7,8-HpCDD			0.0859		0.174		0.198	<	0.0418		0.05	<	0.0424
OCDD			0.514		1.79		1.77		0.607		0.353	<	0.0451
DTEo	**1.03**		0.08604		0.1585		0.03064		0.2011		0.4271		0.09065
DTEd	**1.18**		0.2496		0.341		0.2189		0.3445		0.4943		0.2247
DTEh	**1.10**		**0.17**		**0.25**		**0.12**		**0.27**		**0.46**		**0.16**
DTEh sd	**0.41**												
DTEh confidence	**0.26**												
DTEh 95 UCL	**1.36**												
% FTAL	**91**												
% Lipids	**2.55**		0.192		0.33		0.212		0.75		1.12		0.19
Sample weight (g)	**25.3**		25.7		25.2		25.3		25.7		25.7		25.2

For samples with some
If all samples are <, th

DEP ID		ARY SMBC7		ARY SMBC8		ARY SMBC9		ARY SMBC10	**ARY SMB**		ARY WHSC1		ARY WHSC2
EXT ID		103000064		103000065		103000066		103000067	**mean**		103000038		103000039
		ng/Kg		ng/Kg		ng/Kg		ng/Kg			ng/Kg		ng/Kg
Compound													
2,3,7,8-TCDF		**0.478**		**0.742**		**0.559**		**0.929**	**0.58**		**6.81**		**20.9**
1,2,3,7,8-PeCDF		0.139		0.202		0.135		0.16			0.634		1.44
2,3,4,7,8-PeCDF		0.226		0.369		0.31		0.308			0.772		2.28
1,2,3,4,7,8-HxCDF	<	0.0318	<	0.0321	<	0.0346	<	0.0309			0.171	<	0.133
1,2,3,6,7,8-HxCDF	<	0.035	<	0.0335	<	0.0365	<	0.0346		<	0.0636	<	0.15
2,3,4,6,7,8-HxCDF	<	0.027	<	0.0344	<	0.0377	<	0.0314		<	0.0766	<	0.117
1,2,3,7,8,9-HxCDF	<	0.0319	<	0.0476	<	0.0327	<	0.0527		<	0.089	<	0.135
1,2,3,4,6,7,8-HpCDF	<	0.0385	<	0.0459	<	0.0492	<	0.045		<	0.0697		0.254
1,2,3,4,7,8,9-HpCDF	<	0.0315	<	0.0563	<	0.0648	<	0.0498		<	0.0909	<	0.204
OCDF	<	0.0588		0.11		0.152		0.189		<	0.0565		0.259
2,3,7,8-TCDD	**<**	**0.0428**	**<**	**0.0633**	**<**	**0.0602**	**<**	**0.0558**	**0.04**		**0.134**		**0.494**
1,2,3,7,8-PeCDD	<	0.0426	<	0.042	<	0.0675	<	0.0451		<	0.0553		0.243
1,2,3,4,7,8-HxCDD	<	0.0483	<	0.045	<	0.0742	<	0.0601		<	0.0801	<	0.166
1,2,3,6,7,8-HxCDD	<	0.0503	<	0.064	<	0.0724	<	0.0642		<	0.0826	<	0.201
1,2,3,7,8,9-HxCDD	<	0.0474	<	0.0728	<	0.0679	<	0.0756		<	0.0948	<	0.127
1,2,3,4,6,7,8-HpCDD	<	0.0486		0.0652	<	0.0413	<	0.0545			0.14		0.219
OCDD	<	0.0934	<	0.0965	<	0.102		0.519		<	0.0744		0.504
DTEo		0.168		0.2694		0.2174		0.2549	**0.19**		1.25		4.049
DTEd		0.2817		0.4086		0.3823		0.3923	**0.33**		1.356		4.154
DTEh		**0.22**		**0.34**		**0.30**		**0.32**	**0.26**		**1.30**		**4.10**
DTEh sd									**0.10**				
DTEh confidence									**0.06**				
DTEh 95 UCL									**0.32**				
% FTAL									**22**				
% Lipids		0.69		1.35		0.7		0.58	**0.61**		2.98		6.52
Sample weight (g)		25.1		25		25.7		25.6	**25.4**		25.3		25.1

For samples with som
If all samples are <, th

DEP ID	ARY WHSC3	ARY WHSC4	ARY WHSC5	ARY WHSC6	ARY WHSC7	ARY WHSC8	ARY WHSC9
EXT ID	103000040	103000041	103000042	103000043	103000044	103000045	103000046
	ng/Kg	ng/Kg	ng/Kg	ng/Kg	ng/Kg	ng/Kg	ng/Kg
Compound							
2,3,7,8-TCDF	**10.4**	**9.77**	**12.6**	**16.1**	**25.5**	**20.8**	**12.5**
1,2,3,7,8-PeCDF	0.856	0.773	0.83	0.799	1.23	1.47	1.02
2,3,4,7,8-PeCDF	1.34	1.09	1.25	2.02	3.56	2.44	1.59
1,2,3,4,7,8-HxCDF	< 0.0829	< 0.116	< 0.102	< 0.136	0.463	< 0.0588	< 0.0459
1,2,3,6,7,8-HxCDF	< 0.0945	< 0.09	< 0.0515	0.408	0.315	< 0.0573	< 0.0508
2,3,4,6,7,8-HxCDF	< 0.129	< 0.0926	< 0.12	< 0.0647	< 0.0463	< 0.0579	< 0.0392
1,2,3,7,8,9-HxCDF	< 0.132	< 0.0899	< 0.0819	< 0.0957	< 0.0684	< 0.0708	< 0.079
1,2,3,4,6,7,8-HpCDF	< 0.115	< 0.104	< 0.0949	< 0.0804	< 0.127	< 0.133	< 0.0671
1,2,3,4,7,8,9-HpCDF	< 0.196	< 0.147	< 0.173	< 0.127	< 0.134	< 0.13	< 0.0838
OCDF	< 0.0667	< 0.149	0.212	0.195	< 0.0802	< 0.104	< 0.104
2,3,7,8-TCDD	**0.177**	**0.216**	**0.226**	**0.314**	**0.684**	**0.634**	**0.265**
1,2,3,7,8-PeCDD	< 0.081	< 0.0728	< 0.0839	< 0.0815	0.314	< 0.143	0.126
1,2,3,4,7,8-HxCDD	< 0.0985	< 0.108	< 0.0538	< 0.11	< 0.185	< 0.137	< 0.0917
1,2,3,6,7,8-HxCDD	< 0.137	< 0.186	0.162	0.163	0.277	< 0.158	0.163
1,2,3,7,8,9-HxCDD	< 0.11	< 0.169	< 0.0629	< 0.0662	< 0.137	< 0.238	< 0.13
1,2,3,4,6,7,8-HpCDD	0.195	0.149	0.334	0.757	0.553	0.386	0.241
OCDD	0.569	0.346	1.59	4.32	2.48	1.11	< 0.207
DTEo	1.928	1.78	2.169	3.04	5.498	4.007	2.512
DTEd	2.091	1.94	2.303	3.171	5.545	4.23	2.557
DTEh	**2.01**	**1.86**	**2.24**	**3.11**	**5.52**	**4.12**	**2.53**
DTEh sd							
DTEh confidence							
DTEh 95 UCL							
% FTAL							
% Lipids	4.44	3.88	4.56	5.55	8.97	6.45	4.01
Sample weight (g)	25.7	25.5	25.1	25.1	25.4	25.5	25.6

For samples with som

If all samples are <, th

DEP ID		ARY WHSC10	ARY WHS		ALV SMBC1		ALV SMBC2		ALV SMBC3		ALV SMBC4		ALV SMBC5
EXT ID		103000047	**mean**		103000003		103000004		103000005		103000006		103000007
		ng/Kg			ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg
Compound													
2,3,7,8-TCDF		**9.05**	**14.4**		**0.393**		**0.696**		**0.367**		**0.196**		**0.367**
1,2,3,7,8-PeCDF		0.508		<	0.0689		0.257		0.114	<	0.063	<	0.0577
2,3,4,7,8-PeCDF		0.877			0.263		0.371		0.223	<	0.0399		0.172
1,2,3,4,7,8-HxCDF		0.172		<	0.0571	<	0.0262		0.0437		0.0889		0.0432
1,2,3,6,7,8-HxCDF	<	0.053		<	0.0336		0.0538	<	0.0254	<	0.0291	<	0.0378
2,3,4,6,7,8-HxCDF	<	0.0587		<	0.0306	<	0.0335	<	0.0295	<	0.0276	<	0.0333
1,2,3,7,8,9-HxCDF	<	0.0643		<	0.0316	<	0.0437	<	0.0279	<	0.0359	<	0.0367
1,2,3,4,6,7,8-HpCDF	<	0.0694		<	0.0339		0.0537		0.0365		0.0787	<	0.0274
1,2,3,4,7,8,9-HpCDF	<	0.0698		<	0.0556	<	0.0436	<	0.0477	<	0.0409	<	0.0442
OCDF		0.0887			0.17		0.188		0.158		0.165		0.138
2,3,7,8-TCDD	**<**	**0.0989**	**0.32**	**<**	**0.0572**	**<**	**0.0808**		**0.0763**		**0.0656**	**<**	**0.0496**
1,2,3,7,8-PeCDD		0.0919			0.0545		0.0463		0.0318	<	0.0331	<	0.0275
1,2,3,4,7,8-HxCDD	<	0.0411		<	0.0524	<	0.0441	<	0.0419	<	0.0504	<	0.0446
1,2,3,6,7,8-HxCDD	<	0.0702		<	0.0344	<	0.05	<	0.0308	<	0.0348	<	0.0317
1,2,3,7,8,9-HxCDD	<	0.0709		<	0.0366	<	0.0342	<	0.0265	<	0.05	<	0.031
1,2,3,4,6,7,8-HpCDD		0.143			0.104		0.285		0.0818		0.0653		0.0447
OCDD	<	0.0674			0.677		2.32		0.391		0.288		0.206
DTEo		1.48	**2.77**		0.2266		0.3234		0.2678		0.09559		0.1276
DTEd		1.616	**2.90**		0.3158		0.4278		0.2864		0.1749		0.2299
DTEh		**1.55**	**2.83**		**0.27**		**0.38**		**0.28**		**0.14**		**0.18**
DTEh sd			**1.36**										
DTEh confidence			**0.84**										
DTEh 95 UCL			**3.68**										
% FTAL			**245**										
% Lipids		3.94	**5.13**		0.612		0.613		0.569		0.329		0.498
Sample weight (g)		25.4	**25.4**		25.2		25.4		25.2		25.9		25.5

For samples with some

If all samples are <, th

DEP ID		ALV SMBC6		ALV SMBC7		ALV SMBC8		ALV SMBC9		ALV SMBC10	**ALV SMB**		ALV-WHS-C1
EXT ID		103000008		103000009		103000010		103000011		103000012	**mean**		102100006
		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg			ng/Kg
Compound													
2,3,7,8-TCDF		**0.359**		**0.444**		**0.222**		**0.41**		**0.219**	**0.37**		**4.63**
1,2,3,7,8-PeCDF		0.113	<	0.102		0.106	<	0.142	<	0.111			0.361
2,3,4,7,8-PeCDF		0.285		0.265		0.58		0.261		0.157			0.531
1,2,3,4,7,8-HxCDF		0.0914	<	0.0851		0.0854	<	0.0834	<	0.0784		<	0.143
1,2,3,6,7,8-HxCDF	<	0.0435	<	0.0658		0.0453	<	0.0372	<	0.0413		<	0.11
2,3,4,6,7,8-HxCDF	<	0.0333	<	0.056	<	0.051	<	0.0424	<	0.0701		<	0.129
1,2,3,7,8,9-HxCDF	<	0.059	<	0.0845	<	0.0389	<	0.0641	<	0.0823		<	0.168
1,2,3,4,6,7,8-HpCDF	<	0.0536	<	0.0722		0.127	<	0.0628	<	0.0592		<	0.155
1,2,3,4,7,8,9-HpCDF	<	0.0594	<	0.0732	<	0.0798	<	0.0497	<	0.0742		<	0.18
OCDF	<	0.0577	<	0.0869		0.799		0.205		0.164		<	0.189
2,3,7,8-TCDD		**0.0714**	**<**	**0.0975**		**0.0912**	**<**	**0.118**	**<**	**0.118**	**0.06**		**0.171**
1,2,3,7,8-PeCDD	<	0.0429	<	0.0723		0.0565	<	0.0598	<	0.0782		<	0.148
1,2,3,4,7,8-HxCDD	<	0.0385	<	0.0979	<	0.0726	<	0.0613	<	0.0578		<	0.223
1,2,3,6,7,8-HxCDD	<	0.0647	<	0.084	<	0.0393	<	0.0617	<	0.0593		<	0.143
1,2,3,7,8,9-HxCDD	<	0.0488	<	0.0861	<	0.0448	<	0.0442	<	0.0766		<	0.125
1,2,3,4,6,7,8-HpCDD		0.106		0.0901		0.434		0.0972		0.0709		<	0.186
OCDD		0.67		0.409		7.02		0.404	<	0.0985			0.593
DTEo		0.2657		0.1779		0.485		0.1727		0.1011	**0.22**		0.9187
DTEd		0.3386		0.4102		0.5104		0.3984		0.3504	**0.34**		1.176
DTEh		**0.30**		**0.29**		**0.50**		**0.29**		**0.23**	**0.28**		**1.05**
DTEh sd											**0.10**		
DTEh confidence											**0.06**		
DTEh 95 UCL											**0.03**		
% FTAL											**2**		
% Lipids		0.532		0.393		0.384		0.512		0.248	**0.47**		1.94
Sample weight (g)		25.3		25.6		25.6		25.6		25.8	**25.5**		25.3

For samples with some
If all samples are <, th

DEP ID		ALV-WHS-C2		ALV-WHS-C3		ALV-WHS-C4		ALV-WHS-C5		ALV-WHS-C6		ALV-WHS-C7		ALV-WHS-C8
EXT ID		102100007		102100008		102100009		102100010		102100011		102100012		102100013
		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg
Compound														
2,3,7,8-TCDF		**10.3**		**9.32**		**8.8**		**9.27**		**7.01**		**11.9**		**8.05**
1,2,3,7,8-PeCDF		0.369		0.363		0.613		0.405		0.591		0.962		0.392
2,3,4,7,8-PeCDF		1.17		1.23		1.26		1.31		0.878		1.4		0.953
1,2,3,4,7,8-HxCDF	<	0.123	<	0.116		0.198	<	0.112	<	0.141	<	0.146	<	0.15
1,2,3,6,7,8-HxCDF	<	0.0959	<	0.11		0.0915	<	0.1	<	0.1	<	0.109	<	0.139
2,3,4,6,7,8-HxCDF	<	0.0913	<	0.0882	<	0.0395	<	0.094	<	0.142	<	0.101	<	0.141
1,2,3,7,8,9-HxCDF	<	0.115	<	0.0964	<	0.086	<	0.1	<	0.122	<	0.154	<	0.14
1,2,3,4,6,7,8-HpCDF	<	0.104	<	0.094	<	0.0994	<	0.0916	<	0.185	<	0.226	<	0.134
1,2,3,4,7,8,9-HpCDF	<	0.163	<	0.125	<	0.1	<	0.0882	<	0.13	<	0.182	<	0.198
OCDF	<	0.166	<	0.107	<	0.112	<	0.0929	<	0.124	<	0.164	<	0.132
2,3,7,8-TCDD		**0.361**		**0.274**		**0.355**		**0.304**		**0.259**		**0.469**		**0.284**
1,2,3,7,8-PeCDD		0.215		0.165		0.135	<	0.126	<	0.136		0.175		0.183
1,2,3,4,7,8-HxCDD	<	0.125	<	0.152	<	0.0825	<	0.0956	<	0.155	<	0.118	<	0.19
1,2,3,6,7,8-HxCDD	<	0.102	<	0.22	<	0.101	<	0.0981	<	0.194	<	0.192	<	0.149
1,2,3,7,8,9-HxCDD	<	0.159	<	0.0818	<	0.0978	<	0.136	<	0.155	<	0.193	<	0.164
1,2,3,4,6,7,8-HpCDD		0.188		0.173		0.242	<	0.0841	<	0.138	<	0.0792		0.228
OCDD	<	0.0982		0.671		0.728		0.684		0.672	<	0.25		0.839
DTEo		2.215		2.007		2.064		1.908		1.429		2.587		1.77
DTEd		2.299		2.096		2.107		2.109		1.67		2.693		1.881
DTEh		**2.26**		**2.05**		**2.09**		**2.01**		**1.55**		**2.64**		**1.83**
DTEh sd														
DTEh confidence														
DTEh 95 UCL														
% FTAL														
% Lipids		4.72		3.98		3.82		4.44		3.15		3.9		2.88
Sample weight (g)		25.1		25.4		25.4		25.5		25.4		25.6		25.3

For samples with som
If all samples are <, th

DEP ID		ALV-WHS-C9		ALV-WHS-C10	**ALV-WHS**		AGI-SMB-01		AGI-SMB-02		AGI-SMB-03		AGI-SMB-04
EXT ID		102100014		102100015	**mean**		102100041		102100042		102100043		102100044
		ng/Kg		ng/Kg			ng/Kg		ng/Kg		ng/Kg		ng/Kg
Compound													
2,3,7,8-TCDF		**8.77**		**7.46**	**8.55**		**0.806**		**0.402**		**1.71**		**0.194**
1,2,3,7,8-PeCDF		0.692		0.23			0.262		0.0942		0.458	<	0.0634
2,3,4,7,8-PeCDF		0.979		0.916			0.316		0.151		1.3	<	0.0477
1,2,3,4,7,8-HxCDF	<	0.102	<	0.109		<	0.0101	<	0.0397	<	0.0357	<	0.019
1,2,3,6,7,8-HxCDF	<	0.0976	<	0.113		<	0.0387	<	0.0335	<	0.0414	<	0.017
2,3,4,6,7,8-HxCDF	<	0.118	<	0.099		<	0.0383	<	0.0341	<	0.0502	<	0.0176
1,2,3,7,8,9-HxCDF	<	0.105	<	0.161		<	0.0396	<	0.0325	<	0.0413	<	0.0222
1,2,3,4,6,7,8-HpCDF	<	0.0886	<	0.0955		<	0.0395	<	0.0239	<	0.0296	<	0.0298
1,2,3,4,7,8,9-HpCDF	<	0.124	<	0.132		<	0.0359	<	0.0408	<	0.0475	<	0.0403
OCDF	<	0.127	<	0.144			0.0928		0.0985	<	0.0625	<	0.068
2,3,7,8-TCDD	**<**	**0.128**		**0.262**	**0.28**		**0.149**	**<**	**0.0747**		**0.251**		**0.0892**
1,2,3,7,8-PeCDD	<	0.122	<	0.158		<	0.0796	<	0.0705		0.14	<	0.0965
1,2,3,4,7,8-HxCDD	<	0.129	<	0.0923		<	0.085	<	0.0493	<	0.0682	<	0.0416
1,2,3,6,7,8-HxCDD	<	0.132	<	0.155		<	0.0629	<	0.0523		0.135	<	0.0345
1,2,3,7,8,9-HxCDD	<	0.157	<	0.132		<	0.0518	<	0.0372	<	0.0655	<	0.0226
1,2,3,4,6,7,8-HpCDD	<	0.14	<	0.125		<	0.0358		0.215		0.553		0.128
OCDD		0.423	<	0.18			0.658		1.59		3.6		0.968
DTEo		1.401		1.477	**1.78**		0.4008		0.123		1.255		0.11
DTEd		1.739		1.724	**1.95**		0.5141		0.2967		1.286		0.2517
DTEh		**1.57**		**1.60**	**1.86**		**0.46**		**0.21**		**1.27**		**0.18**
DTEh sd					**0.45**								
DTEh confidence					**0.28**								
DTEh 95 UCL					**2.14**								
% FTAL					**143**								
% Lipids		3.91		3.53	**3.63**		1.42		0.696		1.17		0.481
Sample weight (g)		25.6		25.3	**25.4**		25.5		25.3		25.3		25.4

For samples with some

If all samples are <, th

DEP ID		AGI-SMB-05	**AGI-SMB**		ALS-SMB-1		ALS-SMB-2		ALS-SMB-3		ALS-SMB-4		ALS-SMB-5	**ALS-SMB**
EXT ID		102100045	**mean**		102100001		102100002		102100003		102100004		102100005	**mean**
		ng/Kg			ng/Kg		ng/Kg		ng/Kg		ng/Kg		ng/Kg	
Compound														
2,3,7,8-TCDF		**0.644**	**0.75**		**0.443**		**0.212**		**0.634**		**0.238**		**0.424**	**0.39**
1,2,3,7,8-PeCDF	<	0.134		<	0.107		0.0852		0.121	<	0.054	<	0.0912	
2,3,4,7,8-PeCDF		0.229			0.172		0.155		0.241		0.167		0.131	
1,2,3,4,7,8-HxCDF	<	0.0899		<	0.0341	<	0.0448	<	0.0652	<	0.0907	<	0.0782	
1,2,3,6,7,8-HxCDF	<	0.0209		<	0.0352	<	0.0439	<	0.061	<	0.0793	<	0.074	
2,3,4,6,7,8-HxCDF	<	0.0297		<	0.0204	<	0.028	<	0.0474	<	0.0805	<	0.0543	
1,2,3,7,8,9-HxCDF	<	0.0376		<	0.0309	<	0.0257	<	0.0364	<	0.0309	<	0.0322	
1,2,3,4,6,7,8-HpCDF	<	0.0396		<	0.039	<	0.0447	<	0.0513	<	0.0589	<	0.037	
1,2,3,4,7,8,9-HpCDF	<	0.0323		<	0.0447	<	0.0894	<	0.0767	<	0.132	<	0.0936	
OCDF	<	0.0307		<	0.0478		0.0637		0.204		0.124	<	0.103	
2,3,7,8-TCDD		**0.174**	**0.14**		**0.0996**		**0.112**	**<**	**0.0751**		**0.119**		**0.123**	**0.10**
1,2,3,7,8-PeCDD	<	0.0643		<	0.0407	<	0.0644	<	0.0912	<	0.0694	<	0.088	
1,2,3,4,7,8-HxCDD	<	0.0434		<	0.0593	<	0.0649	<	0.0576	<	0.041	<	0.0548	
1,2,3,6,7,8-HxCDD	<	0.027		<	0.0498	<	0.0567	<	0.0542	<	0.0385	<	0.063	
1,2,3,7,8,9-HxCDD	<	0.0265		<	0.0305	<	0.0373	<	0.0364	<	0.0391	<	0.0609	
1,2,3,4,6,7,8-HpCDD		0.146		<	0.0266		0.112		0.216		0.147		0.113	
OCDD	<	0.0899			0.541		0.519		1.18		0.77	<	0.0859	
DTEo		0.3545	**0.45**		0.2301		0.2169		0.1924		0.228		0.2319	**0.22**
DTEd		0.4537	**0.56**		0.3033		0.3128		0.3958		0.342		0.3676	**0.34**
DTEh		**0.40**	**0.50**		**0.27**		**0.26**		**0.29**		**0.29**		**0.30**	**0.28**
DTEh sd			**0.44**											**0.02**
DTEh confidence			**0.39**											**0.01**
DTEh 95 UCL			**0.89**											**0.30**
% FTAL			**60**											**20**
% Lipids		1.11	**0.98**		0.9		0.477		0.933		0.555		0.855	**0.74**
Sample weight (g)		25	**25.3**		25.2		25.7		25.4		25.3		25.2	**25.4**

For samples with some
If all samples are <, th

DEP ID		ALW SMBC1		ALW SMBC6	**ALW SMB**		**ALW-WHP-01**
EXT ID		103000001		103000002	**mean**		102100016
		ng/Kg		ng/Kg			ng/Kg
Compound							
2,3,7,8-TCDF		**0.307**		**0.294**	**0.30**		**0.728**
1,2,3,7,8-PeCDF	<	0.135	<	0.133		<	0.116
2,3,4,7,8-PeCDF		0.275		0.311			0.641
1,2,3,4,7,8-HxCDF	<	0.0586	<	0.0666		<	0.173
1,2,3,6,7,8-HxCDF	<	0.0964		0.153		<	0.186
2,3,4,6,7,8-HxCDF	<	0.0571	<	0.0508		<	0.134
1,2,3,7,8,9-HxCDF	<	0.079	<	0.0571		<	0.184
1,2,3,4,6,7,8-HpCDF	<	0.069	<	0.0536		<	0.163
1,2,3,4,7,8,9-HpCDF	<	0.0483	<	0.102		<	0.124
OCDF	<	0.135		0.327			0.0963
2,3,7,8-TCDD	**<**	**0.0514**	**<**	**0.0955**	**0.07**	**<**	**0.134**
1,2,3,7,8-PeCDD		0.0931	<	0.0473		<	0.123
1,2,3,4,7,8-HxCDD	<	0.071	<	0.0646		<	0.137
1,2,3,6,7,8-HxCDD	<	0.0758	<	0.0665		<	0.14
1,2,3,7,8,9-HxCDD	<	0.0924	<	0.0901		<	0.155
1,2,3,4,6,7,8-HpCDD		0.13		0.129			0.14
OCDD		0.513		1.18			0.596
DTEo		0.2624		0.2017	**0.23**		**0.395**
DTEd		0.3748		0.3922	**0.38**		**0.7715**
DTEh		**0.32**		**0.30**	**0.31**		**0.58**
DTEh sd					**0.02**		
DTEh confidence					**0.02**		
DTEh 95 UCL					**0.33**		
% FTAL					22		39
% Lipids		0.442		0.614	**0.53**		**0.77**
Sample weight (g)		25.2		25.1	**25.2**		**25.2**

For samples with some

If all samples are <, th

APPENDIX 2A.

SPECIES AND STATION CODES

SPECIES CODES

BNT	brown trout
EEL	eel
LMB	largemouth bass
RBT	rainbow trout
SMB	smallmouth bass
WHP	white perch
WHS	white sucker

STATION CODES

AGL	Androscoggin R at Gilead above MeadWestvaco
ARP	Androscoggin R at Rumford Point above MeadWestvaco
ARF	Androscoggin R below Rumford below MeadWestvaco
ARY	Androscoggin R at Riley above International Paper
ALV	Androscoggin R at Livermore Falls below International Paper
AGI	Androscoggin R at Gulf Island Pond, Auburn below International Paper
ALS	Androscoggin R at Lisbon Falls below International Paper
ALW	Androscoggin Lake at Wayne below International Paper
KRM	Kennebec R at Madison above SAPPI Somerset, Skowhegan
KNW	Kennebec R at Norridgewock above SAPPI Somerset, Skowhegan
KHY	Kennebec R at Hinckley, above SAPPI Somerset Skowhegan
KFF	Kennebec R at Shawmut, Fairfield below SAPPI Somerset, Skowhegan
KRS	Kennebec R at Sidney below SAPPI-Somerset & KSTD in Waterville
PBW	Penobscot R at Woodville above Lincoln Pulp and Paper
PBM	Penobscot R at Winn above Lincoln Pulp and Paper in Lincoln
PBL	Penobscot R at S Lincoln below Lincoln Pulp and Paper in Lincoln
PBC	Penobscot R at Costigan, Milford above Georgia Pacific in Old Town
PBV	Penobscot R at Veazie below Georgia Pacific in Old Town
PBO	Penobscot R at Orrington below Georgia Pacific in Old Town
PWD	Presumpscot R at Windham above SAPPI Westbrook
PWB	Presumpscot R at Westbrook below SAPPI Westbrook
SFS	Salmon Falls R at S. Berwick below Berwick POTW and Prime Tanning
SEN	E Br Sebasticook at Newport below Corinna and former Eastland Woolen mill
SED	E Br Sebasticook at Detroit below Corinna and former Eastland Woolen mill
SWP	W Br Sebasticook at Palmyra below Hartland POTW and Irving Tanning

APPENDIX 3.

TCDD & TCDF IN SLUDGE FROM MAINE WASTEWATER TREATMENT PLANTS

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREA

LOCATION	DATE	%MOIST	TCDD	TCDF
AMERICAN TISSUE	880930	62.6	36.9	414.0
AUGUSTA	881223	61.4	37.6	326.0
	890403	61.6	34.6	242.0
	890628	65.5	17.7	414.0
	971125		0.5	4.3
AMERICAN PULP AND	88		104.0	2930.0
BERLIN NH				
AUBURN VPS	951005		1.3	17.9
AUBURN FIBER	970806		<0.9	9.9
AUGUSTA SANITARY	900409		<1.2	1.3
DISTRICT	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 SAN	910408		<1.3	2.2
DISTRICT	911001		1.7	4.6
BANGOR	950104		<19.9	<26.4
BERWICK SEWER DIS'	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

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREA

LOCATION	DATE	%MOIST	TCDD	TCDF
	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
BREWER	960611		2.1	17.0
	970212		3.4	22.0
	980622		<1	<1
	990730		<1	1.3
	000718		1.1	1.0
	010725		<1	<1
	010807		<1	1.8
	020723	75.7	<1	2.0
	030717		<1.0	2.3
	040426		<1.0	2.0
BOOTHBAY HARBOR SI	011228		<1	2.6
BOWATER				
BUCKSPORT WWTF	010919		<0.5	4.1
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
	960914		<0.4, <0.3	4.4
	960917		<1	<1
CORINNA SEWER DIS'	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
DOMTAR	890113	75.8	<6.2	<3.55
BAILEYVILLE	890424	74.7	<0.63	<4.74
	890718	66.0	<1.76	12.9
	891217		0.9	3.2
	910630		<1	2.0

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREA

LOCATION	DATE	%MOIST	TCDD	TCDF
	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
DOMTAR	950930		<5.0	24.5
BAILEYVILLE	951231		<1.0	3.4
	011115		0.4	2.6
	020315		<0.2	J0.53
	030211		J0.3	2.3
FRASER PAPER LTD	880903	68.3	13.9	233.0
MADAWASKA	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 DI:	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
FORT FAIRFIELD UT	010514		<.67	3.2
FORT JAMES	880801		12.0	34.0
OLD TOWN	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
GRAND ISLE WWTP	010710		<1	<1
HARTLAND WASTEWAT	881007	65.0	<2.86	<1.71
TREATMENT PLANT	881221	65.5	<7.25	E6.09
	890312	64.3	<0.28	5.6
	890627	63.3	<1.36	6.5
	000127		<0.4	E1.4
	000426		<0.5	<0.4

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREA

LOCATION	DATE	%MOIST	TCDD	TCDF
	000922		<2.1 <3.1	<1.9 <2.2
	001205		<0.8	<0.9
HAWK RIDGE COMPOS'	1989-90	ean n=	6.6	15.9
UNITY	1991	1.6-13		mean n=4
(compost)	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
HAWK RIDGE COMPOS'	930111		<2.2	12.0
UNITY	930406		1.7	16.0
(compost)	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, 4.9	13.0, 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
	970110		<1	1.5
	970305		<1	3.6
	970725		<1	3.8
	971014		<1	3.8
INTERNATIONAL PAPI	850621		51.3W	
JAY	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

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREA

LOCATION	DATE	%MOIST	TCDD	TCDF
	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	870713			
TREATMENT DISTRIC'	871105			
WATERVILLE	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
KENNEBEC SANITARY	960924		<1	<1
TREATMENT DISTRIC'	971010		<1	12.0
WATERVILLE	990120		<1	<1
	990915		<1	<1
	000927		0.4, <4.8, <0 5,	<3.1, 2.9,
	010108		<.10	<.10
	011017		<0.007	1.4
	021017		<0.007	1.4
	031021		0.3	1.5
	041020		0.2	0.9
KENNEBUNK SD	011105		EMPC	1.8
KIMBERLY-CLARK	871008		36.0	
WINSLOW	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 TREA

LOCATION	DATE	%MOIST	TCDD	TCDF
	911203		6.3	68.1
	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
KITTERY WWTP	990319		<0.4	5.2
LEWISTON-AUBURN	871231		<1.0	n 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
LEWISTON-AUBURN	930922		<2.7	<2.5
TREATMENT PLANT	950405		<2.2	0.8
	960625		<1	<1
	961202		<1	21.0
	990730		1.0	6.9
	000201	limed	<0.6	8.5
	020801	limed	<1	<0.1
	020801	hed co	<1	<0.1
	030709	limed	<5	<5
	030717	hed co	<5	<5
	040830	limed	<0.5	<1.2
	040830	lids/cc	1.1	2.0
LINCOLN PULP & PA	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

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREA

LOCATION	DATE	%MOIST	TCDD	TCDF
	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	20.0
	971130		<1.5	3.7
	980930		<0.7	1.2
	990531		0.3	1.5
	990930		0.4	1.0
	000130		1.3	1.5
MADAWASKA WWTP	011119		<1	2.0
MEADWESTVACO	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
NORRIDGEWOCK WWTP	011116		<0.1	<0.8
NORTH JAY WWTP	011127		0.8	<1.6
OAKLAND TREATMENT	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
OGUNQUIT SD	010912		<1.4	1.4
OLD TOWN	880525		<3.0	<3.0
	900212		<2.2	16.7
	910918		<2.9	6.6
	910918		<2.2	
ORONO TREATMENT P	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

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREA

LOCATION	DATE	%MOIST	TCDD	TCDF
PORTLAND WATER DI:	861205			
PORTLAND	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
	990602		<1	5.6
	000913		<0.1	8.0
	010806		<1	3.2
	020830		<0.2	0.6
	030830		<0.3	<0.2
	040913		0.4	1.0
	040830		<0.41	<2
PORTLAND WATER DI:	861205			
WESTBROOK WWTF	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
	001011		<0.6	3.5
	001121			3.6
	001228		1.2	3.4
	010329		0.6	4.6
	010525		<0.7	<0.5
	010803		1.4	2.1
	020830		<0.3	0.9
	030830		<0.3	<0.7
	040830		<.1	2.4
	040913		<1	1.0
PRESQUE ISLE SEWEI	010625		<1.1	<1.1
REGIONAL WASTE SY:	890111	ash	5.5	28.0
PORTLAND	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 TREA

LOCATION	DATE	%MOIST	TCDD	TCDF
ROBINSON MANUFACTU	870113		10.1	17.5
OXFORD	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
SABATTUS SANITARY	010412		<2	<2
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
	960327		2.0	9.6
	960624		5.1	18.0
	960910		5.2	11.0
SAPPI -SOMERSET	961014		5.2	15.0
	970319		5.5	26.0
	970624		8.5,4.9	36.0
	970917		<.71	2.0

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREA

LOCATION	DATE	%MOIST	TCDD	TCDF
	971216		<.28	0.7
	980316		<.79	<6.2
	980527		1.0	2.5
	980928	redgin	6.6	18.0
	981208		<.4	0.7
	990330		<.26	<4.2
	990607		<.4	0.8
	990921		<.48	<5.4
	991215		<.4	1.2
	000131		<.65	1.8
	000607		<.729	2.9
	000926	redgin	1.86	6.8
	001213		<.207	1.4
	010314		0.3	0.2
	010524		0.7	0.3
	010910		<0.561	0.2
	011217		0.2	0.1
	020318		0.3	0.1
	020509		<0.319	0.1
	020917		3.1	1.5
	021217		0.5	0.2
	030310		<0.181	0.1
	030609		0.5	0.2
	030909		<0.121	0.0
	031217		0.2	0.1
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

APPENDIX 3. TCDD AND TCDF IN SLUDGE FROM WASTEWATER TREA

LOCATION	DATE	%MOIST	TCDD	TCDF
	920505		1.6	10.8
	920821			24.5
	940131		0.9	11.6
SAPPI - WESTBROOK	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
	990113		4.0	61.0
	990407		2.9	36.0
	990728		1.0	14.0
	990830		<0.9	4.0
	990928		<1.0	2.8
CITY OF SOUTH PORTLAND				
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
	000912		<1	2.6
	010205		<3	<2
	010918		<1	1.8
	040913		<0.96	1.0
WELLS SANITARY DI	011109		<0.4	0.9
YORK SD	010806		<1	<1
VAN BUREN WWTP	000918		0.6	4.0

D=duplicate analysis

APPENDIX 4.

TCDD & TCDF IN WASTEWATER FROM MAINE PULP AND PAPER MILLS

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE	TCDD (pg/l)	TCDF (pg/l)
ANSON MADISON	920408	<3	<3
	921001	<3	20
BREWER	920624	<5.9	
	930429	<3.9	
	941129	7.4	
	950503	<3.6	
	960416	<10	
	000501	<10	
GEORGIA PACIFIC OLD TOWN	880630	39	
	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

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)	TCDF (pg/l)
GEORGIA PACIFIC	910330		17	70
OLD TOWN	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
	921030		<3.0	
	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

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
GEORGIA PACIFIC	980830	BP	<3.5	BP	<4.2
OLD TOWN	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
	990130		<3.4		<2.6
		BP	<3	BP	<3.9
	990230		<10		<10
		BP	<10	BP	<10
	990330	BP	<2.3	BP	<1.8
	990530		<1.9<4.7		<2.9<3.3
		BP	<3.2	BP	<4.8
	990630		<1.3		<1.8
		BP	<2.3	BP	7.3
	990730		<.93		<1.4
		BP	<2.6	BP	<1.8
	990930		<.68		<2.1
		BP	<1.3	BP	<5
	991030		<2.5		<2.1
		BP	<3	BP	<3.6
	000130		<8.4		<4.9
		BP	<9.0	BP	<5.4
	000330		<3.4		<3.1
		BP	<2.9	BP	<2.3
	000430		<7.4		<7.6
		BP	<5.0	BP	<5.5
	000630		<2.2		<1.5
		BP	<4.0	BP	<3.0
	000830		<1.2		<1.1
		BP	<3.0	BP	<3.2
	001030		<2.3		<2.6
		BP	<3.4	BP	<3.4
	001130		<2.7		<1.4
		BP	<2.7	BP	<3.2
	010130		<3.3		<2.1
		BP	<3.9	BP	<3.1
	010330		<4.7		<3.2
		BP	<2.4	BP	<4.5
	010530		<2.9		<2.5
		BP	<6.7	BP	<5.4
	010630		<1.7		<1.5
		BP	<3.2	BP	<3.2
	010730		<2.0		<1.5
		BP	<2.7	BP	<2.2
	010930		<3.2		<2.5
		BP	<2.3	BP	<1.7

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
GEORGIA PACIFIC	011130		<4.7		<3.9
OLD TOWN		BP	<3.4	BP	<2.6
	020115		<2.7		<1.9
	020115	BP	<2.5	BP	<1.8
	020225		<4.2		<3.0
	020227	BP	<3.9	BP	<4.2
	020416		<1.4		<1.5
	020416	BP	<2.4	BP	<2.3
	020625		<4.1		<4.4
	020730		ND		ND
	020723	BP	<4.1	BP	<2.5
	020830		ND		ND
	021010	BP	<3.2	BP	<3.1
	020930		<4.7		<3.1
	021030		<3.2		<3.1
	021130		<10		<10
	021106	BP	<10	BP	<10
	021230		<0.69		<1.6
	021203	BP	<0.69	BP	<1.6
	030130		<0.49		<0.93
	030230		<1.4		<1.6
	030330		<1.8		<1.5
	030430		<1.4		<2.4
	030530		<6.8		<8.9
	030630		<5.0		<3.6
	030730		<2.2		<1.4
	030830		<3.4		<3.2
	030930		<7.0		<5.1
	031030		NS		NS
	031130		<10		<10
	031230		<2.9		<1.7
	040130	BP	<10	BP	<10
	040230	BP	<10	BP	<10
	040330	BP	<10	BP	<10
	040430	BP	<10	BP	<10
	040530	BP	<10	BP	<10
	040630	BP	<1.6	BP	<1.2
	040730	BP	<3.1	BP	<2.1
	040830	BP	<10	BP	<10
	040930	BP	<10	BP	<10
	041030	BP	<10	BP	<10
	041130	BP	<10	BP	<10
DOMTAR	880101		6.8		25
Baileyville	900316		<5		4
	900423		<3		<6
	900531		<8		<5
	900619		<3		<1
	900716		<1		<3
	900807		<2		<5
	910630		<10		<10

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
DOMTAR	910630		<10		<10
Baileyville	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		<10		40
		BP	<10	BP	10
	981230		<10		<10
		BP	<10	BP	<10
	990430		<10		<10
		BP	<10	BP	<10
	990930		<4		<3
			<2		<6
		BP	C<2 A<4	BP	C<2 A<7
		BP	C<5 A<3	BP	C<4 A<3
	991030		<5		<3
		BP	C<7 A<5	BP	C<8 A<3
	991130		<1		<6
		BP	C<1 A<2	BP	C<5 A<3A
	000130		<4.2		<3.4
		BP	C<2.0 A<2.0	BP	C<4.0 A<3.0
			<5.0		<4.0
		BP	C<3.0 A<3.0	BP	C<3.0 A<2.0
	000930	BP	C<7.1 A<3.4	BP	C<5.6 A<2.4
		BP	C<2.3 A<2.5	BP	C<1.6 A<1.7
	001200	BP	C<5.9 A<3.8	BP	C<5.3 A<2.1
		BP	C<5.1 A<4.0	BP	C<4.0 A<3.0
	020319	BP	C<4.7 A<5.1	BP	C<4.0 A<4.2

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
DOMTAR	020610		<2.4		<3.1
Baileyville	020615	BP	C<2.6	BP	C<2.1
	020918	BP	C<1.9 A<1.3	BP	C<4.7 A<1.3
	030211		<4.7		J7.3
	030312	BP	C<4.0 A<2.6	BP	C<4.3 2.6
	031023	BP	C<5.8 A<3.5	BP	C<4.3 A<2.5
	040630		<10		
INTERNATIONAL PAPER	880101		88		420
Jay	880715		30		150
	890307		30, E6		100, 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

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
INTERNATIONAL PAPER	940226		7.3		38
Jay	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
	950126		<5.0		20.9
	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
		BPB	<5.1	BPB	<3.7
	970430		<10		14.4
	970522	BPA	4.9	BPA	5.6
		BPB	10.9	BPB	9.6
	970406	BPA	<4.9	BPA	10.9
		BPB	<5.6	BPB	9.6
	970630		<10		6.8
	970730		<10		<10
	970728	BPA	<5.2	BPA	11.5
		BPB	<5.4	BPB	6.3
	970830		<10		<10
	971030		<10		
	971013	BPA	<4.3	BPA	<5
		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

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)	TCDF (pg/l)
INTERNATIONAL PAPER	980814		<2.2	<1.1
Jay	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
	990117		<2.8	3.6
	990112	BPA	<.99	54
		BPB	<.97	4
	990312		<3	7.4
	990304	BPA	<2.1	9.7
		BPB	<2.7	<5.9
	990412		<5.9	18
	990408	BPA	<2.6	7.4
		BPB	<5.5	<5
	990618		<5.1	<4.2
	990622	BPA	<8.6	<9
		BPB	<3.3	<4.1
	990723		<2.2	<1.6
	990720	BPA	<2.9	130
		BPB	<2.5	<2.3
	990917		<6.2	<6.5
	990913	BPA	<3.8	<1.6
		BPB	<3.4	<1.4
	991008		<5.6	6.6
	991005	BPA	<2	<1.6
		BPB	<3	<1.3
	991112		<2.7	<6.5
	991110	BPA	<2.7	<4
		BPB	<2.1	<2.1
	000104	BPA	<2.5	<1.8
		BPB	<3.0	<2.8
	000306	BPA	<1.6	<5.0
		BPB	<1.1	<2.6
	000419	BPA	<2.9	<1.6
		BPB	<2.7	<1.8
	000612	BPA	<3.7	<2.6
		BPB	<1.51	<0.59
	000705	BPA	<2.43	<4.57
		BPB	<2.07	<1.8
	000829	BPA	<2.28	<3.57
		BPB	<1.69	<2.20
	001019	BPA	<0.573	<1.91
		BPB	<0.698	<1.61
	001207	BPA	<1.80	<1.89
		BPB	<0.825	<1.19
	020130		ND	ND
	020230		ND	ND
	020430		ND	ND
	020530		ND	ND

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
INTERNATIONAL PAPER	020730		ND		ND
Jay	020830		ND		ND
	021030		ND		ND
	021130		ND		ND
	030130		ND		ND
	030230		ND		ND
	030330		ND		ND
	030430		ND		ND
	030630		ND		ND
	031030		ND		ND
	031130		ND		ND
	040130		<10		<10
	040230		<10		<10
	040430		<10		<10
	040530		<10		<10
	040730		<10		<10
	040830		<10		<10
	041030		<10		<10
	041130		<10		<10
HARTLAND	960530		<0.06		
KIMBERLY-CLARK	930308		<10		<12
	930623		<4.6		<3.9
LINCOLN PAPER & TISSUE	881130		32		130
	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
	980330	BP	<3.4	BP	<3.7
	980430	BP	<10	BP	13.2
	980630	BP	<8.9	BP	<4
	980830	BP	<7.1	BP	<7.6
	980930	BP	<2.3<4.1	BP	<2.3<3.2
	981130	BP	<2.6<4.9	BP	<2.7<3.6
	981230	BP	<1.5	BP	<1.3
	990230	BP	<1.1	BP	<2.1

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
LINCOLN PAPER & TISSUE	990330	BP	<2.5	BP	<3.8
	990430	BP	<2.8	BP	<3.2
	990630	BP	<4.4	BP	<4.5
	990830	BP	<4.3	BP	<2.8
	990930	BP	<1.3	BP	<.44
	991030	BP	<2.3	BP	<2.2
	991130	BP	<3	BP	<2.9
	000130	BP	<1.4	BP	<1.4
	000330	BP	<3.0	BP	<1.2
	000430	BP	<1.6	BP	<1.3
	000630	BP	<7.14	BP	<3.63
	000730	BP	<2.07	BP	<1.25
	000830	BP	<2.14	BP	<3.17
	001030	BP	<3.39	BP	<2.17
	001130	BP	<2.08	BP	<4.43
	010228	BP	<2.11	BP	<2.39
	010330	BP	<0.56	BP	<0.618
	010530	BP	<3.28	BP	<7.31
	010630	BP	<2.05	BP	<1.97
	010830	BP	<1.25	BP	<3.56
	010930	BP	<4.01	BP	<3.37
	011130	BP	<2.18	BP	<6.19
	011230	BP	<4.97	BP	<4.79
	020230	BP	<1.68	BP	<1.22
	020330	BP	<2.27	BP	<1.31
	'020530	BP	<1.34	BP	<1.08
	020630	BP	<.841	BP	<1.03
	021030	BP	<.381	BP	<.548
	021130	BP	<.612	BP	<.340
	030230	BP	<1.16	BP	<.630
	030330	BP	<.995	BP	<.590
	030530	BP	<1.63	BP	<1.17
	030630	BP	<2.15	BP	<.447
	030730	BP	<2.82	BP	<2.67
	030830	BP	<3.76	BP	<3.02
MEADWESTVACO CORP	880518		120		570
	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

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE	TCDD (pg/l)	TCDF (pg/l)
MEADWESTVACO CORP	891222	<5	20
	900216	<2	6
	900216	<1	7
	900515	<10	<8
	900515	<1	5
	900627	<3	8
	900627	<3	9
	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

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
MEADWESTVACO CORP	960830		<10		<10
	961030		<10		<10
	961130		<10		<10
	970317		<10		<10
	980130		<10		<10
	980230		<10		<10
	980430		<10		<10
	980530		<10		<10
	980609	BP	<10		<10
	980730		<10		<10
	980830	BP	<10		<10
	981030	BP	<10		<10
	981130	BP	<10		<10
	990130		<10		<10
		BP	<10	BP	<10
	990230		<10		<10
		BP	<10	BP	<10
	990430		<10		<10
		BP	<10	BP	<10
	990530		<10		<10
		BP	<10	BP	<10
	990730		<10		<10
		BP	<10	BP	<10
	990830		<10		<10
		BP	<10	BP	<10
	991030		<10		<10
		BP	<10	BP	<10
	991130		<10		<10
		BP	<10	BP	<10
	000113	BP	<10	BP	<10
	000224	BP	<10	BP	<10
	000410	BP	<10	BP	<10
	000505	BP	<10	BP	<10
	000718	BP	<10	BP	<10
	001003	BP	<10	BP	<10
	001106	BP	<10	BP	<10
	010112	BP	<10	BP	<10
	010201	BP	<10	BP	<10
	010408	BP	<10	BP	<10
	010502	BP	<10	BP	<10
	010711	BP	<10	BP	<10
	010808	BP	<10	BP	<10
	011009	BP	<10	BP	<10
	011102	BP	<10	BP	<10
	020105	BP	<10	BP	<10
	020202	BP	<10	BP	<10
	020408	BP	<10	BP	<10
	020503	BP	<10	BP	<10
	020712	BP	<10	BP	<10
	020817	BP	<10	BP	<10
	021001	BP	<10	BP	<10

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
MEADWESTVACO CORP	021106	BP	<10	BP	<10
	030102	BP	<10	BP	<10
	030201	BP	<10	BP	<10
	030406	BP	<10	BP	<10
	030512	BP	<10	BP	<10
	030706	BP	<10	BP	<10
	030811	BP	<10	BP	<10
	031020	BP	<10	BP	<10
	031110	BP	<10	BP	<10
	040130		<10		<10
	040230				<10
	040330		<10		<10
	040430				<10
	040530				<10
	040630		<10		<10
	040730				<10
	040830				<10
	040930		<10		<10
	041030				<10
	041130				<10
SAPPI - SOMERSET	880630		16,19		63,100
	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
SAPPI - SOMERSET	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
	960405		<2.7		<2.7

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
	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		
	980825	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
	990210		<1.5		<1.2
	990310		<2.6		<2
	990410		<4.6		<3.3
	990510		<3.4		<4.5
	990710		<3.5		<3.9
	990910		<7.3		<6
	991010		<4.1		<6.1
	991110		<2.2		<1.1
	000204		<3.4		<4.7
	000310		<3.1		<3.1
	000407		<3.3		<3.3
	000505		<5.7		<4.5
	000728		<2.24		<1.22
	000908		<4.34		<4.67
	001110		<0.556		<1.13
	001208		<3.61		<3.09
	020130	BP	<0.993	BP	<0.696
	020230	BP	<3.29	BP	<2.16
	020330	BP	<2.64	BP	<1.09
	020430	BP	<0.328	BP	<0.475
	020530	BP	<0.471	BP	<0.473
	020630	BP	<0.926	BP	<0.982
	020730	BP	<0.903	BP	<0.708

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
SAPPI - SOMERSET	020830	BP	<0.955	BP	<1.19
	020930	BP	<2.41	BP	<2.25
	021030	BP	<0.661	BP	1.73
	021130	BP	<1.77	BP	<1.66
	021230	BP	ND	BP	<1.68
	030130	BP	<0.933	BP	<0.435
	030230	BP	<1.91	BP	<2.36
	030330	BP	<1.18	BP	<1.20
	030430	BP	<1.82	BP	<1.21
	030530	BP	<0.878	BP	<0.874
	030630	BP	<0.841	BP	<0.847
	030730	BP	<1.18	BP	<0.985
	030830	BP	<2.04	BP	<1.42
	030930	BP	<0.672	BP	<0.573
	031030	BP	<1.28	BP	<1.20
	031130	BP	<1.41	BP	<1.49
	031230	BP	<3.04	BP	<3.38
	040130	BP	<1.96	BP	<2.13
	040230	BP	<1.95	BP	<1.94
	040330	BP	<0.440	BP	<0.642
	040430	BP	<0.691	BP	<0.628
	040530	BP	<0.532	BP	<0.498
	040630	BP	<1.08	BP	<1.58
	040730	BP	<1.34	BP	<1.06
	040830	BP	<0.904	BP	<0.576
	040930	BP	<1.47	BP	<1.31
	041130	BP	<2.01	BP	<2.09
SAPPI - WESTBROOK	880101		6.3		
	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

APPENDIX 4. 2378-TCDD AND 2378-TCDF IN EFFLUENT FROM WASTEWATER TREATMENT PLANTS

SOURCE	DATE		TCDD (pg/l)		TCDF (pg/l)
SAPPI - WESTBROOK	950815		<4.3		<21.9
	970519	BP	<7.9	BP	<10
	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
	990113		<10		<10
	990131				<11
		BP	10	BP	140
	990209		<10		<10
	990318		<10		<10
	990331				<10
		BP	<11	BP	150
	990407		<10		<10
	990526		<11		15
	990617		<10		<10
	990630				15
		BP	<11	BP	130
	990728		<9.5		<9.5
	990731	BP	<10	BP	54
	990830		<10		<10
	990830		<10		<10

APPENDIX 5.

TCDD, TCDF, AND P-VALUES FOR 2004 A/B TEST

Appendix 5. TCDD, TCDF, MSDs, and p-values for the 2004 A/B test

ID	TCDDw pg/g	TCDDhw	TCDFw pg/g	TCDFhw	DFhw pg/g	DFTEhw pg/g	TCDDhl pg/g	TCDFl pg/g	DFhl pg/g	DFTEhl pg/g	DFTEhw/LIP* Lin Reg p	
FISH												
ARPSMB	0.12	0.11	4.28		4.39	0.54	6.36	234	241	**29.8**		
ARFSMB	0.10	0.05	0.84		0.89	0.14	8.33	125	133	**20.8**	**0.006**	**L**
MSD % A	32	40	26		26	27	56	15	15	**18**		
p										**0.001**		
ARPWHS	0.12	0.07	7.15		7.22	**0.79**	4.17	412	416	45.3		
ARFWHS	0.10	0.08	5.91		5.99	**0.67**	3.14	230	234	26.2	**0.051**	**W**
MSD % A	29	67	31		30	**30**	46	13	13	13		
p						**0.360**						
ARYSMB	0.06	0.04	0.58		0.62	0.09	8.43	112	120	**19.6**		
ALVSMB	0.08	0.06	0.37		0.42	0.09	13.4	78.2	91.7	**21.3**	**0.007**	**L**
MSD % A	31	56	44		42	38	79	29	29	**41**		
p										**0.319**		
ARYWHS	0.32	0.32	14.4		14.8	1.76	5.76	275	281	**33.3**		
ALVWHS	0.29	0.29	8.55		8.84	1.14	8.03	237	245	**31.8**	**0.000**	**L**
MSD % A	51	53	32		33	36	41	13	13	**17**		
p										**0.273**		
KNWSMB	0.05	0.02	0.08	0.07	0.10	0.03	5.51	12.7	18.2	**6.78**		
KFFSMB	0.08	0.04	0.11	0.10	0.14	0.05	4.55	10.1	14.6	**5.55**	**0.023**	**L**
MSD % A	40	40	21	40	26	30	73	24	33	**73**		
p										**0.940**		
KNWWHS	0.09	0.04	0.52	0.52	0.56	0.10	1.35	15.0	16.3	**1.35**		
KFFWHS	0.12	0.08	0.58	0.58	0.66	0.14	2.11	14.8	16.9	**2.11**	**0.033**	**L**
MSD % A	41	92	42	43	42	52	71	35	33	**71**		

ID	TCDDw pg/g	TCDDhw	TCDFw pg/g	TCDFhw	DFhw pg/g	DFTEhw pg/g	TCDDhl pg/g	TCDFl pg/g	DFhl pg/g	DFTEhl pg/g	DFTEhw/LIP* Lin Reg p	
p										**0.080**		
PBCSMB	0.05	0.03	0.09		0.12	**0.04**	6.33	21.2	27.5	8.45		
PBVSMB	0.05	0.03	0.20		0.22	**0.05**	4.85	32.2	37.1	8.07	**0.206**	**W**
MSD % A	36	36	61		48	**31**	54	59	54	51		
p						**0.023**						
PBCWHS	0.05	0.04	1.10		1.14	0.15	1.84	42.6	44.5	**6.10**		
PBVWHS	0.05	0.03	0.82		0.85	0.11	1.46	32.8	34.2	**4.74**	**0.016**	**L**
MSD % A	30	58	44		42	30	75	29	28	**28**		
p										**0.043**		

ID	TCDDw pg/g	TCDDhw	TCDFw pg/g	TCDFhw	DFhw pg/g	DFTEhw pg/g	TCDDhl pg/g	TCDFl pg/g	DFhl pg/g	DFTEhl pg/g	DFTEhw/LIP* Lin Reg p	
MUSSELS												
ARPCM	0.08	0.04	2.43		2.47	**0.28**	5.23	316	321	36.8		
ARFCM	0.08	0.04	2.22		2.26	**0.26**	4.28	248	252	29.1	**0.295**	**W**
MSD % A	34	34	17		17	**16**	49	37	37	36		
p						**0.137**						
ARYCM	0.07	0.03	1.76		1.79	**0.21**	6.55	327	334	39.3		
ALVCM	0.07	0.04	1.37		1.41	**0.17**	6.68	242	249	30.9	**0.577**	**W**
MSD % A	41	41	8		7	**7**	45	10	10	13		
p						**0.000**						
KHYCM	0.06	0.03	0.12	0.12	0.16	**0.04**	5.14	19.8	24.9	7.12		
KFFCM	0.09	0.04	0.10	0.07	0.12	**0.05**	6.55	10.0	16.6	7.55	**0.651**	**W**
MSD % A	30	30	35	38	33	**27**	52	32	31	52		
p						**0.199**						
PBCCM	0.06	0.03	0.19		0.22	**0.05**	4.20	27.5	31.7	6.95		
PBVCM	0.06	0.03	0.18		0.21	**0.05**	4.65	30.0	34.7	7.66	**0.652**	**W**
MSD % A	29	29	28		25	**22**	39	42	39	33		
p						**0.414**						

* p-value for linear regression between lipid and analyte

APPENDIX 6.

LENGTHS AND WEIGHTS FOR 2004 FISH SAMPLES

field ID	Date	Length sampled	Weight gm.	N
ANDROSCOGGIN RIVER				
GILEAD				
AGL-RBT-1	6/11/2004	280	225	1
AGL-RBT-2	6/11/2004	265	160	
AGL-RBT-3	6/11/2004	270	205	
AGL-RBT-4	6/11/2004	290	240	1
AGL-RBT-5	6/11/2004	294	220	1
AGL-RBT-6	6/11/2004	345	425	1
AGL-RBT-7	6/11/2004	390	550	1
RUMFORD POINT				
ARP-SMB -1	7/8/2004	375	780	10C3
ARP-SMB -2	7/8/2004	370	680	
ARP-SMB -3	7/9/2004	355	690	
ARP-SMB -4	7/9/2004	370	750	
ARP-SMB -5	7/9/2004	360	720	
ARP-SMB -6	7/9/2004	364	640	
ARP-SMB -7	7/9/2004	370	800	
ARP-SMB -8	7/9/2004	365	680	
ARP-SMB -9	7/9/2004	378	760	
ARP-SMB -10	7/9/2004	357	660	
ARP-SMB -11	7/9/2004	370	790	
ARP-SMB -12	7/9/2004	359	770	
ARP-SMB -13	7/9/2004	356	680	
ARP-SMB -14	7/9/2004	357	690	
ARP-SMB -15	7/12/2004	380	775	
ARP-SMB -16	7/12/2004	358	620	
ARP-SMB -17	7/12/2004	380	760	
ARP-SMB -18	7/12/2004	376	720	
ARP-SMB -19	7/12/2004	357	700	
ARP-SMB -20	7/12/2004	356	600	
ARP-SMB -21	7/12/2004	370	670	
ARP-SMB -22	7/16/2004	357	590	
ARP-SMB -23	7/16/2004	382	975	
ARP-SMB -24	7/16/2004	371	760	
ARP-SMB -25	7/23/2004	364	775	
ARP-SMB -26	7/23/2004	365	775	
ARP-SMB -27	7/23/2004	361	750	
ARP-SMB -28	7/23/2004	369	825	
ARP-SMB -29	7/23/2004	354	600	
ARP-SMB -30	7/23/2004	358	600	
ARP-SMB -31	7/23/2004	371	700	
ARP-WHS-1	7/7/2004	481	1240	10C3
ARP-WHS-2	7/7/2004	470	1210	
ARP-WHS-3	7/7/2004	462	1000	
ARP-WHS-4	7/7/2004	461	1020	

ARP-WHS-5	7/7/2004	479	1040	
ARP-WHS-6	7/7/2004	464	980	
ARP-WHS-7	7/7/2004	477	1050	
ARP-WHS-8	7/7/2004	475	1140	
ARP-WHS-9	7/7/2004	481	1130	
ARP-WHS-10	7/7/2004	473	1080	
ARP-WHS-11	7/7/2004	470	1000	
ARP-WHS-12	7/7/2004	466	1050	
ARP-WHS-13	7/7/2004	460	950	
ARP-WHS-14	7/7/2004	478	1140	
ARP-WHS-15	7/7/2004	472	1120	
ARP-WHS-16	7/7/2004	466	1120	
ARP-WHS-17	7/7/2004	470	1180	
ARP-WHS-18	7/7/2004	482	1300	
ARP-WHS-19	7/7/2004	475	1180	
ARP-WHS-20	7/8/2004	465	960	
ARP-WHS-21	7/8/2004	460	1020	
ARP-WHS-22	7/8/2004	464	1080	
ARP-WHS-23	7/8/2004	467	1000	
ARP-WHS-24	7/8/2004	480	1120	
ARP-WHS-25	7/8/2004	479	1130	
ARP-WHS-26	7/8/2004	468	1000	
ARP-WHS-27	7/8/2004	477	1070	
ARP-WHS-28	7/8/2004	482	1100	
ARP-WHS-29	7/8/2004	477	1150	
ARP-WHS-30	7/8/2004	473	1090	
RUMFORD				
ARF-SMB-1	7/13/2004	382	770	10C3
ARF-SMB-2	7/13/2004	376	750	
ARF-SMB-3	7/13/2004	381	700	
ARF-SMB-4	7/13/2004	366	690	
ARF-SMB-5	7/13/2004	363	750	
ARF-SMB-6	7/13/2004	365	700	
ARF-SMB-7	7/13/2004	381	860	
ARF-SMB-8	7/13/2004	385	810	
ARF-SMB-9	7/13/2004	385	830	
ARF-SMB-10	7/13/2004	380	800	
ARF-SMB-11	7/13/2004	355	660	
ARF-SMB-12	7/13/2004	367	650	
ARF-SMB-13	7/14/2004	375	790	
ARF-SMB-14	7/14/2004	380	810	
ARF-SMB-15	7/14/2004	365	700	
ARF-SMB-16	7/14/2004	357	630	
ARF-SMB-17	7/14/2004	355	600	
ARF-SMB-18	7/14/2004	377	700	
ARF-SMB-19	7/14/2004	372	730	
ARF-SMB-20	7/14/2004	377	750	
ARF-SMB-21	7/14/2004	380	780	
ARF-SMB-22	7/14/2004	360	650	
ARF-SMB-23	7/14/2004	365	820	
ARF-SMB-24	7/14/2004	375	800	

ARF-SMB-25	7/14/2004	375	810	
ARF-SMB-26	7/14/2004	380	720	
ARF-SMB-27	7/14/2004	356	620	
ARF-SMB-28	7/14/2004	360	600	
ARF-SMB-29	7/14/2004	377	810	
ARF-SMB-30	7/14/2004	380	810	
ARF-WHS-1	7/13/2004	468	1320	10C3
ARF-WHS-2	7/13/2004	465	1270	
ARF-WHS-3	7/13/2004	450	1120	
ARF-WHS-4	7/14/2004	470	1300	
ARF-WHS-5	7/14/2004	458	1220	
ARF-WHS-6	7/14/2004	462	1180	
ARF-WHS-7	7/14/2004	465	1210	
ARF-WHS-8	7/14/2004	472	1160	
ARF-WHS-9	7/14/2004	465	1190	
ARF-WHS-10	7/14/2004	468	1000	
ARF-WHS-11	7/14/2004	455	1150	
ARF-WHS-12	7/14/2004	458	1050	
ARF-WHS-13	7/14/2004	460	1160	
ARF-WHS-14	7/14/2004	464	1350	
ARF-WHS-15	7/14/2004	460	1130	
ARF-WHS-16	7/14/2004	461	1140	
ARF-WHS-17	7/14/2004	485	1270	
ARF-WHS-18	7/14/2004	480	1450	
ARF-WHS-19	7/14/2004	461	1100	
ARF-WHS-20	7/14/2004	469	1120	
ARF-WHS-21	7/15/2004	481	1450	
ARF-WHS-22	7/15/2004	469	1240	
ARF-WHS-23	7/15/2004	458	1150	
ARF-WHS-24	7/15/2004	450	1250	
ARF-WHS-25	7/15/2004	456	1100	
ARF-WHS-26	7/15/2004	463	1125	
ARF-WHS-27	7/15/2004	457	1100	
ARF-WHS-28	7/15/2004	460	1250	
ARF-WHS-29	7/15/2004	458	1180	
ARF-WHS-30	7/15/2004	481	1350	
RILEY				
ARY-SMB-1	7/19/2004	380	775	10C3
ARY-SMB-2	7/19/2004	361	735	
ARY-SMB-3	7/19/2004	381	750	
ARY-SMB-4	7/19/2004	371	690	
ARY-SMB-5	7/19/2004	358	675	
ARY-SMB-6	7/19/2004	379	653	
ARY-SMB-7	7/19/2004	361	600	
ARY-SMB-8	7/20/2004	373	780	
ARY-SMB-9	7/20/2004	360	530	
ARY-SMB-10	7/20/2004	364	680	
ARY-SMB-11	7/20/2004	381	800	
ARY-SMB-12	7/20/2004	363	700	
ARY-SMB-13	7/21/2004	380	750	

ARY-SMB-14	7/21/2004	370	690	
ARY-SMB-15	7/21/2004	369	700	
ARY-SMB-16	7/21/2004	364	710	
ARY-SMB-17	7/21/2004	380	790	
ARY-SMB-18	7/21/2004	374	775	
ARY-SMB-19	7/21/2004	375	725	
ARY-SMB-20	7/22/2004	354	580	
ARY-SMB-21	7/22/2004	368	675	
ARY-SMB-22	7/22/2004	356	675	
ARY-SMB-23	7/22/2004	354	625	
ARY-SMB-24	7/22/2004	358	590	
ARY-SMB-25	7/22/2004	361	610	
ARY-SMB-26	7/22/2004	372	725	
ARY-SMB-27	7/22/2004	356	575	
ARY-SMB-28	7/22/2004	371	750	
ARY-SMB-29	7/22/2004	380	800	
ARY-SMB-30	7/22/2004	355	525	
ARY-WHS-1	7/20/2004	437	1150	10C3
ARY-WHS-2	7/20/2004	443	1150	
ARY-WHS-3	7/20/2004	430	1000	
ARY-WHS-4	7/20/2004	454	1380	
ARY-WHS-5	7/20/2004	436	1120	
ARY-WHS-6	7/20/2004	431	1100	
ARY-WHS-7	7/20/2004	448	1200	
ARY-WHS-8	7/20/2004	454	1140	
ARY-WHS-9	7/20/2004	446	1110	
ARY-WHS-10	7/21/2004	440	1100	
ARY-WHS-11	7/21/2004	453	1210	
ARY-WHS-12	7/21/2004	436	1200	
ARY-WHS-13	7/21/2004	433	1150	
ARY-WHS-14	7/21/2004	447	1150	
ARY-WHS-15	7/21/2004	440	1110	
ARY-WHS-16	7/21/2004	431	1020	
ARY-WHS-17	7/21/2004	457	1250	
ARY-WHS-18	7/21/2004	450	1350	
ARY-WHS-19	7/21/2004	440	1050	
ARY-WHS-20	7/21/2004	450	1250	
ARY-WHS-21	7/21/2004	457	1375	
ARY-WHS-22	7/21/2004	445	1175	
ARY-WHS-23	7/21/2004	444	1175	
ARY-WHS-24	7/21/2004	434	1180	
ARY-WHS-25	7/21/2004	436	960	
ARY-WHS-26	7/21/2004	448	1200	
ARY-WHS-27	7/21/2004	438	1100	
ARY-WHS-28	7/21/2004	447	1210	
ARY-WHS-29	7/21/2004	455	1225	
ARY-WHS-30	7/21/2004	448	1225	
LIVERMORE				
ALV-SMB-1	7/26/2004	380	900	10C3
ALV-SMB-2	7/26/2004	381	775	

ALV-SMB-3	7/26/2004	377	800	
ALV-SMB-4	7/26/2004	367	700	
ALV-SMB-5	7/26/2004	374	690	
ALV-SMB-6	7/26/2004	356	640	
ALV-SMB-7	7/26/2004	377	600	
ALV-SMB-8	7/26/2004	371	620	
ALV-SMB-9	7/26/2004	369	630	
ALV-SMB-10	7/26/2004	380	650	
ALV-SMB-11	7/26/2004	374	700	
ALV-SMB-12	7/26/2004	368	680	
ALV-SMB-13	7/26/2004	376	700	
ALV-SMB-14	7/26/2004	383	780	
ALV-SMB-15	7/26/2004	370	740	
ALV-SMB-16	7/26/2004	364	550	
ALV-SMB-17	7/26/2004	369	475	
ALV-SMB-18	7/26/2004	370	610	
ALV-SMB-19	7/26/2004	372	620	
ALV-SMB-20	7/26/2004	368	620	
ALV-SMB-21	7/26/2004	382	760	
ALV-SMB-22	7/26/2004	360	640	
ALV-SMB-23	7/26/2004	375	790	
ALV-SMB-24	7/26/2004	364	600	
ALV-SMB-25	7/26/2004	359	630	
ALV-SMB-26	7/27/2004	372	740	
ALV-SMB-27	7/27/2004	380	710	
ALV-SMB-28	7/27/2004	376	740	
ALV-SMB-29	7/27/2004	355	600	
ALV-SMB-30	7/27/2004	372	700	
ALV-WHS-1	7/26/2004	479	1450	10C3
ALV-WHS-2	7/26/2004	470	1300	
ALV-WHS-3	7/26/2004	478	1470	
ALV-WHS-4	7/26/2004	465	1300	
ALV-WHS-5	7/26/2004	464	1280	
ALV-WHS-6	7/26/2004	466	1275	
ALV-WHS-7	7/26/2004	470	1420	
ALV-WHS-8	7/26/2004	473	1490	
ALV-WHS-9	7/26/2004	476	1640	
ALV-WHS-10	7/26/2004	460	1200	
ALV-WHS-11	7/26/2004	468	1340	
ALV-WHS-12	7/26/2004	459	1200	
ALV-WHS-13	7/26/2004	469	1110	
ALV-WHS-14	7/26/2004	465	1120	
ALV-WHS-15	7/26/2004	472	1380	
ALV-WHS-16	7/26/2004	481	1300	
ALV-WHS-17	7/26/2004	459	1180	
ALV-WHS-18	7/26/2004	458	1110	
ALV-WHS-19	7/26/2004	458	1140	
ALV-WHS-20	7/26/2004	481	1340	
ALV-WHS-21	7/26/2004	475	1410	
ALV-WHS-22	7/26/2004	458	1100	
ALV-WHS-23	7/26/2004	461	1320	

ALV-WHS-24	7/26/2004	456	1200	
ALV-WHS-25	7/27/2004	467	1320	
ALV-WHS-26	7/27/2004	470	1350	
ALV-WHS-27	7/27/2004	470	1380	
ALV-WHS-28	7/27/2004	463	1480	
ALV-WHS-29	7/27/2004	460	1300	
ALV-WHS-30	7/27/2004	462	1270	
GULF ISLAND POND				
AGI-SMB-1	7/27/2004	312	400	1
AGI-SMB-2	7/27/2004	313	400	1
AGI-SMB-3	7/28/2004	370	730	1
AGI-SMB-4	7/28/2004	435	1000	1
AGI-SMB-5	7/28/2004	308	410	1
LISBON				
ALS-SMB-1	7/29/2004	345	630	1
ALS-SMB-2	7/29/2004	353	600	1
ALS-SMB-3	7/29/2004	305	360	1
ALS-SMB-4	7/29/2004	306	400	1
ALS-SMB-5	7/29/2004	305	400	1
ANDROSCOGGIN L.				
ALW-SMB-1	7/18/2004	344	430	2C5
ALW-SMB-2	7/18/2004	379	725	
ALW-SMB-3	7/18/2004	320	375	
ALW-SMB-4	7/18/2004	415	825	
ALW-SMB-5	7/19/2004	415	900	
ALW-SMB-6	7/19/2004	422	925	
ALW-SMB-7	7/19/2004	390	625	
ALW-SMB-8	7/19/2004	415	800	
ALW-SMB-9	7/19/2004	426	910	
ALW-SMB-10	7/19/2004	420	900	
ALW-WHP-1	8/18/2004	328	425	1C8
ALW-WHP-2	8/18/2004	321	425	
ALW-WHP-3	8/18/2004	313	390	
ALW-WHP-4	8/18/2004	288	310	
ALW-WHP-5	8/18/2004	290	290	
ALW-WHP-6	8/18/2004	249	175	
ALW-WHP-7	8/18/2004	269	240	
ALW-WHP-8	8/18/2004	340	500	
ALW-WHP-9	8/18/2004	276	250	
ALW-WHP-10	8/18/2004	277	255	
KENNEBEC RIVER				
NORRIDGWOCK				
KNW-SMB-01	9/14/2004	334	478	10C3
KNW-SMB-02	9/14/2004	324	427	
KNW-SMB-03	9/14/2004	330	480	

KNW-SMB-04	9/14/2004	315	439	
KNW-SMB-05	9/15/2004	320	363	
KNW-SMB-06	9/16/2004	332	550	
KNW-SMB-07	9/16/2004	310	510	
KNW-SMB-08	9/16/2004	332	560	
KNW-SMB-09	9/16/2004	309	420	
KNW-SMB-10	9/16/2004	329	540	
KNW-SMB-11	9/16/2004	320	600	
KNW-SMB-12	9/16/2004	310	500	
KNW-SMB-13	9/16/2004	308	480	
KNW-SMB-14	9/16/2004	310	480	
KNW-SMB-15	9/16/2004	312	460	
KNW-SMB-16	9/16/2004	310	460	
KNW-SMB-17	9/16/2004	315	540	
KNW-SMB-18	9/16/2004	326	500	
KNW-SMB-19	9/16/2004	320	540	
KNW-SMB-20	9/16/2004	339	650	
KNW-SMB-21	9/16/2004	319	510	
KNW-SMB-22	9/16/2004	326	530	
KNW-SMB-23	9/16/2004	320	590	
KNW-SMB-24	9/16/2004	322	500	
KNW-SMB-25	9/16/2004	320	510	
KNW-SMB-26	9/16/2004	310	440	
KNW-SMB-27	9/16/2004	310	510	
KNW-SMB-28	9/16/2004	304	410	
KNW-SMB-29	9/16/2004	300	410	
KNW-SMB-30	9/16/2004	303	410	
KNW-WHS-01	9/14/2004	455	1163	10C3
KNW-WHS-03	9/14/2004	452	1097	
KNW-WHS-04	9/14/2004	480	1200	
KNW-WHS-05	9/14/2004	455	1109	
KNW-WHS-06	9/14/2004	470	1324	
KNW-WHS-08	9/14/2004	485	1251	
KNW-WHS-12	9/14/2004	472	1319	
KNW-WHS-14	9/14/2004	475	1234	
KNW-WHS-16	9/14/2004	482	1177	
KNW-WHS-17	9/14/2004	465	1138	
KNW-WHS-18	9/14/2004	480	1332	
KNW-WHS-20	9/14/2004	475	1138	
KNW-WHS-21	9/15/2004	435	1027	
KNW-WHS-22	9/15/2004	465	1244	
KNW-WHS-23	9/15/2004	455	1177	
KNW-WHS-24	9/15/2004	470	1159	
KNW-WHS-26	9/15/2004	456	1237	
KNW-WHS-28	9/15/2004	450	1018	
KNW-WHS-29	9/15/2004	470	1121	
KNW-WHS-31	9/15/2004	480	1327	
KNW-WHS-32	9/15/2004	452	1070	
KNW-WHS-33	9/15/2004	475	1228	
KNW-WHS-37	9/15/2004	482	1560	
KNW-WHS-38	9/15/2004	480	1311	

KNW-WHS-39	9/15/2004	454	1200	
KNW-WHS-40	9/15/2004	480	1212	
KNW-WHS-41	9/15/2004	464	1253	
KNW-WHS-42	9/15/2004	465	1326	
KNW-WHS-43	9/15/2004	450	1062	
KNW-WHS-44	9/15/2004	450	1113	
FAIRFIELD				
KFF-SMB-1	9/20/2004	325	530	10C3
KFF-SMB-2	9/20/2004	315	530	
KFF-SMB-3	9/20/2004	312	500	
KFF-SMB-4	9/20/2004	318	500	
KFF-SMB-5	9/20/2004	328	423	
KFF-SMB-6	9/22/2004	310	349	
KFF-SMB-7	9/22/2004	320	424	
KFF-SMB-8	9/22/2004	320	375	
KFF-SMB-9	9/22/2004	308	345	
KFF-SMB-10	9/24/2004	310	460	
KFF-SMB-11	9/24/2004	330	560	
KFF-SMB-12	10/5/2004	330	610	
KFF-SMB-13	10/5/2004	335	640	
KFF-SMB-14	10/5/2004	330	630	
KFF-SMB-15	10/5/2004	315	510	
KFF-SMB-16	10/5/2004	320	630	
KFF-SMB-17	10/5/2004	310	460	
KFF-SMB-18	10/5/2004	325	580	
KFF-SMB-19	10/6/2004	335	740	
KFF-SMB-20	10/6/2004	315	560	
KFF-SMB-21	10/6/2004	330	740	
KFF-SMB-22	10/6/2004	330	640	
KFF-SMB-23	10/6/2004	315	620	
KFF-SMB-24	10/6/2004	335	680	
KFF-SMB-25	10/7/2004	315	475	
KFF-SMB-26	10/7/2004	315	530	
KFF-SMB-27	10/7/2004	311	440	
KFF-SMB-28	10/7/2004	302	430	
KFF-SMB-29	10/7/2004	330	600	
KFF-SMB-30	10/7/2004	320	580	
KFF-WHS-7	9/21/2004	481	1372	10C3
KFF-WHS-9	9/21/2004	480	1426	
KFF-WHS-10	9/21/2004	470	1292	
KFF-WHS-13	9/21/2004	470	1382	
KFF-WHS-15	9/21/2004	455	1205	
KFF-WHS-17	9/21/2004	480	1350	
KFF-WHS-19	9/21/2004	460	1366	
KFF-WHS-23	9/22/2004	470	1233	
KFF-WHS-25	9/22/2004	484	1394	
KFF-WHS-27	9/22/2004	450	1170	
KFF-WHS-30	9/22/2004	460	1276	
KFF-WHS-36	9/22/2004	465	1410	
KFF-WHS-37	9/22/2004	483	1325	

KFF-WHS-50	9/22/2004	454	1106	
KFF-WHS-51	9/22/2004	462	1417	
KFF-WHS-52	9/22/2004	460	1355	
KFF-WHS-53	9/22/2004	455	1047	
KFF-WHS-54	9/22/2004	460	1067	
KFF-WHS-55	9/22/2004	474	1361	
KFF-WHS-56	9/22/2004	455	1177	
KFF-WHS-57	9/22/2004	465	1243	
KFF-WHS-58	9/22/2004	458	1156	
KFF-WHS-59	9/22/2004	460	1147	
KFF-WHS-60	9/22/2004	470	1344	
KFF-WHS-61	9/22/2004	466	1243	
KFF-WHS-62	9/22/2004	464	1329	
KFF-WHS-63	9/22/2004	475	1223	
KFF-WHS-64	9/22/2004	470	1364	
KFF-WHS-65	9/22/2004	455	1156	
KFF-WHS-66	9/22/2004	460	1117	
PENOBSCOT RIVER				
WOODVILLE				
PBW-SMB-1	8/10/2004	380	610	2C5
PBW-SMB-2	8/10/2004	378	700	
PBW-SMB-3	8/10/2004	357	500	
PBW-SMB-4	8/11/2004	380	710	
PBW-SMB-5	8/11/2004	385	820	
PBW-SMB-6	8/11/2004	375	800	
PBW-SMB-7	8/11/2004	380	840	
PBW-SMB-8	8/11/2004	370	660	
PBW-SMB-9	8/11/2004	385	800	
PBW-SMB-10	8/12/2004	363	620	
PBW-WHS-11	8/12/2004	346	540	2C5
PBW-WHS-15	8/12/2004	332	490	
PBW-WHS-17	8/12/2004	344	520	
PBW-WHS-14	8/12/2004	375	660	
PBW-WHS-18	9/1/2004	362	670	
PBW-WHS-19	9/1/2004	360	750	
PBW-WHS-20	9/1/2004	358	600	
PBW-WHS-21	9/1/2004	360	640	
PBW-WHS-22	9/1/2004	342	580	
PBW-WHS-23	9/1/2004	346	580	
LINCOLN				
PBL-SMB-1	8/10/2004	374	670	2C5
PBL-SMB-2	8/10/2004	380	700	
PBL-SMB-3	8/10/2004	370	610	
PBL-SMB-4	8/10/2004	383	690	
PBL-SMB-5	8/10/2004	380	700	
PBL-SMB-6	8/11/2004	382	920	
PBL-SMB-7	8/12/2004	352	600	

PBL-SMB-8	8/12/2004	365	720	
PBL-SMB-9	8/12/2004	378	760	
PBL-SMB-10	8/12/2004	360	800	
PBL-WHS-1	8/11/2004	340	560	2C5
PBL-WHS-2	8/11/2004	325	420	
PBL-WHS-3	8/11/2004	350	600	
PBL-WHS-4	8/11/2004	338	550	
PBL-WHS-10	8/12/2004	341	500	
PBL-WHS-14	8/12/2004	330	500	
PBL-WHS-17	8/13/2004	341	590	
PBL-WHS-18	8/13/2004	338	550	
PBL-WHS-19	8/31/2004	355	700	
PBL-WHS-20	8/31/2004	357	740	
COSTIGAN				
PBC-SMB-1	8/31/2004	305	450	10C2
PBC-SMB-2	8/31/2004	320	460	
PBC-SMB-3	8/31/2004	380	900	
PBC-SMB-4	8/31/2004	370	740	
PBC-SMB-5	8/31/2004	360	730	
PBC-SMB-6	8/31/2004	372	820	
PBC-SMB-7	8/31/2004	360	720	
PBC-SMB-8	8/31/2004	380	770	
PBC-SMB-9	8/31/2004	379	810	
PBC-SMB-10	8/31/2004	380	790	
PBC-SMB-11	8/31/2004	359	640	
PBC-SMB-12	8/31/2004	355	620	
PBC-SMB-13	8/31/2004	370	750	
PBC-SMB-14	8/31/2004	382	790	
PBC-SMB-15	8/31/2004	352	640	
PBC-SMB-16	8/31/2004	364	750	
PBC-SMB-17	8/31/2004	375	800	
PBC-SMB-18	8/31/2004	355	600	
PBC-SMB-19	8/31/2004	363	790	
PBC-SMB-20	8/31/2004	379	800	
PBC-SMB-21	8/31/2004	364	740	
PBC-SMB-22	8/31/2004	385	810	
PBC-SMB-23	8/31/2004	364	740	
PBC-SMB-24	8/31/2004	366	800	
PBC-SMB-25	8/31/2004	355	690	
PBC-SMB-26	8/31/2004	365	820	
PBC-SMB-27	8/31/2004	359	730	
PBC-SMB-28	8/31/2004	370	780	
PBC-SMB-29	8/31/2004	360	740	
PBC-SMB-30	8/31/2004	353	660	
PBC-WHS-1	8/13/2004	456	1310	10C2
PBC-WHS-2	8/13/2004	476	1320	
PBC-WHS-3	8/13/2004	470	1550	
PBC-WHS-4	8/13/2004	471	1290	
PBC-WHS-5	8/13/2004	456	1140	

PBC-WHS-6	8/13/2004	470	1300	
PBC-WHS-7	8/13/2004	476	1490	
PBC-WHS-8	8/13/2004	461	1300	
PBC-WHS-9	8/13/2004	474	1490	
PBC-WHS-10	8/13/2004	458	1380	
PBC-WHS-11	8/13/2004	462	1420	
PBC-WHS-12	8/13/2004	461	1380	
PBC-WHS-13	8/13/2004	481	1450	
PBC-WHS-14	8/13/2004	459	1040	
PBC-WHS-15	8/13/2004	452	1400	
PBC-WHS-16	8/13/2004	472	1500	
PBC-WHS-17	8/13/2004	471	1440	
PBC-WHS-18	8/13/2004	466	1450	
PBC-WHS-19	8/13/2004	469	1250	
PBC-WHS-20	8/13/2004	458	1210	
PBC-WHS-21	8/13/2004	481	1370	
PBC-WHS-22	8/13/2004	481	1650	
PBC-WHS-23	8/13/2004	468	1340	
PBC-WHS-24	8/13/2004	482	1740	
PBC-WHS-25	8/13/2004	458	1380	
PBC-WHS-26	8/13/2004	462	1240	
PBC-WHS-27	8/13/2004	471	1560	
PBC-WHS-28	8/13/2004	461	1340	
PBC-WHS-29	8/13/2004	481	1500	
PBC-WHS-30	8/13/2004	487	1600	
VEAZIE				
PBV-SMB-1	9/8/2004	365	750	10C2
PBV-SMB-2	9/8/2004	370	700	
PBV-SMB-3	9/8/2004	365	780	
PBV-SMB-4	9/8/2004	370	750	
PBV-SMB-5	9/8/2004	342	620	
PBV-SMB-6	9/8/2004	380	860	
PBV-SMB-7	9/8/2004	380	850	
PBV-SMB-8	9/8/2004	365	660	
PBV-SMB-9	9/8/2004	345	600	
PBV-SMB-10	9/8/2004	342	580	
PBV-SMB-11	9/8/2004	345	620	
PBV-SMB-12	9/8/2004	340	600	
PBV-SMB-13	9/8/2004	339	560	
PBV-SMB-14	9/8/2004	400	1100	
PBV-SMB-15	9/10/2004	390	960	
PBV-SMB-16	9/10/2004	375	820	
PBV-SMB-17	9/10/2004	360	640	
PBV-SMB-18	9/10/2004	365	790	
PBV-SMB-19	9/10/2004	385	850	
PBV-SMB-20	9/10/2004	326	570	
PBV-WHS-1	9/8/2004	503	1900	10C2
PBV-WHS-2	9/8/2004	412	1140	
PBV-WHS-3	9/8/2004	418	1120	
PBV-WHS-4	9/8/2004	410	1160	

PBV-WHS-5	9/8/2004	418	1180	
PBV-WHS-6	9/8/2004	460	1600	
PBV-WHS-7	9/8/2004	412	1150	
PBV-WHS-8	9/8/2004	428	1200	
PBV-WHS-9	9/8/2004	456	1530	
PBV-WHS-10	9/8/2004	405	1100	
PBV-WHS-11	9/8/2004	412	980	
PBV-WHS-12	9/8/2004	470	1650	
PBV-WHS-13	9/8/2004	430	1280	
PBV-WHS-14	9/8/2004	464	1760	
PBV-WHS-15	9/10/2004	376	840	
PBV-WHS-16	9/10/2004	425	1080	
PBV-WHS-17	9/10/2004	335	580	
PBV-WHS-18	9/10/2004	330	525	
PBV-WHS-19	9/10/2004	385	980	
PBV-WHS-20	9/10/2004	394	960	
PBV-WHS-21	9/10/2004	410	1020	
PBV-WHS-22	9/10/2004	395	1000	
PBV-WHS-23	9/10/2004	405	940	
PBV-WHS-24	9/10/2004	390	880	
PBV-WHS-25	9/10/2004	435	1260	
PBV-WHS-26	9/10/2004	370	740	
SEBASTICOOK RIVER				
BURNHAM				
SEB-SMB-1	8/27/2004	360	600	1
SEB-SMB-2	8/27/2004	356	510	1
SEB-SMB-3	8/27/2004	358	610	1
SEB-SMB-4	8/27/2004	350	600	1
SEB-SMB-5	8/27/2004	456	1320	1
SEBASTICOOK L.				
SLN-SMB-1	8/25/2004	295	325	1
SLN-SMB-2	8/25/2004	410	860	1
SLN-SMB-3	8/25/2004	356	625	1
SLN-SMB-4	8/25/2004	360	525	1
SLN-SMB-5	8/25/2004	370	650	1
NEWPORT				
SEN-SMB-1	8/24/2004	380	730	1
SEN-SMB-2	8/24/2004	383	700	1
SEN-SMB-3	8/24/2004	360	310	1
SEN-SMB-4	8/24/2004	380	650	1
SEN-SMB-5	8/24/2004	305	390	1
PALMYRA				
SWP-SMB-1	8/17/2004	388	825	1
SWP-SMB-2	8/17/2004	422	1050	1
SWP-SMB-3	8/17/2004	421	710	1
SWP-SMB-4	8/17/2004	370	650	1
SWP-SMB-5	8/17/2004	342	450	1

APPENDIX 7.

SUMMARY OF DIOXINS AND FURANS IN FISH AND SHELLFISH SAMPLES, 1984-2004

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			NDS/NBS	MAINE					
			1984-86	1988- 1990		19 91		19 92	
WATER/STATION	SPECIES	TISSUE	TCDD	TCDD	DTE	TCDD	DTE	TCDD	DTE
ANDROSCOGGIN LAKE									
Wayne	bn trout	f							
	bass	f							
	w perch								
	sucker	w/f							
POCASSET LAKE									
Wayne	bass								
	SMB comp								
	WHP comp								
ANDROSCOGGIN R									
Gilead	rb trout								
	bn trout								
	juv bass								
	bass								
	sucker	w	1.8f/6.5w						
Rumford	bass	f				1.4	2.3-2.8	0.6	1.0-1.2
	juv bass								
	sucker	w						3.0	7.4-8.0
Riley	bass								
	sucker	w	<2.1f/13w						
Jay	bass	f		17.6	24.0-29.1			1.2	1.9-2.3
	sucker	w						5.4	12.9-13.9
Livermore Falls	bass	f				2.4	3.1-3.3	1.1	1.4-1.5
	sucker	w						3.8	7.4-8.0
	sucker comp								
Livermore ALF	bass								
	sucker								
N Turner	sucker	w	6.2f/30w						
Auburn-GIP	bass	f	3.7f/24w					1.7	2.6-2.8
	lm bass	f						1.1	1.6-1.8
	sucker	w	8.3f/29w					5.6	14.3-15.4
	bullhead	w	7.8f/29.6w						
Lisbon Falls	bn trout	f		5.3	6.5-6.9				
	bass	f		4.5	5.5-5.8			0.7	1.0
	sucker	w	5.1f/12w					3.4	8.1-8.7
Brunswick	sucker	w	19.0						

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

WATER/STATION	SPECIES	TISSUE	NDS/NBS 1984-86 TCDD	MAINE 1988- 1990 TCDD	MAINE 1988- 1990 DTE	19 91 TCDD	19 91 DTE	19 92 TCDD	19 92 DTE
	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
KENNEBEC R									
Madison	bn trout	f							
	bass	f						<0.1	0.02-0.1
	sucker	w						0.1	0.3
Norridgewock	bass								
	bn trout								
	sucker								
Fairfield	bass	f				1.4	1.6-1.7	0.6	0.6-0.7
	trout	f		6.2	6.9-8.0			1.4	1.6-1.8
	sucker	w	6.4	10.3	16.8-18.1			2.0	3.1-3.3
Sidney	bass	f	20.3w			1.0	1.4-2.4	0.4	0.6-1.0
	bn trout								
	sucker	w	1.2f/11.4w					2.7	4.4-4.8
Augusta	bn trout	f		2.2	2.9-4.9			1.9	2.5-4.3
	bass	f						0.4	0.6-1.0
	sucker	w		5.0	7.3-8.4			1.5	2.6-2.8
Hallowell	smelt	c						0.2	0.5-0.8
Richmond	eel	f							
Phippsburg	clam	m						0.3	0.6-0.9
	lobster	m							
	lobster	t							

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			NDS/NBS 1984-86	MAINE 1988- 1990		19 91		19 92	
WATER/STATION	SPECIES	TISSUE	TCDD	TCDD	DTE	TCDD	DTE	TCDD	DTE
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								
Winn	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
	sucker	w		37.0	66.4-67.2			3.3	6.8
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
	sucker	w	2.6f/7.6w	5.9	9.8-9.9	2.5	4.9-5.0	2.2	4.8-4.9
Bangor	eel	f							
Bucksport	clam	m						0.1	0.8-0.9
Stockton Spring	lobster	m							
	lobster	t							
OWLS HEAD	mussel	m	<0.8						
PISCATAQUIS R									
Sangerville	bass	f				<0.2	0.03-0.3		

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			NDS/NBS	MAINE					
			1984-86	1988- 1990		19 91		19 92	
WATER/STATION	SPECIES	TISSUE	TCDD	TCDD	DTE	TCDD	DTE	TCDD	DTE
	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							
	sucker	w							
Westbrook	bass	f		1.8	2.4-4.5	0.2	0.2-0.4	0.1	0.2-0.4
	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
Falmouth	clam	m						<0.1	0.2-0.4
Portland	lobster	m							
	lobster	t							
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							
	lobster	t							
SALMON FALLS R									
Acton	lm bass								
	sucker								

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			NDS/NBS	MAINE					
			1984-86	1988- 1990		19 91		19 92	
WATER/STATION	SPECIES	TISSUE	TCDD	TCDD	DTE	TCDD	DTE	TCDD	DTE
S Berwick	bass	f		0.4	0.5-0.6				
	lm bass								
	pickerel	f		0.2	0.3				
	sucker	w		1.5	2.1-2.2			2.4	3.4-3.6
SANDY P									
	bass	f	<1.0						
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				
Sebastcook L	bass	f							
	w perch	f							
Detroit	bass	f							
Burnham	bass								
W Br Harmony	bass								
	sucker								
W Br Palmyra	bass	f		1.2	1.4-1.8			0.4	0.5-0.6
	pickerel	f	<0.1					0.2	0.2
	sucker	w	1.6	3.3	4.3-4.6			1.1	1.4-1.6
WEBBER POND									
Vassalboro	bass	f				<0.08	0.04-0.4		

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

		NDS/NBS	MAINE					
		1984-86	1988- 1990		19 91		19 92	
WATER/STATION	SPECIES TISSUE	TCDD	TCDD	DTE	TCDD	DTE	TCDD	DTE

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=mdl, ie DTEo-DTEd

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			19 93		19 94		19 95		19 96		19
WATER/STATION	SPECIES	TISSUE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD
ANDROSCOGGIN LAKE											
Wayne	bn trout	f							0.7	1.1-2.3	
	bass	f							0.6	1.2-2.2	
	w perch										
	sucker	w/f							w 0.4	1.4-2.5	
POCASSET LAKE											
Wayne	bass										
	SMB comp										
	WHP comp										
ANDROSCOGGIN R											
Gilead	rb trout						1.2	2.4-2.9	0.9	2.0-2.6	0.5
	bn trout								0.4	1.0-1.5	
	juv bass										
	bass						0.9	3.8-4.1			
	sucker	w					1.7	6.1-6.7	0.7	4.4-5.3	0.5
Rumford	bass	f	2.9	4.5-5.4	3.8	5.7-6.2	2.2	3.5-4.1			0.5
	juv bass										
	sucker	w	5.8	13.6-14.6	4.0	11.4-11.9			0.8	4.1-5.2	0.5
Riley	bass										0.3
	sucker	w									0.5
Jay	bass	f	1.4	1.8-2.2	1.6	2.2-2.8			0.5	1.3-1.4	
	sucker	w	4.5	10.9-11.8	4.7	11.5-12.3	2.3	6.9-7.6			
Livermore Falls	bass	f	1.4	1.6-1.8	1.4	1.6-2.3	0.5	0.8-1.3			0.3
	sucker	w	3.6	6.8-7.3	2.2	4.8-5.3			0.6	3.4-3.9	0.5
	sucker comp										
Livermore ALF	bass										
	sucker										
N Turner	sucker	w									
Auburn-GIP	bass	f	1.2	1.8-1.9	1.3	2.0-2.7			0.6	2.1-2.5	0.4
	lm bass	f									
	sucker	w	3.7	9.0-9.8	1.6	4.4-5.4	1.4	3.8-5.0			
	bullhead	w	2.1	3.0-3.3	1.3	2.3-2.8					
Lisbon Falls	bn trout	f									
	bass	f	1.2	1.7-1.8	0.6	0.8-1.7	0.9	1.4-2.4			0.6
	sucker	w	2.7	6.1-6.6	2.4	5.8-6.2			0.7	1.6-2.8	
Brunswick	sucker	w									

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			19 93		19 94		19 95		19 96		19
WATER/STATION	**SPECIES**	**TISSUE**	**TCDD**	**DTE**	**TCDD**	**DTE**	**TCDD**	**DTE**	**TCDD**	**DTE**	**TCDD**
	carp	f									
BEARCE LAKE											
Baring	pickerel	f									
BRAVE BOAT HARBOR											
Kittery	lobster	m			<0.1	<0.1-1.2			1.7	13.8-15.5	
	lobster	t			1.3	9.7-11.5	1.6	6.7-9.9			
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									
KENNEBEC R											
Madison	bn trout	f					<0.1	0.1-0.7			
	bass	f							<0.1	0.1-0.8	<0.2
	sucker	w					0.1	0.3-1.0	<0.1	0.3-1.0	<0.1
Norridgewock	bass										
	bn trout										
	sucker										
Fairfield	bass	f	1.5	1.7-2.0	0.9	1.1-1.8					0.6
	trout	f	1.4	1.6-1.9	2.2	2.5-3.8	1.6	1.7-2.5			1.2
	sucker	w	1.6	2.2-2.6	2.2	2.9-3.8			1.6	2.1-2.7	1.2
Sidney	bass	f	0.6	0.8-1.4	0.3	0.4-1.3			0.2	0.4-1.0	0.2
	bn trout										
	sucker	w	1.5	2.5-2.7	2.3	3.0-4.0	1.2	1.7-2.5			
Augusta	bn trout	f					1.0	1.3-3.5			0.6
	bass	f	0.6	0.9-1.5	1.0	1.3-3.7					0.5
	sucker	w	1.9	3.3-3.6	2.3	4.0-5.8			2.2	2.6-3.3	
Hallowell	smelt	c									
Richmond	eel	f	0.6	0.8-1.4							
Phippsburg	clam	m									
	lobster	m	0.2	0.3-1.2	<0.1	<0.1-1.6					
	lobster	t	7.9	27.5-27.6	6.5	23.4-26.6	4.6	13.5-17.1	3.6	16.7-18.6	

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			19 93		19 94		19 95		19 96		19
WATER/STATION	SPECIES	TISSUE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD
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
	sucker	w					<0.1	0.1-0.6	<0.1	0.1-0.8	<0.1
E Millinocket	bass	f									<0.1
	sucker	w									<0.1
Woodville	bass										<0.1
	sucker										<0.1
Winn	bass										
	sucker										
N Lincoln	bass	f									
	sucker	w									
S Lincoln	bass	f	1.2	1.6-1.8	0.4	0.4-1.7	0.5	0.7-1.3	0.3	0.5-1.2	0.2
	sucker	w	1.7	3.5-3.6	2.2	5.8-6.1			1.6	2.2-3.2	1.2
Passadumkeag	bass	f									
	sucker	w									
Milford	bass	f									0.2
	sucker	w									1.0
Veazie	bass	f	0.6	0.8-1.0	0.2	0.2-1.3	0.3	0.4-1.9	0.3	0.3-1.5	0.3
	sucker	w	1.1	2.7-3.0	0.6	1.6-2.8	0.5	1.4-2.5	0.4	0.9-2.0	1.1
Bangor	eel	f	1.0	1.1-1.2					0.3	0.4-1.5	
Bucksport	clam	m									
Stockton Spring	lobster	m	0.1	0.3-1.1	<0.1	0.1-1.0			0.9	12.5-13.2	
	lobster	t	4.0	28.0	2.3	18.1-27.9	1.3	7.2-14.6			
OWLS HEAD	mussel	m									
PISCATAQUIS R											
Sangerville	bass	f									

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			19 93		19 94		19 95		19 96		19
WATER/STATION	SPECIES	TISSUE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD
	bn trout	f									
	sucker	w									
Howland	bass	f									
PRESUMPSCOT R											
Windham	bass	f	<0.1	<0.1-0.3	<0.1	<0.1-1.1			<0.1	0.5-1.5	<0.1
	sucker	w	0.3	0.7-0.8	0.2	1.4-2.4	0.3	2.4-7.7			0.2
Westbrook	bass	f	<0.2	0.1-0.5	0.2	0.3-1.2			0.2	0.4-0.9	0.1
	pickerel	f									
	w perch	f									
	sucker	w	1.1	1.8-2.3	0.9	2.1-3.7	0.8	1.6-2.6			0.2
Falmouth	clam	m									
Portland	lobster	m	<0.1	0.1-0.8	<0.1	0.2-1.0			2.7	18.9-21.6	
	lobster	t	3.4	18.5-18.7	2.5	17.2-21.3	2.2	9.5-12.8			
ST CROIX R											
Woodland	bass	f									<0.1
	sucker										<0.1
Baring	bass										<0.1
	sucker	w									<0.1
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									
	bk 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	<0.1	<0.1-0.8					
	lobster	t	2.0	11.3-14.6	1.3	9.7-12.0					
SALMON FALLS R											
Acton	lm bass						<0.1	<0.1-0.7	<0.1	0.1-1.0	
	sucker										

			19 93		19 94		19 95		19 96		19
WATER/STATION	SPECIES	TISSUE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD
S Berwick	bass	f	0.2	0.2-0.9	0.5	0.7-3.3	0.4	0.4-4.0			0.2
	lm bass										
	pickerel	f									0.6
	sucker	w	1.9	3.6-3.8	2.1	4.7-6.1			2.0	3.2-4.5	
SANDY P											
	bass	f									
SEBAGO L											
Naples	bass	w									
SEBASTICOOK R											
E Br Corinna	lm bass						0.1	0.2-1.1			<0.1
	bass										
	sucker										
Newport	bass	f									0.2
	lm bass	f					0.3	1.1-2.0			
	w perch	f							0.3	1.6-2.3	
Sebastcook L	bass	f									
	w perch	f									
Detroit	bass	f									
Burnham	bass										
W Br Harmony	bass						<0.1	0.1-0.8			<0.1
	sucker								0.1	0.1-1.2	
W Br Palmyra	bass	f	0.9	1.2-1.6	0.4	0.4-1.3	0.8	1.7-2.2			0.3
	pickerel	f									
	sucker	w	1.0	2.6-2.7	1.2	4.0-4.3			1.2	2.2-3.6	
WEBBER POND											
Vassalboro	bass	f									

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

		19 93		19 94		19 95		19 96		19
WATER/STATION	SPECIES TISSUE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD

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

DTE= dioxin toxic equivalents ι
Range shown at nd=0 and nd=mdl,

			97		19 98		19 99			20 00			20
WATER/STATION	SPECIES	TISSUE	DTE		TCDD	DTE	TCDD	DTE		TCDD	DTE		TCDD
ANDROSCOGGIN LAKE													
Wayne	bn trout	f											
	bass	f			0.2	0.4-1.0	0.1	0.2-0.8		<0.1	0.02-1.3		<0.1
	w perch				0.5	0.6-1.2	0.2	0.3-0.9		0.2	0.2-0.8		0.1
	sucker	w/f		w	0.4	0.9-1.1			w	<0.1	0.1-1.1	f	<0.1
POCASSET LAKE													
Wayne	bass												
	SMB comp												
	WHP comp												
ANDROSCOGGIN R													
Gilead	rb trout		1.6-2.1		0.4	1.5-2.0	0.7	1.7-2.3		0.4	0.9-1.4		0.8
	bn trout						0.4	1.0-1.5		0.1	0.4-1.0		0.8
	juv bass												
	bass						0.4	1.4-1.5		0.2	0.8-1.2		0.3
	sucker	w	3.4-3.8		0.9	3.1-3.5	0.8	2.9-3.3		0.3	1.8-2.2		0.1
Rumford	bass	f	1.2-1.8		0.4	1.1-1.5	0.6	1.5-1.9		0.2	0.6-1.1		0.2
	juv bass												
	sucker	w	3.6-4.9		0.4	3.0-3.4	0.4	2.8-3.2		0.3	1.9-2.3		0.3
Riley	bass		1.1-2.2		0.2	0.8-1.0	<0.1	0.6-0.9		<0.1	0.2-0.6		0.2
	sucker	w	3.8-4.8		0.3	2.5-2.8	0.3	2.6-2.8					0.3
Jay	bass	f											
	sucker	w											
Livermore Fall:	bass	f	1.2-1.4		0.2	1.1-1.2	0.2	0.9-1.2		0.2	0.6-1.0		0.3
	sucker	w	2.8-2.9		0.5	2.8-2.9	0.4	2.4					0.3
	sucker comp												
Livermore ALF	bass												
	sucker												
N Turner	sucker	w											
Auburn-GIP	bass	f	2.0-2.2		0.4	1.6-1.8	0.4	1.6-1.8		0.1	0.4-0.9		0.2
	lm bass	f											
	sucker	w											0.2
	bullhead	w											
Lisbon Falls	bn trout	f											
	bass	f	1.3-1.8		0.5	1.1-1.5	0.7	1.7-2.1		0.2	0.5-1.0		0.4
	sucker	w											
Brunswick	sucker	w											

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			97	19 98		19 99		20 00		20
WATER/STATION	SPECIES	TISSUE	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD
	carp	f								
BEARCE LAKE										
Baring	pickerel	f								
BRAVE BOAT HARBOR										
Kittery	lobster	m								
	lobster	t								
BROOKLYN	lobster	m								
	lobster	t								
COREA	lobster	t								
JONES CREEK										
Scarborough	clam	m								
KENNEBEC R										
Madison	bn trout	f								<0.1
	bass	f	0.03-1.6							
	sucker	w	0.2-0.8							
Norridgewock	bass			<0.1	0.03-0.6	<0.1	0.03-0.7	<0.1	0.05-0.7	<0.1
	bn trout							<0.1	0.04-0.7	
	sucker			<0.1	0.2-0.7	<0.1	0.03-0.7	<0.1	0.05-0.7	<0.1
Fairfield	bass	f	0.6-1.2	0.3	0.4-1.0	0.4	0.4-1.0	0.4	0.5-1.1	0.2
	trout	f	1.3-1.9							1.0
	sucker	w	1.7-2.1	0.9	1.4-1.8	0.3	0.4-1.0	0.4	0.5-1.0	0.3
Sidney	bass	f	0.3-0.9					0.2	0.2-0.8	0.2
	bn trout							0.3	0.3-0.8	0.4
	sucker	w								
Augusta	bn trout	f	1.0-1.3							
	bass	f	0.8-1.6	0.3	0.6-0.9	0.3	0.6-0.9			
	sucker	w								
Hallowell	smelt	c								
Richmond	eel	f								
Phippsburg	clam	m								
	lobster	m								
	lobster	t								

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			97	19 98		19 99		20 00		20
WATER/STATION	**SPECIES**	**TISSUE**	**DTE**	**TCDD**	**DTE**	**TCDD**	**DTE**	**TCDD**	**DTE**	**TCDD**
MESSALONSKEE LAKE										
Belgrade	bass									
NARRAGUAGUS R										
Cherryfield	fallfish	w								
NORTH POND										
Chesterfield	sucker	w								
	pickerel	f								
PENOBSCOT R										
E Br Grindstone	bass	f	0.04-0.7	<0.1	0.04-0.7					
	sucker	w	0.07-0.7	<0.1	0.07-0.7					
E Millinocket	bass	f	0.04-0.7	<0.1	0.04-0.7					
	sucker	w	0.09-0.7	<0.1	0.09-0.7					
Woodville	bass		0.07-0.7	<0.1	0.06-0.7	<0.1	0.08-0.7	<0.1	0.1-0.7	<0.1
	sucker		0.09-0.7	<0.1	0.08-0.7	<0.1	0.1-0.7	<0.1	0.1-0.7	<0.1
Winn	bass					<0.1	0.2-0.8	<0.1	0.1-0.7	<0.1
	sucker					<0.1	0.2-0.9	<0.1	0.1-0.8	<0.1
N Lincoln	bass	f								
	sucker	w								
S Lincoln	bass	f	0.4-1.0	0.2	0.4-0.9	0.4	0.6-1.0	0.2	0.3-0.9	0.4
	sucker	w	1.6-2.2	1.0	1.4-2.0	1.0	1.4-1.6	0.7	1.0-1.5	0.3
Passadumkeag	bass	f								
	sucker	w								
Milford	bass	f	0.4-0.9	0.2	0.2-0.8	0.1	0.4-0.7	0.2	0.3-0.9	0.3
	sucker	w	1.6-2.0	1.0	1.5-2.0	1.0	1.5-1.6	0.8	1.1-1.6	0.4
Veazie	bass	f	0.4-0.9	0.2	0.3-0.9	0.3	0.4-0.9	0.4	0.5-1.1	0.2
	sucker	w	1.3-1.9	1.0	1.2-1.8	1.1	1.3-1.7	0.9	1.2-1.7	1.3
Bangor	eel	f						1.6	2.0-2.5	1.1
Bucksport	clam	m								
Stockton Sprinc	lobster	m								
	lobster	t								
OWLS HEAD	mussel	m								
PISCATAQUIS R										
Sangerville	bass	f								

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			97	19 98		19 99		20 00		20
WATER/STATION	SPECIES	TISSUE	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD
	bn trout	f								
	sucker	w								
Howland	bass	f								
PRESUMPSCOT R										
Windham	bass	f	0.5-0.7	<0.1	0.4-0.8			<0.1	0.1-0.7	<0.1
	sucker	w	1.2-1.4	0.2	1.2-1.4					0.2
Westbrook	bass	f	0.4-0.9	<0.1	0.3-0.8			<0.1	0.2-0.8	<0.1
	pickerel	f								
	w perch	f								
	sucker	w	1.6-2.0	0.2	1.6-2.0					0.2
Falmouth	clam	m								
Portland	lobster	m								
	lobster	t								
ST CROIX R										
Woodland	bass	f	0.02-0.7	<0.1	0.06-0.7	<0.1	0.06-0.7			
	sucker		0.09-0.7	<0.1	0.08-0.7	<0.1	0.07-0.7			
Baring	bass		0.03-0.7	<0.1	0.05-0.7	<0.1	0.05-0.7			
	sucker	w	0.07-0.8	<0.1	0.08-0.8	<0.1	0.08-0.7			
Robbinston	lobster	t								
ST JOHN R										
Frenchville	sucker	w								
Madawaska	y perch	f								
	bk trout	f								
	sucker	w								
SACO R										
Dayton	sucker	w								
SACO BAY										
Scarborough	lobster	m								
	lobster	t								
SALMON FALLS R										
Acton	lm bass									
	sucker									

			97	19 98		19 99		20 00		20
WATER/STATION	SPECIES	TISSUE	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD
S Berwick	bass	f	0.3-0.6			0.1	0.3-0.6	0.1	0.2-0.8	0.2
	lm bass					0.2	0.5-0.8			
	pickerel	f	0.8-1.0							
	sucker	w								
SANDY P										
	bass	f								
SEBAGO L										
Naples	bass	w								
SEBASTICOOK R										
E Br Corinna	lm bass		0.1-0.7							
	bass									
	sucker									
Newport	bass	f	1.2-1.4							0.1
	lm bass	f								
	w perch	f								
Sebastcook L	bass	f						0.1	0.5-0.8	
	w perch	f						0.2	0.8-0.9	
Detroit	bass	f								0.1
Burnham	bass									
W Br Harmony	bass		0.06-0.7							
	sucker									
W Br Palmyra	bass	f	0.6-0.9	0.2	0.5-0.8	0.2	0.6-0.8	0.1	0.4-2.7	0.2
	pickerel	f								
	sucker	w								
WEBBER POND										
Vassalboro	bass	f								

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

		97		19 98		19 99		20 00	20
WATER/STATION	SPECIES TISSUE	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE	TCDD

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

DTE= dioxin toxic equivalents ι
Range shown at nd=0 and nd=mdl,

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			01	20 02		20 03		20 04	
WATER/STATION	SPECIES	TISSUE	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE
ANDROSCOGGIN LAKE									
Wayne	bn trout	f							
	bass	f	0.1-0.8	<0.1	0.3-1.3	0.2	0.8-1.0	<0.1	0.2-0.4
	w perch		0.2-0.7	<0.1	0.4-1.4	0.1	0.7-0.9	<0.1	0.4-0.8
	sucker	w/f	0.1-0.7						
POCASSET LAKE									
Wayne	bass			<0.1	<0.1-1.2	<0.1	<0.1-0.5		
	SMB comp					<0.1	0.2-0.5		
	WHP comp					<0.1	0.3-0.6		
ANDROSCOGGIN R									
Gilead	rb trout		2.1-2.5					<0.1	0.8-1.1
	bn trout		2.5-2.7						
	juv bass			<0.1	1.9-2.8				
	bass		1.0-1.4	<0.1	1.4-2.3	0.1	1.1-1.4	0.1	1.6-1.8
	sucker	w	0.7-1.1	0.1	1.4-2.2	<0.1	1.2-1.5	<0.1	1.2-1.5
Rumford	bass	f	0.5-1.0	0.1	0.6-1.5	<0.1	0.6-0.9	<0.1	0.3-0.5
	juv bass			<0.1	0.8-1.4				
	sucker	w	2.0-2.4	<0.1	0.4-1.5	0.2	1.8-2.1	<0.1	1.0-1.2
Riley	bass		0.8-1.0	<0.1	0.2-1.3	<0.1	0.3-0.7	<0.1	0.2-0.3
	sucker	w	1.9-2.1	0.1	0.6-1.6	0.2	1.9-2.1	0.3	2.8-2.9
Jay	bass	f							
	sucker	w							
Livermore Falls	bass	f	0.9-1.4	0.1	0.3-1.4	<0.1	0.2-0.6	<0.1	0.2-0.3
	sucker	w	1.6-1.7	0.2	0.9-1.9	0.3	1.6-1.9	0.3	1.8-1.9
	sucker comp					0.2	1.5-1.7		
Livermore ALF	bass					<0.1	0.2-0.6		
	sucker					0.1	0.6-0.9		
N Turner	sucker	w							
Auburn-GIP	bass	f	0.4-0.9	0.1	0.2-1.3			0.1	0.4-0.6
	lm bass	f							
	sucker	w	0.6-0.9	0.3	0.8-1.2				
	bullhead	w							
Lisbon Falls	bn trout	f							
	bass	f	0.9-1.3					0.1	0.2-0.3
	sucker	w							
Brunswick	sucker	w							

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			01	20 02		20 03		20 04	
WATER/STATION	**SPECIES**	**TISSUE**	**DTE**	**TCDD**	**DTE**	**TCDD**	**DTE**	**TCDD**	**DTE**
	carp	f							
BEARCE LAKE									
Baring	pickerel	f							
BRAVE BOAT HARBOR									
Kittery	lobster	m							
	lobster	t							
BROOKLYN	lobster	m							
	lobster	t							
COREA	lobster	t							
JONES CREEK									
Scarborough	clam	m							
KENNEBEC R									
Madison	bn trout	f	<0.1-0.7						
	bass	f							
	sucker	w							
Norridgewock	bass		0.1-0.8	<0.1	<0.1-1.3	<0.1	<0.1-0.5	<0.1	<0.1-0.2
	bn trout			<0.1	<0.1-1.0				
	sucker		<0.1-0.7			<0.1	<0.1-0.5	<0.1	0.2-0.4
Fairfield	bass	f	0.4-0.9	<0.1	<0.1-1.2	<0.1	<0.1-0.5	<0.1	<0.1-0.2
	trout	f	1.2-1.8	0.1	0.1-1.0				
	sucker	w	0.5-1.1			0.2	0.3-0.6	0.1	0.2-0.4
Sidney	bass	f	0.4-0.9	0.1	<0.1-1.3				
	bn trout		0.5-1.1						
	sucker	w							
Augusta	bn trout	f							
	bass	f							
	sucker	w							
Hallowell	smelt	c							
Richmond	eel	f							
Phippsburg	clam	m							
	lobster	m							
	lobster	t							

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			01	20 02		20 03		20 04	
WATER/STATION	SPECIES	TISSUE	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE
MESSALONSKEE LAKE									
Belgrade	bass								
NARRAGUAGUS R									
Cherryfield	fallfish	w							
NORTH POND									
Chesterfield	sucker	w							
	pickerel	f							
PENOBSCOT R									
E Br Grindstone	bass	f							
	sucker	w							
E Millinocket	bass	f							
	sucker	w							
Woodville	bass		0.1-0.7	<0.1	<0.1-1.0	<0.1	<0.1-0.6	<0.1	<0.1-0.2
	sucker		0.1-0.7	<0.1	1.6-1.9	<0.1	0.5-0.8	<0.1	<0.1-0.3
Winn	bass		<0.1-0.7	<0.1	<0.1-1.2	<0.1	<0.1-0.5		
	sucker		<0.1-0.7	0.2	1.1-1.8	<0.1	0.3-0.6		
N Lincoln	bass	f							
	sucker	w							
S Lincoln	bass	f	0.5-1.1	<0.1	<0.1-1.2	<0.1	<0.1-0.5	<0.1	<0.1-0.2
	sucker	w	0.5-1.1	0.3	1.6-2.0	0.1	0.6-0.8	<0.1	<0.1-0.3
Passadumkeag	bass	f							
	sucker	w							
Milford	bass	f	0.5-1.1	<0.1	<0.1-1.2	<0.1	<0.1-0.5	<0.1	<0.1-0.2
	sucker	w	0.5-1.0	0.3	1.0-1.7	<0.1	0.3-0.7	<0.1	0.3-0.4
Veazie	bass	f	0.3-0.8	<0.1	<0.1-1.2	<0.1	<0.1-0.5	<0.1	<0.1-0.2
	sucker	w	1.7-2.2	0.4	1.4-2.0	0.1	0.2-0.6	<0.1	0.2-0.3
Bangor	eel	f	1.5-2.0	0.1	0.2-1.3				
				<0.1	0.1-1.3				
Bucksport	clam	m							
Stockton Spring	lobster	m							
	lobster	t							
OWLS HEAD	mussel	m							
PISCATAQUIS R									
Sangerville	bass	f							

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			01	20 02		20 03		20 04	
WATER/STATION	**SPECIES**	**TISSUE**	**DTE**	**TCDD**	**DTE**	**TCDD**	**DTE**	**TCDD**	**DTE**
	bn trout	f							
	sucker	w							
Howland	bass	f							
PRESUMPSCOT R									
Windham	bass	f	0.1-0.7	<0.1	<0.1-1.5				
	sucker	w	1.4-1.5	<0.1	0.1-1.3				
Westbrook	bass	f	<0.1-0.7	<0.1	<0.1-1.2				
	pickerel	f							
	w perch	f							
	sucker	w	1.3-1.7	<0.1	0.1-1.3				
Falmouth	clam	m							
Portland	lobster	m							
	lobster	t							
ST CROIX R									
Woodland	bass	f							
	sucker								
Baring	bass								
	sucker	w							
Robbinston	lobster	t							
ST JOHN R									
Frenchville	sucker	w							
Madawaska	y perch	f							
	bk trout	f							
	sucker	w							
SACO R									
Dayton	sucker	w							
SACO BAY									
Scarborough	lobster	m							
	lobster	t							
SALMON FALLS R									
Acton	lm bass								
	sucker								

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

			01	20 02		20 03		20 04	
WATER/STATION	**SPECIES**	**TISSUE**	**DTE**	**TCDD**	**DTE**	**TCDD**	**DTE**	**TCDD**	**DTE**
S Berwick	bass	f	0.4-0.8	0.1	0.1-1.2				
	lm bass								
	pickerel	f							
	sucker	w							
SANDY P									
	bass	f							
SEBAGO L									
Naples	bass	w							
SEBASTICOOK R									
E Br Corinna	lm bass								
	bass								
	sucker								
Newport	bass	f	0.6-0.9					0.1	0.7-0.8
	lm bass	f							
	w perch	f							
Sebastcook L	bass	f						<0.1	0.4-0.6
	w perch	f							
Detroit	bass	f	0.2-0.8						
Burnham	bass							0.2	0.4-0.5
W Br Harmony	bass								
	sucker								
W Br Palmyra	bass	f	0.5-0.8	0.3	0.4-1.2	0.4	0.9-1.1	0.5	1.2-1.3
	pickerel	f							
	sucker	w							
WEBBER POND									
Vassalboro	bass	f							

APPENDIX 7. DIOXIN AND FURAN CONCENTRATIONS IN MAINE FISH AND SHELLFISH 1984-1995 (pg/g)

		01	20 02		20 03		20 04	
WATER/STATION	SPECIES TISSUE	DTE	TCDD	DTE	TCDD	DTE	TCDD	DTE

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

DTE= dioxin toxic equivalents ι
Range shown at nd=0 and nd=mdl,