2006 annual fish and shellfish report

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2006 ANNUAL

FISH AND SHELLFISH REPORT

submitted to

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EXECUTIVE SUMMARY

The Massachusetts Water Resources Authority (MWRA) continued its monitoring program for fish and shellfish in 2006. The 2006 activities represent the latest year in a continuing monitoring program that supports evaluation of the MWRA effluent discharged into Massachusetts Bay and also represents the sixth year of post-discharge monitoring. The goal of the fish and shellfish monitoring program is to obtain data that may be used to assess the environmental impact of the effluent discharge on Massachusetts Bay, and to evaluate the facility's compliance against the NPDES effluent discharge permit.

The specific objective of the 2006 fish and shellfish monitoring program was to define the post-discharge condition of three indicator species: winter flounder (*Pseudopleuronectes americanus*), lobster (*Homarus americanus*), and blue mussel (*Mytilus edulis*) and to use these data to answer the fish and shellfish monitoring questions included in the original Outfall Monitoring Plan (MWRA 1991, updated in 1997). Flounder and lobster specimens were collected from three core sites in Boston Harbor and the Bays: Deer Island Flats (DIF), the Outfall Site (OS), and East Cape Cod Bay (ECCB). Flounder were also collected at one ancillary site, off Nantasket Beach (NB), to provide information on flounder in the general area of the former Deer Island outfall. Caged mussels, collected from Stover's Point, ME, were deployed at sites in Boston Harbor and the bays to evaluate bioaccumulation potential. All collection and deployment sites are discussed in the 2006 Fish and Shellfish Report in terms of chemical contaminants. Histological parameters are considered in flounder only.

Post-discharge conditions of the species collected were characterized in terms of biological parameters (e.g., length, weight, age), external condition, and concentrations of organic and inorganic compounds in both edible and liver/hepatopancreas tissue. Flounder livers were examined for the extent and severity of lesions. The monitored parameters were examined for spatial distribution among stations in 2006 and inter-annual variations from previous monitoring data. In addition, body burdens of certain pesticides, PCBs, lead, and mercury were compared to FDA Action Limits and Contingency Plan (MWRA 2001) threshold values to evaluate potential risk or trends.

Flounder

Winter flounder were collected at four established monitoring locations in 2006. Catch per unit effort was lower at all stations than peaks reached in recent surveys, and comparable to catch rates during the 1990's. The highest mean age, length, and weight were reported for flounder collected at the Outfall Site. These values suggest a continuing upward trend in size that may be regional, but is most apparent at OS. Although size increases may reflect the health or age of fish being collected, gender may also be associated. The percentage of female flounder has increased at most stations over time.

The prevalence of ulcers on the blind surface of many flounder increased beginning in 2003. Although extensive pathology and microbiology studies were unable to determine a cause of the ulcers, additional targeted monitoring surveys found a seasonal pattern in the condition and suggested that the lesions were non-lethal. No causal association between blind side ulcers and the wastewater discharge was established through special studies. Results of the 2006 survey indicate a continuing decrease in ulcer prevalence during the past several surveys. The age corrected hydropic vacuolation prevalence suggested that there has been a steady system-wide reduction in the contaminant-

associated pathology in winter flounder in the past decade. Neoplasms were absent in flounder from all stations during 2006.

Fifteen winter flounder were collected at each of four locations (DIF, NB, OS, and ECCB) for chemical analysis of edible and liver tissues. The highest concentrations of organic contaminants continue to be found in samples from DIF and the lowest in those from ECCB. In contrast, metal concentrations are much more variable over time. Overall, the levels of most tissue contaminant concentrations were similar to or lower than those measured in previous years, and the decreases in many contaminant levels appeared to occur area-wide. In addition, post-discharge concentrations at OS were generally not significantly different than pre-discharge concentrations. An exception to this was PCB congeners 138+153 in livers, which appear to be higher at OS in the after startup period versus before. The same temporal pattern in PCB concentrations was also observed at DIF, suggesting that any increase in PCBs was area-wide and not related to effluent diversion. All fillet chemical concentrations were below both FDA and MWRA Caution and Warning Threshold Levels.

Lobster

Lobsters for the 2006 study were collected at each of the three core monitoring stations (DIF, OS, and ECCB) with the help of local lobsterman. The size, sex, and condition (i.e., black gill disease, shell erosion, parasites, external tumors, etc.) were determined for each lobster. Lobster size was similar at the three sampling sites, though mean length and weight were slightly lower in lobsters collected from OS than DIF or ECCB. The ratio of males to females, however, differed greatly among the stations. Only males were collected at ECCB, mostly males were found at DIF, and mostly females were found at OS. Condition parameters continued to indicate healthy lobster throughout the region. No black gill disease was found, and no deleterious external conditions were noted in any specimens.

Most lobster tissue contaminant concentrations in 2006 were within the range of historical variation for the program. The highest concentrations of organic contaminants continue to be found in lobsters collected at DIF and the lowest concentrations were still typically found at ECCB. In lobster hepatopancreas, several organic compounds (e.g., 4,4'DDE, alpha-Chlordane + trans-Nonachlor) were found in higher concentrations during the current survey than in the previous one. These increases were seen at all three stations but were least apparent at OS. At DIF, total selected PAH's approached historical highs, while values remained consistently lower at OS and ECCB. Nickel concentrations in lobster hepatopancreas exceeded historical highs at ECCB in 2006. The highest concentrations of several metals (e.g., cadmium, copper, lead, zinc) in 2006 were from lobsters collected near the Outfall Site. However, these values were generally within the range of variability reported at OS during pre-discharge years. Statistical comparisons were used to test contaminant levels in the periods before and after discharge. No contaminants in either lobster meat or hepatopancreas were found to be significantly different in the post discharge period (2001 – 2003, 2006) compared to the pre-discharge period (1998 – 2000). Comparisons were made between contaminant levels in lobster edible tissue from specimens collected near the outfall and MWRA Caution and Warning Thresholds and FDA Action Limits. The 2006 levels, like those detected in previous monitoring years (1992-2003), were well below the federal action limits and the MWRA Threshold Levels and indicate no risk for human consumption.

Mussels

Mussels were collected at Stover's Point, ME (SP) and deployed for up to 60 days in arrays at Deer Island (DIL), Boston Inner Harbor (IH), Outfall Site (OSM), "B" Buoy (LNB) and Cape Cod Bay (CCB). Sufficient numbers of live mussels were retrieved from each location at sixty days to use these mussels for chemical analyses, while mussels collected at forty days were archived.

Only two metals, mercury and lead, are analyzed in mussel tissue. Concentrations of these metals in mussels deployed near the outfall in 2006 were comparable to levels found in pre-deployment mussels. Consistent with prior surveys, 2006 values for mercury and lead were highest in mussels deployed at IH. Concentrations of organic contaminants were also highest at IH in 2006 and past studies. In general, contaminant levels at the Boston Harbor stations exceed levels found in mussels deployed in the bays. For example, mussels at DIL have typically had higher organic contaminant loads than those deployed near the outfall. Nonetheless, following outfall startup in 2000, this pattern shifted for several organic compounds. Concentrations of alpha-Chlordane and HMW-PAHs increased at OSM coincident with outfall startup, while these contaminants continued to trend lower at DIL. Despite a post-discharge increase in alpha-Chlordane at OSM, this compound has been trending downward over recent years; 2006 values were at historical lows for DIL and CCB, and comparable to baseline levels at OSM. Concentrations of HMW-PAHs were also lower at OSM in 2006 than in recent surveys. This may reflect lower concentrations of HMW-PAHs in the wastewater discharge, but may also have been influenced by the loss of mussels deployed at OS-M1. The highest concentrations of HMW-PAHs in 2001-2003 surveys were at OS-M1, apparently reflecting the position of this station in the effluent plume. Therefore, the loss of mussels at OS-M1 may have influenced the overall mean value for HMW-PAHs at OSM in 2006. Comparisons were made between contaminant levels in mussel tissue from OSM and MWRA Caution and Warning Thresholds and FDA Action Limits. Although MWRA's Caution threshold for Total PAHs was exceeded in several past surveys, no thresholds or FDA Action Limits for mussel tissue contaminants were exceeded in 2006.

1.0 INTRODUCTION

The Massachusetts Water Resources Authority (MWRA) has implemented a long-term Harbor and Outfall Monitoring (HOM) Program for Massachusetts and Cape Cod Bays. The objectives of the HOM Program are to test whether the environmental impacts of the MWRA discharge are consistent with SEIS projections and do not exceed Contingency Plan thresholds (MWRA 2001). A detailed description of the monitoring and its rationale is provided in the Effluent Outfall Monitoring Plan developed for the baseline period and the post-discharge monitoring plan (MWRA 1997, 2004).

One aspect of the MWRA HOM program is a long-term monitoring program for fish and shellfish (MWRA 1991). The goal of the fish and shellfish monitoring is to provide data to assess the environmental impact of effluent discharged into Massachusetts Bay. These data are used to ensure that discharge from the new outfall does not result in adverse impacts to fish and shellfish by comparing values with established thresholds (MWRA 2001).

The objective of the fish and shellfish monitoring is to define the condition of three indicator species: winter flounder (*Pseudopleuronectes americanus*), lobster (*Homarus americanus*), and blue mussel (*Mytilus edulis*). Measured parameters include length, weight, biological condition, the presence of external or internal disease, and inorganic and organic contaminant tissue concentrations. Data have been collected for these organisms since 1991 for mussels, and 1992 for flounder and lobster. The 2006 data represent the sixth year of monitoring after the start up of the Massachusetts Bay outfall in September of 2000. The core monitoring program was conducted annually until 2003, and sampling is now done every third year, except for flounder morphology and histopathology, which remain on an annual schedule. This characterization of the health of winter flounder, lobster, and mussel in Boston Harbor, Massachusetts Bay, and Cape Cod Bay (hereafter: Boston Harbor and the Bays) forms the basis for assessing changes resulting from the relocation of the outfall discharge (Figure 1-1).

The scope of the 2006 Fish and Shellfish Report is focused primarily on answering the specific monitoring questions developed by the Outfall Monitoring Task Force (OMTF) in the early 1990s and that were included in the original Outfall Monitoring Plan (MWRA 1991). The report first provides a summary of the survey and laboratory methods (Section 2). Section 3 presents the results of monitoring data from surveys conducted during 2006, as well as selected historical data relevant to answering the fish and shellfish monitoring questions. Finally, conclusions drawn from the 2006 survey results and historical trends are summarized in Section 4.

Figure 1-1. Boston Harbor and the Bays with Outfall Site.

2.0 METHODS

The methods and protocols used in the 2006 surveys conducted to collect biological specimens are similar to and consistent with previously used methods. More detailed descriptions of the methods are contained in the quality assurance plan (QAPP) for Fish and Shellfish Monitoring 2006-2007 (Pembroke et al. 2006).

2.1 WINTER FLOUNDER MONITORING

Winter flounder (*Pseudopleuronectes americanus*) were collected from four locations in Boston Harbor and the Bays to obtain specimens for age, weight, and length determination, gross examination of health, histology of livers, and chemical analyses of tissues to determine contaminant exposure. Chemical data were used to determine whether contaminant tissue burdens have changed since the startup of the Massachusetts Bay outfall and whether these concentrations approach human health consumption limits.

2.1.1 Stations and Sampling

The 2006 flounder survey was conducted between April 25 and 27, 2006. Four sites were sampled to collect winter flounder for histological and chemical analyses:

- Deer Island Flats (DIF)
- Off Nantasket Beach (NB)
- Outfall Site (OS)
- East Cape Cod Bay (ECCB).

Table 2-1 provides the planned and actual sampling sites and locations for the 2006 flounder sampling. Adjustments in location and time were made to maximize collection efforts in an attempt to collect the required 50 flounder per site. Figure 2-1 shows the actual monitoring locations.

Otter-trawl tows were conducted from the F/V *Odessa*, owned and operated by Captain William Crossen. The scientific crew consisted of Dr. Michael Moore and biologist Mindy Sweeny from Normandeau. Fifty sexually mature (4-5 years old, total length ≥30 cm) winter flounder were collected at each station except NB, where only 29 flounder were obtained after three hours of bottom time. Each flounder was assigned a unique identification number to indicate date, time, and site of collection. All specimens were weighed, and standard and total length determined. Scales were taken from each specimen for age determination. Each flounder was examined externally and their fin erosion, bent fin ray, ulcer, net damage, and lymphocystis condition noted on a scale from 0 (absent) to 4 (severe). In the case of ulcers, a score of 1 indicated a single ulcer present, a score of 2 indicated 2 ulcers present, etc.

The first 15 flounder at each station were designated for chemical analysis (in addition to histological analysis and other assessments of health and condition). These fish were examined as above, placed (in bags along with sample labels) on wet ice, and delivered to EnviroSystems, Inc., Hampton, New Hampshire, for dissection under contaminant-free conditions. The remaining flounder (target of 35 fish per station) were processed at sea for histological analysis. These fish were examined as above, then killed by cervical section and dissected shipboard. The liver of each flounder was removed and

examined for grossly visible abnormalities; then serially sliced, with three equidistant slices preserved in formalin for histological analysis. The gonads of each flounder were examined to determine sexual maturity and gender.

2.1.2 Age Determination

Scales from each specimen were collected for age determination. Scales were removed after first removing any mucus, debris, and epidermis from the dorsum of the caudal peduncle by wiping in the direction of the tail with a blunt-edged table knife. Scales were then collected from the cleaned area by applying quick, firm, scraping motions in the direction of the head. The loosened scales were placed in the labeled age-sample envelope by inserting the knife between the liner of the sample envelope and scraping off the scales. The age of each flounder was determined by scientists at the National Marine Fisheries Services (NMFS) in Woods Hole, Massachusetts through analysis of growth rings (annuli).

2.1.3 Processing of Fish for Chemical Analyses

The flounder tissues for chemical analyses were removed in the laboratory at EnviroSystems under contaminant-free conditions (ISO level 8 clean room). Ceramic scissors were used to open the body wall (on the blind side of the visceral cavity) to expose the liver. The liver of each flounder was removed using a pre-cleaned (i.e., rinsed with 10% HCL, Milli-Q (18 megohm) water, acetone, DCM, and hexane) titanium knife. Livers were examined for grossly visible abnormalities, then serially sliced, with three equidistant slices preserved in formalin for histological analysis. The remaining liver tissue was placed in a clearly labeled sample container and frozen. The fillets (muscle) were removed from the flounder and the skin was removed from the fillet, using a pre-cleaned titanium knife. From each flounder, approximately equal masses of top and bottom tissue was placed in a sample container (clearly labeled with the unique sample identifier) and frozen. The gonads of each flounder were examined during the dissection to determine gender.

Liver and fillet samples from individual fish were shipped frozen (on dry ice) to Columbia Analytical Services, Kelso, WA (CAS Kelso) where they were composited and homogenized. Composite samples were made using tissue from five individual fish in each composite, resulting in three composite samples per station. Homogenization of fillet tissue was performed using a stainless steel TEKMAR® tissuemizer.

Liver tissue from each fish was homogenized by finely chopping with the titanium knife and three separate composites per station were formed to correspond to the composites made for the fillets (i.e., the livers of the same five specimens used for each edible tissue composite were combined). This was done to ensure comparability between fillet and liver chemical analyses. Each composite was placed in a sample container clearly identified with the unique sample identifier. This resulted in 24 pooled samples for analysis in 2006 (12 pooled fillets and 12 pooled livers). The homogenized fillet and liver samples were maintained frozen prior to analysis. At least one homogenization blank was carried out for each batch of ≤20 fish to monitor for sample contamination during the homogenization process. For the blank sample, a known quantity (about 100 ml) of Milli-Q water was transferred to a clear glass jar and "tissuemized" for two minutes. The blank was held for analysis of both PCB/Pesticides and Hg (fillet measurements only).

2.1.4 Histological Processing

After the fish were completely examined and scales removed, the livers were removed (either on-board the ship or in the lab, as described above) and examined for visible gross abnormalities ("Gross Liver Lesion"). The livers were then preserved in 10% neutral buffered formalin for histological analysis. Liver samples from each fish were placed in a separate clearly labeled sample container.

2.1.5 Histological Analysis

Livers of 50 flounder from each site were prepared for histological analysis by Experimental Pathology Laboratories in Herndon, VA. Transverse sections of flounder livers fixed as part of tissue sample processing were removed from the buffered formalin after at least 24 hours, rinsed in running tap water, dehydrated through a series of ethanols, cleared in xylene, and embedded in paraffin. Paraffin-embedded material was sectioned on a rotary microtome at a thickness of 5 μm. Each block contained three liver slices, resulting in one slide with three slices per slide per fish, for a total of 200 slides (50 fish X 4 sites). The sections were stained in hematoxylin and eosin.

Each slide was examined by Dr. Moore under bright-field illumination at 25x, 100x, and 200x magnification to quantify the presence and extent of:

- Three types of vacuolation (centrotubular, tubular, and focal)
- Macrophage aggregation
- Biliary duct proliferation
- Neoplasia

The severity of each lesion was rated on a scale of 0 to 4, where: 0 = absent; 1 = minor; 2 = moderate; 3 = severe; and 4 = extreme. For each lesion and each fish, a histopathological index was then calculated as a mean of scores from three slices on one slide.

2.1.6 Chemical Analyses

Chemical analyses were performed on composite samples of flounder from DIF, OS, NB, and ECCB. Two tissue types (fillet, liver) were analyzed. Flounder fillet and livers were analyzed for PCBs/Pesticides, lipids, and mercury. In addition, flounder livers were analyzed for PAHs, lead, silver, cadmium, chromium, copper, nickel, and zinc. The individual steps involved in the tissue processing and chemical analyses of these samples are detailed in Section 2.4 Chemical Analysis of Tissues. Any remaining tissue from each specimen was archived frozen at CAS in case additional analysis was required.

2.1.7 Data Reduction and Statistical Analyses

Data reduction was conducted as described in the Fish and Shellfish Monitoring QAPP (Pembroke et al. 2006) and in Section 2.5 of this report. Histopathological indices and prevalence of lesions were compared among groups of flounder by differences in station and age. Chemical constituents were presented graphically and compared among stations and over time. Temporal patterns of contaminants in flounder fillet and liver tissue were evaluated by comparing pre-discharge and post-discharge concentrations at OS through statistical analyses.

Histopathological observations of the livers of the winter flounder from all sites were conducted and, where possible, comparisons of the results with those of previous years were made. In addition to reporting the prevalence and lesion index of hydropic vacuolation, historical data has included several other lesions, including macrophage aggregates, biliary proliferation, neoplasia, and a lesion unreported before 1993, referred to as "balloon hepatocytes" (Hillman & Peven 1995).

Where relevant, the levels of contaminants measured in edible tissues were compared to Food and Drug Administration (FDA) Action Levels (EPA/USACE 1991) for those contaminants.

2.1.8 Deviations from the QAPP

Only 29 (target 50) winter flounder were collected at NB after three hours (bottom time) of trawling. Flounder catch at this station was low the previous year, so MWRA concurred with the recommendation that sampling be curtailed. Deviations related to chemical analyses of flounder tissues are listed in section 2.4.5.

2.2 LOBSTER MONITORING

Lobsters (*Homarus americanus*) were collected from three sampling sites for gross examination (to determine specimen health) and chemical analyses (to determine tissue burden of contaminants).

2.2.1 Stations and Sampling

Lobster surveys were conducted on July 25, 2006 (DIF), September 7, 2006 (ECCB), and October 9, 2006 (OS). Commercial lobstermen were contracted to collect lobsters using traps set within a specified distance from target coordinates. Fisheries technicians from Normandeau accompanied the lobstermen to verify station locations, collect the lobsters, and process them shipboard for physical characteristics and gross external abnormalities.

Table 2-2 provides the planned and actual sampling sites and locations for the lobster surveys. Figure 2-2 illustrates the actual sampling locations in Boston Harbor and the Bays. Adjustments in location and time were made to maximize collection efforts and to coincide with the availability of commercial lobstermen and of lobster in the planned collection locations.

Individual lobsters retained for analyses were assigned a unique identification number to indicate date, time, and site of collection. Lobsters were measured for carapace length and width, and the gender was determined. Lobster specimens were visually examined and the condition noted. Whole lobsters were shipped (on ice) to CAS where processing of the hepatopancreas and edible tissue samples was conducted in the laboratory.

2.2.2 Size and Sex Determination

Carapace length was determined with calipers by measuring the distance from the posterior of the eye socket to the midpoint of the posterior of the carapace. Measurements were recorded to the nearest millimeter. Specimen weight was recorded to the nearest gram. Specimens were visually examined for the presence and severity of gross external abnormalities, such as shell erosion and parasites. Data for each specimen were recorded on a lobster sample collection log.

2.2.3 Dissection of Lobster

Quartz, ceramic, glass, or polytetrafluorethylene (PTFE) materials were used during sample processing to avoid contamination. The hepatopancreas was removed and frozen for chemical analysis. The tail and claw meat (edible tissue) was stored frozen in the shells until processed in the laboratory. Samples were placed in sample containers that were clearly identified with a conventional label containing the pertinent sample information. Specimens were visually examined for the presence and severity of black gill disease during dissection.

The lobsters collected at each site were randomly divided into three groups of five to seven lobsters each. Within each of the three groups, edible meat (tail and claw) and hepatopancreas from the same lobsters were pooled by tissue type. The pooled tissues were homogenized into composite samples. Each composite was placed in a sample container clearly identified with the unique sample identifier. This resulted in 18 pooled samples for analysis in 2006 (nine edible meat samples and nine hepatopancreas samples).

2.2.4 Tissue Processing and Chemical Analyses

Chemical analyses were performed on the composite samples of lobster (edible meat and hepatopancreas). Edible lobster meat and hepatopancreas were analyzed for PCBs/Pesticides, lipids, and mercury. In addition, hepatopancreas samples were analyzed for PAHs, lead, silver, cadmium, chromium, copper, nickel, and zinc. The individual steps involved in the tissue processing and chemical analyses of these samples are detailed in Section 2.4 Chemical Analysis of Tissues.

2.2.5 Data Reduction and Statistical Analyses

Data reduction was conducted as described in the Fish and Shellfish Monitoring QAPP (Pembroke et al. 2006) and Section 2.5 of this report. Chemical constituents were presented graphically and compared among stations and over time. Temporal patterns of contaminants in lobster meat and hepatopancreas tissue were evaluated by comparing pre-discharge and post-discharge concentrations at OS through statistical analyses. Comparisons were made to the FDA Action Limits and other appropriate levels of regulatory concern.

2.2.6 Deviations from the QAPP

Lobsters were not available within the specified distance (two kilometers) from target coordinates at OS and ECCB sites. The target area for OS was expanded to within approximately three kilometers of the initial target coordinates. The target area for ECCB was expanded to include the region within Cape Cod Bay east of a line drawn between Race Point and Barnstable Harbor. The QAPP had called for 15 lobsters to be collected at each station to provide three composite samples of five lobsters each (for each tissue type, meat and hepatopancreas). In order to ensure that sufficient tissue would be available to achieve the desired method detection limits for chemical analyses, the decision was made to collect 21 lobsters per station allowing seven lobsters for each composite sample. This decision came after collections had been made at DIF and prior to sampling at ECCB and OS.

Errors in weight values that suggested problems with the scale used for OS and DIF were discovered through data checking. Whole lobsters were re-weighed in the CAS laboratory prior to tissue resections, and field weights for all lobsters were replaced with weight measurements collected in the laboratory.

2.3 MUSSEL BIOACCUMULATION MONITORING

Blue mussels (*Mytilus edulis*) were collected from Stover's Point, ME and deployed in suspended cages at five sites in Boston Harbor and the bays. Mussels were recovered for determination of short-term accumulation of anthropogenic contaminants in soft tissues.

2.3.1 Stations and Reference Area

Pre-deployment mussels were collected from a reference site in Stover's Point, ME and were deployed at five sites during 2006:

- Deer Island Light (DIL)
- Outfall Site (OSM)
- Outfall Site "B" Buoy (LNB)
- Boston Inner Harbor (IH)
- Cape Cod Bay (CCB)

Table 2-3 provides the locations where mussels were collected and deployed. Figures 2-3 and 2-4 illustrate these station locations for the 2006 mussel bioaccumulation study.

2.3.2 Mussel Collection

On June 27, 2006, approximately 2000 mussels were collected from Stover's Point, ME (SP) for deployment and organic and inorganic chemical analyses. Mussels approximately 6 cm in length were harvested by hand from intertidal beds during low tide. A sub-sample of 160 mussels was randomly selected and set aside for pre-deployment chemical analyses.

2.3.3 Mussel Deployment

After collection, mussels were held in coolers on wet ice until deployment. Mussels were randomly distributed to plastic cages for deployment as an array (i.e., set of cages) in sufficient number to provide the necessary biological material. At least 10% additional mussels were included to account for potential mortality. Mussels were deployed on June 28 and June 29, 2006 in replicate arrays at the five sites (Table 2-3 and Figure 2-3). Each array was deployed on a separate mooring with enough mussels to provide sufficient tissue to complete the study. Table 2-4 lists deployment depths of arrays and the minimum numbers of mussels that were deployed at each location. The locations of the arrays were recorded using Differential Global Positioning System (DGPS).

At OSM, four arrays (OS-M1, OS-M2, OS-M3, OS-M5) were deployed at various locations just south of the diffuser heads and one array was placed approximately 1 km away at the "B" buoy (LNB) (Figure 2-4). This deployment scheme was used to improve the understanding of the spatial variability of contaminant concentrations along the length of the outfall, in response to the exceedance of the MWRA Caution thresholds for total PAH and total chlordane in mussels in prior surveys (Hunt et al. 2002).

2.3.4 Mussel Retrieval

Mussel retrieval was planned for two occasions. Up to one half of the mussels were collected 40 days after deployment to provide tissue in the event that sufficient numbers of live mussels were not

available at the 60-day collection. The 40-day retrieval (CCB, DIL, IH, OS-M3) occurred on August 9, 2006. The 60-day retrieval (CCB, DIL, IH, LNB, OS-M1, OS-M2, and OS-M5) occurred on August 30, 2006. Actual mussel recovery is discussed in Section 3.3. Mussel survival and the amount of biofouling of the arrays were assessed at each retrieval event.

2.3.5 Tissue Processing and Chemical Analyses

Replicate samples were created by pooling groups of individual mussels from a given station. The number of mussels per replicate, and replicates per station, varied. A total of five pooled samples, containing 20 mussels each, were created with pre-deployment mussels from Stover's Point. Mussels from the 40-day retrieval were archived. Although sufficient numbers of live mussels for chemical analyses were collected during the 60-day retrieval, too few mussels were available to use 20 mussel composites. Compositing of deployed mussels was done based on weight, with a minimum of 120 grams of mussel tissue per replicate sample. Split samples weighing 50 grams were removed from some composites (see Section 2.6). Five pooled replicates were created with mussels deployed at DIL and at IH. Four pooled samples per station were created with mussels deployed at LNB and at CCB. At OSM, four composites were created for both the OS-M2 and OS-M5 deployments. All arrays at the OS-M1 site were missing at the 60-day retrieval. Further details of actual mussel retrievals are discussed in Section 3.3.

Mussel composites were prepared by shucking individual mussels and removing any residual attached material and byssal threads. All soft tissue, including fluids, was placed directly into a clean glass jar. Mussel composite samples were homogenized in preparation for both organic and inorganic chemical analyses. The mussel tissue composites were analyzed for PCBs/Pesticides, PAHs, lipids, mercury, and lead. The individual steps involved in the tissue processing and chemical analyses of these samples are detailed in Section 2.4 Chemical Analysis of Tissue Samples.

2.3.6 Data Reduction and Statistical Analyses

The extent of bioaccumulation of contaminants in the mussels was evaluated using the data reduction methods described in the Fish and Shellfish Monitoring QAPP (Pembroke et al. 2006) and in Section 2.5 of this report. Chemical concentrations by constituent were presented graphically and compared among stations and over time. Temporal patterns of contaminants in mussel tissue were evaluated by comparing pre-discharge and post-discharge concentrations at OS through statistical analyses. Comparisons were made to the FDA Action Limits and MWRA Caution and Warning thresholds.

2.4 CHEMICAL ANALYSES OF TISSUE SAMPLES

Table 2-5 summarizes the analyses performed on each type of tissue sample. Table 2-6 lists the analytical methods, units of measurement, and method references. The chemical analytes of interest are listed in Table 2-7. The same analytical methods were used for all tissues types, with the changes noted in Section 2.4.5, below. All CAS SOPs are provided in the Fish and Shellfish Monitoring QAPP (Pembroke et al. 2006).

2.4.1 Organic Tissue Extraction

Tissue samples were prepared as described in CAS GEN-TISP.3. Following tissue homogenization, aliquots of sample (2g to 10g of homogenized tissue was used for extraction depending on the

availability of tissue) were extracted using the procedures outlined in CAS EXT-3540.8 – Soxhlet Extraction (based on EPA SW846 Method 3540C) for PCB congeners or CAS EXT-3541.3 – Automated Soxhlet Extraction (based on EPA SW846 Method 3541) for SVOCs (including PAHs and Benzothiazole) and pesticides. Various cleanup procedures, as required and appropriate for the specific target compounds, were employed as outlined in EPA SW846, including: Gel-Permeation Chromatography (Method 3640) and Florisil Column Cleanup (Method 3620) for pesticides and PCB congeners with additional Sulfuric Acid Cleanup (Method 3665) for PCB congeners; Silica Gel Cleanup (Method 3635) for PAHs; and Solid-Phase Extraction Cleanup (Method 3535) for Benzothiazole. Percent lipids determination followed the procedures outlined in CAS SOC-LIPID – Percent Lipids in Tissue. Results were reported on a dry-weight basis based on tissue percent solids generated using CAS GEN-TISP.3.

2.4.2 Metals Tissue Digestion

Tissue samples were prepared as described in CAS GEN-TISP.3 (includes freeze-drying determination of tissue percent solids). Acid-digestion of the homogenized and freeze-dried sample occurred following the procedures outlined in CAS MET-3050B.8 – Metals Digestion (based on EPA SW846 Method 3050B) for cadmium, chromium, copper, lead, nickel, silver, and zinc and preparation included in the CAS MET-7471.10 – Mercury in Solid or Semisolid Waste (based on EPA SW846 Method 7471A) for mercury.

2.4.3 Organic Analyses

Organic analyses performed on the flounder, lobster, and mussel tissues included SVOCs, PCB congeners, and pesticides as summarized in Table 2-5.

SVOC Analysis – PAHs and Benzothiazole were identified using gas chromatography /mass spectrometry (GC/MS) operated in the Selected Ion Monitoring Mode (SIM) following the procedures described in CAS SOC-8270P.4 – Polycyclic Aromatic Hydrocarbons by GC/MS Selective Ion Monitoring (based on EPA SW846 Method 8270C SIM). All PAH results were reported in ng/g dry wt.

PCB Analysis - PCB congeners were analyzed and quantified using gas chromatography /electron capture detection (GC/ECD) following CAS SOC-8082C.6; Congener-Specific Determination of Polychlorinated Biphenyls (PCBs) by Gas Chromatography / Electron Capture Detection (GC/ECD) (based on EPA SW846 Method 8082). All PCB results were reported in ng/g dry wt.

Pesticide Analysis – Pesticides were analyzed by gas chromatography/electron capture detection (GC/ECD) following CAS SOC-8081.8 – Organochlorine Pesticides by Gas Chromatography (based on EPA SW846 Method 8081A) for Flounder sample analyses. Lobster and mussel samples were analyzed by a GC/MS/MS method developed by CAS (see CAS SOC-PESTMS.0 – Pesticides by GC/MS/MS) to improve sensitivity and specificity for pesticides. All pesticide results were reported in ng/g dry wt.

2.4.4 Metals Analyses

Analysis of Hg - Sample digestates were analyzed for Hg using cold-vapor atomic absorption spectroscopy (CVAA) according to CAS MET-7471.10 – Mercury in Solid or Semisolid Waste (based on EPA SW846 Method 7471A). Results were reported in units of μg/g on a dry-weight basis.

Analysis of Ag, Cd, Cr, Cu, Ni, Pb, and Zn - For analysis of multiple metals simultaneously, sample digestates were analyzed using inductively coupled plasma - mass spectrometry (ICP-MS) or by inductively coupled plasma – atomic emission spectrometry (ICP-AES) following CAS MET-6020.8 – Determination of Metals and Trace Elements by Inductively Coupled-Mass Spectrometry (ICP-MS) (based on EPA SW846 Method 6020) or CAS MET-ICP.17 – Determination of Metals and Trace Elements by Inductively Coupled Plasma Atomic Emission Spectrometry (based on EPA SW846 Method 6010B, EPA Method 200.7, and CLP methods), respectively. Results were reported in units of μg/g on a dry-weight basis.

2.4.5 Deviations from the 2006 QAPP

The following deviations occurred during analyses:

- Due to limited sample volume for the flounder liver samples, matrix spike (MS), matrix spike duplicate (MSD), and/or matrix duplicate (MD) analyses could not be performed for SVOCs, pesticides, PCB congeners, and mercury.
- Laboratory acceptance criteria were used to evaluate Standard Reference Material (SRM) recovery results for organics, rather than limits given in QAPP (Attachments A-1), since these limits were shown to be too tight relative to the methods used for analysis. The acceptance criterion of RPD ≤ 40% was used instead of QAPP criteria of RPD ≤ 30% in the comparison of SRM true values to CAS analytical results.
- Pesticide analysis by GC/ECD did not meet project sensitivity requirements and there were matrix-related issues which caused problems with accurate reporting of results. Therefore, CAS developed a GC/MS/MS method which allowed enhanced detection of the Pesticides while eliminating matrix problems (*e.g.,* problems with coelution of PCB congeners with certain pesticides in the GC/ECD analysis). The QAPP Attachment A-1-4 Measurement Performance Criteria (MPCs) for Pesticides was based on the use of Method 8081A; therefore, during this review, criteria were changed to reflect the use of the GC/MS/MS technique using laboratory acceptance criteria for the analysis.
- The laboratory spiked the surrogate Tetrachloro-m-Xylene (TMX) into the extracts for PCB congener analysis in addition to the two PCB surrogates (2',3,5-Trichlorobiphenyl and 2,3,3',5,6-Pentachlorobiphenyl) required, as indicated in Table 22 of the 2006 QAPP. The TMX surrogate was used by the laboratory for internal QC purposes only and was eliminated from the project data file during the data validation by NEH.
- The surrogate Triphenyl Phosphate was used for the pesticide GC/MS/MS analysis rather than the two PCB surrogates (2',3,5-Trichlorobiphenyl and 2,3,3',5,6-Pentachlorobiphenyl) required, as indicated in Table 22 of the 2006 QAPP.
- Two extractions and analyses were conducted for SVOCs: one for benzothiazole and a second for all other target PAHs and homologues. The analysis for benzothiazole required cleanup procedures different from those used for the PAHs to minimize interferences to analysis. Since separate GC/MS analyses were conducted for the benzothiazole and PAHs, the Method Code for benzothiazole, and its surrogate Fluorene-d_{10}, was changed from EPA8270C_SIM to EPA8270C_SIM_B to distinguish this analysis from the regular PAH analysis.

2.5 GENERAL DATA TREATMENT AND REDUCTION

This section describes the data reduction performed on 2006 Fish and Shellfish data, as well as historical data, as part of the MWRA Harbor and Outfall Monitoring Project.

Specifics of data handling are as follows:

- Chemical data in 2006 were generated at CAS and submitted to Normandeau in .csv ASCII files.
- New Environmental Horizons, Inc. (NEH) performed EPA compliant data validation on the raw data from CAS (see Section 2.5.1).
- Following validation, reported values for organics were surrogate recovery corrected and data checking was performed by Normandeau using SAS software.
- Split sample analyses by Battelle Ocean Sciences (BOS), Duxbury, MA (the previous contractor) were used to ensure comparability with historical results (see Section 2.6.5). BOS results are reported in place of CAS results as noted in MWRA's project database.
- Mussel data for two OSM 60-day deployment locations (OS-M2 and OS-M5) were averaged for the time series plot and presented individually for the 2006 stations comparison.
- All fish and shellfish data (2006 and historical) were extracted directly from the HOM database and imported into SAS software, where graphical presentations and statistical analyses were preformed.
- All laboratory duplicates for pre-1998 data were averaged for computations and reporting. No laboratory duplicate data were entered for post-1998 data.
- Contaminant data were reported as mean, standard error, and n by station and year. Error bars in all graphical presentations represent standard error.
- Total PCB was calculated as the sum of twenty PCB congeners (Table 2-7).
- Total DDT was calculated as the sum of six DDT-related compounds: 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT (Table 2-7).
- Total chlordane was calculated as the sum of four compounds: heptachlor, heptachlorepoxide, cis-chlordane, and trans-nonachlor (Table 2-7).
- Sums of PAHs were calculated using several groupings. The "Total PAH List" (for both low and high molecular weight PAHs) and the "Historical NOAA List" are presented in Table 2-8. For temporal comparisons of PAHs in lobster hepatopancreas, the following list of PAHs was selected: Benzo(b)fluoranthene, Benzo(e)pyrene, Fluoranthene, Fluorene, Phenanthrene, Pyrene.
- In 1995, the individual five alkylated PAHs on the "Historical NOAA List" were not measured in mussels. Instead, the C1-, C2-, and C3-alkylated napthalene homologue groups were quantified. To make 1995 results more comparable to the "Historical NOAA List", values for the individual alkylated naphthalene compounds were estimated using ratios of the individuals to their respective homologue groups from 1996 and 1997 data sets.
- Various data qualifiers have been used throughout the course of the monitoring program. Application of qualifiers during 2006 is discussed in Section 2.5.1. Definitions of all qualifiers are included in MWRA's project database, and those used for 2006 data are defined in Appendices B-2, C-2, and D-2.

- The "s" qualifier is used to indicate suspect data. Unless otherwise noted, only "s"-flagged data were excluded from calculations or graphs presented in this report.
- All non-detects used in calculations and trend analyses in this report were treated as zero.
- All data entered into the database are in dry weight units.
- Wet weight tissue concentrations were calculated from the wet/dry ratio and used in comparison to MWRA Appreciable Change levels and FDA action levels.
- Years in which composite samples were made up of only one animal (see Appendix Table A-1) were excluded from temporal plots of contaminant concentrations.

2.5.1 Data Validation

All of the tissue chemistry data (100%) underwent third-party data validation performed by New Environmental Horizons, Inc. (NEH) prior to final reporting and incorporation into the project database. The formal validation process that was followed is described fully in the 2006 QAPP (Pembroke et al. 2006) Section 15.2, QAPP Table 27, and Attachment F (NEH SOP). The data validation was performed without deviations from the 2006 QAPP. The process is briefly described in this section.

The first laboratory data package received from CAS for flounder liver tissue chemistry results was validated using the USEPA Region I Tier III-type validation in accordance with *Region I, USEPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses,* 1996, for SVOCs, PCBs, Pesticides, and Metals. The Tier-III type data validation performed was a "full" data validation review that encompassed an in-depth assessment of the chemical data including the following:

- sample handling, preservation, integrity upon receipt at the laboratory, and method holding times
- QC including initial and continuing instrument calibrations, laboratory blanks, laboratory control samples (LCS), surrogate recoveries, matrix spike (MS), matrix duplicate (MD), and matrix spike duplicate (MSD) results
- Standard reference material (SRM) results to evaluate accuracy and comparability
- Review of raw instrument and preparation data to verify compound identification and quantitation.

The QC results were assessed relative to the measurement performance criteria established in the 2006 QAPP Worksheets #12 and 15. The electronic data deliverable (EDD) received by NEH from CAS, was also checked for accuracy of results as compared to the hard copy laboratory data report.

Following the Tier III-type validation, the remainder of the tissue chemical data underwent the USEPA Region I Tier II-type validation review. The Tier II-type validation was equivalent to the Tier III-type, with the exception that raw data were not reviewed.

Documentation of the third-party validation was generated by NEH as Data Validation Reports for each laboratory data package deliverable for each tissue type and all chemical parameters. In addition, during both the Tier III-type and Tier II-type data validation reviews, the project-specific data validation qualifiers (as defined in the 2006 QAPP Section 15.2.3 Data Qualifier Codes) were added to the validated EDD to indicate potential bias or uncertainty in specific chemical results. A

"Comment" field was also added to the validated EDD to document the reason for all qualifications of data. The definitions of the project-specific data qualifiers as applied to the chemistry results during third-party data validation are those defined in the 2006 QAPP. Following this validation process, results were surrogate-corrected, checked for compliance with database rules and constraints, then uploaded to the project database. Subsequently, the definitions and types of data qualifier codes were modified in the final project database for comparability with historical codes. All 2006 data codes are defined in Appendices B-2, C-2, and D-2.

2.5.2 Statistical Analyses

Statistical analyses were conducted to evaluate whether there were significant differences in the various contaminant concentrations at OS between pre-discharge (1998-2000) and post-discharge (2001-2003, 2006) periods. Comparisons were made for each flounder tissue (fillet and liver) and lobster tissue (edible meat and hepatopancreas). Contaminant concentrations of individual sample replicates (not annual means) from OS were used in these analyses.

The baseline years of 1998-2000 were selected to focus before and after comparisons on differences that may be related to the effluent diversion. These years reflect a time period during which most wastewater received secondary treatment. Also, the most common compounds from several analyte groups were selected for the comparisons in order to minimize any impacts of laboratory variability. For example, 4,4'DDE, the sum of alpha-Chlordane and trans-Nonachlor, and PCB congeners 138+153, were used in place of total DDT, total chlordane, and total PCB, respectively.

All analyses were run in SAS system software, version 9.1.3. Data were tested for normality prior to running each comparison. The Student's two sample t-test was used for the comparison if data met normality assumptions. In instances where the data were not normally distributed, data were log-transformed, then tested again for normality. If assumptions were met, the t-test was run on the transformed data. Otherwise, the nonparametric Wilcoxon rank-sum test was used in place of the Student's two sample t-test. Statistical results having a p value of <0.05 were considered to be significantly different between the two time periods.

2.6 DATA USABILITY ASSESSMENT

Data Usability Assessment was performed on the validated chemical data results to evaluate the 2006 data set as a whole to achieve project objectives. Consistent with the 2006 QAPP procedures (reference Section 15.3 of the 2006 QAPP) this usability assessment was performed based on a review of the standard measures of data quality: precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS parameters) in comparison to the data quality objectives (DQOs) defined as Measurement Performance Criteria in Attachments A-1 and A-2 of the 2006 QAPP.

2.6.1 Precision

Results of all laboratory duplicates (laboratory control sample duplicates, matrix duplicates, and matrix spike duplicates) were evaluated based on the relative percent difference (RPD) between duplicate results (using the equations presented in Section 15.2.2 of the 2006 QAPP) as a quantitative measure of precision. Overall, precision criteria were met for all tissue types and all chemical results, with minor deviations indicated for some individual results. Results exhibiting minor deviations from

the precision criteria were qualified (j) in the project database but considered usable for project objectives.

2.6.2 Accuracy

Several measures of accuracy were evaluated during usability assessment, including: preservation & holding times, calibration criteria, laboratory QC results (method blanks, surrogates, and LCS), matrix QC results (MS, MSD, and MD), and SRM results. Percent recoveries were calculated for surrogate, LCS, MS, MSD, and SRM results (using the equations presented in Section 15.2.2 of the 2006 QAPP) as quantitative measures of accuracy. Potential bias in results that were qualified during data validation was reviewed to determine usability of these results for project objectives. In general, accuracy was acceptable for most chemical data, with the following observations.

- One of the coolers containing 10 of the Flounder Fillet samples (FF061-4001, -4002, -4003, -4006, -4007, -4008, -4009, -4011, and -1014) was misplaced by Federal Express and was received 2 days after the other five coolers were received at CAS, with a temperature upon receipt of 18°C, exceeding QAPP requirements. No dry ice was present. In addition, the lid and Teflon-liner on the container for sample FF061-4003 was received damaged. Therefore, Fillet sample FF061-4003 was not used in any composite for chemistry analysis and the compositing scheme outlined in the 2006 QAPP was changed so that none of the samples in the errant cooler were composited with the other fillet's received on dry ice. No bias was detected in results of the fillet composite that included the samples from the errant cooler compared to other fillet results in the 2006 data.
- In evaluating the data as a whole, the accuracy (bias) in the mercury results was in question because the CAS 2006 data set concentrations were lower than split sample data and/or historical data. All QC measures of accuracy were acceptable for mercury in all tissue types, with the exception of a low MS recovery associated with the lobster meat results (which were qualified (-j) during validation). As a conservative approach, MWRA chose to use the split sample results from BOS (rather than CAS results) for comparison to thresholds, where those results were available for mercury (i.e., flounder data).
- In general, SRM recoveries, as quantitative external measures of accuracy, were acceptable for all chemical analytes/compounds with one exception. High SRM (SRM 1974b, Organics in mussel tissue from the National Institute of Standards & Technology (NIST)), recoveries were observed associated with PCB results in all tissue types. Specific PCB results were qualified to indicate a potential high bias in 2006 results. Several other chemical results for pesticides, SVOCs, and metals were qualified for either a potential high or low bias based on SRM results; however, no overall trends were observed in these other data.
- Accuracy of pesticide results for the flounder tissue samples was questioned due to higher than expected values as compared to split sample results and historical data. Co-elution of PCB congeners during analysis by the GC-ECD method was suspected as the cause for the high bias. Therefore, MWRA chose to use the split sample results (rather than CAS results) for pesticides in flounder tissue. See the Comparability section, below, for further details on this method issue and corrective actions taken to generate accurate pesticide results for lobster and mussel tissue.
- Other minor deviations indicated for some results, which were qualified (j) in the project database but considered usable for project objectives.

2.6.3 Representativeness

The representativeness of the sampling program was detailed in the Outfall Monitoring Plan (MWRA 1997, 2004). Adherence to defined sample locations and collection of replicate samples contributed to obtaining representative data. Tissue samples consisted of composites, which raised the confidence in the representativeness of the results from pooled samples. Additionally, achievement of representativeness is dependent upon achievement of completeness in sample collection and valid data generation. As overall completeness met the goal of $\geq$ 90% and the sampling scheme was representative of current conditions, the 2006 data set is considered representative.

2.6.4 Completeness

The completeness goal of $\geq$ 90% of valid/usable data was achieved overall for the 2006 chemical data set for flounder fillet, flounder liver, lobster meat, lobster hepatopancreas, and mussel tissue. For all data that were considered unusable based on comparability or accuracy issues (noted in this section), split sample data were available to be used to avoid a data gap in the 2006 data set. Therefore, the 2006 data set is considered complete.

2.6.5 Comparability

Efforts to maintain comparability of results generated in 2006 to the existing historical data included: 1) Review of method standard operating procedures (SOPs) from CAS compared to prior methods used to generate chemical data (defined consistent compound lists and surrogates); 2) adherence to specific field sampling and sample preparation procedures defined in the 2006 QAPP to be consistent with historical procedures; and 3) Split sample analyses by the previous contractor, Battelle Ocean Sciences (BOS), Duxbury, MA to directly compare selected results for flounder fillet, lobster meat, and mussel tissue (RPD was calculated as a quantitative measure of comparability). These efforts resulted in comparable data, overall, being generated in 2006 vs. historical data, with the following qualifications/exceptions.

- Flounder fillet results for pesticides by GC-ECD were higher than those reported in the split samples and in the historical data. It was suspected that interference from co-eluting PCB congeners was causing a high bias in the CAS results. Corrective action was implemented and CAS developed a GC/MS/MS method to improve the sensitivity and specificity for pesticides. Following method validation, based on the successful analysis of the SRM and re-analysis of several archived (frozen) flounder fillet composite samples, CAS used the GC/MS/MS method for pesticide analysis for lobster and mussel tissue in 2006. The CAS pesticide results for flounder fillet and liver were not used for project objectives; instead, the split sample results (available only for tissue) were used. Subsequent Pesticide results generated by GC/MS/MS for lobster and mussel tissue were considered usable for project objectives. However, split sample results for dieldrin and total chlordane were used for comparing OS lobster and mussel tissue concentrations against thresholds because the lower reporting limit allowed quantitation of the compounds.
- Considering past threshold exceedances for PAHs, split sample results were used for all mussel PAH comparisons due to somewhat higher reporting limits for CAS PAHs.
- The CAS reporting limit for chromium was higher than in past years so that the compound was not detected in most samples.

- PCB congener 3,3',4,4'-Tetrachlorobiphenyl (PCB 77) results in mussel tissue were higher than both the split sample results and historical data. MWRA decided to qualify CAS results "w" as "use with caution" due to this comparability issue.
- When dual column differences (imprecision) were observed in PCB analyses, the lower of the two column values was considered the valid result. This protocol was defined in the 2006 QAPP to make current data comparable to historical data.
- One lobster meat replicate from the OS station (FL06140C3) had high PCB results compared to the other replicates (orders of magnitude higher). CAS re-analyzed this sample with similar results. A review of the hepatopancreas data could not support the validity of the anomalous results. The high PCB values were not confirmed in the split sample results. Though high SRM recoveries were associated with the CAS results, this QC was also associated with the other PCB results in Lobster meat that were comparable to historical data. The source of the anomalous results could not be identified. MWRA decided to qualify the CAS results for this replicate as "s" (suspect, invalid) based on the non-comparability of both the split and corresponding hepatopancreas sample results.

2.6.6 Sensitivity

Results for low-level calibration checks, calibration criteria, method blanks, and sample-specific quantitation limits were evaluated and overall, met the sensitivity requirements in the 2006 QAPP (Section 7.0 and Attachments A-1 and A-2), with the following notable exceptions.

- Historical data are reported using the method detection limit (MDL) as the reporting limit, which is a statistically derived value. The 2006 QAPP defined the Project Quantitation Limit (PQL) requirements for sensitivity as the sample-specific quantitation limit, which was supported empirically by the low-level standard in the calibration curve for all chemical analytes/compounds. The sample-specific reporting limits are considered to have greater certainty than the MDL; however, due to this difference in reporting of non-detects, the current 2006 data have detection limits that are, in general, greater than those in the historical data set. To offset this issue, CAS was requested to report detected results below the level supported by the calibration curve as estimated (qualified "j") data. These results, when reported, were considered usable as estimated values.
- For flounder liver, the PQLs defined in the 2006 QAPP were based on the assumption that 20g of tissue would be extracted; however, only approximately 4g of tissue were available. Therefore, the sample-specific reporting limits achieved for non-detected results for SVOCs, pesticides, and PCBs were about five times higher than the PQLs.
- Benzothiazole was calibrated at a higher level than expected due to poor instrument sensitivity to this compound at lower levels; therefore, the detection limit for this compound was greater than the PQL (e.g., PQL for benzothiazole in flounder liver was defined as 2.5 μg/Kg dry weight and the actual detection limits achieved ranged from 1600 to 1800 μg/Kg dry weight).
- Sensitivity of some pesticide and PCB results was affected by chromatographic interferences, instrument calibration issues, and/or dilutions necessary to bring some compounds within the calibration range, which caused some non-detected results to be reported with detection limits greater than the PQL. Details can be found in the data validation reports generated for each tissue type.
- Other minor sensitivity issues were noted for some results (see Data Validation Reports), which did not adversely affect usability of the results for project objectives.

Figure 2-1. Flounder Monitoring Locations.

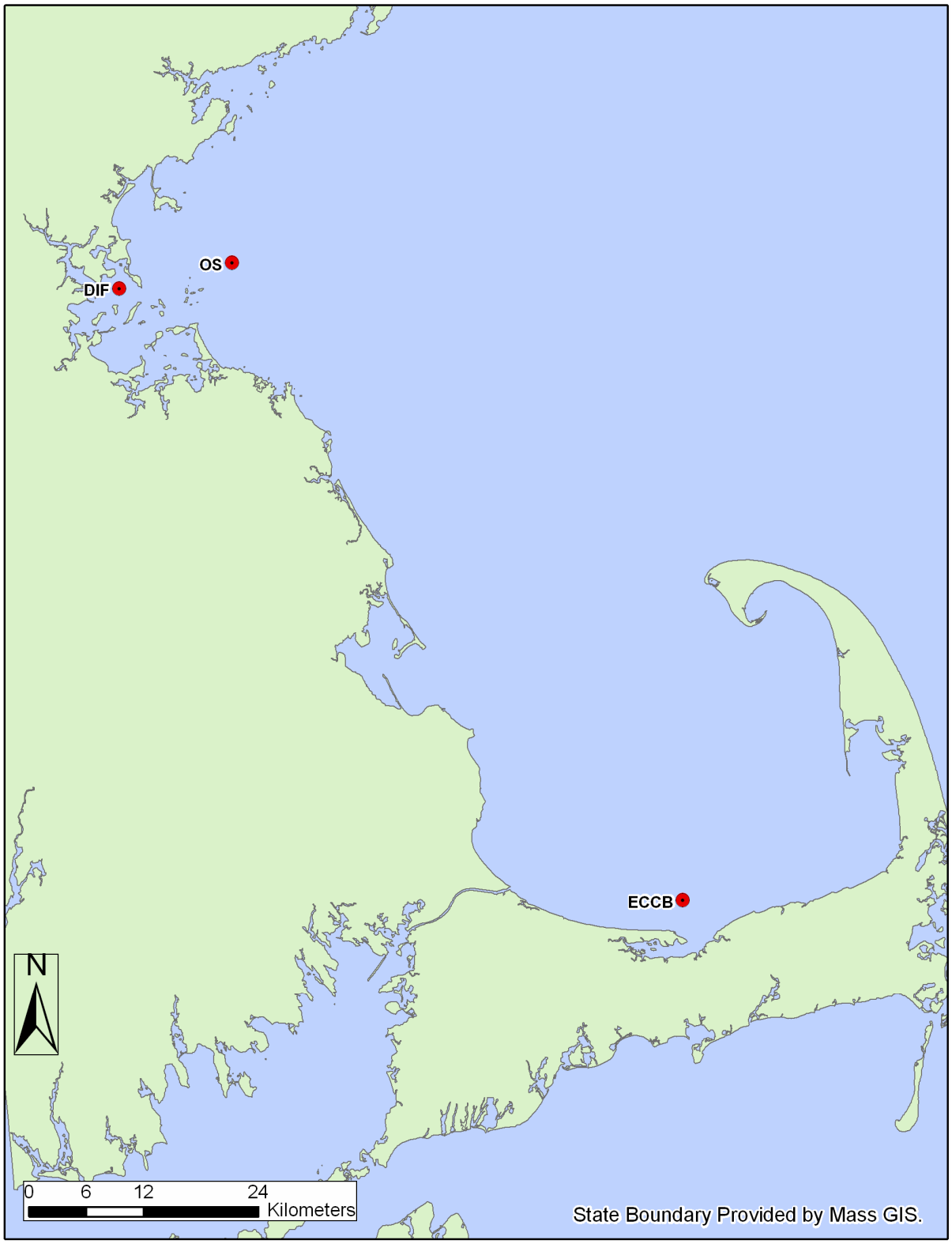


Figure 2-2. Lobster Monitoring Locations.

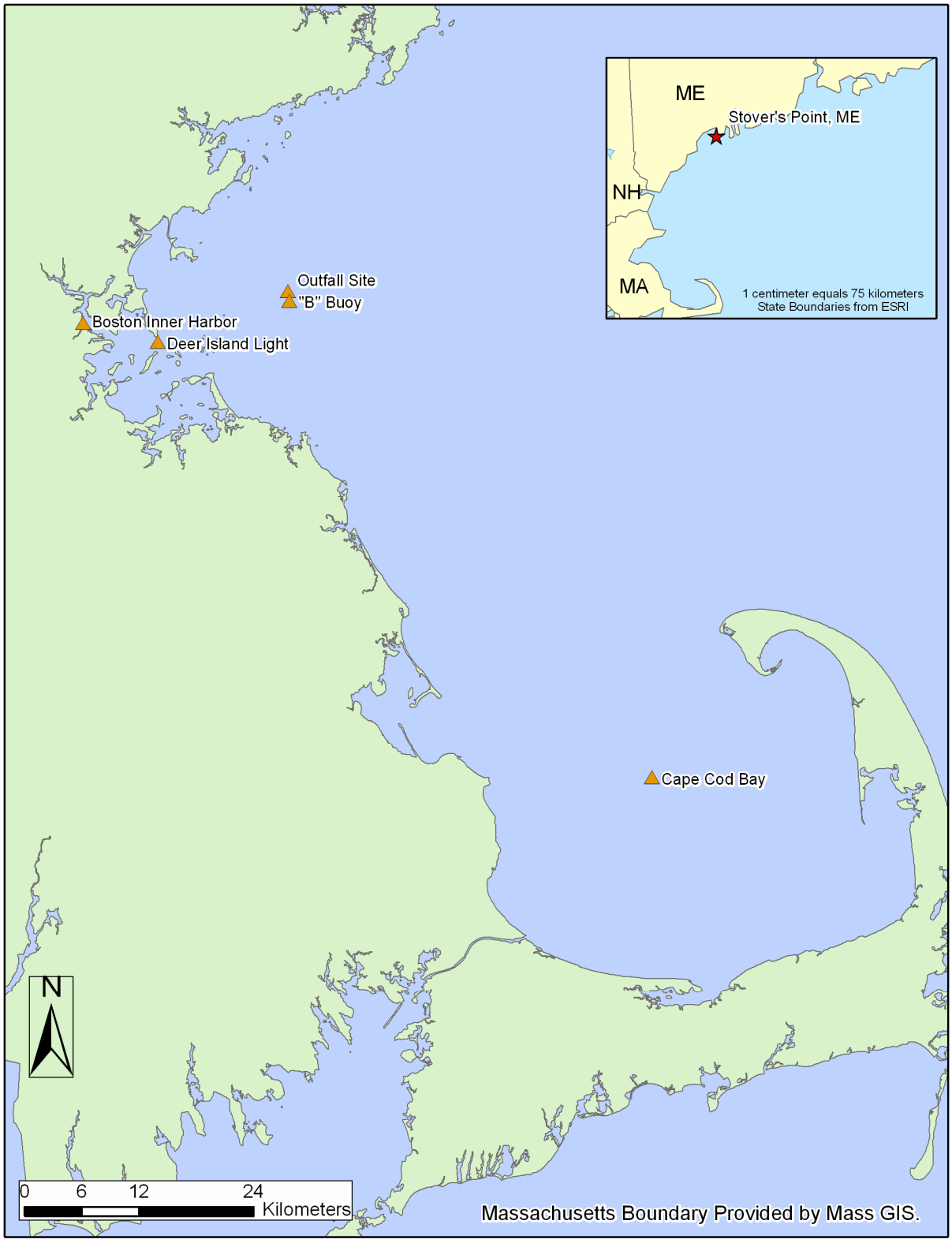


Figure 2-3. 2006 Mussel Collection and Deployment Locations.

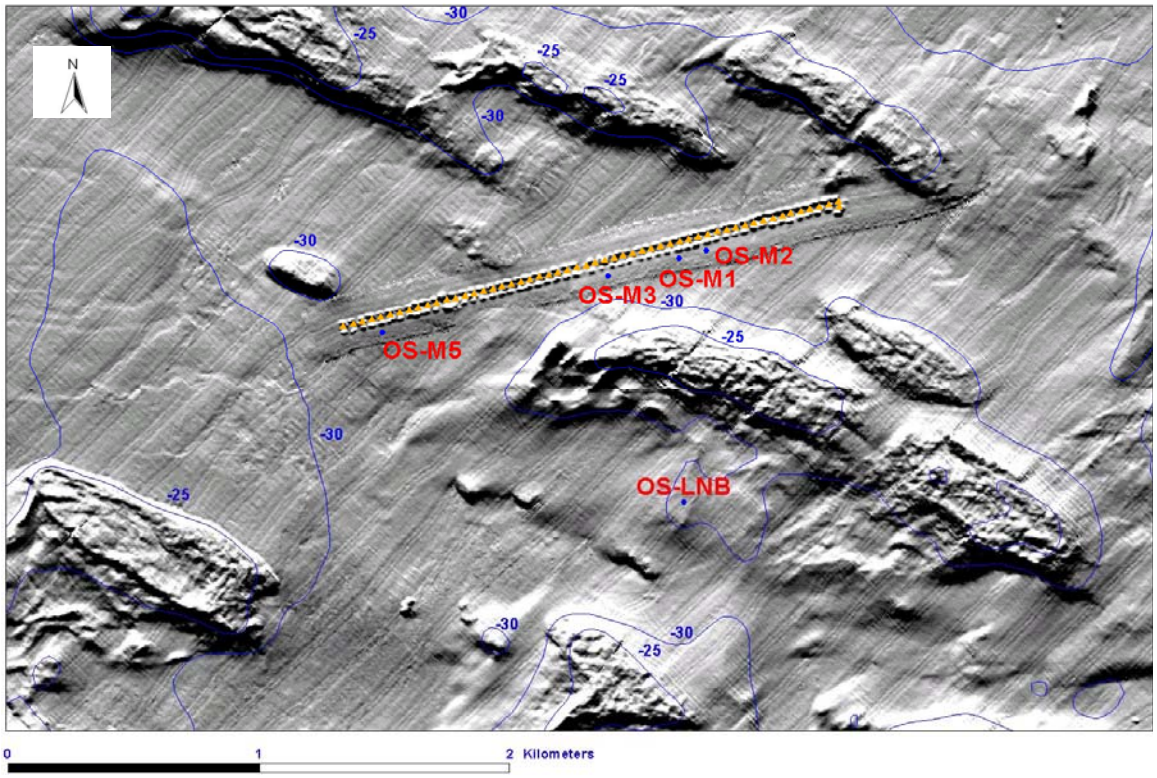


Figure 2-4. 2006 Mussel Deployment Locations at the Outfall Site.

Table 2-1. Planned and Actual Sampling and Locations for Flounder Surveys.

Site (Station ID)	Number of Tows	Planned Location		Actual Location	
		Latitude	Longitude	Latitude	Longitude
Deer Island Flats (DIF)	3	42° 20.4'N	70° 58.4'W	42° 20.8'N	70° 58.2'W
East Cape Cod Bay (ECCB)	2	41° 56.2'N	70° 06.6'W	41° 56.6'N	70° 07.3'W
Off Nantasket Beach (NB)	2	42° 17.6'N	70° 52.2'W	42° 17.3'N	70° 51.4'W
Outfall Site (OS)	3	42° 23.1'N	70° 49.3'W	42° 25.2'N	70° 49.6'W

Table 2-2. Planned and Actual Sampling and Locations for Lobster Surveys.

Site (Station ID)	Planned Location		Actual Location	
	Latitude	Longitude	Latitude	Longitude
Deer Island Flats (DIF)	42° 20.4'N	70° 58.4'W	42° 20.6'N	70° 58.9'W
East Cape Cod Bay (ECCB)	41° 56.2'N	70° 06.6'W	41° 45.8'N	70° 16.7'W
Outfall Site (OS)	42° 23.1'N	70° 49.3'W	42° 22.0'N	70° 50.0'W

Table 2-3. Collection and Deployment Locations for 2006 Mussel Bioaccumulation Study.

Site (Station ID)	Location	
	Latitude	Longitude
Stover's Point, ME (SP)[a]	43° 45.10'N	69° 59.90'W
Deer Island Light - Boston Harbor (DIL)	42° 20.40'N	70° 57.20'W
Outfall Site (OS-M1)	42° 23.21'N	70° 47.26'W
Outfall Site (OS-M2)	42° 23.22'N	70° 47.18'W
Outfall Site (OS-M3)[b]	42° 23.17'N	70° 47.47'W
Outfall Site (OS-M5)	42° 23.05'N	70° 48.11'W
Boston Inner Harbor (IH)	42° 21.50'N	71° 02.90'W
Cape Cod Bay (CCB)	41° 55.50'N	70° 20.00'W
"B" Buoy (LNB)	42° 22.67'N	70° 47.13'W

[a] source of mussels for deployment in Massachusetts waters

[b] retrieved after 40 days

Table 2-4. Summary of Mussel Deployment Scheme.

Site (Station ID)	Water Depth (meters)[a]	Deployment Depth (meters above bottom)	Minimum # Mussels Deployed
Deer Island Light (DIL)	2-5	~2	345
Outfall Site (OSM)[b]	33	10-15	644
Boston Inner Harbor (IH)	8-11	1.5-4.5	230
Cape Cod Bay (CCB)	40	10-15	264
"B" Buoy (LNB)	33	10-15	92

[a] based on historical data

[b] represents stations OS-M1, OS-M2, OS-M3, and OS-M5 combined

Table 2-5. Summary of Chemical Analyses Performed by Organism.

Tissue Type	Mercury	Lead	Other Metals	PCBs	PAHs	Pesticides
Flounder Fillet	*	NR	NR	*	NR	*
Flounder Liver	*	*	*	*	*	*
Lobster Meat	*	NR	NR	*	NR	*
Lobster Hepatopancreas	*	*	*	*	*	*
Mussel Tissue	*	*	NR	*	*	*

*Targeted for analysis; NR = Not Required

Table 2-6. Fish and Shellfish Sample Analyses.

Parameter	Unit of Measurement	Method	Reference*
Organic Analyses			
Organic Extraction	NA	Tissuemize/Soxhlets Extraction	CAS SOPs: GEN-TISP.3 followed by EXT-3540.8 or EXT-3541.3
Polycyclic Aromatic Hydrocarbons (PAHs)	ng/g dry wt.	GC/MS	CAS SOP SOC-8270P.4
Polychlorinated Biphenyls (PCB)	ng/g dry wt.	GC/ECD	CAS SOP SOC-8082C.6
Pesticides - Flounder	ng/g dry wt.	GC/ECD	CAS SOP SOC-8081.8
Pesticides - Lobster and Mussel samples	ng/g dry wt.	GC/MS/MS	CAS SOP SOC-PESTMS.0
Metals Analyses			
Digestion	NA	Tissuemize/Acid Digestion	CAS SOPs: GEN-TISP.3 followed by MET-3050B.8 for Cd, Cr, Cu, Pb, Ni, Ag, & Zn and MET-7471.10 for Hg
Analysis: Hg	µg/g dry wt	CVAA	CAS SOP MET-7471.10
Analysis: Cd, Cr, Cu, Pb, Ni, Ag, & Zn	µg/g dry wt	ICP-MS or ICP-AES	CAS SOP MET-6020.8 or MET-ICP.17
Ancillary Parameters			
Lipids	% by dry weight	Gravimetric	CAS SOP SOC-LIPID
Dry Weight	% by dry weight	Gravemetric	CAS SOP GEN-TISP.3

*see 2006 QAPP (Pembroke et al. 2006) for CAS SOPs

Table 2-7. Specific Chemical Analytes Included in Tissue Chemistry Analyses.

Trace Metals
Cadmium (Cd)
Chromium (Cr)
Copper (Cu)
Lead (Pb)
Mercury (Hg)
Nickel (Ni)
Silver (Ag)
Zinc (Zn)

Pesticides
4,4 DDD olefin (DDMU)
Aldrin
cis-Chlordane
Dieldrin
Endrin
Heptachlor
Heptachlor Epoxide
Hexachlorobenzene
Lindane
Mirex
o,p'-DDD
o,p'-DDE
o,p'-DDT
p,p'-DDD
p,p'-DDE
p,p'-DDT
trans-Nonachlor

Polychlorinated biphenyls (PCBs)
2,4'-Dichlorobiphenyl
2,2',5-Trichlorobiphenyl
2,4,4'-Trichlorobiphenyl
2,2',3,5'-Tetrachlorobiphenyl
2,2',5,5'-Tetrachlorobiphenyl
2,3',4,4'-Tetrachlorobiphenyl
3,3',4,4'-Tetrachlorobiphenyl
2,2',4,5,5'-Pentachlorobiphenyl
2,3,3',4,4'-Pentachlorobiphenyl
2,3',4,4',5-Pentachlorobiphenyl
3,3',4,4',5-Pentachlorobiphenyl
2,2',3,3',4,4'-Hexachlorobiphenyl
2,2',3,4,4',5'-Hexachlorobiphenyl
2,2',4,4',5,5'-Hexachlorobiphenyl
2,2',3,3',4,4',5-Heptachlorobiphenyl
2,2',3,4,4',5,5'-Heptachlorobiphenyl
2,2',3,4',5,5',6-Heptachlorobiphenyl
2,2',3,3',4,4',5,6-Octachlorobiphenyl
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
Decachlorobiphenyl

Polynuclear Aromatic Hydrocarbons (PAHs)
1-Methylnaphthalene
1-Methylphenanthrene
2,3,5-Trimethylnaphthalene
2,6-Dimethylnaphthalene
2-Methylnaphthalene
Acenaphthene
Acenaphthylene
Anthracene
Benz(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(e)pyrene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Benzothiazole
Biphenyl
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Chrysene
Dibenzo(a,h)anthracene
Dibenzofuran
Dibenzothiophene
Fluoranthene
Fluorene
Indeno(1,2,3-c,d)pyrene
Naphthalene
Perylene
Phenanthrene
Pyrene

Table 2-8. Summary of PAH Lists of Analytes Used for Bioaccumulation Study 1992 – 2006.

PAHs Analyzed		Total PAH List	"Historical" NOAA PAH List
Low Molecular Weight PAHs	1-Methylnaphthalene		✓
	1-Methylphenanthrene		✓
	2,3,5-Trimethylnaphthalene		✓
	2,6-Dimethylnaphthalene		✓
	2-Methylnaphthalene		✓
	Acenaphthene	✓	✓
	Acenaphthylene	✓	✓
	Anthracene	✓	✓
	Benzothiazole		
	Biphenyl	✓	✓
	C1-Dibenzothiophenes	✓	
	C2-Dibenzothiophenes	✓	
	C3-Dibenzothiophenes	✓	
	C1-Fluorenes	✓	
	C2-Fluorenes	✓	
	C3-Fluorenes	✓	
	C1-Naphthalenes	✓	
	C2-Naphthalenes	✓	
	C3-Naphthalenes	✓	
	C4-Naphthalenes	✓	
	C1-Phenanthrenes/Anthracenes	✓	
	C2-Phenanthrenes/Anthracenes	✓	
	C3-Phenanthrenes/Anthracenes	✓	
	C4-Phenanthrenes/Anthracenes	✓	
	Dibenzofuran	✓	
	Dibenzothiophene	✓	
	Fluorene	✓	✓
	Naphthalene	✓	✓
	Phenanthrene	✓	✓
High Molecular Weight PAHs	Benz(a)anthracene	✓	✓
	Benzo(a)pyrene	✓	✓
	Benzo(b)fluoranthene	✓	✓
	Benzo(e)pyrene	✓	✓
	Benzo(g,h,i)perylene	✓	✓
	Benzo(k)fluoranthene	✓	✓
	C1-Chrysenes	✓	
	C2-Chrysenes	✓	
	C3-Chrysenes	✓	
	C4-Chrysenes	✓	
	C1-Fluoranthenes/Pyrenes	✓	
	C2-Fluoranthenes/Pyrenes	✓	
	C3-Fluoranthenes/Pyrenes	✓	
	Chrysene	✓	✓
	Dibenzo(a,h)anthracene	✓	✓
	Fluoranthene	✓	✓
	Indeno(1,2,3-c,d)pyrene	✓	✓
	Perylene	✓	✓
	Pyrene	✓	✓

3.0 RESULTS

3.1 WINTER FLOUNDER

3.1.1 Fish Collected

Winter flounder, each a minimum 30 cm in length, were collected between April 25 and 27, 2006 at four stations in the study area (Figure 2-1). The catch per unit effort (CPUE), defined as the number of fish obtained per minute of bottom trawling time, is reported per station in Figure 3-1. In 2006, CPUE values at all stations were lower than reported in most years following outfall start-up. Catch rates were lowest at NB where only 29 out of the 50 targeted flounder were obtained. At the Outfall Site, CPUE values were comparable to those observed prior to 2000, after having risen steadily between 2000 and 2004. Values at all stations were within the range of historical variation.

3.1.2 Physical Characteristics

Mean values for physical characteristics of the winter flounder collected in 2006 are reported in Table 3-1. These values reflect the project requirement to collect sexually mature specimens (>30cm total length). The highest average values for length, weight, and age were from flounder collected at the Outfall Site, while the lowest values were from NB (length) and ECCB (weight and age).

Mean age for each year was calculated for each station and plotted in Figure 3-2. The average age of flounder collected in 2006 was generally consistent with historical averages of between four and five years. Exceptions to this over time were the higher average ages observed at Broad Sound in 1991 and 1993, and a tendency for younger fish to be collected from Cape Cod Bay in some years. Since 2000, there appears to have been a general increase in the average age of fish collected at the OS site. Standard length was lower at each station in 2006 as compared to 2005 (Figure 3-3). Nonetheless, standard lengths appear to have increased since the late 1990's. Consistent with the age data, this is most apparent at the OS site. Mean weight also appears to have increased over this time period, at least compared to data from 1995 to 1999 (Figure 3-4). These increases in overall size may relate to age, but may also reflect gender to some extent. The percentage of females (at stations except for BS, not sampled since 2004) has generally increased since monitoring began, with collections in recent years having been composed almost entirely of females (Figure 3-5). Winter flounder display dimorphic growth patterns with females reaching a larger adult size than males (Pereira et al. 1999).

3.1.3 External Condition

The external conditions of winter flounder collected in 2006 are presented as prevalence (% of individuals) per station in Table 3-2. The incidence of most conditions (bent fin ray, blind-side surface ulcers, fin erosion) was highest in flounder collected at DIF and lowest at ECCB (ulcers, lymphocystis) or NB (bent fin ray, fin erosion). Lymphocystis prevalence was highest at the Outfall Site. The prevalence of skin ulcers in 2006 was the lowest since they were first observed in 2003.

Prevalence of fin erosion for each year was calculated for each station and plotted in Figure 3-6. This plot indicates that the occurrence in 2006 of fin rot in over half the fish collected at DIF was among the highest in the history of the program. Nevertheless, these values are within historical ranges and no clear trends in this condition are apparent for most locations over time.

3.1.4 Liver Lesion Prevalence

The prevalence (% of individuals) of liver lesions in winter flounder from each of the four stations sampled in 2006 is presented in Table 3-3. As with the external conditions tracked by the program, liver lesions were more common in flounder from DIF and OS than in those collected from ECCB and NB.

Neoplasms have always been rare or absent from all sites other than Deer Island and Broad Sound (Figure 3-7). None were observed in any of the winter flounder collected in 2006, and none have ever been detected at the Outfall Site.

Along with neoplasms, hydropic vacuolation, because of its relationship to environmental contaminants, has been one of the principal lesions monitored in winter flounder throughout the program. Centrotubular hydropic vacuolation (CHV) is the least severe and most common form observed in the collections (Table 3-3). In 2006, CHV prevalence at Deer Island rose slightly from the 2005 level, but remained lower than the peak years of 1991 – 1994 (Figure 3-8). Thus the general trend of contaminant associated lesions at this site remains downward. The prevalence at Nantasket Beach dropped in 2000 and remains low. CHV for 2006 at the Outfall Site was comparable to the low levels reported in 2001 and 2005, and is below the typical prevalence in the pre-discharge period. At the reference site in Eastern Cape Cod Bay, CHV prevalence remained consistent with the low levels seen throughout the study (Figure 3-8).

The severity of CHV at Deer Island was substantially lower in 2006 than the 1994 and 2001 peaks. CHV severity at the other stations sampled in 2006 has remained low (Figure 3-9). Assessment of severity is subjective as contrasted with the objective observation of presence or absence of the lesion. The subjectivity of the assessment should be kept in mind when considering the significance of slight changes in the severity index from year to year.

Relationships between age and lesion prevalence were also analyzed. The proportion of fish that had CHV (using data collected since 1997) was calculated for each age class at all stations (Figure 3-10). At the Outfall Site, the pre-discharge and post-discharge years were analyzed separately. Sample size for the oldest age classes was low, so the analysis was restricted to fish of eight years old or less. For a given station, the prevalence of CHV disease generally increased with age over the first several reproductive years then leveled-off or declined in older age flounder. CHV prevalence in older fish remained comparable or continued to increase with age at stations with higher contaminant loads (i.e., Deer Island Flats and Broad Sound). To assess the impact of changes in age on hydropic vacuolation prevalence, the percentage of fish at each station in each year that showed some degree of hydropic vacuolation was divided by the average age of fish for that year at that station. This generated an age corrected index for the presence of hydropic vacuolation (Figure 3-11). The general trend compares well with that of the overall prevalence plot, unweighted for age.

The two most common liver lesions at OS in 2006 were biliary proliferation and macrophage aggregation (Table 3-3). Biliary proliferation is another marker of general substandard health. It can reflect chronic hepatic toxicity, in hand with hydropic vacuolation, but it can also follow chronic liver parasitism, such as with flukes. Such flukes are often absent from the histological image so it is not possible to attribute environmental quality impacts to changes in biliary proliferation. Similarly macrophage aggregations accumulate with a variety of substandard liver health situations: parasitism, suboptimal nutrition, and contaminant exposure to mention a few. Thus neither biliary proliferation

nor macrophage aggregation are as specific for chronic chemical exposures as hydropic vacuolation appears to be.

3.1.5 Tissue Contaminant Levels in 2006

The body burdens of contaminants were determined for both edible tissue (fillets) and liver tissue for winter flounder collected in the 2006 survey. Mean values for selected organic compounds and metals were compared graphically to assess the presence of spatial or temporal trends. All 2006 individual replicate concentrations for each contaminant can be found in Appendix B.

3.1.5.1 Edible Tissue

Comparison of the 2006 mean concentrations of organic compounds in fillets across the study area indicates that highest levels of organic contaminants continue to be found at DIF and the lowest concentrations at ECCB (e.g., Figures 3-12 to 3-14). Concentrations of chlordane in edible tissue remain low at OS and ECCB, and continue to decrease at DIF (Figure 3-12). DDT and PCB concentrations have remained fairly consistent over the past decade (Figure 3-13 and Figure 3-14). The 2006 concentrations of mercury, the only metal measured in edible tissue, were lowest in the samples from ECCB and highest in samples collected at OS (Figure 3-15). Although the monitoring program schedule for chemical analyses had been modified to require sampling every third year after 2003, mercury concentrations in flounder were measured in 2004 due to higher than expected (but still much lower than any Contingency Plan thresholds) values in flounder fillets at OS in 2003. Mercury values at the Outfall Site in 2006 were comparable to those reported during the pre-discharge period, and have been lower in each survey since the peak reported in 2003. Overall, body burdens of organic compounds and mercury monitored in edible tissue in 2006 were similar to, or lower than the levels measured in previous years.

3.1.5.2 Liver

Comparison of the 2006 mean concentrations of organic compounds in flounder livers across the study area revealed a trend similar to that observed for edible tissue. In general, the highest concentrations of organic contaminants were found in samples from DIF and the lowest in those from ECCB. This pattern is evident in a comparison of mean PCB concentrations across stations, over time (Figure 3-16). In contrast, metal concentrations in livers were generally much more variable; often highest at OS and lowest at DIF but showed no clear temporal trends (Figures 3-18 to 3-21). Although metals are often highest at the Outfall Site, concentrations throughout the post-discharge period have been comparable to those reported during the pre-discharge period.

3.1.6 Statistical Comparison of Contaminant Levels at OS Pre- and Post-Discharge

Table 3-4 presents the results of statistical comparisons of contaminant concentrations in flounder tissue samples at the Outfall Site before (1998-2000) and after (2001-2003, 2006) outfall startup. Comparisons were made using the Student's two sample t-test (on log-transformed data, or not) or the nonparametric Wilcoxon Rank-Sum test as described in Section 2.5.2.

No contaminants in flounder fillet were found to be significantly higher after discharge compared to before (Table 3-4). One comparison indicated a significant decrease. The sum of alpha-Chlordane and trans-Nonachlor concentrations was significantly lower in the post-discharge period as compared to the predischarge period.

In flounder liver from OS, PCBs (congeners 138+153) were the only contaminants with concentrations that were significantly different between pre- and post-discharge periods (Table 3-4). PCB congeners 138+153 appear to be higher at OS in the after startup period versus before. The same temporal pattern in PCB concentrations was also observed at DIF. Nonetheless, 2006 values for Total PCBs at both OS and DIF were slightly lower than the prior survey, and recent concentrations were well within the range of historical values (Figure 3-16).

3.2 LOBSTER

3.2.1 Size, Sex, and Condition

The size, sex, and condition (i.e., black gill disease, shell erosion, parasites, external tumors, etc.) were determined for each lobster collected in the 2006 survey. Although lobster size was similar at the three stations, mean length and weight were slightly lower in lobsters collected from OS than those from DIF and ECCB (Table 3-5). The ratio of female to male lobster showed that only males were collected at ECCB, mostly males were found at DIF, and mostly females were found at OS (Table 3-5). No black gill disease was found, and no deleterious external conditions were noted in any of the lobsters collected during the 2006 survey (Table 3-6).

3.2.2 Tissue Contaminant Levels in 2006

Mean concentrations of contaminants in lobster edible meat (tail and claw meat) and hepatopancreas tissue collected in the 2006 survey were compared graphically to assess the presence of spatial or temporal trends. All 2006 individual replicate concentrations for each contaminant can be found in Appendix C.

3.2.2.1 Edible Tissue

Comparison of the 2006 mean concentrations of organic compounds in lobster meat across the study area indicates that the highest concentrations are generally found at DIF and the lowest concentrations were still found at ECCB (e.g., Figures 3-21 and 3-22). In general, 2006 concentrations were comparable to, or at the lower end of the historical range of values at all stations. Spatial differences continued to be low compared to the differences observed prior to 1998. A notable exception to this general trend of lower spatial variability was noted and discussed in the 2003 Annual Fish and Shellfish Report (Lefkovitz et al. 2004). In 2003, the PCB data from OS show an anomalously high mean concentration and standard deviation (Figure 3-22). Additional analyses were performed to confirm the high PCB value, which was found to be isolated to only one lobster in one of OS's three composites. A similar situation was investigated in 2006. Anomalously high PCB results in a single lobster meat replicate at OS were determined to be invalid (see Section 2.6.5), and were excluded from the station average.

3.2.2.2 Hepatopancreas

Comparison of the 2006 mean concentrations of organic compounds in lobster hepatopancreas across the study area showed similar spatial patterns to edible tissue, with the highest concentrations found in samples from DIF (e.g., Figures 3-23 to 3-26). Several organic compounds were found in higher concentrations in 2006 than in the previous survey in 2003. At all three stations, the concentrations of 4,4'DDE were dramatically higher in 2006, matching historical highs at DIF and ECCB (Figure

3-23). Similar increases were seen in the sum of alpha-Chlordane and trans-Nonachlor (Figure 3-24). These increases were least apparent at OS. Total selected PAH's also approached historical highs at DIF, though values remained consistently lower at OS and ECCB (Figure 3-25). PCB congeners 138 and 153 were generally comparable to historical levels at all three sites (Figure 3-26).

Patterns in metal concentrations varied among the individual metals. Nickel concentrations in lobster collected at ECCB exceeded historical highs in 2006, and have been lowest over time at DIF (Figure 3-27). The highest concentrations of several metals in 2006 were from lobsters collected near the Outfall Site. Cadmium concentrations in 2006 were highest at OS and lowest at DIF, following a pattern seen in most years (Figure 3-28). Copper was also highest at OS in 2006 and has been consistently lowest at ECCB (Figure 3-29). Spatial patterns in lead have been less consistent over time (Figure 3-30). The highest lead concentrations in 2006 were at OS and the lowest were at ECCB. Between 1998 and 2002, concentrations of lead at ECCB were elevated and comparable to OS and DIF, but have since dropped to near levels seen during the mid-1990's. In contrast to spatial patterns seen in many past surveys, zinc concentrations were also highest at OS in 2006 (Figure 3-31). In general, concentrations of metals were well within historical ranges in 2006. A few metals, however, were at the upper end of the historical range, including nickel (at DIF) and zinc (at OS).

3.2.3 Statistical Comparison of Contaminant Levels at OS Pre- and Post-Discharge

Table 3-7 presents the results of statistical comparisons of contaminant concentrations in lobster tissue samples at the Outfall Site before (1998-2000) and after (2001-2003, 2006) outfall startup. Comparisons were made using the Student's two sample t-test (on log-transformed data, or not) or the nonparametric Wilcoxon Rank-Sum test as described in Section 2.5.2. No contaminant levels (in either lobster meat or hepatopancreas tissues) were found to be significantly different in the post-discharge period as compared to the predischarge period.

3.3 BLUE MUSSEL

3.3.1 Mussels Collected

The 40-day mussel retrieval was performed on August 9, 2006. Samples were successfully collected at CCB, DIL, IH, and OS-M3 stations. The 60-day retrieval was performed on August 30, 2006. Samples were successfully recovered at CCB, DIL, IH, LNB, OS-M2 and OS-M5 stations. Both arrays were missing at OS-M1 and no mussels were recovered at this station during the 60-day retrieval event. Overall, sufficient numbers of live mussels were collected during the 60-day retrieval to use these mussels for chemical analyses. Mussels collected during the 40-day retrieval were archived.

3.3.1.1 Survival

The percent survival observed in the caged mussels was relatively high at all stations for both the 40-day harvested mussels (>75 – >95%) and the 60-day collections (83-97%) (Table 3-8).

3.3.2 Tissue Contaminant Levels in 2006

The differences in mussel tissue contaminant levels were examined across the various sampling and deployment locations. Mean values for selected organic compounds and metals were compared

graphically and assessed for the presence of spatial or temporal trends. For temporal comparisons, outfall station OSM represents the mean of individual outfall stations for each year (i.e., OS-M2 and OS-M5 in 2006). All 2006 individual replicate concentrations for each contaminant can be found in Appendix D.

3.3.2.1 Mercury and Lead

Mercury tissue concentrations in 2006 were highest at IH and lowest at LNB (Figure 3-32). Mercury concentrations at all stations except for IH were comparable to levels measured in pre-deployment mussels (station SP). As with mercury, the highest levels of lead in 2006 were found in mussels deployed at IH and the lowest in mussels from LNB (Figure 3-33). Only mussels collected at IH and DIL had higher lead concentrations than pre-deployment mussels. Lead concentrations have been consistently low in mussels deployed at the Outfall Site and CCB, and appear to be trending lower at DIL over time (Figure 3-34).

3.3.2.2 Organic Contaminants

Organic contaminants have typically followed a similar pattern to metals, with higher concentrations generally found in mussels deployed at Boston Harbor stations (IH, DIL) compared with all other stations. The sum of PCB congeners 138 and 153 compared across all stations for 2006, exemplifies this pattern (Figure 3-35). Figure 3-36 illustrates that spatial patterns in these 2006 PCB data are consistent with prior surveys. Similar results are found in the pesticide data. In 2006, concentrations of 4,4'DDE were highest in mussels from IH and lowest in mussels from LNB (Figure 3-37). Concentrations in mussels deployed near the outfall (LNB, OS-M2 and OS-M5) were comparable to pre-deployment (SP) and lower than Cape Cod Bay. These results are consistent with past surveys in which mussels deployed at Boston Harbor stations (IH, DIL) have had the highest concentrations of 4,4'DDE (Figure 3-38). Alpha-Chlordane followed a similar pattern of higher concentrations at DIL compared to OSM through 2000 (Figure 3-39). Beginning in 2001, and coincident with outfall startup, alpha-Chlordane concentrations have been higher at OSM. Nonetheless, alpha-Chlordane concentrations have been trending downward over recent years, and 2006 values were at or near historical lows at all stations (Figure 3-39).

Total PAHs, as well as total low and high molecular weight PAHs, have been calculated by different methodologies during the course of this study. For purposes of comparison across multiple study years, the "Historical NOAA List" was used (Table 2-8). The historical NOAA list includes primarily parent PAH compounds and only five individual alkylated naphthalenes. Current data (2006) are discussed in terms of the more recent "Total PAH List" (Table 2-8).

The 2006 average concentrations of Total PAHs were dramatically higher in mussels deployed at IH compared to all other stations (Figure 3-40). Excluding IH, a comparison across stations indicates higher concentrations at outfall stations OS-M2 and OS-M5 than other stations including DIL. Similar to alpha-Chlordane, HMW-PAH concentrations increased at OSM coincident with outfall startup (Figure 3-41). In contrast, HMW-PAH concentrations have been trending lower over time in mussels deployed at DIL, reaching historical lows in 2006. A downward trend has also been apparent in LMW-PAH concentrations at DIL, while LMW-PAHs have remained consistently low at OSM and CCB over time (Figure 3-42). Although HMW-PAHs have been elevated at the outfall in the post-discharge period, 2006 concentrations were lower than other surveys since outfall startup (Figure 3-41). This may reflect considerably lower concentrations of HMW-PAHs in the effluent in 2006 as

compared to past post-diversion mussel deployment years (unpublished MWRA data). The 2006 results may also have been influenced by the loss of mussels deployed at OS-M1 (see Section 3.3.1). Figure 3-43 presents HMW-PAH concentrations in deployed mussels for each station near the outfall during the four surveys since outfall startup. Concentrations of HMW-PAHs at all outfall stations in 2006 were marginally lower than in 2001-2003 for each location. Nevertheless, the highest concentrations in 2001-2003 were at OS-M1, the loss of which may have influenced the overall mean value for the Outfall Station in 2006 (Figure 3-43).

3.4 ECOLOGICAL AND HUMAN HEALTH IMPACTS AND COMPARISON TO THRESHOLDS

Two of the Fish and Shellfish monitoring questions deal with ecological and human health impacts of the Massachusetts Bay outfall:

- Has the incidence of disease and/or abnormalities in fish or shellfish changed?
- Do the levels of contaminants in the edible tissue of fish and shellfish around the outfall represent a risk to human health?

Each of these questions is discussed below.

3.4.1 Organism Health (Pathology)

The Fish and Shellfish Monitoring Program measures the incidence of disease and/or abnormalities in winter flounder and lobster by assessing the presence and severity of various conditions. The physical characteristics and external condition of flounder and lobster are examined during each survey. Flounder livers are examined for gross abnormalities and analyzed for a series of histopathological parameters. These data provide a long-term record of organism health that can be used to test core questions of the outfall monitoring program.

3.4.1.1 Winter Flounder

The prevalence of blind-side surface ulcers in the western portion of Massachusetts Bay increased markedly beginning in 2003 (Moore 2003). Extensive pathology and microbiology studies have been unable to determine a cause of the ulcers (Moore et al. 2004). Additional surveys conducted throughout 2004 and 2005 established that ulcer prevalence peaked in late winter to early spring, with evidence of healed ulcers and lower ulcer prevalence into early summer (Moore 2006). This apparent recovery sequence suggests that these lesions may be a non-lethal seasonal condition. Ulcer prevalence in the 2006 survey suggests a continuing decrease over recent years, declining at the outfall from 36% in 2004 to 2% in 2006.

Other indicators of flounder health provide no evidence of outfall impacts. Fin ray surface mucous and epithelia are impacted by increased levels of ammonia and other pollutants, making fin rot a rapid and useful parameter for detecting deteriorating water quality conditions (Bosakowski and Wagner 1994). Results continue to indicate that the prevalence of fin erosion in fish collected near the outfall has not increased since discharge began (Figure 3-6). Also, the age-corrected hydropic vacuolation prevalence (Figure 3-10) in the Massachusetts/Cape Cod Bay flounder population suggests that there has been a steady system wide reduction in the contaminant–associated pathology in winter flounder in the past decade. Further, increases in flounder length, weight, and age at OS suggest that there is no obvious negative impact of wastewater relocation on these parameters.

3.4.1.2 Lobster

The external condition of lobster is evaluated based on the presence of black gill disease, external tumors, parasites, and shell erosion. The only pathological condition that has ever been observed in lobster collected from OS during the fish and shellfish monitoring program is shell erosion. The other three pathological conditions have been absent every year since 1993. The presence (and severity) of shell erosion was last noted in 1998. Shell erosion, as well as the other pathological conditions measured, has continued to be absent at OS since the startup of the Massachusetts Bay outfall in 2000.

3.4.2 Comparison of Contaminant Levels to Thresholds and FDA Legal Limits

The U.S. Food and Drug Administration (FDA) has set action limits for the maximum tissue concentrations of specific contaminants in the edible portions of fish and fishery products (EPA/USACE 1991). For the MWRA monitoring program, Caution and Warning thresholds have been set for tissue contaminant concentrations (organic and inorganic) and liver disease incidence (MWRA 2001). These thresholds are derived from either the FDA Action Limits, when available, or from the baseline mean of contaminant concentrations at OS (see QAPP Attachment H, Pembroke et al. 2006). These two levels provide reference benchmarks for detecting adverse changes (and their potential human health risks) of the outfall discharge.

3.4.2.1 Winter Flounder

The 2006 mean concentrations of target analytes in flounder edible meat at OS compared to the FDA's Action Limits and the MWRA Caution and Warning Thresholds showed that all fillet chemical concentrations were below both FDA and MWRA Threshold levels (Table 3-9). Thus, the levels of these contaminants in flounder fillets would not be expected to pose a human health risk.

3.4.2.2 Lobster

The 2006 mean concentrations of target analytes in lobster edible meat at OS were compared to the FDA's Action Limits and the MWRA Caution and Warning Threshold levels (Table 3-10). Lobster meat tissues did not exceed any of the FDA Action Limits or MWRA thresholds, and the levels of these contaminants in lobster meat would not be expected to pose a human health risk.

3.4.2.3 Blue Mussel

The 2006 mean concentrations of target analytes in mussel tissue at OSM were compared to the FDA's Action Limits and the MWRA Caution and Warning Thresholds (Table 3-11). No FDA Action Limits or MWRA thresholds were exceeded by 2006 results. Concentrations of total PAH in the mussels deployed at OSM were near the MWRA Caution threshold, which had been exceeded in recent surveys (Lefkovitz et al. 2004). Results for Total PAHs in 2006 may have been influenced by the loss of mussels deployed at OS-M1 (which typically exhibited the highest concentrations), among other factors (see Section 3.3.2.2). An exceedance of the Caution threshold for this parameter would not have been unexpected given the results of an investigation into the total PAH mussel tissue threshold exceedances that occurred in 2001 (Hunt et al. 2002). No FDA Action Limit exists for Total PAH.

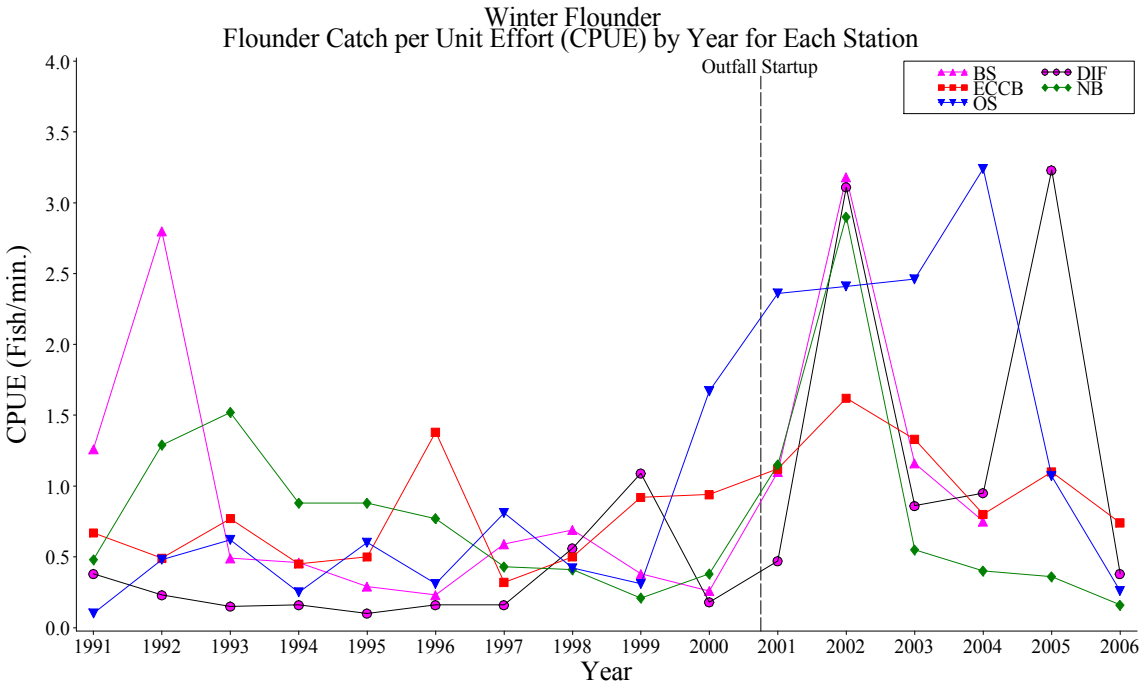


Figure 3-1. Catch per Unit Effort (CPUE) for Winter Flounder Trawled (1991- 2006).

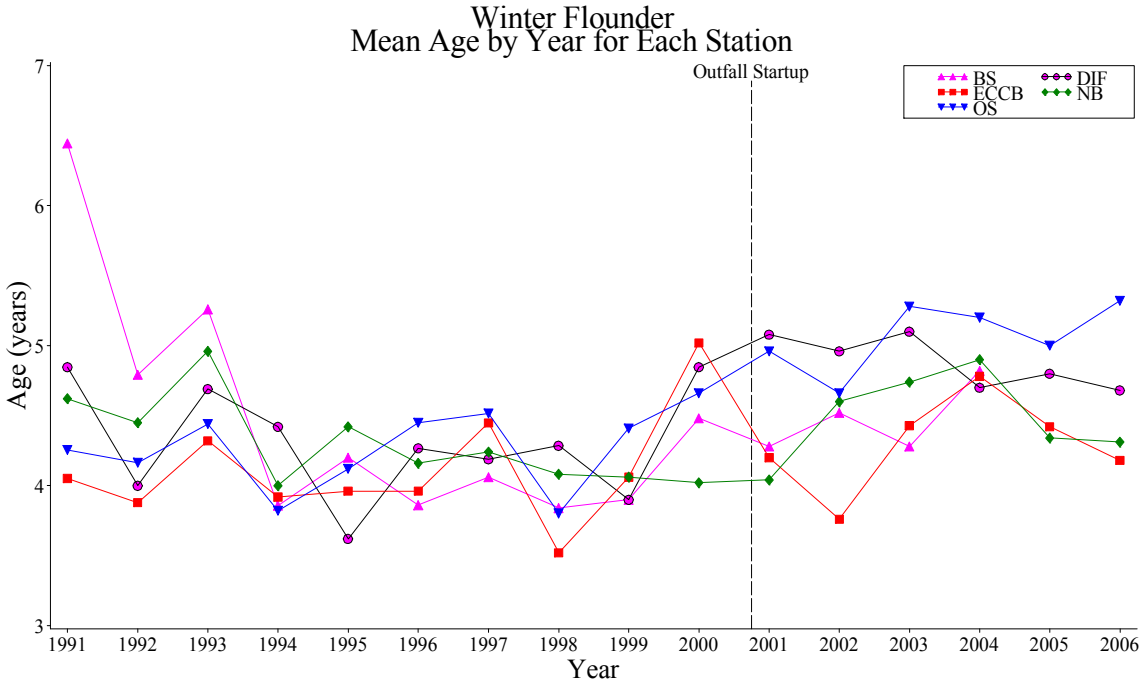


Figure 3-2. Average Flounder Age Compared by Station and Year.

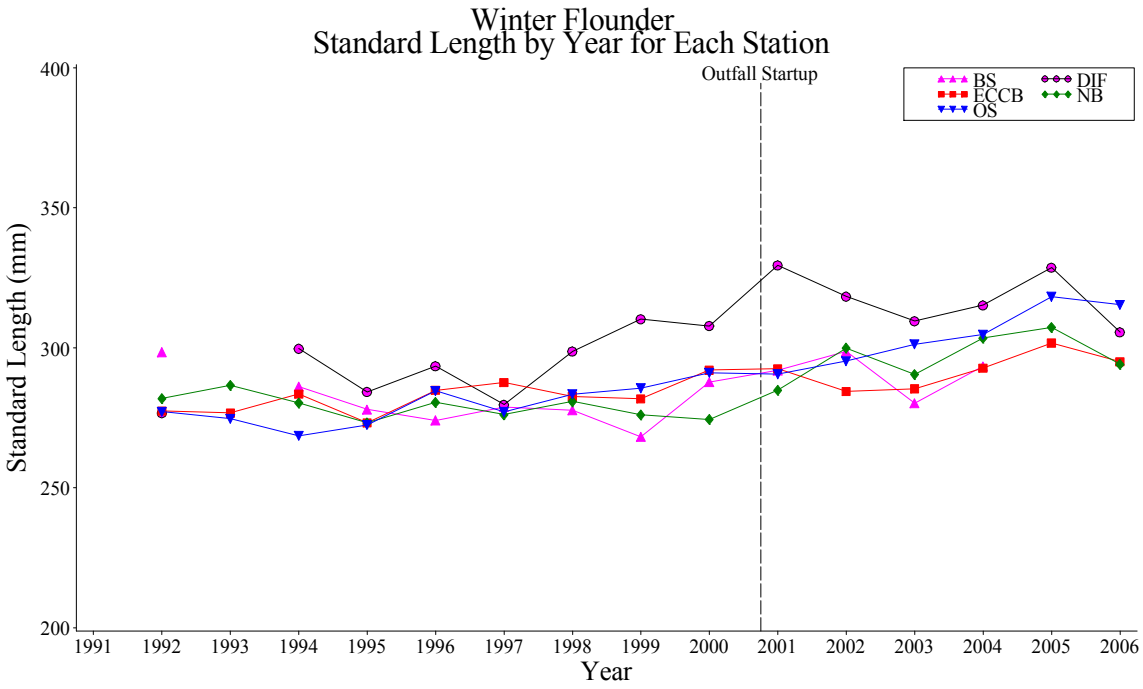


Figure 3-3. Average Flounder Standard Length Compared by Station and Year.

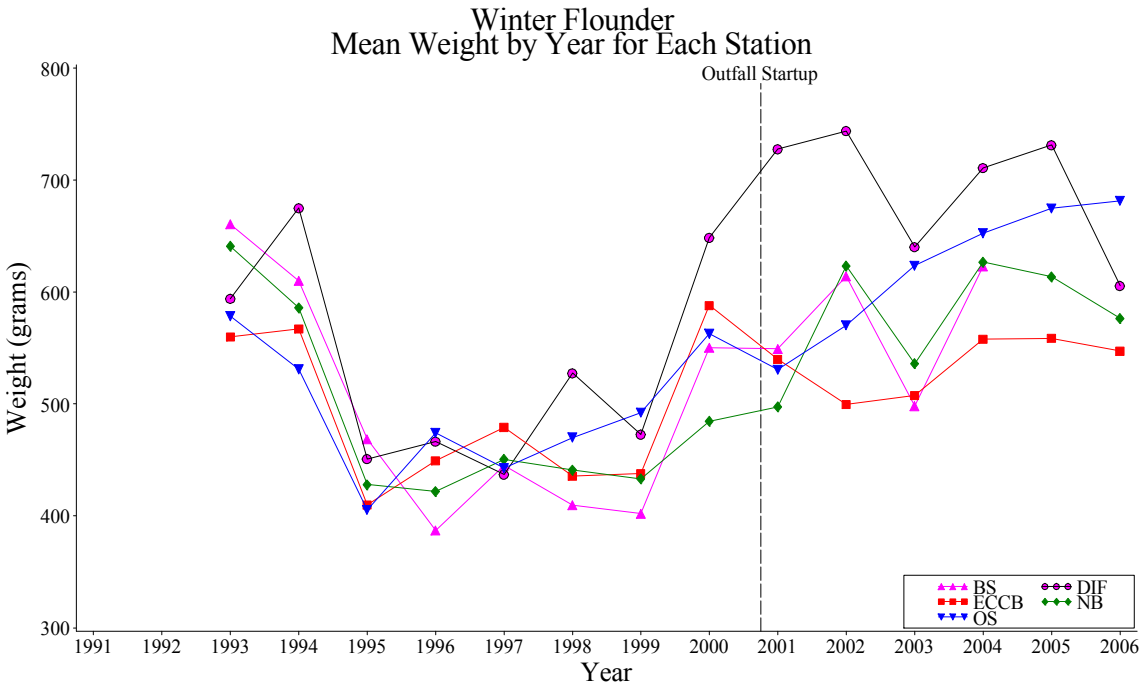


Figure 3-4. Average Flounder Weight Compared by Station and Year.

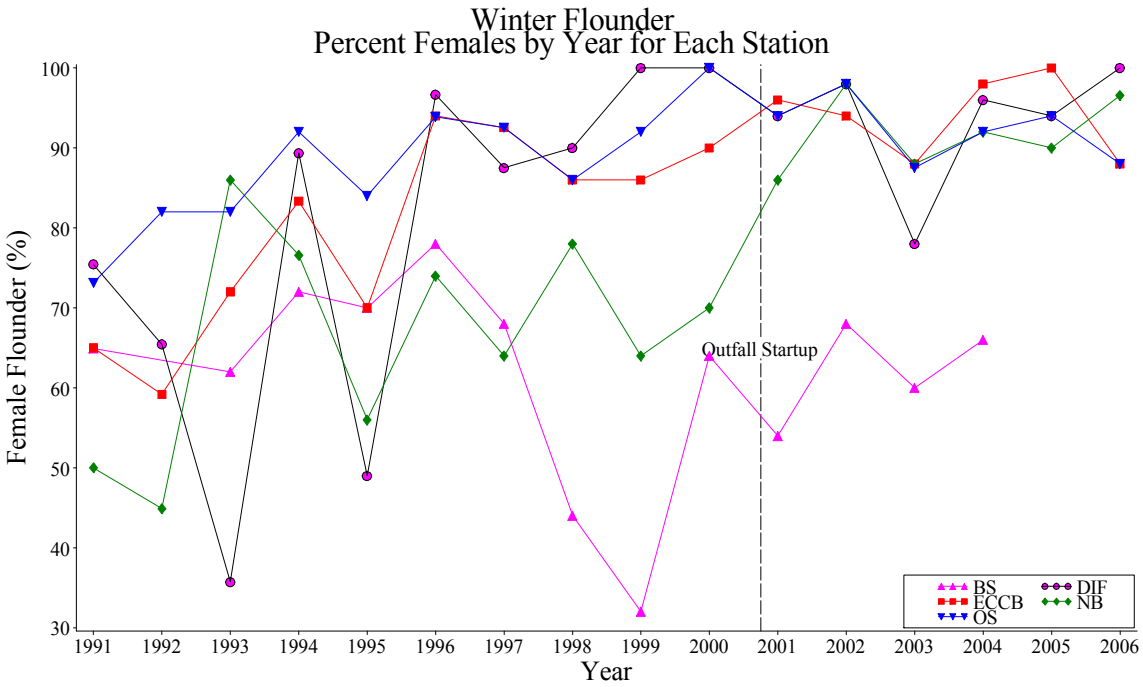


Figure 3-5. Proportion (%) of Female Flounder Compared by Station and Year.

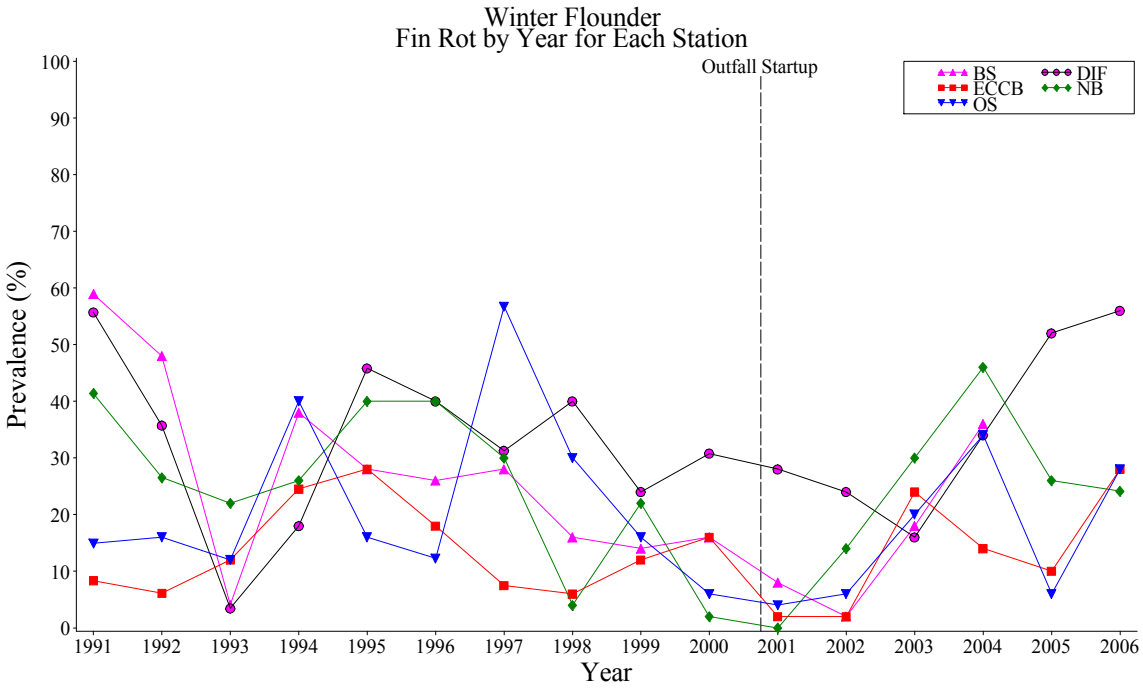


Figure 3-6. Temporal Comparison of Fin Rot Prevalence in Winter Flounder by Station over Time.

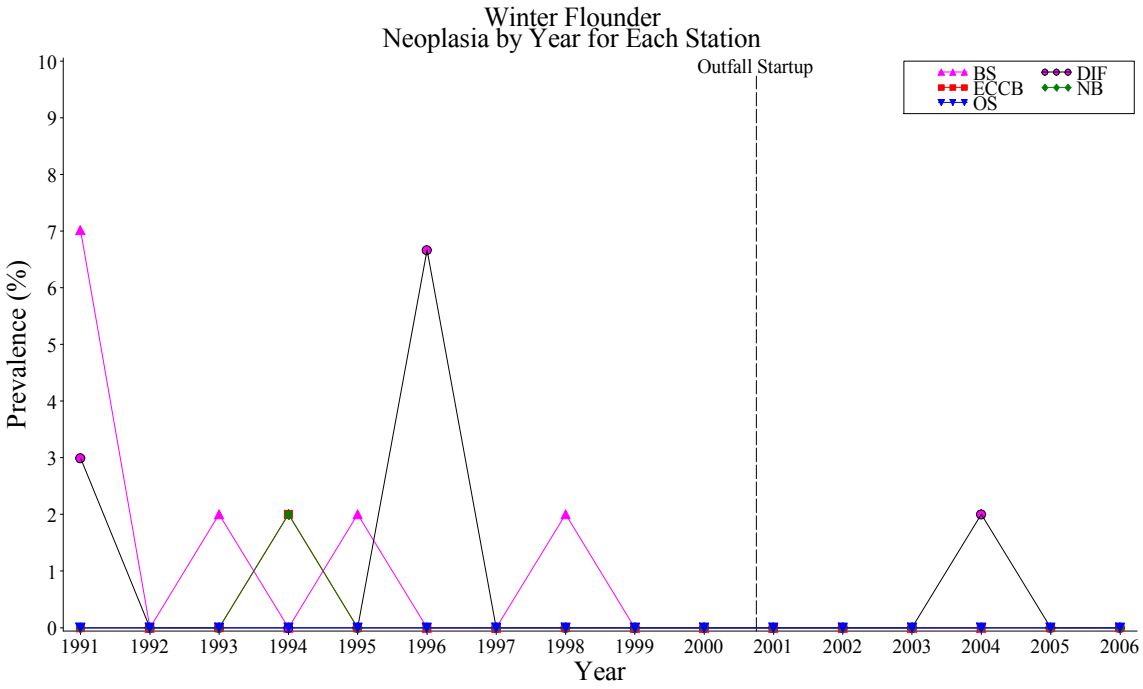


Figure 3-7. Temporal Comparison of Neoplasia Prevalence in Winter Flounder by Station over Time.

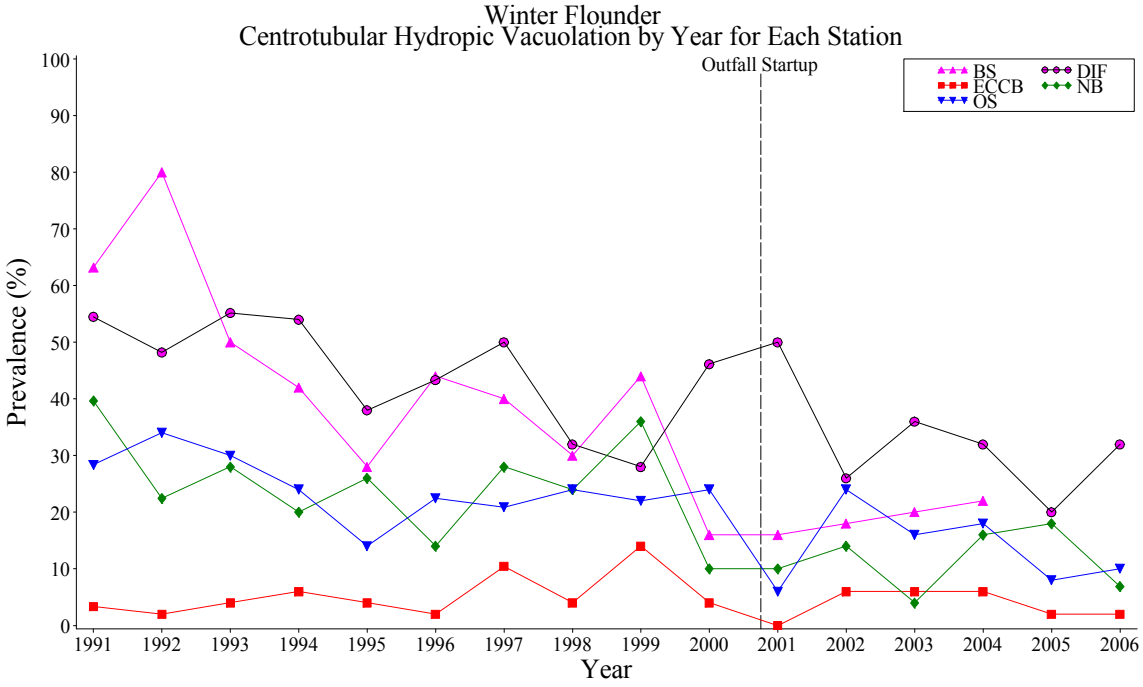


Figure 3-8 Temporal Comparison of Prevalence of Centrotubular Hydropic Vacuolation in Winter Flounder by Station over Time.

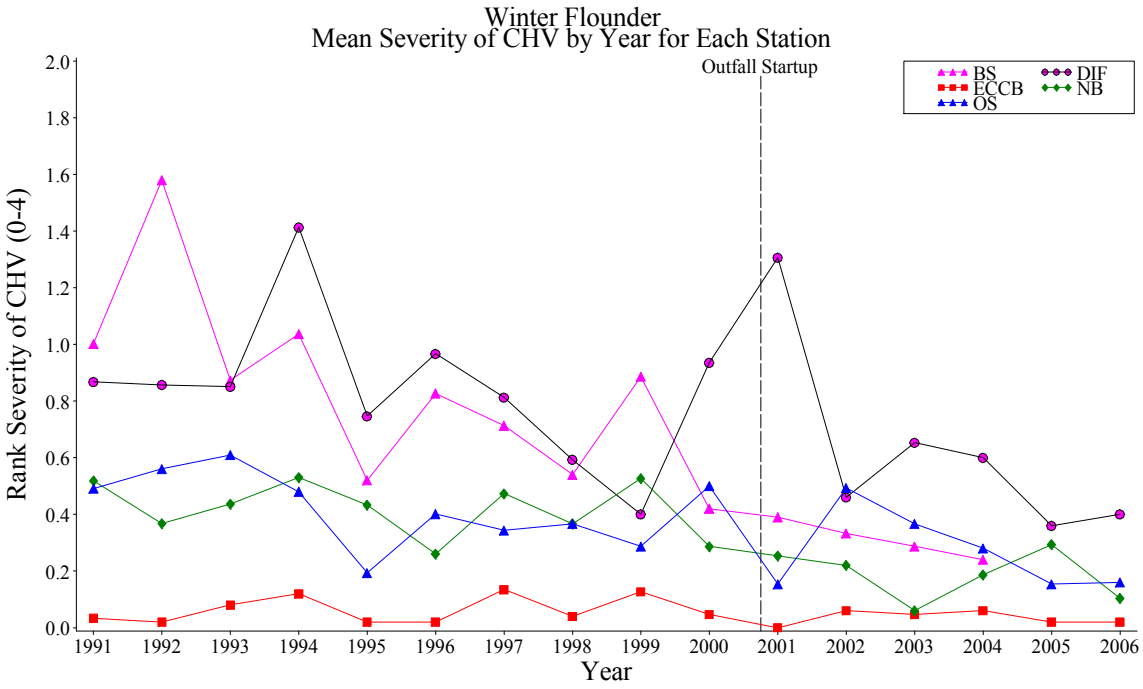


Figure 3-9. Centrotubular Hydropic Vacuolation Severity in Winter Flounder Compared Between Sites and Years.

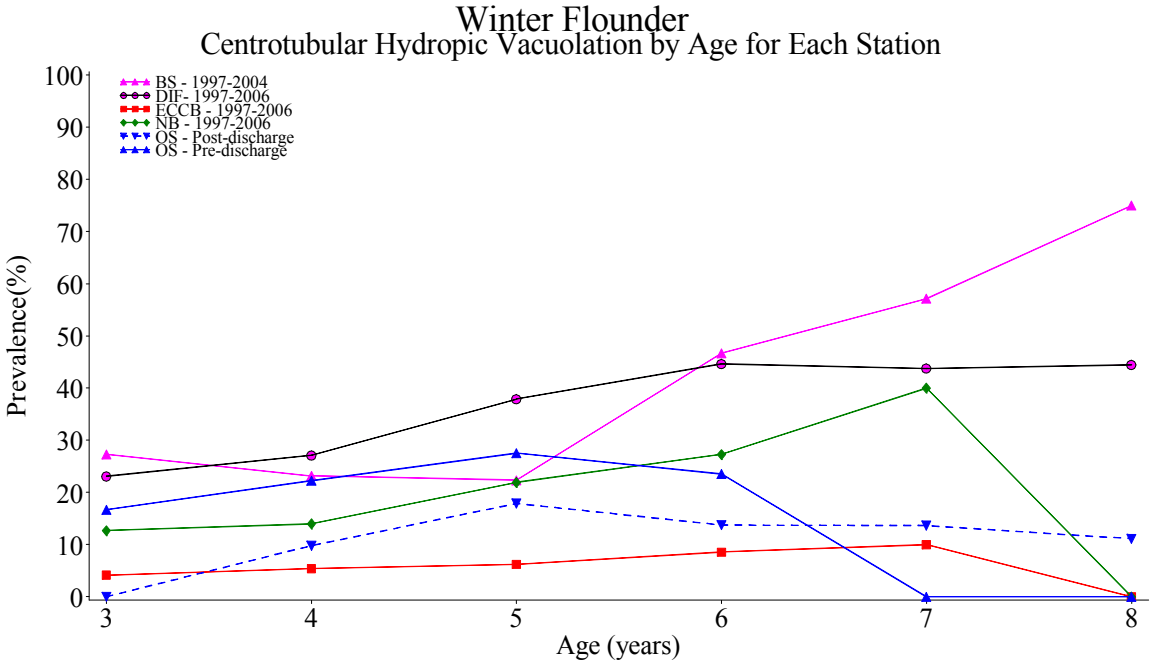


Figure 3-10. Proportion of Winter Flounder Showing Hydropic Vacuolation for Each Age.

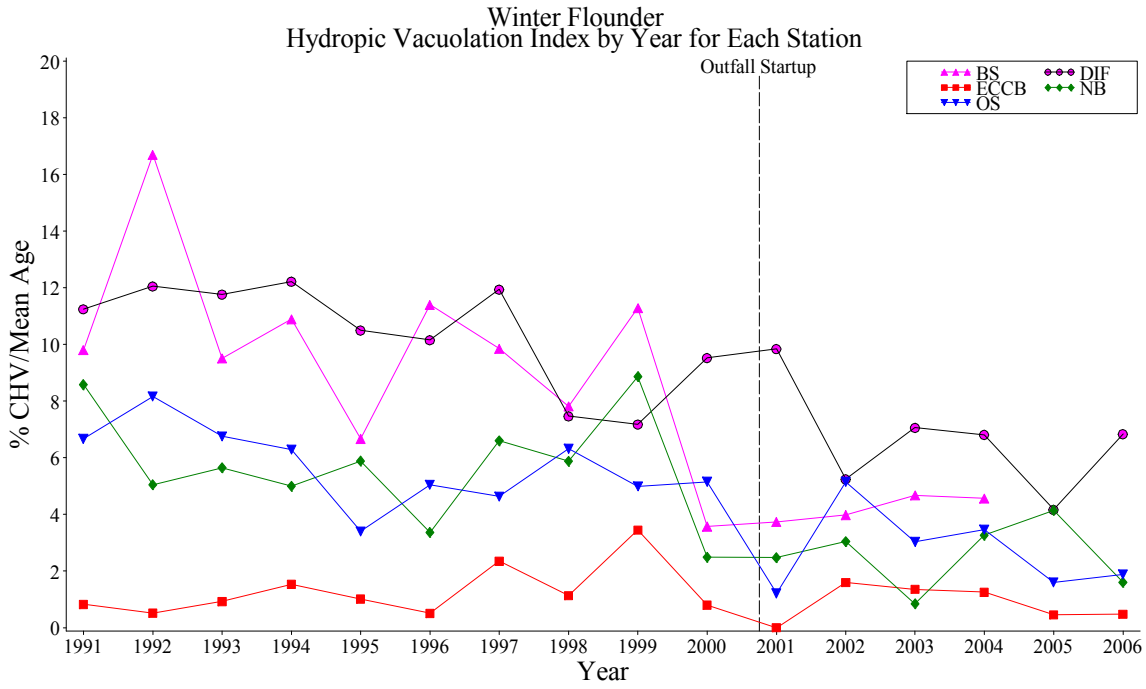


Figure 3-11. Hydropic Vacuolation Index (CHV%/Age) for Each Station by Year.

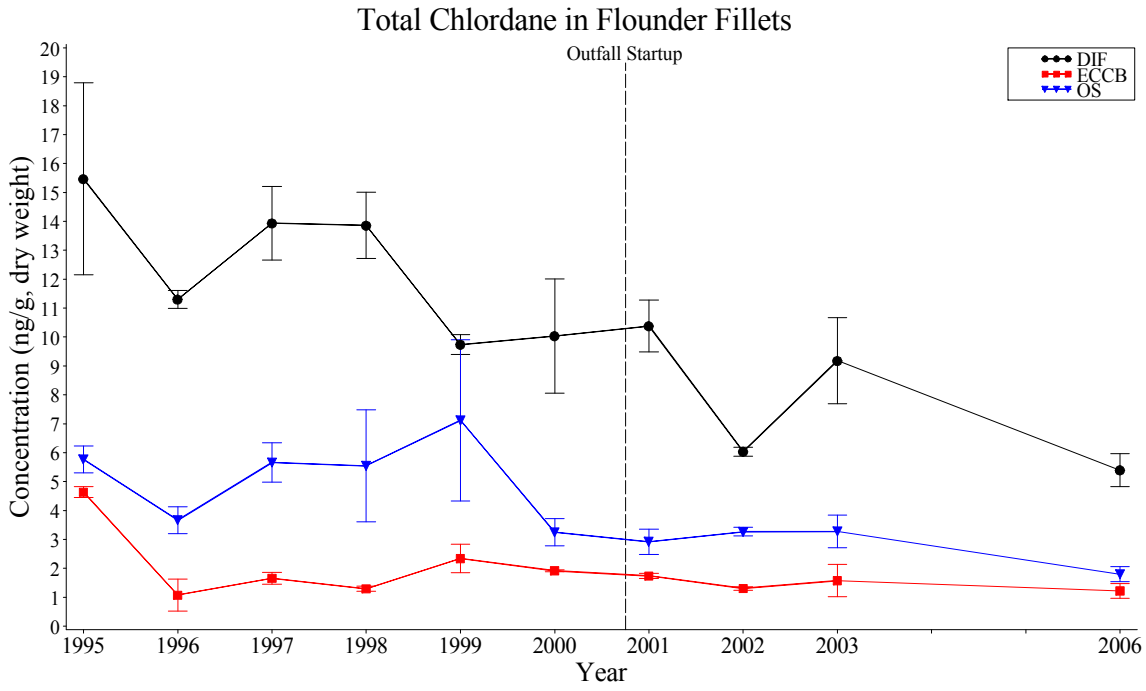


Figure 3-12. Total Clordane in Flounder Fillets at DIF, OS, and ECCB from 1995 to 2006.

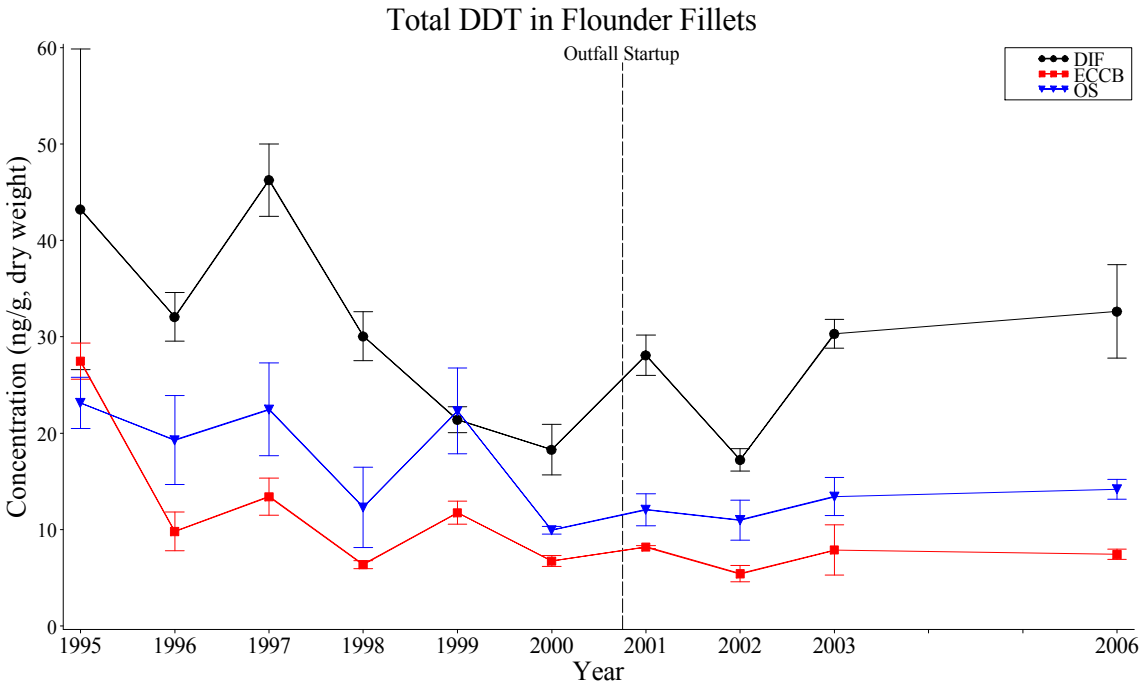


Figure 3-13. Total DDT in Flounder Fillets at DIF, OS, and ECCB from 1995 to 2006.

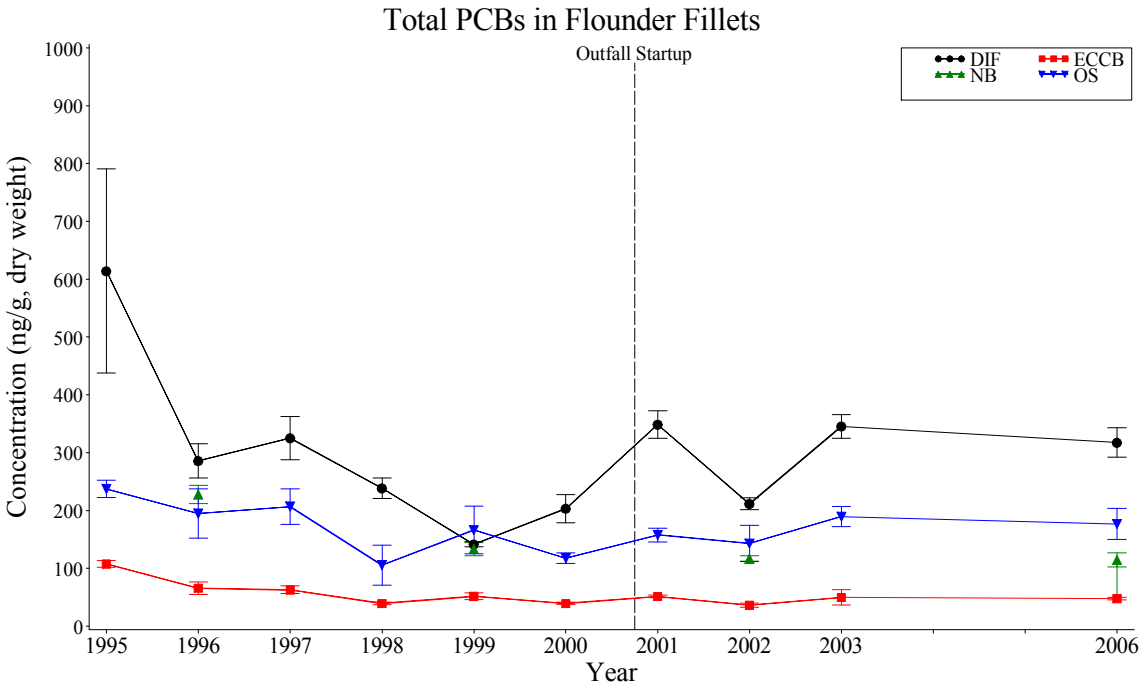


Figure 3-14. Total PCB in Flounder Fillets at the Four Collection Sites from 1995 to 2006.

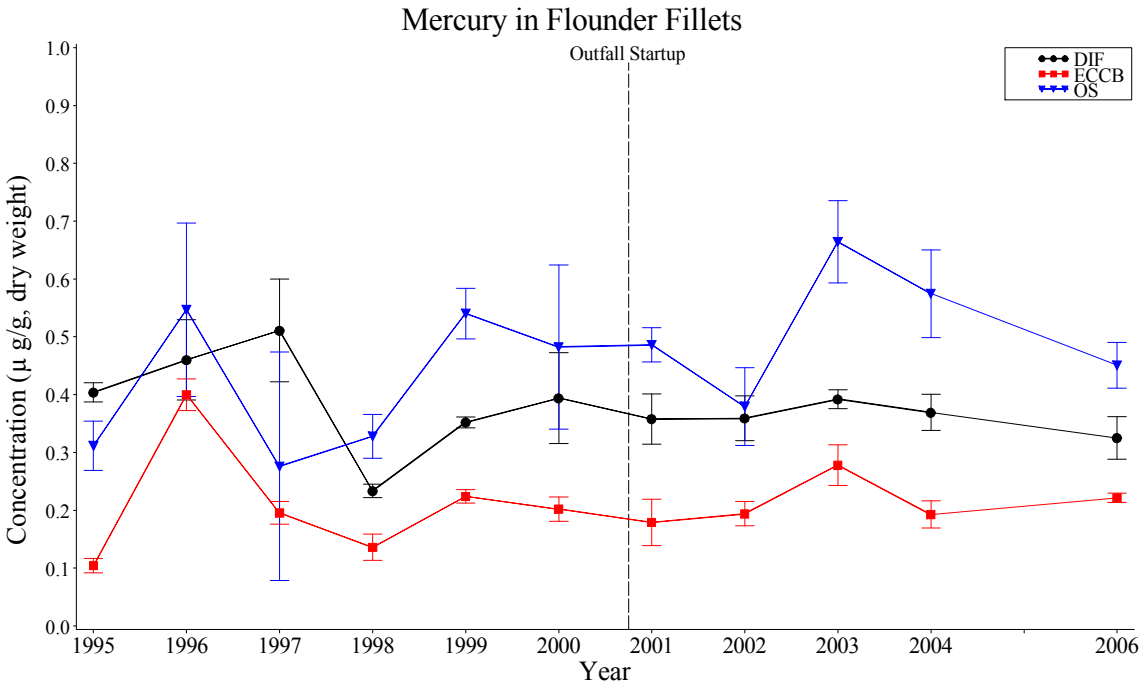


Figure 3-15. Mercury in Flounder Fillets at DIF, OS, and ECCB from 1995 to 2006.

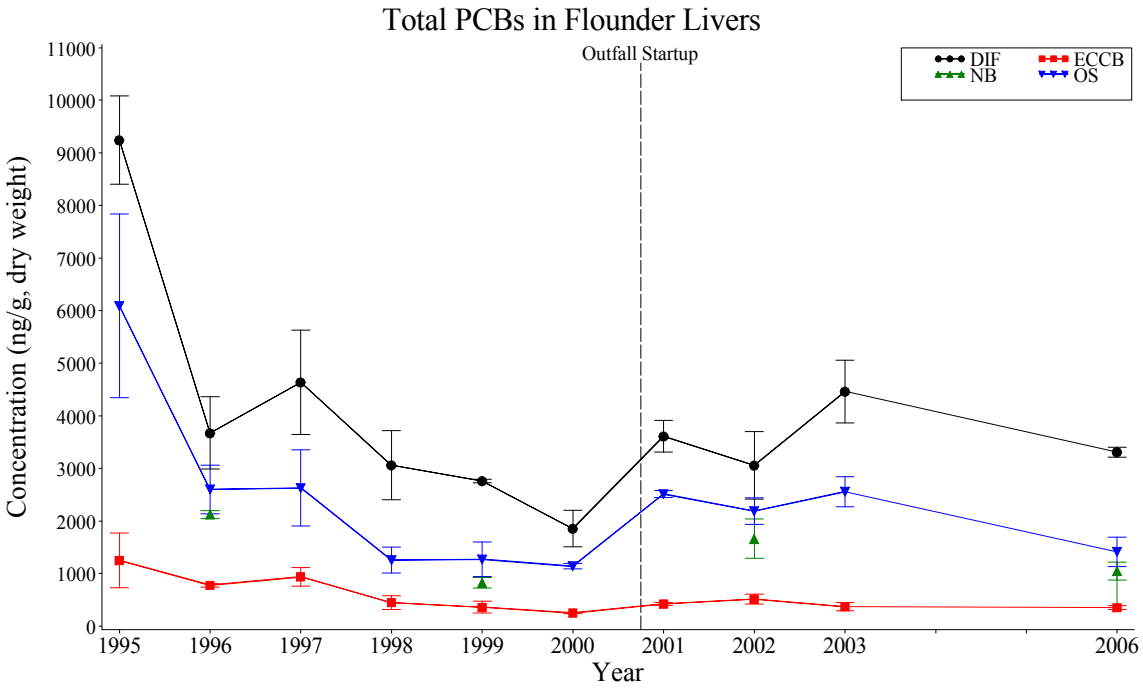


Figure 3-16. Total PCB in Flounder Livers at the Four Collection Sites from 1995 to 2006.

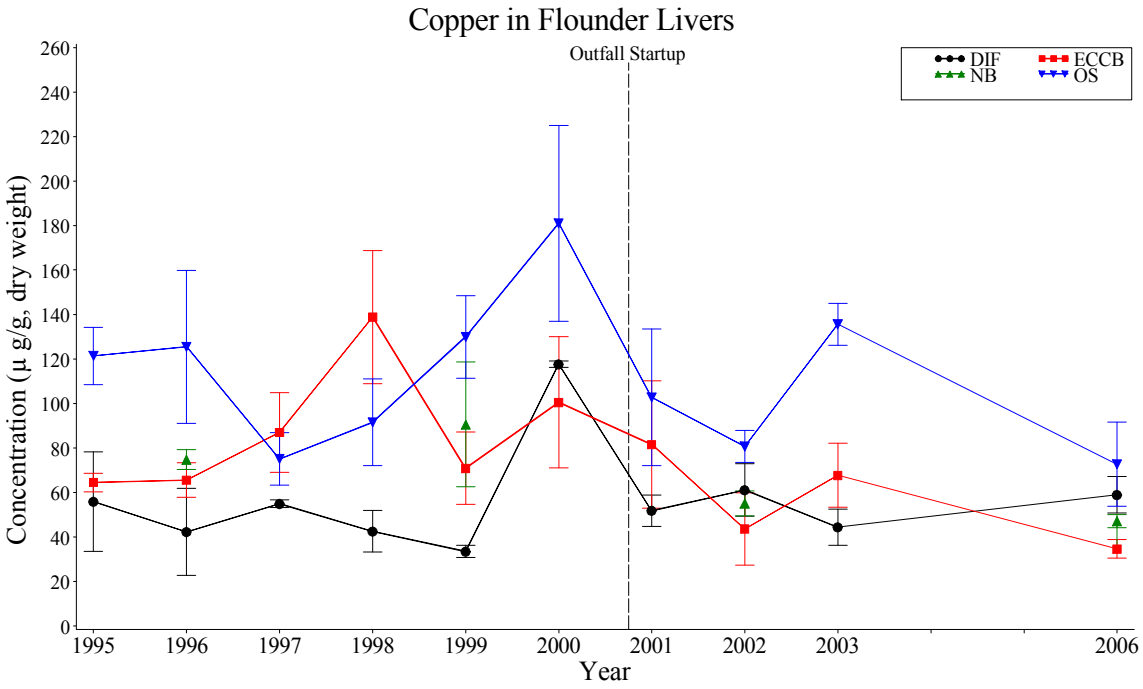


Figure 3-17. Copper in Flounder Livers at the Four Collection Sites from 1995 to 2006.

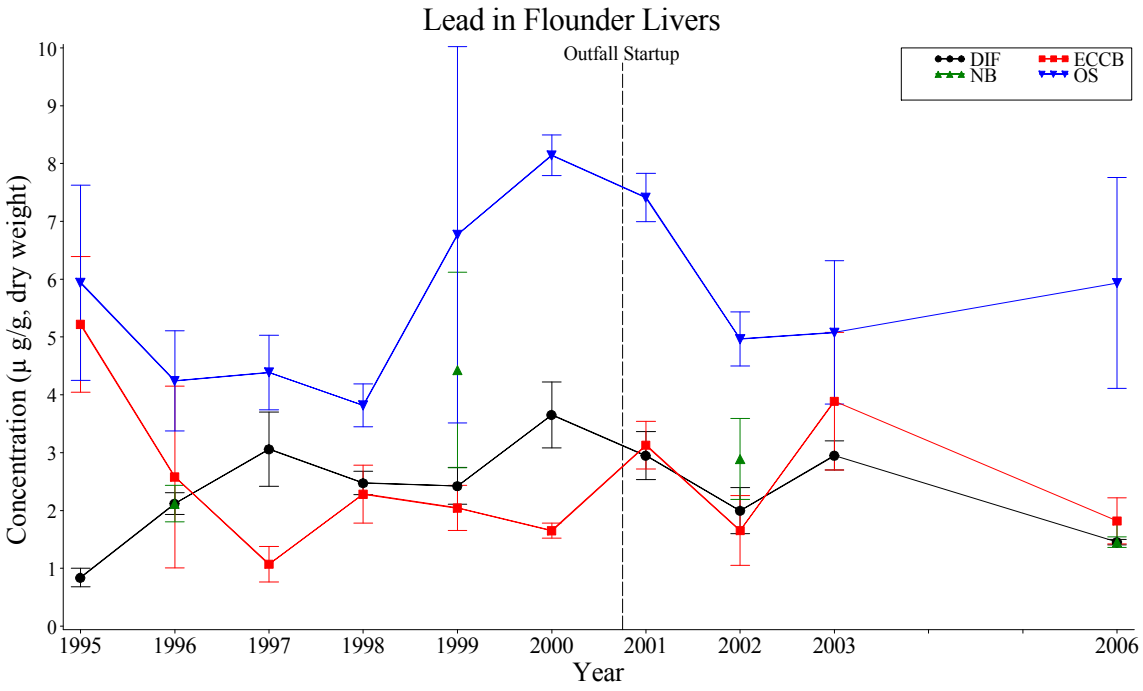


Figure 3-18. Lead in Flounder Livers at the Four Collection Sites from 1995 to 2006.

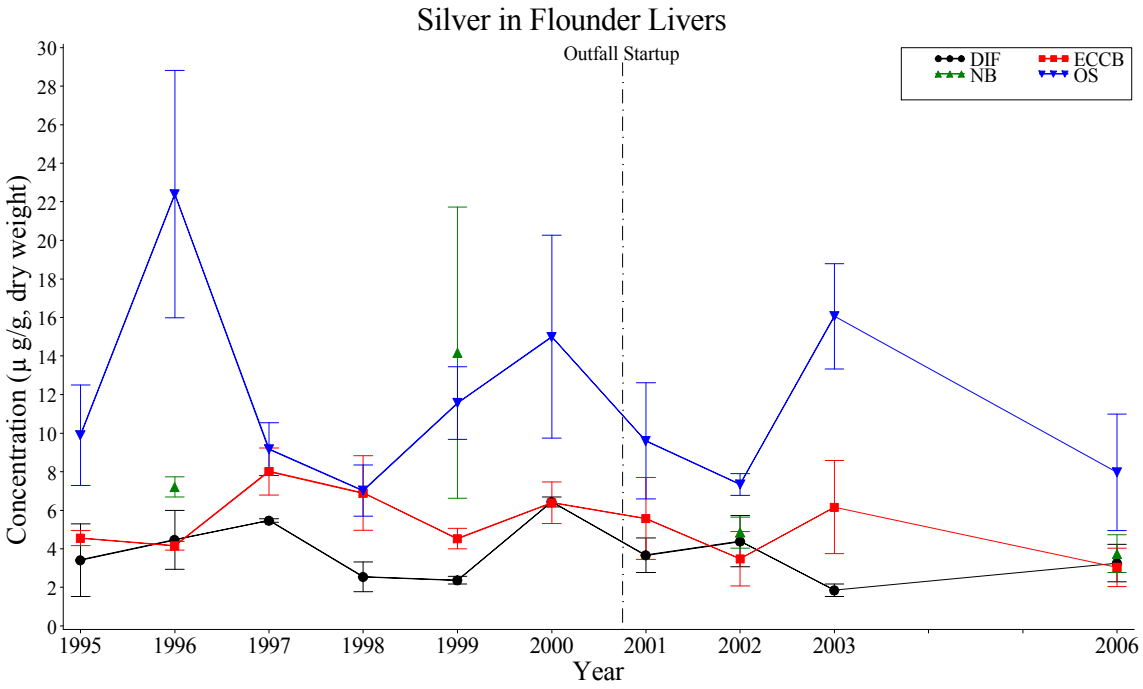


Figure 3-19. Silver in Flounder Livers at the Four Collection Sites from 1995 to 2006.

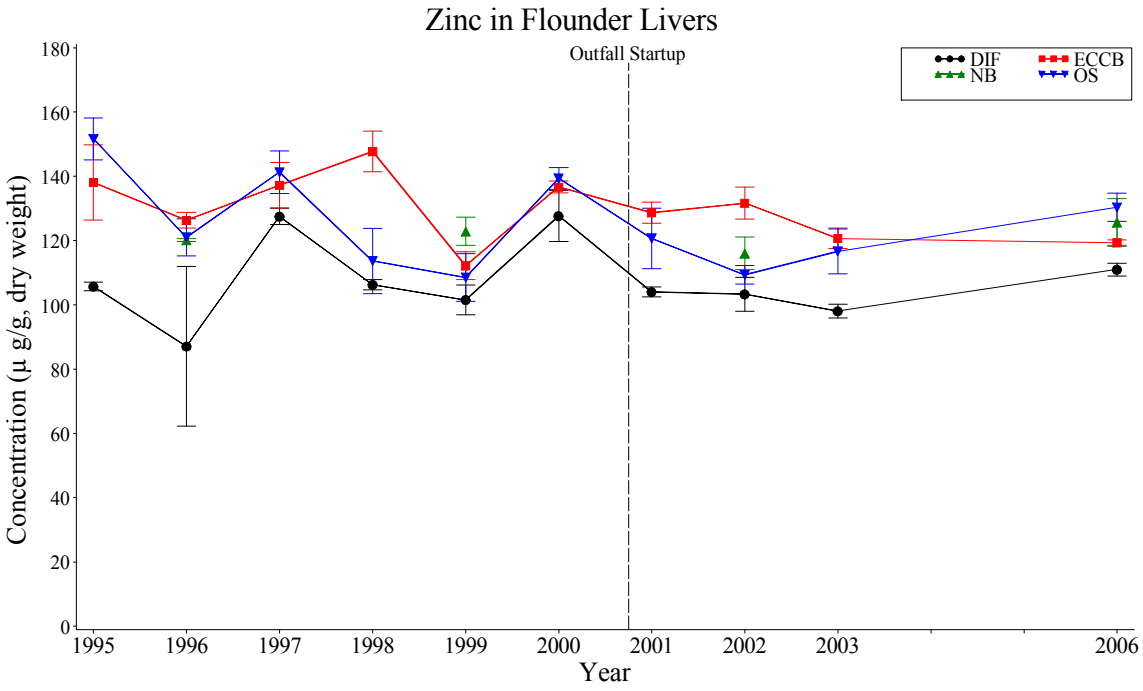


Figure 3-20. Zinc in Flounder Livers at the Four Collection Sites from 1995 to 2006.

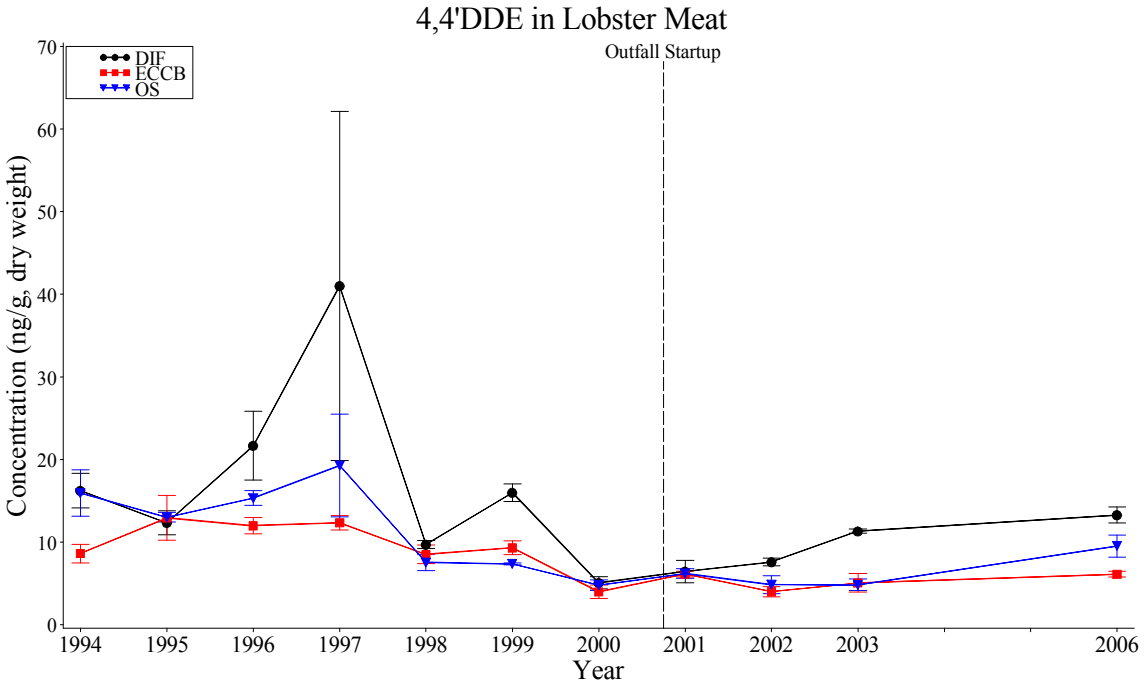


Figure 3-21. Concentrations of 4,4 DDE in Lobster Meat at DIF, OS, and ECCB from 1994 to 2006.

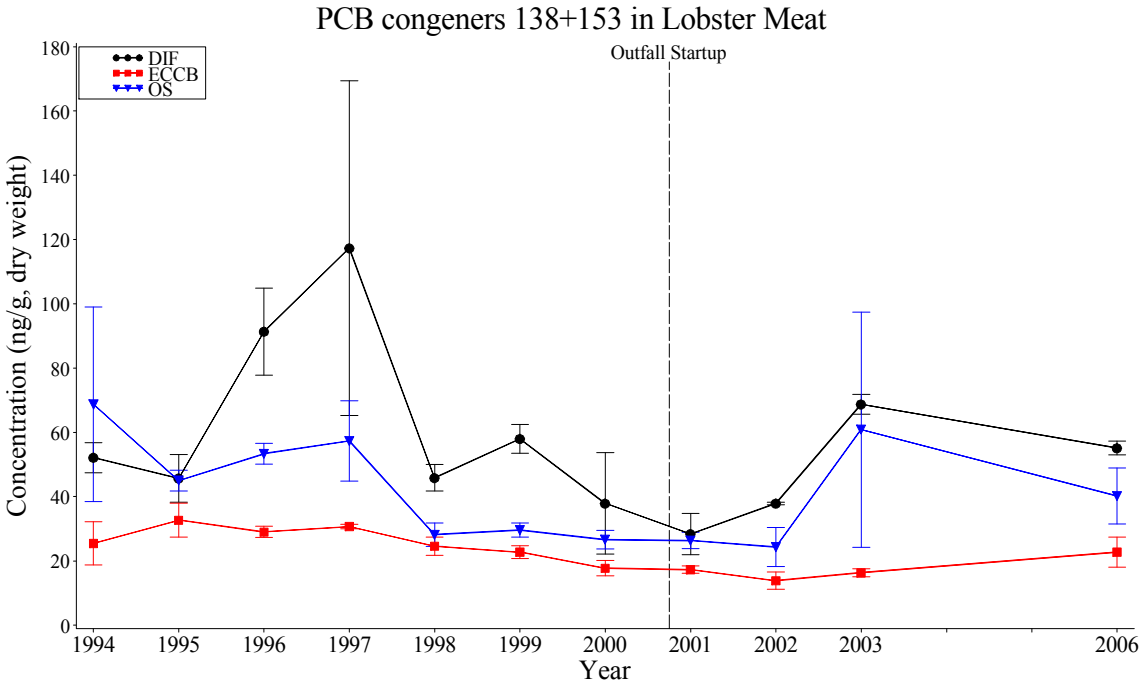


Figure 3-22. PCB congeners 138 + 153 in Lobster Meat at DIF, OS, and ECCB from 1994 to 2006.

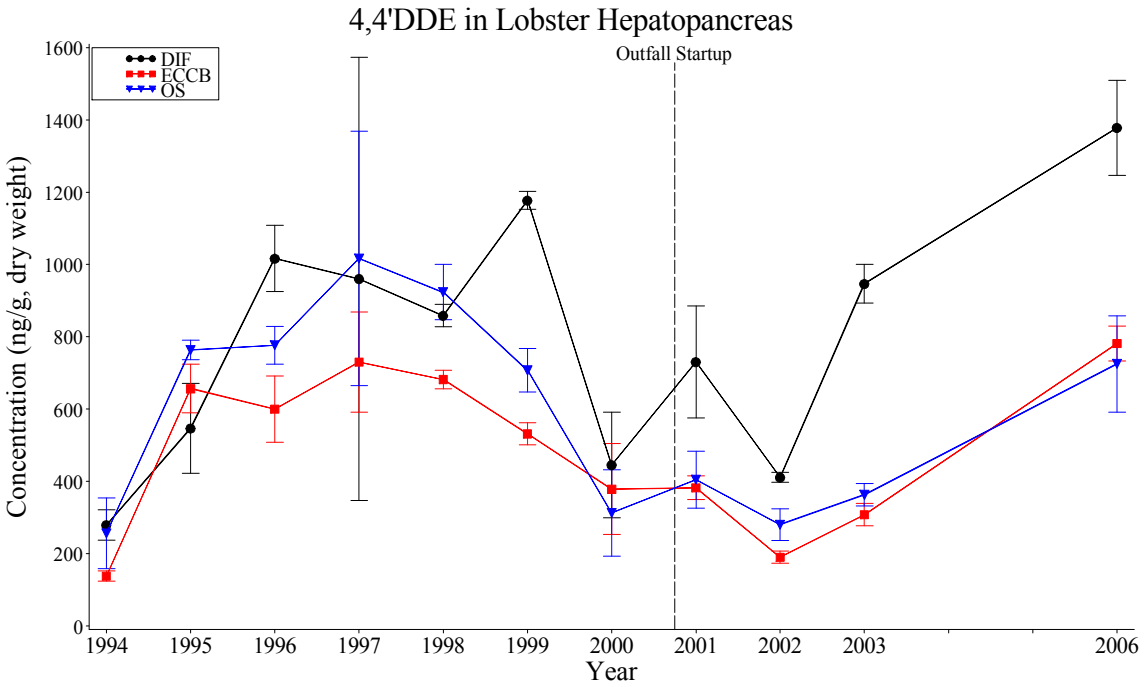


Figure 3-23. Concentrations of 4,4 DDE in Lobster Hepatopancreas at DIF, OS, and ECCB from 1994 to 2006.

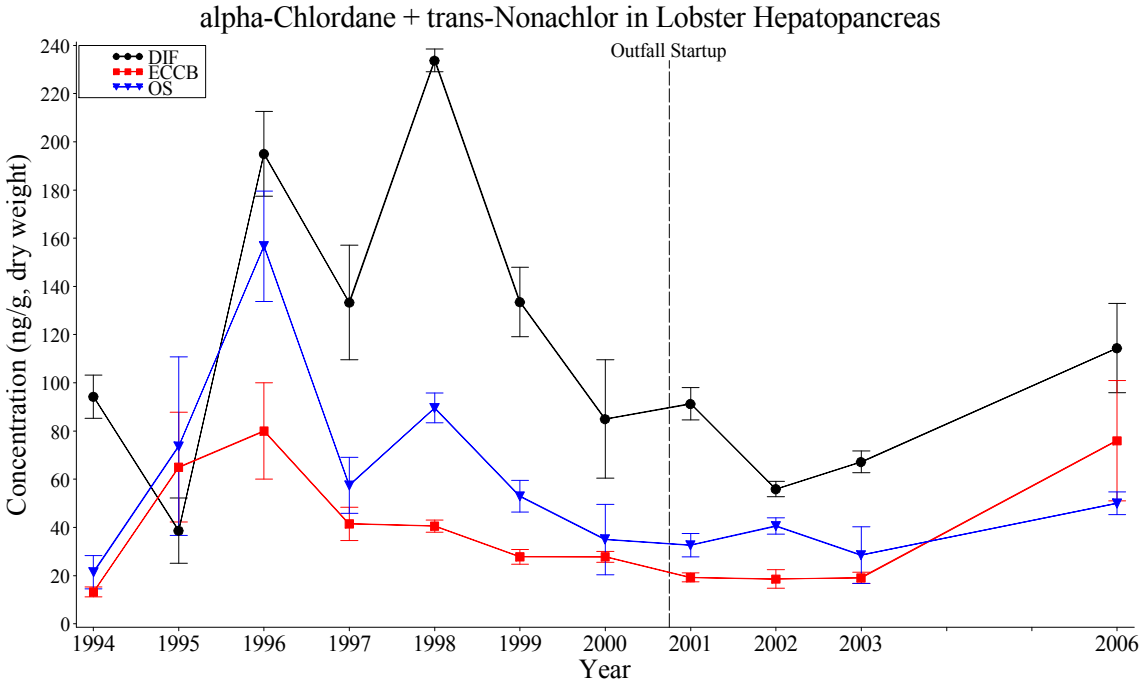
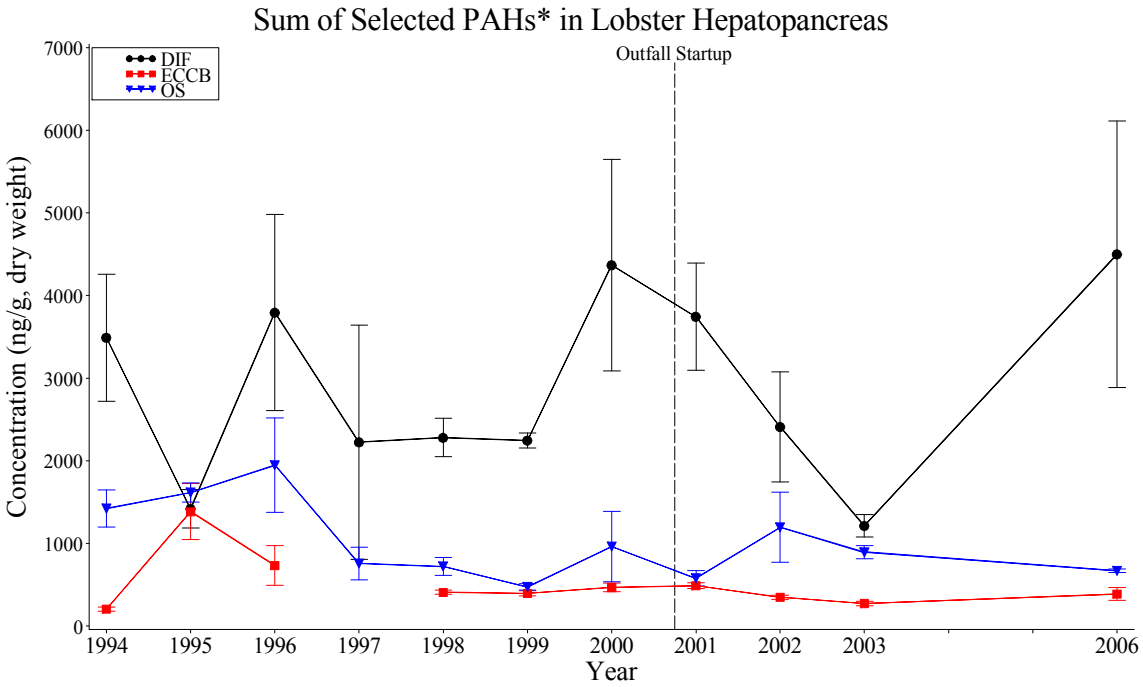


Figure 3-24. Concentrations alpha-Chlordane + trans-Nonachlor in Lobster Hepatopancreas at DIF, OS, and ECCB from 1994 to 2006.



*Benzo(b)fluoranthene, Benzo(e)pyrene, Fluoranthene, Fluorene, Phenanthrene, Pyrene

Figure 3-25. Sum of Selected PAHs in Lobster Hepatopancreas at DIF, OS, and ECCB from 1994 to 2006.

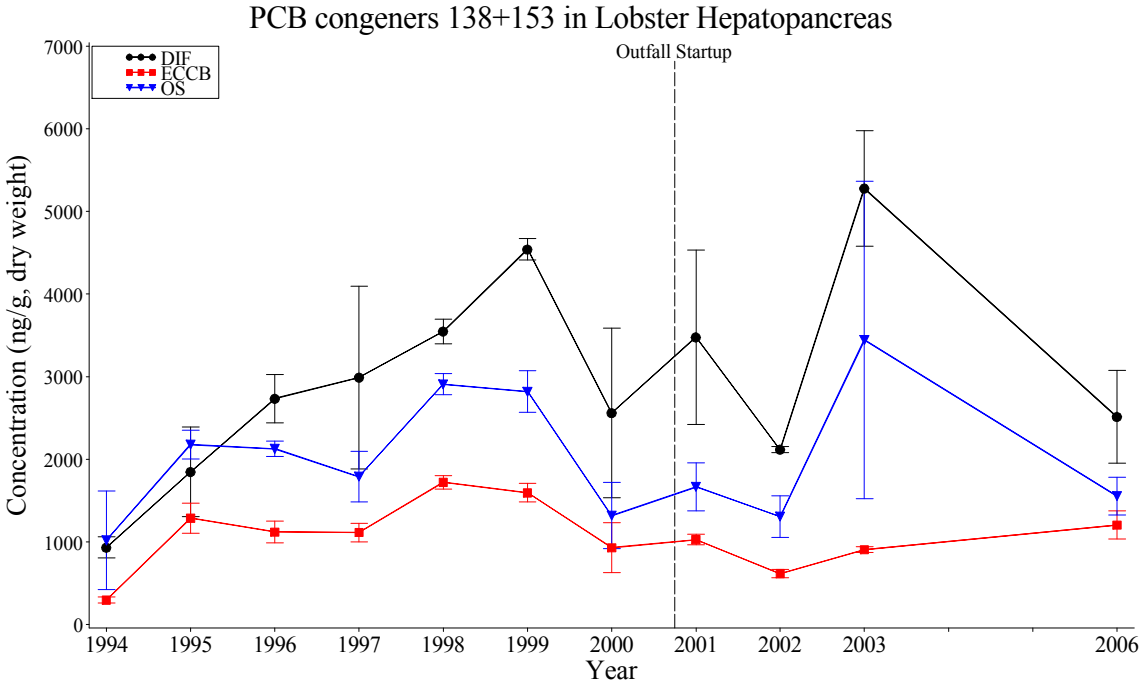


Figure 3-26. PCB congeners 138 + 153 in Lobster Hepatopancreas at DIF, OS, and ECCB from 1994 to 2006.

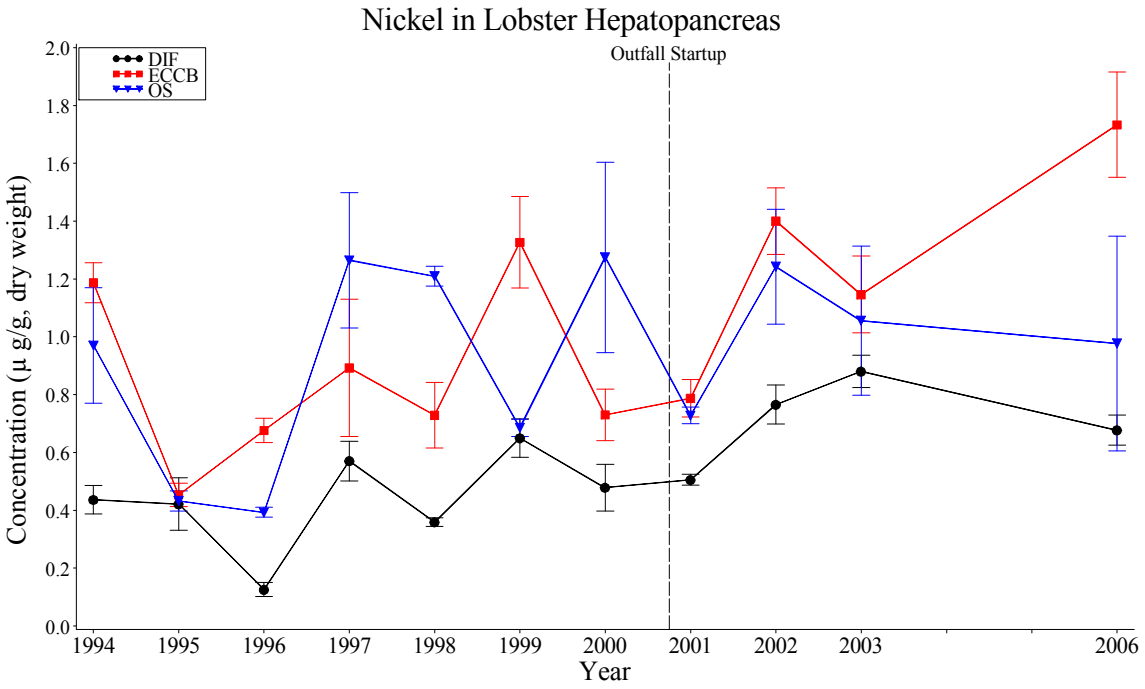


Figure 3-27. Nickel in Lobster Hepatopancreas at DIF, OS, and ECCB from 1994 to 2006.

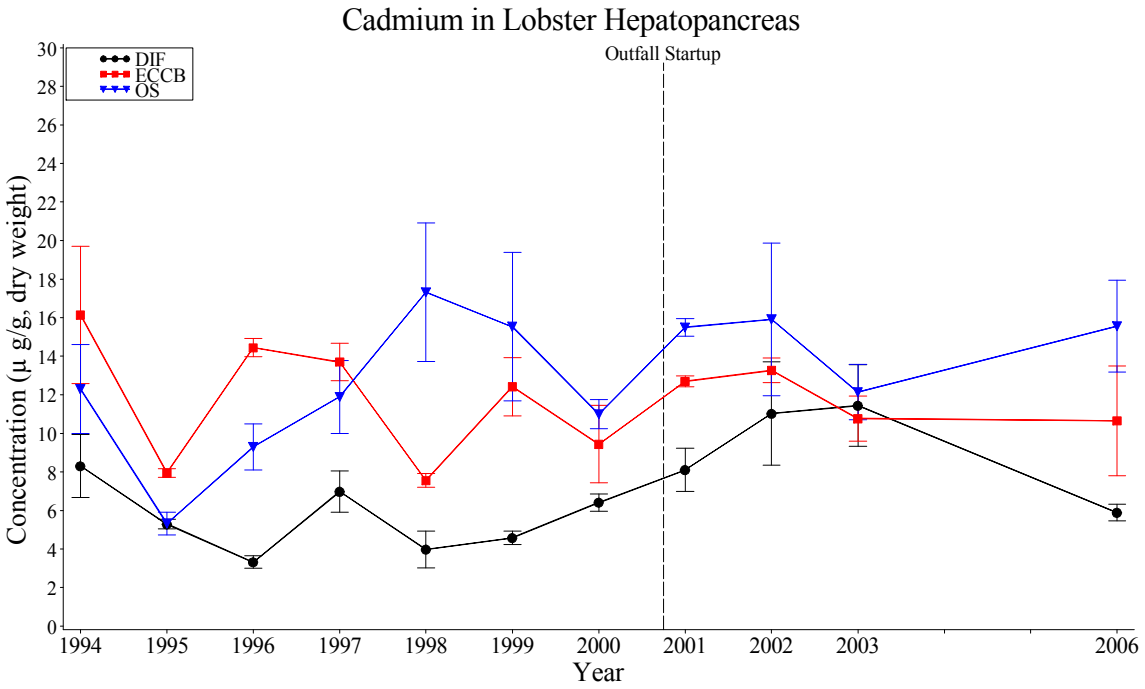


Figure 3-28. Cadmium in Lobster Hepatopancreas at DIF, OS, and ECCB from 1994 to 2006.

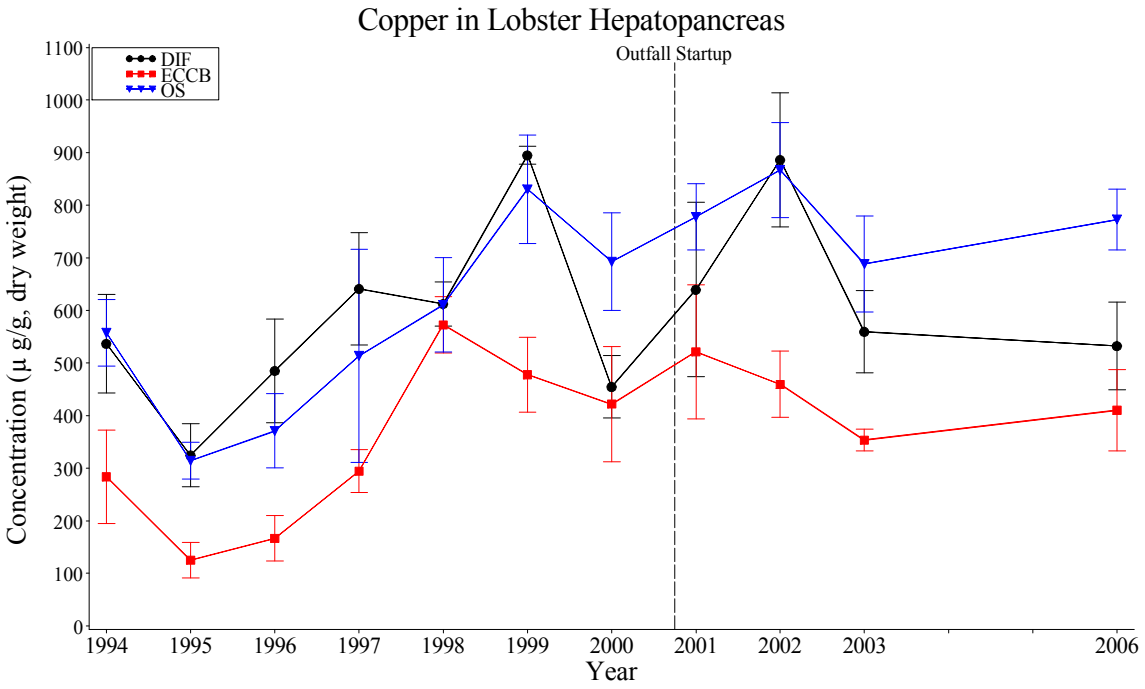


Figure 3-29. Copper in Lobster Hepatopancreas at DIF, OS, and ECCB from 1994 to 2006.

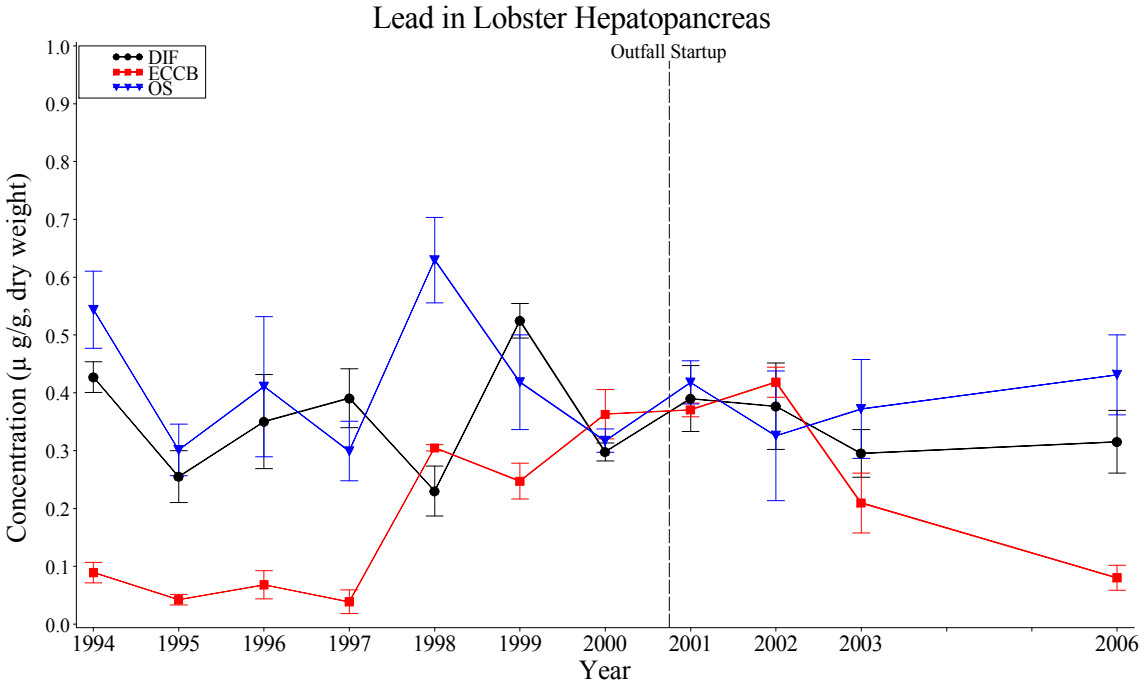


Figure 3-30. Lead in Lobster Hepatopancreas at DIF, OS, and ECCB from 1994 to 2006.

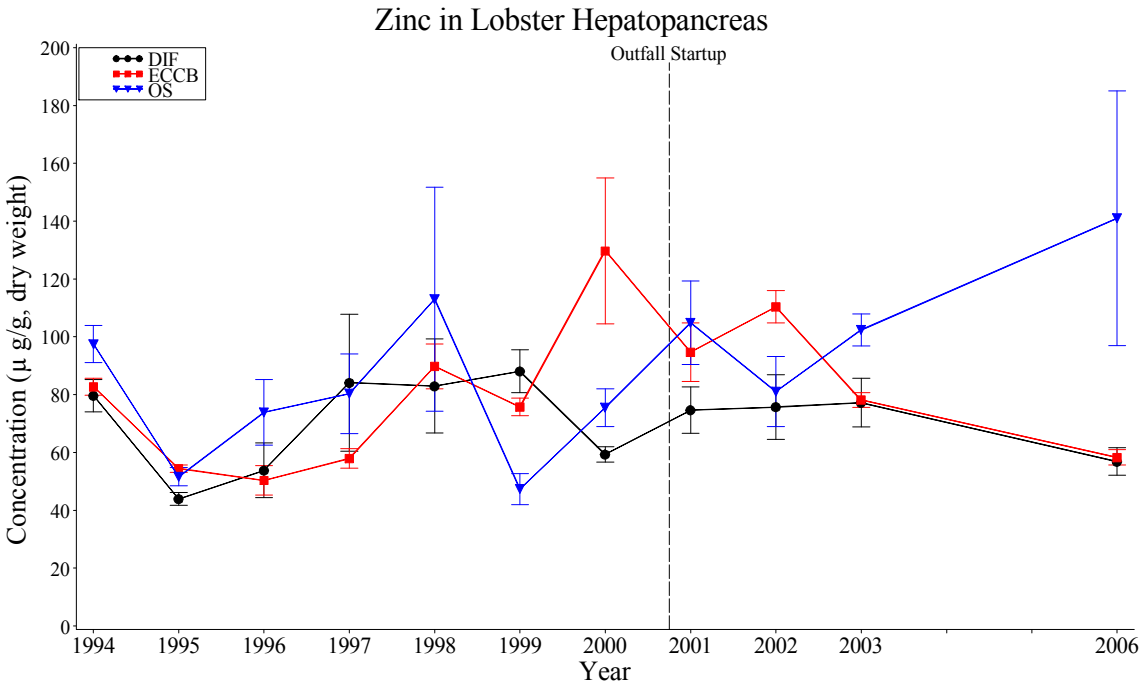


Figure 3-31. Zinc in Lobster Hepatopancreas at DIF, OS, and ECCB from 1994 to 2006.

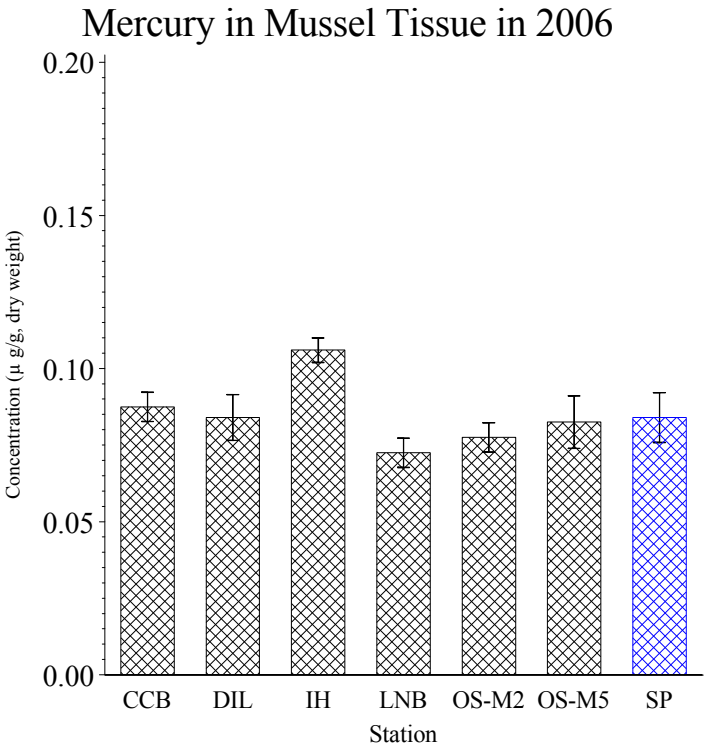


Figure 3-32. Mercury in 2006 Pre-deployed Mussels and Six Deployment Locations.

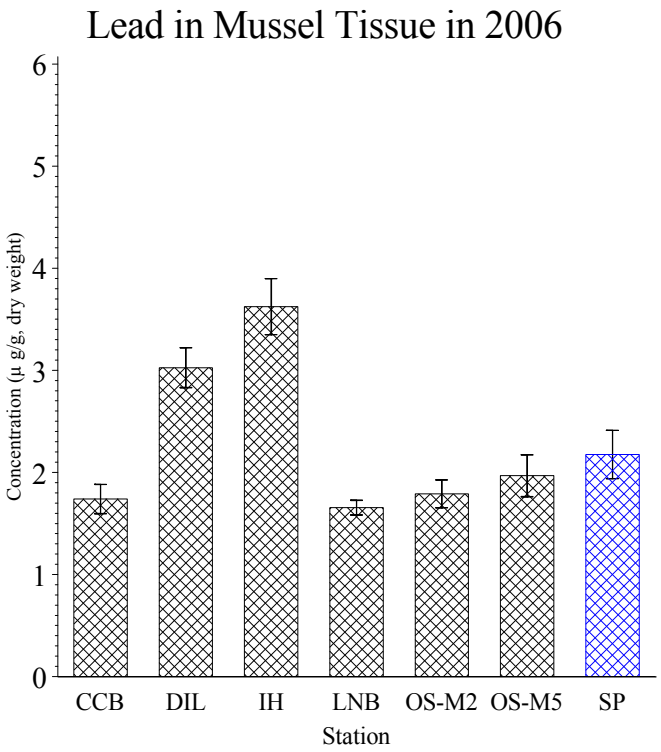


Figure 3-33. Lead in 2006 Pre-deployed Mussels and Six Deployment Locations

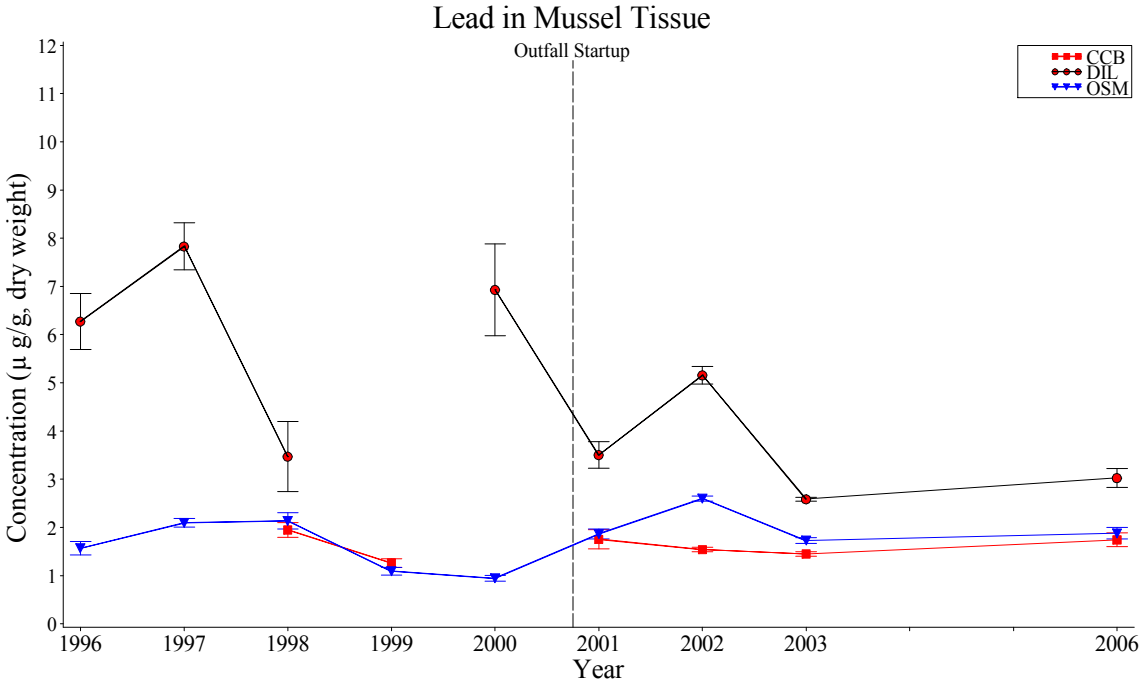


Figure 3-34. Lead in Pre-deployed and Deployed Mussels from 1996 to 2006.

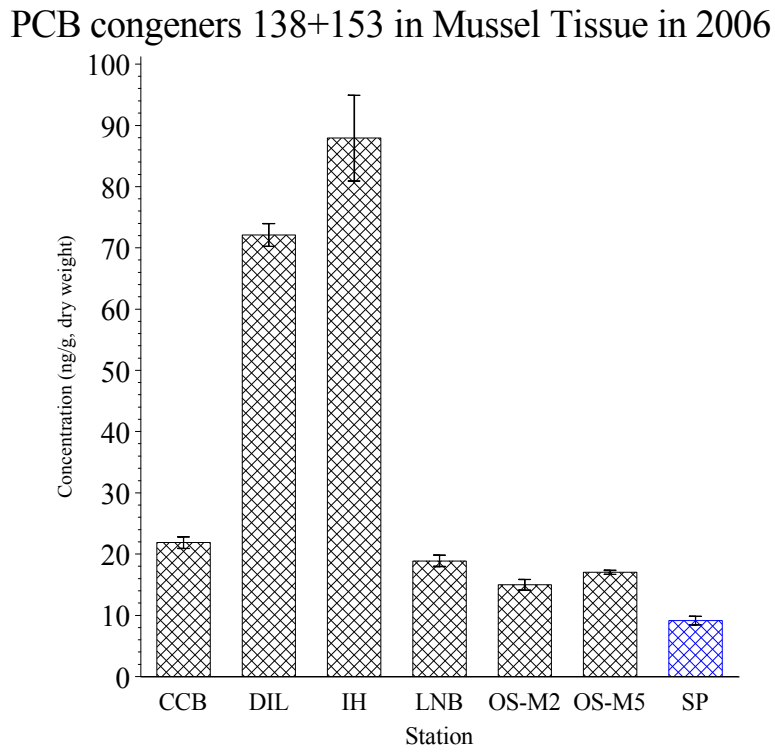


Figure 3-35. PCB congeners 138 + 153 in 2006 Pre-deployed Mussels and Six Deployment Locations.

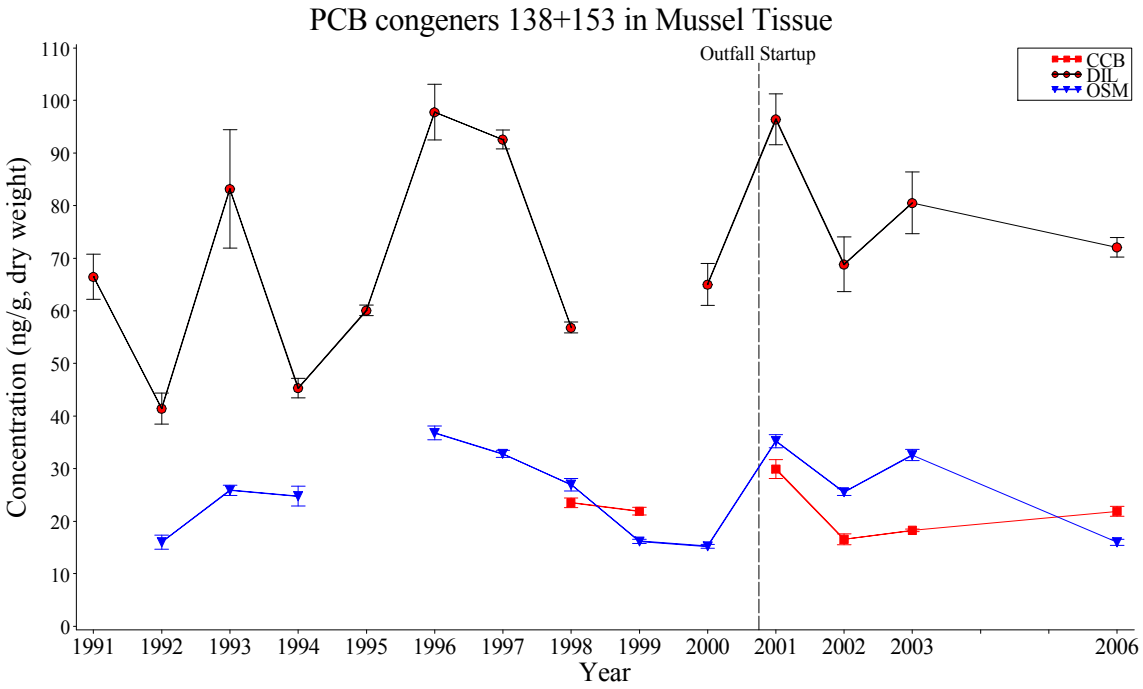


Figure 3-36. PCB congeners 138 + 153 in Pre-deployed and Deployed Mussels from 1991 to 2006.

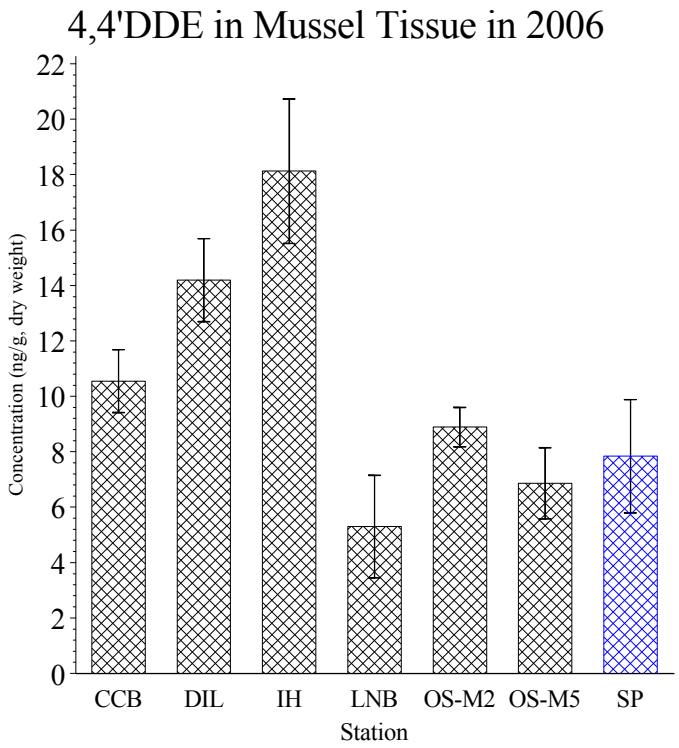


Figure 3-37. Concentrations of 4,4 DDE in 2006 Pre-deployed Mussels and Six Deployment Locations.

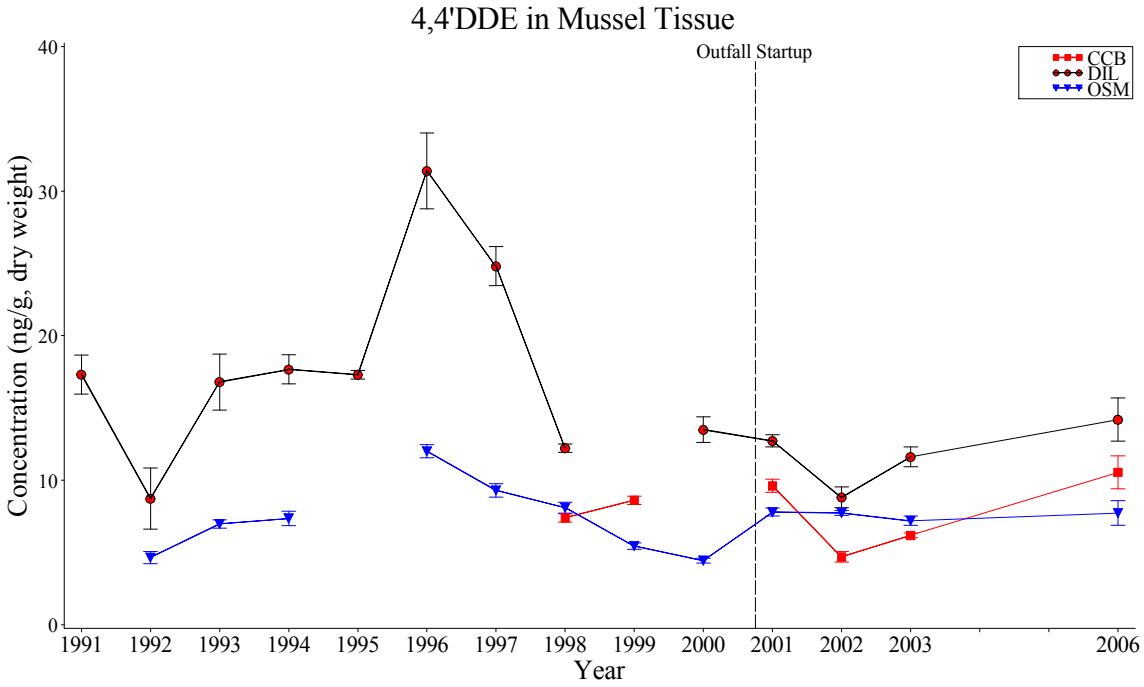


Figure 3-38. Concentrations of 4,4 DDE in Pre-deployed and Deployed Mussels from 1991 to 2006.

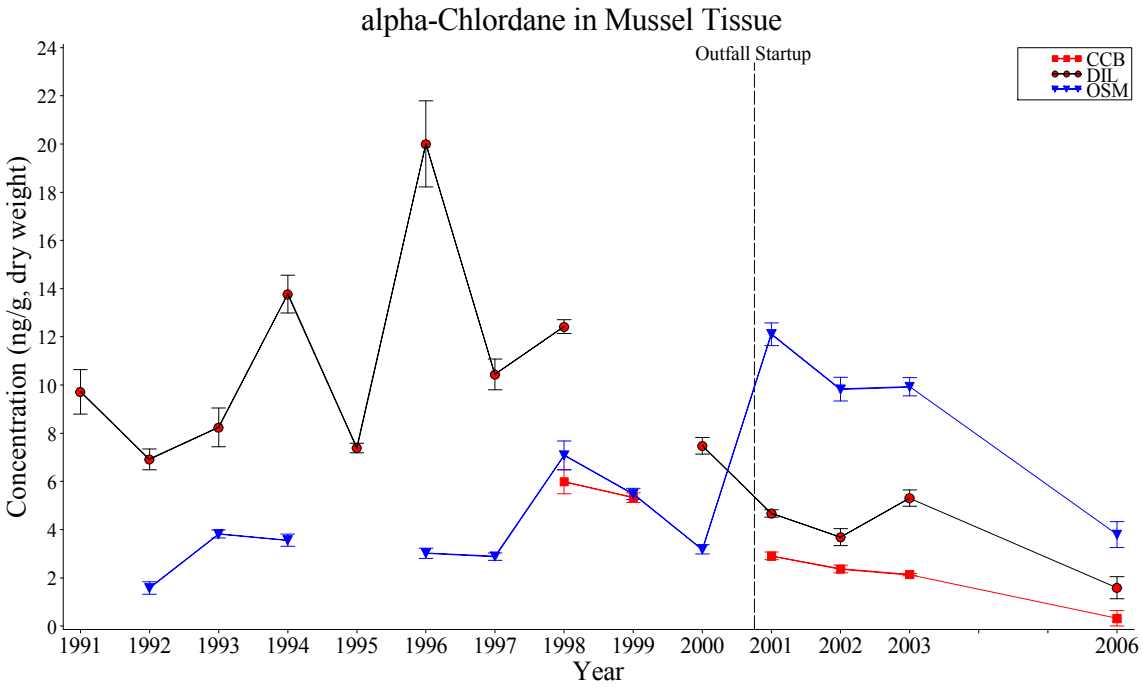


Figure 3-39. Concentrations alpha-Chlordane in Pre-deployed and Deployed Mussels from 1991 to 2006.

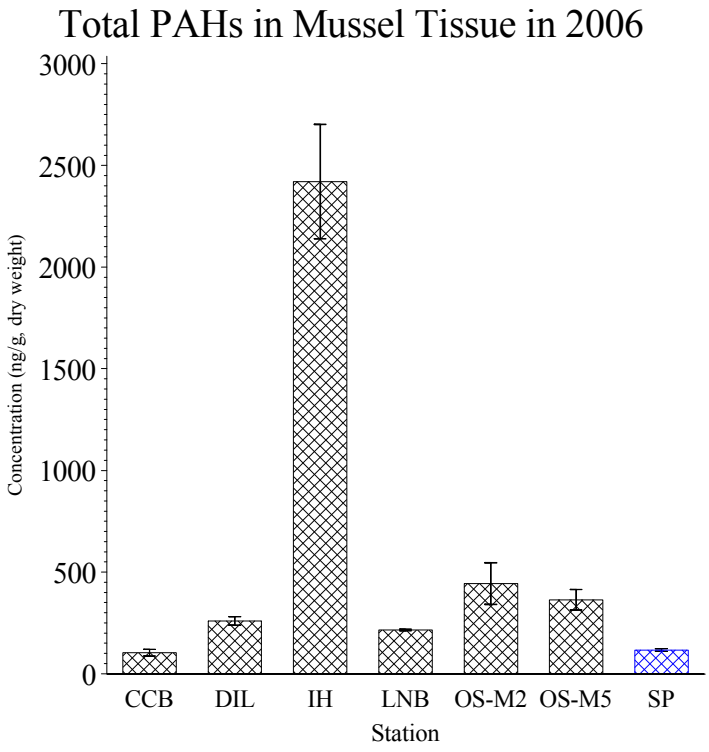


Figure 3-40. Total PAHs in 2006 Pre-deployed Mussels and Six Deployment Locations.

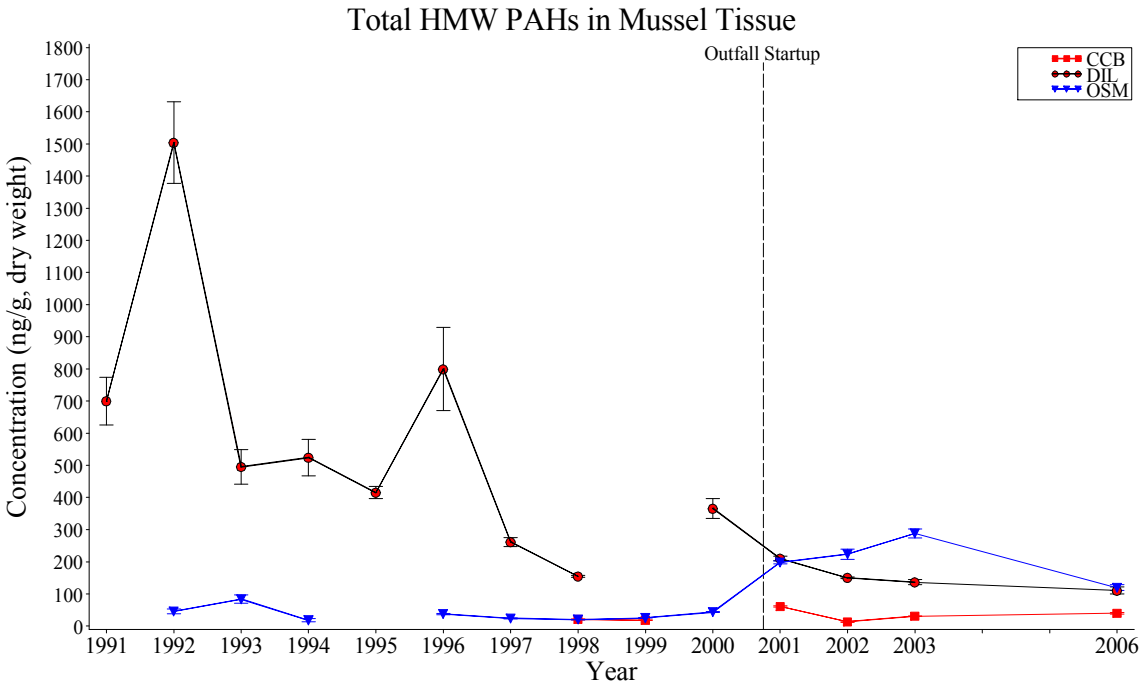


Figure 3-41. Total High Molecular Weight PAHs (Using the "Historical NOAA List") in Pre-deployed and Deployed Mussels from 1991 to 2006.

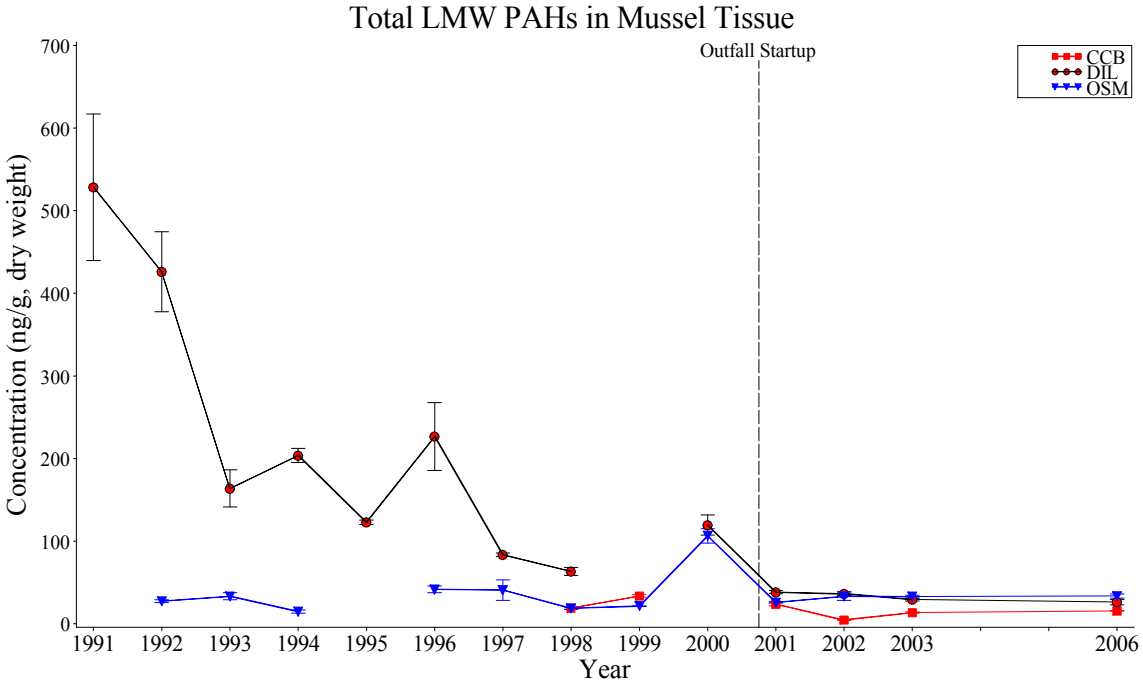


Figure 3-42. Total Low Molecular Weight PAHs (Using the "Historical NOAA List") in Pre-deployed and Deployed Mussels from 1991 to 2006.

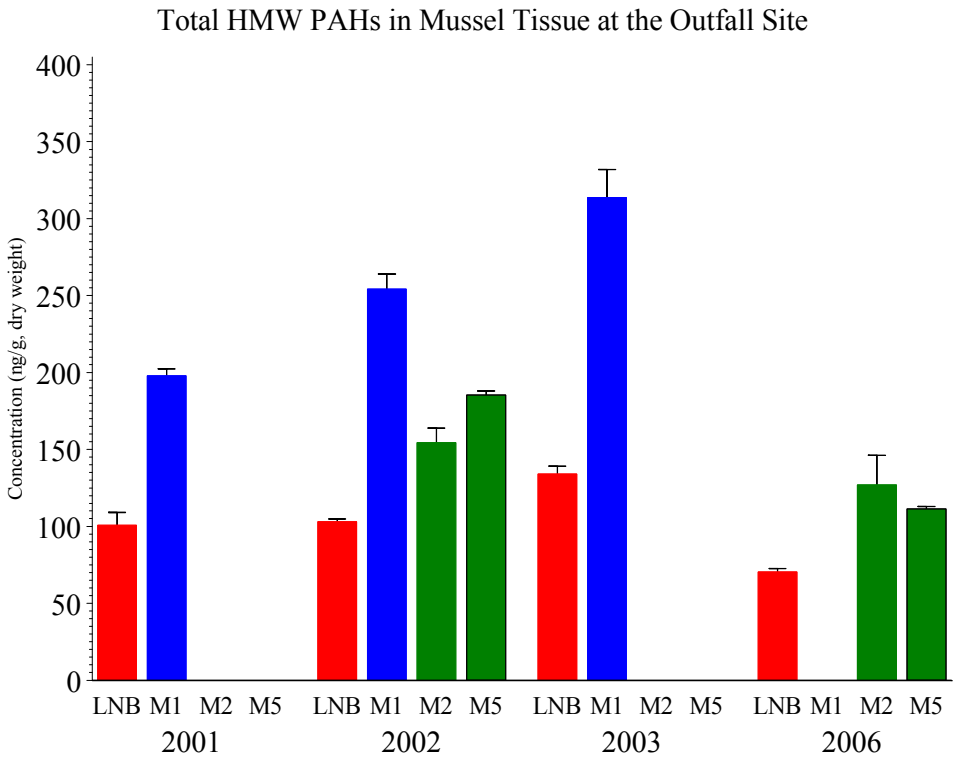


Figure 3-43. Total High Molecular Weight PAHs (Using the "Historical NOAA List") at Outfall Site Stations for Each Year in the Post-Discharge Period.

Table 3-1. Summary of Physical Characteristics of Winter Flounder Collected in 2006.

Parameter	DIF			ECCB			NB			OS		
	Mean	STDDEV	N	Mean	STDDEV	N	Mean	STDDEV	N	Mean	STDDEV	N
Age (years)	4.7	1.3	50	4.2	1.0	50	4.3	1.1	29	5.3	1.4	50
Standard Length (mm)	305.6	31.8	50	295.0	27.9	49	294.1	27.0	29	315.4	33.5	50
Total Length (mm)	370.9	36.9	50	359.4	33.1	50	357.7	33.1	29	384.3	39.1	50
Weight (g)	605.6	194.0	50	547.2	151.2	50	576.6	163.6	29	681.4	215.7	50

Table 3-2. Prevalence (%) of External Conditions Assessed for Winter Flounder Collected in 2006.

	Station (sample size)			
External Conditions	**DIF (50)**	**ECCB (50)**	**NB (29)**	**OS (50)**
Bent Fin Ray	36	12	3	10
Blind Side Ulcers	10	0	3	2
Fin Erosion	56	28	24	28
Lymphocystis	30	6	7	48

Table 3-3. Prevalence (%) of Liver Lesions in Winter Flounder Collected in 2006.

	Station (sample size)			
Lesion Type	**DIF (50)**	**ECCB (50)**	**NB (29)**	**OS (50)**
Neoplasm	0	0	0	0
Focal Hydropic Vacuolation	2	0	0	0
Tubular Hydropic Vacuolation	12	0	0	6
Centrotubular Hydropic Vacuolation	32	2	7	10
Biliary Proliferation	20	2	7	28
Macrophage Aggregation	68	54	45	80

Table 3-4. Results of Statistical Comparisons for Contaminant Concentrations in Flounder Tissue Samples at the Outfall Site Before (1998 – 2000) and After (2001 – 2003, 2006) Outfall Startup.

Parameter	Fillet		Liver	
	Probability*	Test	Probability*	Test
Cadmium	NA	NA	0.5273	t-test, transformed
Copper	NA	NA	0.1008	t-test, transformed
Lead	NA	NA	0.7419	t-test
Mercury	0.3341	t-test	NA	NA
Nickel	NA	NA	0.0815	Wilcoxon rank-sum
Silver	NA	NA	0.7041	t-test
Zinc	NA	NA	0.853	t-test
Dieldrin	0.0815	Wilcoxon rank-sum	NA	NA
4,4'-DDE	0.4257	t-test	NA	NA
alpha-Chlordane + trans-Nonachlor	**0.0329 (-)**	t-test, transformed	NA	NA
PCB congeners 138 +153	0.3166	t-test	**0.0027 (+)**	t-test

NA = Not Analyzed
*A probability value of <0.05 indicates statistical significance
(+) indicates a statistically significant **increase** from pre-discharge to post-discharge
(-) indicates a statistically significant **decrease** from pre-discharge to post-discharge

Table 3-5. Mean Length, Weight, and Sex Ratio of Lobsters Collected in 2006.

Parameter	DIF			ECCB			OS		
	Mean	STDDEV	N	Mean	STDDEV	N	Mean	STDDEV	N
Carapace Length (mm)	90.5	4.3	15	89.4	3.7	21	87.5	3.1	21
Weight (g)	493.5	118.6	15	506.6	73.8	21	459.5	70.4	20
Ratio Male/Female	11/4	NA	15	21/0	NA	21	3/18	NA	21

Table 3-6. Mean Score – 2006 Lobster External Condition.

Parameter	DIF			ECCB			OS		
	Mean	STDDEV	N	Mean	STDDEV	N	Mean	STDDEV	N
Black Gill	0	0	15	0	0	21	0	0	21
External Tumors	0	0	15	0	0	21	0	0	21
Parasites	0	0	15	0	0	21	0	0	21
Shell Erosion	0	0	15	0	0	21	0	0	21

Table 3-7. Results of Statistical Comparisons for Contaminant Concentrations in Lobster Tissue Samples at the Outfall Site Before (1998 – 2000) and After (2001 – 2003, 2006) Outfall Startup.

Parameter	Meat		Hepatopancreas	
	Probability*	Test	Probability*	Test
Cadmium	NA	NA	0.9363	t-test
Copper	NA	NA	0.337	t-test
Lead	NA	NA	0.3026	t-test
Nickel	NA	NA	0.76	t-test
Zinc	NA	NA	0.0505	t-test, transformed
4,4'-DDE	0.8231	t-test	0.0955	Wilcoxon rank-sum
alpha-Chlordane + trans-Nonachlor	NA	NA	0.0619	t-test
PCB congeners 138 +153	0.9408	Wilcoxon rank-sum	0.0693	Wilcoxon rank-sum
Sum of Selected PAHs**	NA	NA	0.1694	Wilcoxon rank-sum

NA = Not Analyzed
*A probability value of <0.05 indicates statistical significance
**Benzo(b)fluoranthene, Benzo(e)pyrene, Fluoranthene, Fluorene, Phenanthrene, Pyrene

Table 3-8. 2006 Caged Mussels Survival Data.

Collection	Station ID	Fouling (%) on Cages	Survival (%) in Cages
40-day retrieval	CCB	1 to 10	>75
	DIL	11 to 25	90
	IH	51 to 75	>95
	OS-M3	1 to 10	95
60-day retrieval	CCB	1 to 10	90
	DIL	51 to 75	86
	IH	76 to 100	83
	LNB	1 to 10	91
	OS-M1*	n/a	n/a
	OS-M2	1 to 10	89
	OS-M5	1 to 10	97

*both arrays at station missing

Table 3-9. Comparison of MWRA Caution and Warning Levels to 2006 Values for Liver Disease Incidence and Mean Flounder Fillet Contaminant Concentrations for Selected Parameters.

Parameter	FDA Limit	Caution Level	Warning Level	2006 Values	Exceedance
Liver Disease Incidence (%)	NA	44.94	NA	10	None
Dieldrin (ng/g lipid)	300	127	NA	32	None
Total Chlordane (ng/g lipid)	300	484	NA	102	None
Total DDT (ng/g lipid)	5000	1552	NA	816	None
Total PCB (ng/g wet)	2000	1000	1600	30	None
Mercury (µg/g wet)	1.00	0.50	0.80	0.08	None

Table 3-10. Comparison of MWRA Caution and Warning Levels to Mean 2006 Lobster Meat Concentrations for Selected Parameters.

Parameter	FDA Limit	Caution Level	Warning Level	Mean 2006 Concentrations	Exceedance
Dieldrin (ng/g lipid)	300	322	NA	71	None
Total Chlordane (ng/g lipid)	300	150	NA	3	None
Total DDT (ng/g lipid)	5000	683	NA	225	None
Total PCB (ng/g wet)	2000	1000	1600	15	None
Mercury (µg/g wet)	1.00	0.50	0.80	0.07	None

Table 3-11. Comparison of MWRA Caution and Warning Levels to Mean 2006 Mussel Concentrations for Selected Parameters.

Parameter	FDA Limit	Caution Level	Warning Level	Mean 2006 Concentrations	Exceedance
Dieldrin (ng/g lipid)	300	50	NA	11	None
Total Chlordane (ng/g lipid)	300	205	NA	76	None
Total DDT (ng/g lipid)	5000	483	NA	125	None
Total PAH (ng/g lipid)	NA	2160	NA	2010	None
Total PCB (ng/g wet)	2000	1000	1600	5	None
Lead (µg/g wet)	3.75	2.00	3.00	0.27	None
Mercury (µg/g wet)	1.00	0.50	0.80	0.01	None

4.0 CONCLUSIONS

4.1 WINTER FLOUNDER

The 2006 Flounder Survey provided samples from four locations (DIF, NB, OS, and ECCB) and was conducted in a manner consistent with previous surveys. Catch per unit effort at OS was consistent with typical predischarge levels, following higher catch rates reported between 2000 and 2004. The age corrected hydropic vacuolation prevalence suggested that there has been a steady system-wide reduction in the contaminant-associated pathology in winter flounder in the past decade. There was none of the high neoplasm prevalence characteristic of fish from Deer Island Flats in the mid- to late-1980s. Following increased ulcer prevalence beginning in 2003, extensive pathology and microbiology studies were unable to determine a cause of the ulcers (Moore et al. 2004). Results of the 2006 survey suggest a continuing decrease in ulcer prevalence over recent years from 36% in 2004 to 2% in 2006.

The highest concentrations of organic contaminants continue to be found in samples from DIF and the lowest in those from ECCB. In contrast, metal concentrations over time have been much more variable. Overall, the levels of most tissue contaminant concentrations were similar to or lower than those measured in previous years, and the decreases in many contaminant levels appeared to occur area-wide. In addition, post-discharge concentrations were generally not significantly different than pre-discharge concentrations with the exception of total PCBs in livers. All fillet chemical concentrations were below both FDA and MWRA Caution and Warning Threshold Levels.

4.2 LOBSTER

Condition parameters continued to be good in lobster collected from all three stations in 2006. No black gill disease was found, and no deleterious external conditions were noted in any specimens. Most lobster tissue contaminant concentrations in 2006 were within the range of historical variation for the program. The highest concentrations of organic contaminants continue to be found in lobsters collected at DIF and the lowest concentrations were still typically found at ECCB. In lobster hepatopancreas, several organic compounds (e.g., 4,4'DDE, alpha-Chlordane + trans-Nonachlor) were found in higher concentrations during the current survey than in the previous one. These increases were seen at all three stations but were least apparent at OS. At DIF, total selected PAH's approached historical highs, while values remained consistently lower at OS and ECCB. Nickel concentrations in lobster hepatopancreas exceeded historical highs at ECCB in 2006. The highest concentrations of several metals (e.g., cadmium, copper, lead, zinc) in 2006 were from lobsters collected near the Outfall Site. However, these values were generally within the range of variability reported at OS during pre-discharge years. No contaminants in either lobster meat or hepatopancreas were found to be significantly different in the post discharge period (2001 – 2003, 2006) compared to the pre-discharge period (1998 – 2000). Lobster edible tissue contaminant concentrations at the outfall were below the FDA Action Limits and the Caution and Warning Threshold Levels set by MWRA.

4.3 BLUE MUSSEL

The 2006 Mussel Bioaccumulation study involved deployment of caged mussels at three offshore locations in Massachusetts Bay and Cape Cod Bay (OSM, LNB, and CCB) and two near-shore locations in Boston Harbor (IH and DIL). Contaminants levels in 2006 were consistently highest in mussels deployed at IH. Mercury and lead concentrations in mussels deployed near the outfall were comparable to levels found in pre-deployment mussels. Mussels deployed at DIL (in Boston Harbor) have typically had higher organic contaminant loads than those deployed within the bays. Following outfall startup in 2000, the pattern shifted for several organic compounds. Concentrations of alpha-Chlordane and HMW-PAHs increased at OSM coincident with outfall startup, while these contaminants continued to trend lower at DIL. Despite a post-discharge increase in alpha-Chlordane at OSM, this compound has been trending downward over recent years; 2006 values were at historical lows for DIL and CCB, and comparable to baseline levels at OSM. Concentrations of HMW-PAHs were also lower at OSM in 2006 than in recent surveys. This may reflect lower concentrations of HMW-PAHs in the wastewater discharge, but may also have been influenced by the loss of mussels deployed at OS-M1. The highest concentrations of HMW-PAHs in 2001-2003 surveys were at OS-M1, apparently reflecting the position of this station in the effluent plume. Therefore, the loss of mussels at OS-M1 may have influenced the overall mean value for HMW-PAHs at OSM in 2006. No FDA Action Limits or MWRA thresholds were exceeded in 2006 for mussel tissue contaminants at OSM.

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APPENDICES

APPENDIX A

Summary of Measurement Program from 1992 to 2006

Appendix Table A-1. Summary of Changes in Fish and Shellfish Monitoring from 1992 to 2006.

Organism	Laboratory		Chemistry Composites per Station	Organisms per Composite
Flounder	**Chemistry**	**Histology/Physiology[a]**		
1992	Battelle	M. Moore	4	1
1993	Battelle	M. Moore	9-10	1
1994	Battelle	M. Moore	3	1
1995	ADL/ENVITEC	M. Moore	3	5
1996	ADL/ENVITEC	M. Moore	3	5
1997	ADL/ENVITEC	M. Moore	3	5
1998	Battelle	M. Moore	3	5
1999	Battelle	M. Moore	3	5
2000	Battelle	M. Moore	3	5
2001	Battelle	R. Hillman/M. Moore	3	5
2002	Battelle	M. Moore	3	5
2003	Battelle	M. Moore	3	5
2006	CAS Kelso	M. Moore	3	5
Lobster	**Chemistry**	**Physiology/Condition**		
1992	Battelle	Battelle	3	1
1993	Battelle	Battelle	2–10	1
1994	Battelle	Battelle	2–3	5
1995	ADL/ENVITEC	ENSR	3	5
1996	ADL/ENVITEC	ENSR	3	5
1997	ADL/ENVITEC	ENSR	3	5
1998	Battelle	Battelle	3	5
1999	Battelle	Battelle	3	5
2000	Battelle	Battelle	3	5
2001	Battelle	Battelle	3	5
2002	Battelle	Battelle	3	5
2003	Battelle	Battelle	3	5
2006	CAS Kelso	Normandeau	3	5-7
Mussel	**Chemistry**	**Biological Condition**		
1992	Aquatec	Aquatec	5-8	10
1993	Aquatec	Aquatec	3-8	10
1994	Aquatec	Aquatec	3-8	10
1995	ADL/ENVITEC	Aquatec	5	At least 200 g
1996	ADL/ENVITEC	Aquatec	5	At least 200 g
1997	ADL/ENVITEC	Aquatec	5	At least 200 g
1998	Battelle	Battelle	5-8	5
1999	Battelle	Battelle	5-8	5
2000	Battelle	Battelle	5-8	5-10
2001	Battelle	Battelle	5-8	5-10
2002	Battelle	Battelle	5-8	5-10
2003	Battelle	Battelle	5-8	5-10
2006	CAS Kelso	NA	4-8	9-14 (at least 120 g)
[a]Individual livers/fish				

APPENDIX B

Summary Tables of Chemistry Results for Individual Composites of Flounder Tissues

Appendix Table B-1. 2006 Locations and Dates

Stat Id	Location	Date
DIF	DEER ISLAND FLATS	25-Apr-2006
ECCB	EASTERN CAPE COD BAY	27-Apr-2006
NB	OFF NANTASKET BEACH	25-Apr-2006
OS	OUTFALL SITE	25-Apr-2006

Appendix Table B-2. 2006 Value Qualifiers Used

Lab Id	Val Qual	Description
BOS	G	Co-eluting compound interferes with peak of interest
	a	Usable non-detect result; not detected at or above the minimum detection limit (MDL). Database value input as null or negative. DETECT_LIMIT is the MDL.
	f	Value reported is below method detection limit
	fG	Reported value below mdl and co-eluting compound interferes with peak of interest
	x	Matrix interference
CAS	+J	Usable detected result with a potential high bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit. See explanatory comment.
	+Js	Suspect/invalid detected result with a potential high bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit.
	-J	Usable detected result with a potential low bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit. See explanatory comment.
	-Js	Suspect/invalid detected result with a potential low bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit.
	-JsU	Suspect/invalid non-detect at sample-specific quantitation limit. Value is null. DETECT_LIMIT is QL. Potential low bias in the level of the QL due to QC exceedance(s).
	J	Usable detected result with potential indeterminate bias to to QC exceedance(s). DETECT_LIMIT is the quantitation limit. See comments.
	JUw	Use with caution - see comment. Not detected at or above sample-specific quantitation limit (QL). Value entered as null. Potential indeterm. bias due to QC exceedance(s). DETECT_LIMIT is QL
	Js	Suspect/invalid detected result with a potential indeterminate bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit.
	JsU	Suspect/invalid non-detect at sample-specific quantitation limit. Value is null. DETECT_LIMIT is QL. Potential indeterm. bias in the level of the QL due to QC exceedance(s).
	Jw	Use with caution - see comment. Detected result with potential indeterminate bias to to QC exceedance(s). DETECT_LIMIT is the quantitation limit.
	U	Usable non-detected result; not detected at or above the sample-specific quantiation limit (QL). DETECT_LIMIT is the QL.
	Uw	Use with caution - see comments. Non-detected result; not detected at or above the sample-specific quantiation limit (QL). DETECT_LIMIT is the QL.
	s	Suspect/invalid. Not fit for use. See comment.
	sU	Suspect value - see comment. Non-detected result; not detected at or above the sample-specific quantiation limit (QL). DETECT_LIMIT is the QL.
	w	This datum should be used with caution, see comment field

Appendix Table B-3. 2006 Lipids and % Dry Weight

				Param Code		LIPID			PCTDRYWT		
						Value	Q	MDL	Value	Q	MDL
Stat Id	Sample Id	Lab ID	Bottle Id	Fraction Code							
DIF	FF06110C1	BOS	10C1BOS_FIL	FILLET		2.44			16.70		
		CAS	10C1_FIL	FILLET		3.20		0.03	17.20		
			10C1_LIV	LIVER		21.40		0.12	24.10		
	FF06110C2	BOS	10C2BOS_FIL	FILLET		1.96			16.51		
		CAS	10C2_FIL	FILLET		2.70		0.03	16.70		
			10C2_LIV	LIVER		21.10		0.12	25.50		
	FF06110C3	BOS	10C3BOS_FIL	FILLET		2.10			17.74		
		CAS	10C3_FIL	FILLET		2.50		0.03	17.70		
			10C3_LIV	LIVER		24.70		0.17	25.10		
ECCB	FF06150C1	BOS	50C1BOS_FIL	FILLET		2.05			17.09		
		CAS	50C1_FIL	FILLET		3.50		0.03	16.60		
			50C1_LIV	LIVER		17.40		0.13	23.50		
	FF06150C2	BOS	50C2BOS_FIL	FILLET		1.72			18.10		
		CAS	50C2_FIL	FILLET		4.20		0.03	17.10		
			50C2_LIV	LIVER		18.40		0.13	22.70		
	FF06150C3	BOS	50C3BOS_FIL	FILLET		1.99			17.84		
		CAS	50C3_FIL	FILLET		3.70		0.03	17.40		
			50C3_LIV	LIVER		17.50		0.13	23.30		
NB	FF06120C1	CAS	20C1_FIL	FILLET		2.40		0.03	18.00		
			20C1_LIV	LIVER		20.20		0.14	24.80		
	FF06120C2	CAS	20C2_FIL	FILLET		2.20		0.03	19.40		
			20C2_LIV	LIVER		18.50		0.13	23.40		
	FF06120C3	CAS	20C3_FIL	FILLET		2.70		0.03	18.40		
			20C3_LIV	LIVER		18.10		0.13	23.30		
OS	FF06140C1	BOS	40C1BOS_FIL	FILLET		1.94			17.50		
		CAS	40C1_FIL	FILLET		3.70		0.03	16.40		
			40C1_LIV	LIVER		20.10		0.13	23.40		
	FF06140C2	BOS	40C2BOS_FIL	FILLET		1.83			18.03		
		CAS	40C2_FIL	FILLET		3.70		0.03	17.60		
			40C2_LIV	LIVER		24.90		0.13	24.60		
	FF06140C3	BOS	40C3BOS_FIL	FILLET		1.53			17.84		
		CAS	40C3_FIL	FILLET		2.80		0.03	17.00		
			40C3_LIV	LIVER		17.80		0.13	23.00		

Appendix Table B-4. 2006 Metals in Liver

		Descr		Cadmium			Chromium			Copper			Lead		
		Abbrev		Cd			Cr			Cu			Pb		
		Param Code		7440-43-9			7440-47-3			7440-50-8			7439-92-1		
		Unit Code		ug/g			ug/g			ug/g			ug/g		
		Lab ID		CAS			CAS			CAS			CAS		
		Meth Code		EPA6020			EPA6010B			EPA6020			EPA6020		
		Fraction Code		LIVER			LIVER			LIVER			LIVER		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Stat Id	Sample Id	Bottle Id													
DIF	FF06110C1	10C1_LIV		1.26		0.02		U	0.50	49.40		0.10	1.49		0.02
	FF06110C2	10C2_LIV		2.24		0.02		U	0.50	75.40		0.10	1.51		0.02
	FF06110C3	10C3_LIV		0.48		0.02		U	0.50	52.20		0.10	1.36		0.02
ECCB	FF06150C1	50C1_LIV		2.16		0.02		U	0.50	39.90		0.10	1.96		0.02
	FF06150C2	50C2_LIV		1.51		0.02		U	0.50	37.50		0.10	2.43		0.02
	FF06150C3	50C3_LIV		1.35		0.02		U	0.50	26.50		0.10	1.07		0.02
NB	FF06120C1	20C1_LIV		1.73		0.02		U	0.50	52.90		0.10	1.62		0.02
	FF06120C2	20C2_LIV		0.45		0.02	0.40	J	0.50	42.90		0.10	1.43		0.02
	FF06120C3	20C3_LIV		2.07		0.02		U	0.50	45.60		0.10	1.31		0.02
OS	FF06140C1	40C1_LIV		2.67		0.02		U	0.50	107.00		0.10	4.85		0.02
	FF06140C2	40C2_LIV		0.97		0.02		U	0.50	41.80		0.10	3.46		0.02
	FF06140C3	40C3_LIV		2.70		0.02		U	0.50	69.40		0.10	9.49		0.02

Appendix Table B-4. 2006 Metals in Liver

		Descr		Mercury			Nickel			Silver			Zinc		
		Abbrev		Hg			Ni			Ag			Zn		
		Param Code		7439-97-6			7440-02-0			7440-22-4			7440-66-6		
		Unit Code		ug/g			ug/g			ug/g			ug/g		
		Lab ID		CAS			CAS			CAS			CAS		
		Meth Code		EPA7471A			EPA6020			EPA6020			EPA6010B		
		Fraction Code		LIVER			LIVER			LIVER			LIVER		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Stat Id	Sample Id	Bottle Id													
DIF	FF06110C1	10C1_LIV		0.22	w	0.02	0.79		0.20	1.51		0.02	109.00		1.00
	FF06110C2	10C2_LIV		0.17	w	0.02	1.26		0.20	3.44		0.02	115.00		1.00
	FF06110C3	10C3_LIV		0.07	w	0.02	0.44		0.20	4.84		0.02	109.00		1.00
ECCB	FF06150C1	50C1_LIV		0.12	w	0.04	0.92		0.20	3.69		0.02	119.00		1.00
	FF06150C2	50C2_LIV		0.18	w	0.03	0.76		0.20	4.35		0.02	118.00		1.00
	FF06150C3	50C3_LIV		0.15	w	0.02	0.91		0.20	1.10		0.02	121.00		1.00
NB	FF06120C1	20C1_LIV		0.21	w	0.02	0.58		0.20	5.63		0.02	115.00		1.00
	FF06120C2	20C2_LIV		0.16	w	0.03	0.41		0.20	2.36		0.02	122.00		1.00
	FF06120C3	20C3_LIV		0.29	w	0.03	0.58		0.20	3.26		0.02	140.00		1.00
OS	FF06140C1	40C1_LIV		0.32	w	0.03	0.73		0.20	11.80		0.02	139.00		1.00
	FF06140C2	40C2_LIV		0.25	w	0.02	0.43		0.20	2.01		0.02	125.00		1.00
	FF06140C3	40C3_LIV		0.40	w	0.03	0.93		0.20	10.10		0.02	127.00		1.00

Appendix Table B-5. 2006 Metals in Fillet

				Descr		Mercury		
				Abbrev		Hg		
				Param Code		7439-97-6		
				Unit Code		ug/g		
				Fraction Code		FILLET		
						Value	Q	RL
Stat Id	Sample Id	Bottle Id	Lab ID	Meth Code				
DIF	FF06110C1	10C1BOS_FIL	BSQM	MSL-I-016		0.38		0.00
	FF06110C2	10C2BOS_FIL	BSQM	MSL-I-016		0.33		0.00
	FF06110C3	10C3BOS_FIL	BSQM	MSL-I-016		0.26		0.00
ECCB	FF06150C1	50C1BOS_FIL	BSQM	MSL-I-016		0.24		0.00
	FF06150C2	50C2BOS_FIL	BSQM	MSL-I-016		0.21		0.00
	FF06150C3	50C3BOS_FIL	BSQM	MSL-I-016		0.22		0.00
NB	FF06120C1	20C1_FIL	CAS	EPA7471A		0.23	w	0.02
	FF06120C2	20C2_FIL	CAS	EPA7471A		0.14	w	0.02
	FF06120C3	20C3_FIL	CAS	EPA7471A		0.21	w	0.02
OS	FF06140C1	40C1BOS_FIL	BSQM	MSL-I-016		0.49		0.00
	FF06140C2	40C2BOS_FIL	BSQM	MSL-I-016		0.37		0.00
	FF06140C3	40C3BOS_FIL	BSQM	MSL-I-016		0.49		0.00

Appendix Table B-6. 2006 PCBs

				Stat Id	DIF														
				Sample Id	FF06110C1						FF06110C2						FF06110C3		
				Bottle Id	10C1_FIL			10C1_LIV			10C2_FIL			10C2_LIV			10C3_FIL		
				Fraction Code	FILLET			LIVER			FILLET			LIVER			FILLET		
				Lab Id	CAS			CAS			CAS			CAS			CAS		
				Meth Code	EPA8082			EPA8082			EPA8082			EPA8082			EPA8082		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Abbrev	Descr	Param Code	Unit Code															
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g		U	5.00		U	12.94		U	4.84	16.47	-J	11.53		U	4.33
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g		U	5.36		U	20.27		U	5.36		U	23.94		U	4.92
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g		U	5.36		U	14.87		U	5.36		U	13.80		U	4.75
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g	3.75	J	5.36	36.49		14.87	3.39	J	5.36	42.25		13.80	2.79	J	4.75
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g		U	5.36	6.49	J	14.87		U	5.36	7.47	J	13.80		U	4.75
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g	5.54		5.36	56.76	-J	14.87	5.36		5.36	56.34		13.80	3.28	J	4.75
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g	14.64	+J	5.36	135.14	+J	14.87	11.61	+J	5.36	132.39	+J	13.80	11.97	+J	4.75
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g		U	5.00		U	51.77		U	4.84		U	34.12		U	4.33
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g	30.36	+J	5.36	256.76	+J	14.87	25.00	+J	5.36	309.86	+J	13.80	22.95	+J	4.75
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g	16.67		5.00	141.18		12.94	12.90		4.84	129.41		11.53	14.93		4.33
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g	55.00		5.00	505.88		12.94	41.94		4.84	447.06		11.53	43.28		4.33
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g		U	5.00		U	12.94		U	4.84		U	11.53		U	7.76
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g	9.50		5.00	54.12		12.94	4.84		4.84	49.41		11.53	9.40		4.33
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g	78.33		5.00	670.59		12.94	59.68		4.84	623.53		11.53	64.18		4.33
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g	83.33		5.00	776.47		12.94	64.52		4.84	717.65		11.53	65.67		4.33
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g	15.83	+J	5.00	117.65		12.94	12.74	J	4.84	102.35		11.53	12.54	+J	4.33
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g	26.67		5.00	282.35		12.94	22.58		4.84	270.59		11.53	22.39		4.33
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g	25.00		5.00	200.00		12.94	20.97		4.84	211.77		11.53	19.40		4.33
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g		U	5.00	16.47		12.94		U	4.84	15.29		11.53		U	4.33
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	ng/g	3.50	J	5.00	27.06		12.94	3.07	J	4.84	29.41		11.53	3.13	J	4.33
Total PCB (ng/g):					**368.12**			**3283.39**			**288.58**			**3161.25**			**295.91**		

Appendix Table B-6. 2006 PCBs

				Stat Id				ECCB											
				Sample Id				FF06150C1						FF06150C2					
				Bottle Id	10C3_LIV			50C1_FIL			50C1_LIV			50C2_FIL			50C2_LIV		
				Fraction Code	LIVER			FILLET			LIVER			FILLET			LIVER		
				Lab Id	CAS			CAS			CAS			CAS			CAS		
				Meth Code	EPA8082			EPA8082			EPA8082			EPA8082			EPA8082		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Abbrev	Descr	Param Code	Unit Code															
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g	20.24		16.67		U	4.77		U	16.67		U	4.92		U	16.00
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g		U	20.00		U	5.35		U	17.74		U	5.46		U	22.22
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g		U	32.86		U	5.35		U	29.03		U	5.46		U	16.67
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g	32.86		20.00	2.76	J	5.35		U	17.74		U	5.46		U	16.67
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g	5.71	J	20.00		U	5.35		U	17.74		U	5.46		U	16.67
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g	41.43	-J	20.00		U	5.35		U	17.74		U	5.46		U	16.67
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g	142.86	+J	20.00		U	5.35	11.61	J	17.74		U	5.46	7.78	J	16.67
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g		U	34.52		U	4.77		U	16.67		U	4.92		U	16.00
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g	257.14	+J	20.00	2.76	J	5.35	17.74	+J	17.74	2.00	J	5.46	11.67	J	16.67
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g	166.67		16.67	1.51	J	4.77	10.46	J	16.67	1.43	J	4.92	8.00	J	16.00
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g	511.91		16.67	7.39		4.77	60.61		16.67	7.38		4.92	50.67		16.00
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g		U	16.67		U	4.77		U	16.67		U	4.92		U	16.00
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g	80.95		16.67	1.42	J	4.77	9.85	J	16.67		U	4.92	7.60	J	16.00
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g	714.29		16.67	14.15		4.77	93.94		16.67	14.26		4.92	78.67		16.00
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g	809.52		16.67	16.92		4.77	122.73		16.67	18.03		4.92	105.33		16.00
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g	130.95		16.67		U	4.77	19.70	-J	16.67		U	4.92	20.00		16.00
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g	297.62		16.67		U	4.77	24.24		16.67		U	4.92	26.67		16.00
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g	214.29		16.67	4.46	J	4.77	33.33		16.67	5.41		4.92	32.00		16.00
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g	20.24		16.67		U	4.77		U	16.67		U	4.92		U	16.00
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	ng/g	36.91		16.67		U	4.77	10.46	J	16.67		U	4.92	10.93	J	16.00
Total PCB (ng/g):					**3483.57**			**51.37**			**414.66**			**48.51**			**359.31**		

Appendix Table B-6. 2006 PCBs

				Stat Id						NB									
				Sample Id	FF06150C3						FF06120C1						FF06120C2		
				Bottle Id	50C3_FIL			50C3_LIV			20C1_FIL			20C1_LIV			20C2_FIL		
				Fraction Code	FILLET			LIVER			FILLET			LIVER			FILLET		
				Lab Id	CAS			CAS			CAS			CAS			CAS		
				Meth Code	EPA8082			EPA8082			EPA8082			EPA8082			EPA8082		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Abbrev	Descr	Param Code	Unit Code															
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g		U	4.92		U	14.47		U	4.31		U	13.42		U	3.88
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g		U	5.37		U	15.07		U	5.59		U	23.61		U	4.19
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g		U	5.37		U	15.07		U	4.75		U	15.28		U	4.19
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g	3.33	J	5.37		U	15.07		U	4.75	12.22	J	15.28		U	4.19
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g		U	5.37		U	15.07		U	4.75		U	15.28		U	4.19
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g		U	5.37		U	15.07		U	4.75	4.44	J	15.28		U	4.19
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g	1.24	J	5.37	5.62	J	15.07	2.37	J	4.75	38.89	+J	15.28	3.07	J	4.19
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g		U	4.92		U	14.47		U	4.31		U	13.42		U	3.88
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g	2.41	J	5.37	16.44	+J	15.07	4.24	J	4.75	55.56	+J	15.28	3.23	J	4.19
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g	1.25	J	4.92	7.90	J	14.47	3.69	J	4.31	46.34		13.42	4.63		3.88
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g	6.10	+J	4.92	38.16		14.47	11.69		4.31	146.34		13.42	16.42		3.88
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g		U	4.92		U	14.47		U	4.31		U	13.42		U	3.88
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g	1.86	J	4.92	8.82	J	14.47	2.77	J	4.31	28.05		13.42	2.69	J	3.88
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g	12.54	+J	4.92	69.74		14.47	21.54		4.31	243.90		13.42	26.87		3.88
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g	14.75	+J	4.92	84.21		14.47	27.69		4.31	304.88		13.42	32.84		3.88
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g		U	4.92	15.79	-J	14.47		U	5.39	47.56		13.42	5.82	J	3.88
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g		U	4.92		U	14.47	8.46		4.31	84.15		13.42	10.15		3.88
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g		U	4.92	27.63		14.47	7.69		4.31	74.39		13.42	8.51		3.88
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g		U	4.92		U	14.47		U	4.31	8.05	J	13.42		U	3.88
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	ng/g		U	4.92	6.18	J	14.47	2.46	J	4.31	18.29		13.42	2.39	J	3.88
Total PCB (ng/g):					**43.49**			**280.48**			**92.61**			**1113.06**			**116.59**		

Appendix Table B-6. 2006 PCBs

				Stat Id											OS					
				Sample Id				FF06120C3							FF06140C1					
				Bottle Id	20C2_LIV			20C3_FIL			20C3_LIV			40C1_FIL			40C1_LIV		
				Fraction Code	LIVER			FILLET			LIVER			FILLET			LIVER		
				Lab Id	CAS			CAS			CAS			CAS			CAS		
				Meth Code	EPA8082			EPA8082			EPA8082			EPA8082			EPA8082		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Abbrev	Descr	Param Code	Unit Code																
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g		U	14.67		U	4.52		U	14.29		U	4.92	19.44	-J	15.28
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g		U	17.65		U	4.83		U	21.13		U	5.44		U	16.18
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g		U	23.53		U	4.83		U	21.13		U	5.44		U	20.59
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g	9.85	J	16.18		U	4.83	6.76	J	15.49	1.61	J	5.44	9.27	J	16.18
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g		U	16.18		U	4.83		U	15.49		U	5.44		U	16.18
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g		U	16.18		U	4.83		U	15.49	2.63	J	5.44		U	16.18
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g	45.59	+J	16.18	4.14	J	4.83	19.72	+J	15.49	8.25	+J	5.44	36.77	+J	16.18
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g		U	14.67		U	4.52		U	14.29		U	4.92		U	15.28
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g	36.77	+J	16.18	8.45	+J	4.83	40.85	+J	15.49	16.49	+J	5.44	83.82	+J	16.18
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g	60.00		14.67	5.48		4.52	24.68		14.29	8.10		4.92	37.50		15.28
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g	200.00		14.67	17.74		4.52	93.51		14.29	28.57		4.92	136.11		15.28
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g		U	14.67		U	4.52		U	14.29		U	4.92		U	15.28
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g	32.00		14.67	3.39	J	4.52	15.58		14.29	5.40		4.92	25.00		15.28
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g	306.67		14.67	30.65		4.52	155.84		14.29	46.03		4.92	208.33		15.28
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g	346.67		14.67	33.87		4.52	181.82		14.29	49.21		4.92	236.11		15.28
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g	54.67		14.67	6.29	J	4.52	35.07		14.29	10.32	J	4.92	48.61	-J	15.28
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g	104.00		14.67	11.94		4.52	66.23		14.29	19.05		4.92	90.28		15.28
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g	86.67		14.67	10.81		4.52	63.64		14.29	19.05		4.92	88.89		15.28
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g		U	14.67	1.44	J	4.52	7.53	J	14.29		U	4.92	10.56	J	15.28
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	ng/g	18.67		14.67		U	4.52	12.99	J	14.29	4.76	J	4.92	26.39		15.28
Total PCB (ng/g):					**1301.54**			**134.18**			**724.21**			**219.46**			**1057.08**		

Appendix Table B-6. 2006 PCBs

				Stat Id													
				Sample Id	FF06140C2						FF06140C3					
				Bottle Id	40C2_FIL			40C2_LIV			40C3_FIL			40C3_LIV		
				Fraction Code	FILLET			LIVER			FILLET			LIVER		
				Lab Id	CAS			CAS			CAS			CAS		
				Meth Code	EPA8082			EPA8082			EPA8082			EPA8082		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Abbrev	Descr	Param Code	Unit Code												
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g		U	4.68	27.94		16.18	5.40		4.76	21.62	-J	14.87
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g		U	5.18		U	22.58		U	5.09		U	17.81
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g		U	5.18		U	17.74		U	5.09		U	39.73
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g	1.71	J	5.18	14.36	J	17.74		U	5.09	8.08	J	15.07
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g		U	5.18		U	17.74		U	5.09		U	15.07
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g		U	5.18	9.36	J	17.74		U	5.09		U	15.07
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g	4.11	J	5.18	61.29	+J	17.74	4.07	J	5.09	27.40	+J	15.07
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g		U	4.68		U	16.18		U	4.76		U	14.87
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g	8.04	+J	5.18	103.23	+J	17.74	8.31	+J	5.09	53.43	+J	15.07
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g	4.68		4.68	66.18		16.18	5.87		4.76	33.78		14.87
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g	17.74		4.68	264.71		16.18	22.22		4.76	148.65		14.87
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g		U	4.68		U	16.18		U	4.76		U	14.87
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g	3.07	J	4.68	33.82		16.18	3.18	J	4.76	17.57		14.87
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g	29.03		4.68	397.06		16.18	38.10		4.76	256.76		14.87
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g	32.26		4.68	485.29		16.18	46.03		4.76	310.81		14.87
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g		U	12.58	95.59		16.18	9.68	J	4.76	62.16		14.87
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g	11.77		4.68	161.77		16.18	17.46		4.76	118.92		14.87
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g	11.45		4.68	176.47		16.18	15.87		4.76	112.16		14.87
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g		U	4.68	17.65		16.18	2.70	J	4.76	13.11	J	14.87
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	ng/g	3.55	J	4.68	47.06		16.18	4.29	J	4.76	29.73		14.87
Total PCB (ng/g):					**127.41**			**1961.76**			**183.17**			**1214.18**		

Appendix Table B-7. 2006 DDTs

			Stat Id	DIF														
			Sample Id	FF06110C1						FF06110C2						FF06110C3		
			Bottle Id	10C1BOS_FIL			10C1_LIV			10C2BOS_FIL			10C2_LIV			10C3BOS_FIL		
			Fraction Code	FILLET			LIVER			FILLET			LIVER			FILLET		
			Lab	BOS			CAS			BOS			CAS			BOS		
			Meth Code	BSOP5-128DUAL			EPA8081A			BSOP5-128DUAL			EPA8081A			BSOP5-128DUAL		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Descr	Param Code	Unit Code															
DDT	o,p'-DDD	53-19-0	ng/g	3.41		0.21		sU	63.16	2.24		0.21		sU	62.32	2.26		0.24
	o,p'-DDE	3424-82-6	ng/g		a	0.54	205.13	s	10.64		a	0.54		sU	105.56		a	0.62
	o,p'-DDT	789-02-6	ng/g	1.50	G	0.25	986.84	+Js	10.92	1.14	G	0.25	971.01	+Js	11.45	1.03	G	0.29
	p,p'-DDD	72-54-8	ng/g	2.97		0.37		sU	39.47	2.19		0.36		sU	17.39	2.20		0.42
	p,p'-DDE	72-55-9	ng/g	33.00		0.23	500.00	s	10.92	21.60		0.23	376.81	s	11.45	21.10		0.26
	p,p'-DDT	50-29-3	ng/g	1.42		0.51	1039.47	s	10.92	0.98		0.51	913.04	s	11.45	0.86		0.58
	Total (ng/g)			**42.30**			**2731.44**			**28.15**			**2260.87**			**27.45**		
DDT - oth	4,4 DDD olefin	1022-22-6	ng/g	0.84	x	0.26		sU	74.36	0.66	x	0.25		sU	91.67		a	0.29

Appendix Table B-7. 2006 DDTs

			Stat Id					ECCB											
			Sample Id					FF06150C1								FF06150C2			
			Bottle Id		10C3_LIV			50C1BOS_FIL			50C1_LIV			50C2BOS_FIL			50C2_LIV		
			Fraction Code		LIVER			FILLET			LIVER			FILLET			LIVER		
			Lab		CAS			BOS			CAS			BOS			CAS		
			Meth Code		EPA8081A			BSOP5-128DUAL			EPA8081A			BSOP5-128DUAL			EPA8081A		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Descr	Param Code	Unit Code																
DDT	o,p'-DDD	53-19-0	ng/g			sU	63.38	0.67		0.21		sU	26.32	0.43		0.20		sU	13.49
	o,p'-DDE	3424-82-6	ng/g			sU	104.00		a	0.53		sU	13.87		a	0.50		sU	12.03
	o,p'-DDT	789-02-6	ng/g		1042.25	+Js	15.49	0.32	G	0.25	157.90	+Js	15.09	0.22	fG	0.23	151.52	+Js	13.49
	p,p'-DDD	72-54-8	ng/g			sU	40.85	0.29	f	0.36		sU	22.81	0.22	f	0.34		sU	46.97
	p,p'-DDE	72-55-9	ng/g		323.94	s	15.49	6.99		0.22		sU	63.16	5.60		0.21	78.79	-Js	13.49
	p,p'-DDT	50-29-3	ng/g		1000.00	s	15.49	0.21	f	0.50	138.60	s	15.09	0.23	f	0.47	122.73	s	13.49
	Total (ng/g)				**2366.19**			**8.48**			**296.49**			**6.70**			**353.03**		
DDT - oth	4,4 DDD olefin	1022-22-6	ng/g			sU	98.67		a	0.25		sU	13.87		a	0.24	10.00	Js	12.03

Appendix Table B-7. 2006 DDTs

			Stat Id									NB							
			Sample Id	FF06150C3								FF06120C1						FF06120C2	
			Bottle Id	50C3BOS_FIL			50C3_LIV					20C1_FIL			20C1_LIV			20C2_FIL	
			Fraction Code	FILLET			LIVER					FILLET			LIVER			FILLET	
			Lab	BOS			CAS					CAS			CAS			CAS	
			Meth Code	BSOP5-128DUAL			EPA8081A					EPA8081A			EPA8081A			EPA8081A	
				Value	Q	RL	Value	Q	RL			Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Descr	Param Code	Unit Code																
DDT	o,p'-DDD	53-19-0	ng/g	0.51		0.20		sU	12.99				sU	3.24		sU	17.14		sU	2.92
	o,p'-DDE	3424-82-6	ng/g		a	0.51		sU	11.45				-JsU	3.33		sU	34.72		-JsU	2.96
	o,p'-DDT	789-02-6	ng/g	0.21	fG	0.24		sU	68.66			33.80	+Js	3.24	371.43	+Js	12.57	41.67	+Js	2.92
	p,p'-DDD	72-54-8	ng/g	0.19	f	0.34		sU	43.28				sU	3.24		sU	48.57		sU	2.92
	p,p'-DDE	72-55-9	ng/g	5.99		0.22	71.64	s	12.99			8.17	s	3.24	94.29	s	12.57	9.17	s	2.92
	p,p'-DDT	50-29-3	ng/g	0.21	f	0.48	97.02	+Js	12.99			30.99	s	3.24	357.14	s	12.57	43.06	s	2.92
	Total (ng/g)			**7.11**			**168.66**					**72.96**			**822.86**			**93.89**		
DDT - oth	4,4 DDD olefin	1022-22-6	ng/g		a	0.24		sU	11.45			3.48	-Js	3.33	88.89	+Js	12.22	3.24	-Js	2.96

Appendix Table B-7. 2006 DDTs

				Stat Id															
				Sample Id				FF06120C3						FF06140C1					
				Bottle Id	20C2_LIV			20C3_FIL			20C3_LIV			40C1BOS_FIL			40C1_LIV		
				Fraction Code	LIVER			FILLET			LIVER			FILLET			LIVER		
				Lab	CAS			CAS			CAS			BOS			CAS		
				Meth Code	EPA8081A			EPA8081A			EPA8081A			BSOP5-128DUAL			EPA8081A		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Descr	Param Code	Unit Code																
DDT	o,p'-DDD	53-19-0	ng/g			sU	21.74		sU	3.24		sU	17.19	1.19		0.20		sU	25.40
	o,p'-DDE	3424-82-6	ng/g		91.89	+Js	11.62		-JsU	3.24	26.39	-Js	12.22		a	0.52	51.25	-Js	10.88
	o,p'-DDT	789-02-6	ng/g		449.28	+Js	12.46	42.65	+Js	3.24	234.38	+Js	13.75	0.58	G	0.24	301.59	+Js	13.81
	p,p'-DDD	72-54-8	ng/g			sU	53.62		sU	3.24		sU	34.38	0.88		0.35		sU	13.81
	p,p'-DDE	72-55-9	ng/g		173.91	s	12.46	13.38	s	3.24	76.56	s	13.75	9.04		0.22	158.73	s	13.81
	p,p'-DDT	50-29-3	ng/g		434.78	s	12.46	47.06	s	3.24	218.75	s	13.75	0.46	f	0.49	317.46	s	13.81
	Total (ng/g)				**1149.86**			**103.09**			**556.08**			**12.15**			**829.03**		
DDT - oth	4,4 DDD olefin	1022-22-6	ng/g		48.65	s	11.62		sU	3.24		sU	13.75	0.46	x	0.24		sU	16.25

Appendix Table B-7. 2006 DDTs

			Stat Id													
			Sample Id	FF06140C2						FF06140C3						
			Bottle Id	40C2BOS_FIL			40C2_LIV			40C3BOS_FIL			40C3_LIV			
			Fraction Code	FILLET			LIVER			FILLET			LIVER			
			Lab	BOS			CAS			BOS			CAS			
			Meth Code	BSOP5-128DUAL			EPA8081A			BSOP5-128DUAL			EPA8081A			
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte group	Descr	Param Code	Unit Code													
DDT	o,p'-DDD	53-19-0	ng/g	1.34		0.19		sU	35.71	1.65		0.20		sU	20.31	
	o,p'-DDE	3424-82-6	ng/g		a	0.50	83.05	s	13.90		a	0.51	32.39	s	12.39	
	o,p'-DDT	789-02-6	ng/g	0.68	G	0.23	625.00	+Js	14.64	0.63	G	0.24	390.63	+Js	13.75	
	p,p'-DDD	72-54-8	ng/g	1.06		0.34		sU	14.64	0.81		0.34		sU	40.63	
	p,p'-DDE	72-55-9	ng/g	11.90		0.21	250.00	s	14.64	11.30		0.22	139.06	s	13.75	
	p,p'-DDT	50-29-3	ng/g	0.49		0.47	607.14	s	14.64	0.55		0.48	375.00	s	13.75	
	Total (ng/g)			**15.47**			**1565.19**			**14.93**			**937.08**			
DDT - oth	4,4 DDD olefin	1022-22-6	ng/g	0.41	x	0.24		sU	35.59	0.38	x	0.24		sU	13.52	

Appendix Table B-8. 2006 Pesticides

			Stat Id		DIF													
			Sample Id		FF06110C1						FF06110C2						FF06110C3	
			Bottle Id		10C1BOS_FIL			10C1_LIV			10C2BOS_FIL			10C2_LIV			10C3BOS_FI	
			Fraction Code		FILLET			LIVER			FILLET			LIVER			FILLET	
			Lab		BOS			CAS			BOS			CAS			BOS	
			Meth Code		BSOP5-128DUAL			EPA8081A			BSOP5-128DUAL			EPA8081A			BSOP5-128D	
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	
Analyte group	Descr	Param Code	Unit Code															
PEST	Aldrin	309-00-2	ng/g			a	0.13		sU	10.64		a	0.13		sU	23.61		
	Dieldrin	60-57-1	ng/g		1.05	x	0.18		sU	15.79	0.93	x	0.18		sU	11.45	1.11	
	Endrin	72-20-8	ng/g			a	0.11		sU	19.74		a	0.11		sU	11.88		
	Hexachlorob	118-74-1	ng/g		0.54		0.12		sU	20.51	0.52		0.12		sU	18.06	0.49	
	Lindane	58-89-9	ng/g			a	0.09		sU	11.92		a	0.08		sU	10.97		
	Mirex	2385-85-5	ng/g		0.57		0.19		sU	10.92	0.48		0.19	8.12	Js	11.45	0.46	
Total PEST (ng/g):					**2.16**						**1.93**			**8.12**			**2.06**	

Appendix Table B-8. 2006 Pesticides

			Stat Id						ECCB								
			Sample Id						FF06150C1						FF06150C2		
			Bottle Id	L		10C3_LIV			50C1BOS_FIL			50C1_LIV			50C2BOS_FIL		
			Fraction Code			LIVER			FILLET			LIVER			FILLET		
			Lab			CAS			BOS			CAS			BOS		
			Method Code	BSOP5-128DUAL		EPA8081A			BSOP5-128DUAL			EPA8081A			BSOP5-128DUAL		
					Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q
Analyte group	Descr	Param Code	Unit Code														
PEST	Aldrin	309-00-2	ng/g		a	0.15		sU	14.67		a	0.13		sU	13.87		a
	Dieldrin	60-57-1	ng/g		x	0.21		sU	15.49	0.97		0.18		sU	15.09	0.67	
	Endrin	72-20-8	ng/g		a	0.13		sU	15.49		a	0.11		sU	15.09		a
	Hexachlorob	118-74-1	ng/g			0.14		sU	14.67	0.47		0.12	70.97	+Js	13.87	0.37	
	Lindane	58-89-9	ng/g		a	0.10		sU	17.33		a	0.08		sU	13.87		a
	Mirex	2385-85-5	ng/g			0.22		sU	15.49		a	0.18		sU	15.09		a
Total PEST (ng/g):										**1.43**			**70.97**			**1.04**	

Appendix Table B-8. 2006 Pesticides

			Stat Id											
			Sample Id					FF06150C3						
			Bottle Id		50C2_LIV			50C3BOS_FIL			50C3_LIV			
			Fraction Code		LIVER			FILLET			LIVER			
			Lab		CAS			BOS			CAS			
			Meth Code		EPA8081A			BSOP5-128DUAL			EPA8081A			
					RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Descr	Param Code	Unit Code											
PEST	Aldrin	309-00-2	ng/g		0.12		sU	12.03		a	0.13		sU	11.45
	Dieldrin	60-57-1	ng/g		0.17		sU	13.49	0.65		0.17		sU	12.99
	Endrin	72-20-8	ng/g		0.10		sU	13.49		a	0.10		sU	56.72
	Hexachlorob	118-74-1	ng/g		0.11		sU	16.22	0.34		0.11		sU	21.05
	Lindane	58-89-9	ng/g		0.08		sU	12.03		a	0.08		sU	11.45
	Mirex	2385-85-5	ng/g		0.17		sU	13.49		a	0.18		sU	12.99
Total PEST (ng/g):									**0.99**					

Appendix Table B-8. 2006 Pesticides

			Stat Id		NB												
			Sample Id		FF06120C1						FF06120C2						
			Bottle Id		20C1_FIL			20C1_LIV			20C2_FIL			20C2_LIV			
			Fraction Code		FILLET			LIVER			FILLET			LIVER			
			Lab		CAS			CAS			CAS			CAS			
			Meth Code		EPA8081A			EPA8081A			EPA8081A			EPA8081A			
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte group	Descr	Param Code	Unit Code														
PEST	Aldrin	309-00-2	ng/g			sU	3.33		sU	12.22		sU	2.96		sU	11.62	
	Dieldrin	60-57-1	ng/g			sU	3.24		sU	12.57		sU	4.58		sU	12.46	
	Endrin	72-20-8	ng/g			sU	3.24		sU	314.29		sU	2.92		sU	12.46	
	Hexachlorob	118-74-1	ng/g			sU	3.33		sU	16.67		sU	2.96	37.84	+Js	11.62	
	Lindane	58-89-9	ng/g			sU	3.33		sU	12.22		sU	2.96		sU	11.62	
	Mirex	2385-85-5	ng/g			sU	3.24		sU	12.57		sU	2.92		sU	12.46	
Total PEST (ng/g):														**37.84**			

Appendix Table B-8. 2006 Pesticides

			Stat Id								OS						
			Sample Id		FF06120C3						FF06140C1						
			Bottle Id		20C3_FIL			20C3_LIV			40C1BOS_FIL			40C1_LIV			
			Fraction Code		FILLET			LIVER			FILLET			LIVER			
			Lab		CAS			CAS			BOS			CAS			
			Meth Code		EPA8081A			EPA8081A			BSOP5-128DUAL			EPA8081A			
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte group	Descr	Param Code	Unit Code														
PEST	Aldrin	309-00-2	ng/g			sU	3.24		sU	12.22		a	0.13		sU	10.88	
	Dieldrin	60-57-1	ng/g			sU	8.09		sU	13.75	0.59	x	0.17		sU	13.81	
	Endrin	72-20-8	ng/g			sU	3.24		sU	13.75		a	0.11		sU	13.81	
	Hexachlorob	118-74-1	ng/g			sU	3.24	8.61	Js	12.22	0.40		0.11		sU	23.75	
	Lindane	58-89-9	ng/g			sU	3.24		sU	13.06		a	0.08		sU	11.13	
	Mirex	2385-85-5	ng/g			sU	3.24		sU	13.75	0.26		0.18		sU	13.81	
Total PEST (ng/g):								**8.61**			**1.26**						

Appendix Table B-8. 2006 Pesticides

			Stat Id													
			Sample Id		FF06140C2						FF06140C3					
			Bottle Id		40C2BOS_FIL			40C2_LIV			40C3BOS_FIL			40C3_LIV		
			Fraction Code		FILLET			LIVER			FILLET			LIVER		
			Lab		BOS			CAS			BOS			CAS		
			Meth Code		BSOP5-128DUAL			EPA8081A			BSOP5-128DUAL			EPA8081A		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Descr	Param Code	Unit Code													
PEST	Aldrin	309-00-2	ng/g			a	0.12		sU	13.90		a	0.13		sU	12.39
	Dieldrin	60-57-1	ng/g		0.67	x	0.17		sU	14.64	0.42	x	0.17		sU	13.75
	Endrin	72-20-8	ng/g			a	0.10		sU	14.64		a	0.10		sU	13.75
	Hexachlorob	118-74-1	ng/g		0.36		0.11		sU	13.90	0.37		0.11		sU	13.24
	Lindane	58-89-9	ng/g			a	0.08		sU	13.90		a	0.08		sU	12.39
	Mirex	2385-85-5	ng/g		0.21		0.17		sU	14.64	0.31		0.18		sU	13.75
Total PEST (ng/g):					**1.24**						**1.10**					

Appendix Table B-9. 2006 Chlordanes

				Stat Id	DIF								
				Sample Id	FF06110C1						FF06110C2		
				Bottle Id	10C1BOS_FIL			10C1_LIV			10C2BOS_FIL		
				Fraction Code	FILLET			LIVER			FILLET		
				Anal Lab Id	BOS			CAS			BOS		
				Meth Code	BSOP5-128DUAL			EPA8081A			BSOP5-128DUAL		
					Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Descr	Param Code	Unit Code										
CHLOR	Heptachlor	76-44-8	ng/g			a	0.16		sU	15.39		a	0.16
	Heptachlorepoxide	1024-57-3	ng/g			a	0.28		JsU	108.97		a	0.28
	cis-Chlordane	5103-71-9	ng/g		2.62		0.15		sU	23.08	1.78		0.15
	trans-Nonachlor	39765-80-5	ng/g		3.38		0.14		sU	30.77	2.48		0.14
CHLOR (ng/g):					**6.00**						**4.26**		

Appendix Table B-9. 2006 Chlordanes

														ECCB		
							FF06110C3						FF06150C1		
				10C2_LIV			10C3BOS_FIL			10C3_LIV			50C1BOS_FIL		
				LIVER			FILLET			LIVER			FILLET		
				CAS			BOS			CAS			BOS		
				EPA8081A			BSOP5-128DUAL			EPA8081A			BSOP5-128DUAL		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Descr	Param Code	Unit Code												
CHLOR	Heptachlor	76-44-8	ng/g		sU	10.97		a	0.18	12.40	Js	14.67		a	0.16
	Heptachlorepoxide	1024-57-3	ng/g		JsU	84.72		a	0.32	122.67	-Js	14.67		a	0.28
	cis-Chlordane	5103-71-9	ng/g		sU	26.39	2.38		0.17		sU	30.67	0.42		0.15
	trans-Nonachlor	39765-80-5	ng/g		sU	38.89	3.54		0.16		sU	41.33	0.72		0.14
CHLOR (ng/g):							**5.92**			**135.07**			**1.14**		

Appendix Table B-9. 2006 Chlordanes

							FF06150C2						FF06150C3		
				50C1_LIV			50C2BOS_FIL			50C2_LIV			50C3BOS_FIL		
				LIVER			FILLET			LIVER			FILLET		
				CAS			BOS			CAS			BOS		
				EPA8081A			BSOP5-128DUAL			EPA8081A			BSOP5-128DUAL		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Descr	Param Code	Unit Code												
CHLOR	Heptachlor	76-44-8	ng/g		sU	13.87		a	0.15		sU	12.03		a	0.15
	Heptachlorepoxide	1024-57-3	ng/g		-JsU	13.87		a	0.26		-JsU	12.03		a	0.26
	cis-Chlordane	5103-71-9	ng/g		sU	13.87	0.30		0.14		sU	12.03	0.50		0.14
	trans-Nonachlor	39765-80-5	ng/g		sU	13.87	0.54		0.13		sU	12.03	1.19		0.14
CHLOR (ng/g):							**0.84**						**1.69**		

Appendix Table B-9. 2006 Chlordanes

							NB									
							FF06120C1						FF06120C2			
				50C3_LIV			20C1_FIL			20C1_LIV			20C2_FIL			
				LIVER			FILLET			LIVER			FILLET			
				CAS			CAS			CAS			CAS			
				EPA8081A			EPA8081A			EPA8081A			EPA8081A			
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte group	Descr	Param Code	Unit Code													
CHLOR	Heptachlor	76-44-8	ng/g		sU	11.45		sU	3.33		sU	12.22		sU	2.96	
	Heptachlorepoxide	1024-57-3	ng/g		-JsU	11.45		sU	3.33	38.89	Js	12.22		sU	2.96	
	cis-Chlordane	5103-71-9	ng/g		sU	11.45		sU	3.33		sU	12.22		sU	2.96	
	trans-Nonachlor	39765-80-5	ng/g		sU	11.45		-JsU	3.33		sU	20.83		-JsU	2.96	
CHLOR (ng/g):										**38.89**						

Appendix Table B-9. 2006 Chlordanes

														OS		
							FF06120C3						FF06140C1		
				20C2_LIV			20C3_FIL			20C3_LIV			40C1BOS_FIL		
				LIVER			FILLET			LIVER			FILLET		
				CAS			CAS			CAS			BOS		
				EPA8081A			EPA8081A			EPA8081A			BSOP5-128DUAL		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Descr	Param Code	Unit Code												
CHLOR	Heptachlor	76-44-8	ng/g		sU	11.62		sU	3.24		sU	12.22		a	0.15
	Heptachlorepoxide	1024-57-3	ng/g		JsU	24.32		sU	3.24		-JsU	12.22		a	0.27
	cis-Chlordane	5103-71-9	ng/g		sU	11.62		sU	3.24		sU	12.22	0.66		0.14
	trans-Nonachlor	39765-80-5	ng/g		sU	21.62		-JsU	3.24		sU	12.22	0.95		0.14
CHLOR (ng/g):													**1.60**		

Appendix Table B-9. 2006 Chlordanes

							FF06140C2						FF06140C3			
				40C1_LIV			40C2BOS_FIL			40C2_LIV			40C3BOS_FIL			40C3_LIV
				LIVER			FILLET			LIVER			FILLET			LIVER
				CAS			BOS			CAS			BOS			CAS
				EPA8081A			BSOP5-128DUAL			EPA8081A			BSOP5-128DUAL			EPA8081A
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value
Analyte group	Descr	Param Code	Unit Code													
CHLOR	Heptachlor	76-44-8	ng/g		sU	20.00		a	0.15		sU	13.90		a	0.15	
	Heptachlorepoxide	1024-57-3	ng/g		JsU	16.25		a	0.26		JsU	33.90		a	0.26	
	cis-Chlordane	5103-71-9	ng/g		sU	10.88	1.00		0.14		sU	14.24	0.59		0.14	
	trans-Nonachlor	39765-80-5	ng/g		sU	10.88	1.32		0.13		sU	14.41	0.89		0.14	
CHLOR (ng/g):							**2.32**						**1.48**			

Appendix Table B-9. 2006 Chlordanes

				Q	RL
Analyte group	Descr	Param Code	Unit Code		
CHLOR	Heptachlor	76-44-8	ng/g	sU	12.39
	Heptachlorepoxide	1024-57-3	ng/g	JsU	16.90
	cis-Chlordane	5103-71-9	ng/g	sU	12.39
	trans-Nonachlor	39765-80-5	ng/g	sU	12.39
CHLOR (ng/g):					

Appendix Table B-10. 2006 PAH in Liver

			Stat Id		DIF									
			Sample Id		FF06110C1			FF06110C2			FF06110C3			
			Bottle Id		10C1_LIV			10C2_LIV			10C3_LIV			
			Fraction Code		LIVER			LIVER			LIVER			
			Anal Lab Id		CAS			CAS			CAS			
			Meth Code		EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			
					Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte group	Descr	Param Code	Unit Code											
HMW-PAH	Benz(a)anthracene	56-55-3	ng/g			Uw	25.93		Uw	35.07		Uw	25.93	
	Benzo(a)pyrene	50-32-8	ng/g			Uw	25.93		Uw	35.07		Uw	25.93	
	Benzo(b)fluoranthene	205-99-2	ng/g			Uw	25.93		Uw	35.07		Uw	25.93	
	Benzo(e)pyrene	192-97-2	ng/g			Uw	25.93		Uw	35.07		Uw	25.93	
	Benzo(g,h,i)perylene	191-24-2	ng/g			JUw	25.93		JUw	35.07		JUw	25.93	
	Benzo(k)fluoranthene	207-08-9	ng/g			Uw	25.93		Uw	35.07		Uw	25.93	
	C1-Chrysenes	MWRA70	ng/g			Uw	259.26		Uw	350.65		Uw	259.26	
	C1-Fluoranthenes/Pyrenes	MWRA69	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C2-Chrysenes	MWRA4	ng/g			Uw	259.26		Uw	350.65		Uw	259.26	
	C2-Fluoranthenes/Pyrenes	MWRA83	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C3-Chrysenes	MWRA71	ng/g			Uw	259.26		Uw	350.65		Uw	259.26	
	C3-Fluoranthenes/Pyrenes	MWRA84	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C4-Chrysenes	MWRA72	ng/g			Uw	259.26		Uw	350.65		Uw	259.26	
	Chrysene	218-01-9	ng/g			Uw	25.93		Uw	35.07		Uw	25.93	
	Dibenzo(a,h)anthracene	53-70-3	ng/g			Uw	25.93		Uw	35.07		Uw	25.93	
	Fluoranthene	206-44-0	ng/g		11.53	Jw	24.71		Uw	32.93		Uw	24.42	
	Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g			JUw	25.93	7.79	Jw	35.07		JUw	25.93	
	Perylene	198-55-0	ng/g			Uw	25.93		Uw	35.07		Uw	25.93	
	Pyrene	129-00-0	ng/g			Uw	24.71		Uw	32.93		Uw	24.42	
	Group total (ng/g):				**11.53**			**7.79**						
LMW-PAH	Acenaphthene	83-32-9	ng/g			Uw	24.71		Uw	32.93	5.00	Jw	24.42	
	Acenaphthylene	208-96-8	ng/g			Uw	24.71		Uw	32.93		Uw	24.42	
	Anthracene	120-12-7	ng/g			Uw	24.71		Uw	32.93		Uw	24.42	
	Biphenyl	92-52-4	ng/g			Uw	24.70		Uw	32.90		Uw	24.40	
	C1-Dibenzothiophenes	MWRA68	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C1-Fluorenes	MWRA65	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C1-Phenanthrenes/Anthracene	MWRA67	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C2-Dibenzothiophenes	MWRA5	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C2-Fluorenes	MWRA6	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C2-Naphthalenes	MWRA7	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C2-Phenanthrenes/Anthracene	MWRA57	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C3-Dibenzothiophenes	MWRA9	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	

Appendix Table B-10. 2006 PAH in Liver

			Stat Id		DIF									
			Sample Id		FF06110C1			FF06110C2			FF06110C3			
			Bottle Id		10C1_LIV			10C2_LIV			10C3_LIV			
			Fraction Code		LIVER			LIVER			LIVER			
			Anal Lab Id		CAS			CAS			CAS			
			Meth Code		EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			
					Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte group	Descr	Param Code	Unit Code											
	C3-Fluorenes	MWRA66	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C3-Naphthalenes	MWRA10	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C3-Phenanthrenes/Anthracene	MWRA52	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C4-Naphthalenes	MWRA11	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	C4-Phenanthrenes/Anthracene	MWRA54	ng/g			Uw	247.06		Uw	329.27		Uw	244.19	
	Dibenzofuran	132-64-9	ng/g			Uw	24.71		Uw	32.93		Uw	24.42	
	Dibenzothiophene	132-65-0	ng/g			Uw	24.71		Uw	32.93		Uw	24.42	
	Fluorene	86-73-7	ng/g		16.47	Jw	24.71		Uw	32.93		Uw	24.42	
	Naphthalene	91-20-3	ng/g		17.72	Jw	53.17		Uw	70.67		Uw	51.25	
	Phenanthrene	85-01-8	ng/g			Uw	24.71		Uw	32.93		Uw	24.42	
	Group total (ng/g):				**34.19**						**5.00**			
PAH - other	1-Methylnaphthalene	90-12-0	ng/g		13.92	Jw	26.58	18.67	Jw	36.00	11.25	Jw	26.25	
	1-Methylphenanthrene	832-69-9	ng/g			Uw	24.71		Uw	32.93		Uw	24.42	
	2,3,5-Trimethylnaphthalene	2245-38-7	ng/g			Uw	24.71		Uw	32.93		Uw	24.42	
	2,6-Dimethylnaphthalene	581-42-0	ng/g			Uw	24.71	11.95	Jw	32.93		Uw	24.42	
	2-Methylnaphthalene	91-57-6	ng/g		15.19	Jw	53.17	22.67	Jw	70.67	12.50	Jw	51.25	
	Benzothiazole	95-16-9	ng/g			Uw	1,491.23		Uw	1,415.93		Uw	1,848.74	
	Group total (ng/g):				**29.11**			**53.29**			**23.75**			

Appendix Table B-10. 2006 PAH in Liver

			Stat Id		ECCB									
			Sample Id		FF06150C1			FF06150C2			FF06150C3			
			Bottle Id		50C1_LIV			50C2_LIV			50C3_LIV			
			Fraction Code		LIVER			LIVER			LIVER			
			Anal Lab Id		CAS			CAS			CAS			
			Meth Code		EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			
					Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte group	Descr	Param Code	Unit Code											
HMW-PAH	Benz(a)anthracene	56-55-3	ng/g			Uw	27.16		Uw	28.40		Uw	27.85	
	Benzo(a)pyrene	50-32-8	ng/g			Uw	27.16		Uw	28.40		Uw	27.85	
	Benzo(b)fluoranthene	205-99-2	ng/g			Uw	27.16		Uw	28.40		Uw	27.85	
	Benzo(e)pyrene	192-97-2	ng/g			Uw	27.16		Uw	28.40		Uw	27.85	
	Benzo(g,h,i)perylene	191-24-2	ng/g			JUw	27.16		JUw	28.40		JUw	27.85	
	Benzo(k)fluoranthene	207-08-9	ng/g			Uw	27.16		Uw	28.40		Uw	27.85	
	C1-Chrysenes	MWRA70	ng/g			Uw	271.61		Uw	283.95		Uw	278.48	
	C1-Fluoranthenes/Pyrenes	MWRA69	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C2-Chrysenes	MWRA4	ng/g			Uw	271.61		Uw	283.95		Uw	278.48	
	C2-Fluoranthenes/Pyrenes	MWRA83	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C3-Chrysenes	MWRA71	ng/g			Uw	271.61		Uw	283.95		Uw	278.48	
	C3-Fluoranthenes/Pyrenes	MWRA84	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C4-Chrysenes	MWRA72	ng/g			Uw	271.61		Uw	283.95		Uw	278.48	
	Chrysene	218-01-9	ng/g			Uw	27.16		Uw	28.40		Uw	27.85	
	Dibenzo(a,h)anthracene	53-70-3	ng/g			Uw	27.16		Uw	28.40		Uw	27.85	
	Fluoranthene	206-44-0	ng/g			Uw	25.29		Uw	26.74		Uw	25.88	
	Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g			JUw	27.16		JUw	28.40		JUw	27.85	
	Perylene	198-55-0	ng/g			Uw	27.16		Uw	28.40		Uw	27.85	
	Pyrene	129-00-0	ng/g			Uw	25.29		Uw	26.74		Uw	25.88	
	Group total (ng/g):													
LMW-PAH	Acenaphthene	83-32-9	ng/g			Uw	25.29		Uw	26.74		Uw	25.88	
	Acenaphthylene	208-96-8	ng/g			Uw	25.29		Uw	26.74		Uw	25.88	
	Anthracene	120-12-7	ng/g		3.22	Jw	25.29	3.37	Jw	26.74		Uw	25.88	
	Biphenyl	92-52-4	ng/g			Uw	25.30		Uw	26.70		Uw	25.90	
	C1-Dibenzothiophenes	MWRA68	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C1-Fluorenes	MWRA65	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C1-Phenanthrenes/Anthracene	MWRA67	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C2-Dibenzothiophenes	MWRA5	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C2-Fluorenes	MWRA6	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C2-Naphthalenes	MWRA7	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C2-Phenanthrenes/Anthracene	MWRA57	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C3-Dibenzothiophenes	MWRA9	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	

Appendix Table B-10. 2006 PAH in Liver

			Stat Id		ECCB									
			Sample Id		FF06150C1			FF06150C2			FF06150C3			
			Bottle Id		50C1_LIV			50C2_LIV			50C3_LIV			
			Fraction Code		LIVER			LIVER			LIVER			
			Anal Lab Id		CAS			CAS			CAS			
			Meth Code		EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			
					Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte group	Descr	Param Code	Unit Code											
	C3-Fluorenes	MWRA66	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C3-Naphthalenes	MWRA10	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C3-Phenanthrenes/Anthracene	MWRA52	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C4-Naphthalenes	MWRA11	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	C4-Phenanthrenes/Anthracene	MWRA54	ng/g			Uw	252.87		Uw	267.44		Uw	258.82	
	Dibenzofuran	132-64-9	ng/g			Uw	25.29		Uw	26.74		Uw	25.88	
	Dibenzothiophene	132-65-0	ng/g			Uw	25.29		Uw	26.74		Uw	25.88	
	Fluorene	86-73-7	ng/g			Uw	25.29		Uw	26.74		Uw	25.88	
	Naphthalene	91-20-3	ng/g			Uw	53.75		Uw	56.25		Uw	55.70	
	Phenanthrene	85-01-8	ng/g			Uw	25.29		Uw	26.74		Uw	25.88	
	Group total (ng/g):				**3.22**			**3.37**						
PAH - other	1-Methylnaphthalene	90-12-0	ng/g		9.63	Jw	27.50	9.88	Jw	28.75	10.63	Jw	27.85	
	1-Methylphenanthrene	832-69-9	ng/g			Uw	25.29		Uw	26.74		Uw	25.88	
	2,3,5-Trimethylnaphthalene	2245-38-7	ng/g			Uw	25.29		Uw	26.74		Uw	25.88	
	2,6-Dimethylnaphthalene	581-42-0	ng/g			Uw	25.29		Uw	26.74		Uw	25.88	
	2-Methylnaphthalene	91-57-6	ng/g		15.00	Jw	53.75	15.00	Jw	56.25	15.19	Jw	55.70	
	Benzothiazole	95-16-9	ng/g			Uw	1,578.95		Uw	1,538.46		Uw	1,551.72	
	Group total (ng/g):				**24.63**			**24.88**			**25.82**			

Appendix Table B-10. 2006 PAH in Liver

			Stat Id		NB									
			Sample Id		FF06120C1			FF06120C2			FF06120C3			
			Bottle Id		20C1_LIV			20C2_LIV			20C3_LIV			
			Fraction Code		LIVER			LIVER			LIVER			
			Anal Lab Id		CAS			CAS			CAS			
			Meth Code		EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			
					Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte group	Descr	Param Code	Unit Code											
HMW-PAH	Benz(a)anthracene	56-55-3	ng/g			Uw	27.27		Uw	30.14		Uw	27.85	
	Benzo(a)pyrene	50-32-8	ng/g			Uw	27.27		Uw	30.14		Uw	27.85	
	Benzo(b)fluoranthene	205-99-2	ng/g			Uw	27.27	17.81	Jw	30.14		Uw	27.85	
	Benzo(e)pyrene	192-97-2	ng/g			Uw	27.27		Uw	30.14		Uw	27.85	
	Benzo(g,h,i)perylene	191-24-2	ng/g			JUw	27.27	17.81	Jw	30.14		JUw	27.85	
	Benzo(k)fluoranthene	207-08-9	ng/g			Uw	27.27	10.27	Jw	30.14		Uw	27.85	
	C1-Chrysenes	MWRA70	ng/g			Uw	272.73		Uw	301.37		Uw	278.48	
	C1-Fluoranthenes/Pyrenes	MWRA69	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C2-Chrysenes	MWRA4	ng/g			Uw	272.73		Uw	301.37		Uw	278.48	
	C2-Fluoranthenes/Pyrenes	MWRA83	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C3-Chrysenes	MWRA71	ng/g			Uw	272.73		Uw	301.37		Uw	278.48	
	C3-Fluoranthenes/Pyrenes	MWRA84	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C4-Chrysenes	MWRA72	ng/g			Uw	272.73		Uw	301.37		Uw	278.48	
	Chrysene	218-01-9	ng/g			Uw	27.27		Uw	30.14		Uw	27.85	
	Dibenzo(a,h)anthracene	53-70-3	ng/g			Uw	27.27		Uw	30.14		Uw	27.85	
	Fluoranthene	206-44-0	ng/g			Uw	25.30	19.23	Jw	28.21		Uw	25.58	
	Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g			JUw	27.27	19.18	Jw	30.14		JUw	27.85	
	Perylene	198-55-0	ng/g			Uw	27.27		Uw	30.14		Uw	27.85	
	Pyrene	129-00-0	ng/g			Uw	25.30	12.82	Jw	28.21		Uw	25.58	
	Group total (ng/g):							**97.12**						
LMW-PAH	Acenaphthene	83-32-9	ng/g			Uw	25.30		Uw	28.21		Uw	25.58	
	Acenaphthylene	208-96-8	ng/g			Uw	25.30		Uw	28.21		Uw	25.58	
	Anthracene	120-12-7	ng/g			Uw	25.30	6.54	Jw	28.21	4.88	Jw	25.58	
	Biphenyl	92-52-4	ng/g			Uw	25.30		Uw	28.20		Uw	25.60	
	C1-Dibenzothiophenes	MWRA68	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C1-Fluorenes	MWRA65	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C1-Phenanthrenes/Anthracene	MWRA67	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C2-Dibenzothiophenes	MWRA5	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C2-Fluorenes	MWRA6	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C2-Naphthalenes	MWRA7	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C2-Phenanthrenes/Anthracene	MWRA57	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C3-Dibenzothiophenes	MWRA9	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	

Appendix Table B-10. 2006 PAH in Liver

			Stat Id		NB									
			Sample Id		FF06120C1			FF06120C2			FF06120C3			
			Bottle Id		20C1_LIV			20C2_LIV			20C3_LIV			
			Fraction Code		LIVER			LIVER			LIVER			
			Anal Lab Id		CAS			CAS			CAS			
			Meth Code		EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			
					Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte group	Descr	Param Code	Unit Code											
	C3-Fluorenes	MWRA66	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C3-Naphthalenes	MWRA10	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C3-Phenanthrenes/Anthracene	MWRA52	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C4-Naphthalenes	MWRA11	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	C4-Phenanthrenes/Anthracene	MWRA54	ng/g			Uw	253.01		Uw	282.05		Uw	255.81	
	Dibenzofuran	132-64-9	ng/g			Uw	25.30	10.13	Jw	28.21	5.70	Jw	25.58	
	Dibenzothiophene	132-65-0	ng/g			Uw	25.30		Uw	28.21		Uw	25.58	
	Fluorene	86-73-7	ng/g			Uw	25.30		Uw	28.21		Uw	25.58	
	Naphthalene	91-20-3	ng/g			Uw	53.25		Uw	59.72		Uw	55.00	
	Phenanthrene	85-01-8	ng/g			Uw	25.30		Uw	41.03		Uw	25.58	
	Group total (ng/g):							**16.67**			**10.58**			
PAH - other	1-Methylnaphthalene	90-12-0	ng/g		11.17	Jw	27.27	13.89	Jw	30.56	15.00	Jw	27.50	
	1-Methylphenanthrene	832-69-9	ng/g			Uw	25.30		Uw	28.21		Uw	25.58	
	2,3,5-Trimethylnaphthalene	2245-38-7	ng/g			Uw	25.30		Uw	28.21		Uw	25.58	
	2,6-Dimethylnaphthalene	581-42-0	ng/g		8.43	Jw	25.30	9.49	Jw	28.21	8.61	Jw	25.58	
	2-Methylnaphthalene	91-57-6	ng/g		14.29	Jw	53.25	20.83	Jw	59.72	17.50	Jw	55.00	
	Benzothiazole	95-16-9	ng/g			Uw	1,504.43		Uw	1,800.00		Uw	1,525.42	
	Group total (ng/g):				**33.89**			**44.21**			**41.11**			

Appendix Table B-10. 2006 PAH in Liver

			Stat Id		OS									
			Sample Id		FF06140C1			FF06140C2			FF06140C3			
			Bottle Id		40C1_LIV			40C2_LIV			40C3_LIV			
			Fraction Code		LIVER			LIVER			LIVER			
			Anal Lab Id		CAS			CAS			CAS			
			Meth Code		EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			
					Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte group	Descr	Param Code	Unit Code											
HMW-PAH	Benz(a)anthracene	56-55-3	ng/g			Uw	28.21		Uw	25.30		Uw	30.56	
	Benzo(a)pyrene	50-32-8	ng/g			Uw	28.21		Uw	25.30		Uw	30.56	
	Benzo(b)fluoranthene	205-99-2	ng/g			Uw	28.21		Uw	25.30		Uw	30.56	
	Benzo(e)pyrene	192-97-2	ng/g			Uw	28.21		Uw	25.30		Uw	30.56	
	Benzo(g,h,i)perylene	191-24-2	ng/g			JUw	28.21	8.55	Jw	25.30	8.61	Jw	30.56	
	Benzo(k)fluoranthene	207-08-9	ng/g			Uw	28.21		Uw	25.30		Uw	30.56	
	C1-Chrysenes	MWRA70	ng/g			Uw	282.05		Uw	253.01		Uw	305.56	
	C1-Fluoranthenes/Pyrenes	MWRA69	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C2-Chrysenes	MWRA4	ng/g			Uw	282.05		Uw	253.01		Uw	305.56	
	C2-Fluoranthenes/Pyrenes	MWRA83	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C3-Chrysenes	MWRA71	ng/g			Uw	282.05		Uw	253.01		Uw	305.56	
	C3-Fluoranthenes/Pyrenes	MWRA84	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C4-Chrysenes	MWRA72	ng/g			Uw	282.05		Uw	253.01		Uw	305.56	
	Chrysene	218-01-9	ng/g			Uw	28.21		Uw	25.30		Uw	30.56	
	Dibenzo(a,h)anthracene	53-70-3	ng/g			Uw	28.21		Uw	25.30		Uw	30.56	
	Fluoranthene	206-44-0	ng/g		27.38	w	26.19		Uw	23.08		Uw	28.21	
	Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g			JUw	28.21		JUw	25.30		JUw	30.56	
	Perylene	198-55-0	ng/g			Uw	28.21		Uw	25.30		Uw	30.56	
	Pyrene	129-00-0	ng/g		13.10	Jw	26.19		Uw	23.08		Uw	28.21	
	Group total (ng/g):				**40.48**			**8.55**			**8.61**			
LMW-PAH	Acenaphthene	83-32-9	ng/g			Uw	26.19		Uw	23.08		Uw	28.21	
	Acenaphthylene	208-96-8	ng/g			Uw	26.19		Uw	23.08		Uw	28.21	
	Anthracene	120-12-7	ng/g		9.17	Jw	26.19	6.26	Jw	23.08	4.49	Jw	28.21	
	Biphenyl	92-52-4	ng/g			Uw	26.20		Uw	23.10		Uw	28.20	
	C1-Dibenzothiophenes	MWRA68	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C1-Fluorenes	MWRA65	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C1-Phenanthrenes/Anthracene	MWRA67	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C2-Dibenzothiophenes	MWRA5	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C2-Fluorenes	MWRA6	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C2-Naphthalenes	MWRA7	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C2-Phenanthrenes/Anthracene	MWRA57	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C3-Dibenzothiophenes	MWRA9	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	

Appendix Table B-10. 2006 PAH in Liver

			Stat Id		OS									
			Sample Id		FF06140C1			FF06140C2			FF06140C3			
			Bottle Id		40C1_LIV			40C2_LIV			40C3_LIV			
			Fraction Code		LIVER			LIVER			LIVER			
			Anal Lab Id		CAS			CAS			CAS			
			Meth Code		EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			
					Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte group	Descr	Param Code	Unit Code											
	C3-Fluorenes	MWRA66	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C3-Naphthalenes	MWRA10	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C3-Phenanthrenes/Anthracene	MWRA52	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C4-Naphthalenes	MWRA11	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	C4-Phenanthrenes/Anthracene	MWRA54	ng/g			Uw	261.91		Uw	230.77		Uw	282.05	
	Dibenzofuran	132-64-9	ng/g		9.05	Jw	26.19	5.17	Jw	23.08		Uw	28.21	
	Dibenzothiophene	132-65-0	ng/g		4.41	Jw	26.19		Uw	23.08		Uw	28.21	
	Fluorene	86-73-7	ng/g		16.67	Jw	26.19		Uw	23.08		Uw	28.21	
	Naphthalene	91-20-3	ng/g			Uw	56.41		Uw	48.81		Uw	60.27	
	Phenanthrene	85-01-8	ng/g			Uw	42.86		Uw	23.08		Uw	28.21	
	Group total (ng/g):				**39.29**			**11.43**			**4.49**			
PAH - other	1-Methylnaphthalene	90-12-0	ng/g		12.31	Jw	28.21	11.07	Jw	25.00	13.70	Jw	30.14	
	1-Methylphenanthrene	832-69-9	ng/g			Uw	26.19		Uw	23.08		Uw	28.21	
	2,3,5-Trimethylnaphthalene	2245-38-7	ng/g			Uw	26.19		Uw	23.08		Uw	28.21	
	2,6-Dimethylnaphthalene	581-42-0	ng/g		10.12	Jw	26.19	7.25	Jw	23.08		Uw	28.21	
	2-Methylnaphthalene	91-57-6	ng/g		15.39	Jw	56.41	17.86	Jw	48.81	15.07	Jw	60.27	
	Benzothiazole	95-16-9	ng/g			Uw	1,475.41		Uw	1,452.99		Uw	1,698.11	
	Group total (ng/g):				**37.81**			**36.18**			**28.77**			

Appendix Table B-11. 2006 NOAA PAH in Liver

				Stat Id	DIF									ECCB		
				Sample Id	FF06110C1			FF06110C2			FF06110C3			FF06150C1		
				Bottle Id	10C1_LIV			10C2_LIV			10C3_LIV			50C1_LIV		
				Fraction Code	LIVER			LIVER			LIVER			LIVER		
				Anal Lab Id	CAS			CAS			CAS			CAS		
				Meth Code	EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Descr	Param Code	Unit Code													
HMW-PAH	Benz(a)anthracene	56-55-3	ng/g			Uw	25.93		Uw	35.07		Uw	25.93		Uw	27.16
	Benzo(a)pyrene	50-32-8	ng/g			Uw	25.93		Uw	35.07		Uw	25.93		Uw	27.16
	Benzo(b)fluoranthene	205-99-2	ng/g			Uw	25.93		Uw	35.07		Uw	25.93		Uw	27.16
	Benzo(e)pyrene	192-97-2	ng/g			Uw	25.93		Uw	35.07		Uw	25.93		Uw	27.16
	Benzo(g,h,i)perylene	191-24-2	ng/g			JUw	25.93		JUw	35.07		JUw	25.93		JUw	27.16
	Benzo(k)fluoranthene	207-08-9	ng/g			Uw	25.93		Uw	35.07		Uw	25.93		Uw	27.16
	Chrysene	218-01-9	ng/g			Uw	25.93		Uw	35.07		Uw	25.93		Uw	27.16
	Dibenzo(a,h)anthracene	53-70-3	ng/g			Uw	25.93		Uw	35.07		Uw	25.93		Uw	27.16
	Fluoranthene	206-44-0	ng/g		11.53	Jw	24.71		Uw	32.93		Uw	24.42		Uw	25.29
	Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g			JUw	25.93	7.79	Jw	35.07		JUw	25.93		JUw	27.16
	Perylene	198-55-0	ng/g			Uw	25.93		Uw	35.07		Uw	25.93		Uw	27.16
	Pyrene	129-00-0	ng/g			Uw	24.71		Uw	32.93		Uw	24.42		Uw	25.29
	Group total (ng/g):				**11.53**			**7.79**								
LMW-PAH	Acenaphthene	83-32-9	ng/g			Uw	24.71		Uw	32.93	5.00	Jw	24.42		Uw	25.29
	Acenaphthylene	208-96-8	ng/g			Uw	24.71		Uw	32.93		Uw	24.42		Uw	25.29
	Anthracene	120-12-7	ng/g			Uw	24.71		Uw	32.93		Uw	24.42	3.22	Jw	25.29
	Biphenyl	92-52-4	ng/g			Uw	24.70		Uw	32.90		Uw	24.40		Uw	25.30
	Fluorene	86-73-7	ng/g		16.47	Jw	24.71		Uw	32.93		Uw	24.42		Uw	25.29
	Naphthalene	91-20-3	ng/g		17.72	Jw	53.17		Uw	70.67		Uw	51.25		Uw	53.75
	Phenanthrene	85-01-8	ng/g			Uw	24.71		Uw	32.93		Uw	24.42		Uw	25.29
	Group total (ng/g):				**34.19**						**5.00**			**3.22**		
PAH - other	1-Methylnaphthalene	90-12-0	ng/g		13.92	Jw	26.58	18.67	Jw	36.00	11.25	Jw	26.25	9.63	Jw	27.50
	1-Methylphenanthrene	832-69-9	ng/g			Uw	24.71		Uw	32.93		Uw	24.42		Uw	25.29
	2,3,5-Trimethylnaphthalene	2245-38-7	ng/g			Uw	24.71		Uw	32.93		Uw	24.42		Uw	25.29
	2,6-Dimethylnaphthalene	581-42-0	ng/g			Uw	24.71	11.95	Jw	32.93		Uw	24.42		Uw	25.29
	2-Methylnaphthalene	91-57-6	ng/g		15.19	Jw	53.17	22.67	Jw	70.67	12.50	Jw	51.25	15.00	Jw	53.75
	Group total (ng/g):				**29.11**			**53.29**			**23.75**			**24.63**		
Total NOAA PAH (ng/g)					**74.84**			**61.08**			**28.75**			**27.84**		

Appendix Table B-11. 2006 NOAA PAH in Liver

				Stat Id											
				Sample Id	FF06150C2			FF06150C3			FF06120C1			FF06120C2		
				Bottle Id	50C2_LIV			50C3_LIV			20C1_LIV			20C2_LIV		
				Fraction Code	LIVER			LIVER			LIVER			LIVER		
				Anal Lab Id	CAS			CAS			CAS			CAS		
				Meth Code	EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Descr	Param Code	Unit Code													
HMW-PAH	Benz(a)anthracene	56-55-3	ng/g			Uw	28.40		Uw	27.85		Uw	27.27		Uw	30.14
	Benzo(a)pyrene	50-32-8	ng/g			Uw	28.40		Uw	27.85		Uw	27.27		Uw	30.14
	Benzo(b)fluoranthene	205-99-2	ng/g			Uw	28.40		Uw	27.85		Uw	27.27	17.81	Jw	30.14
	Benzo(e)pyrene	192-97-2	ng/g			Uw	28.40		Uw	27.85		Uw	27.27		Uw	30.14
	Benzo(g,h,i)perylene	191-24-2	ng/g			JUw	28.40		JUw	27.85		JUw	27.27	17.81	Jw	30.14
	Benzo(k)fluoranthene	207-08-9	ng/g			Uw	28.40		Uw	27.85		Uw	27.27	10.27	Jw	30.14
	Chrysene	218-01-9	ng/g			Uw	28.40		Uw	27.85		Uw	27.27		Uw	30.14
	Dibenzo(a,h)anthracene	53-70-3	ng/g			Uw	28.40		Uw	27.85		Uw	27.27		Uw	30.14
	Fluoranthene	206-44-0	ng/g			Uw	26.74		Uw	25.88		Uw	25.30	19.23	Jw	28.21
	Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g			JUw	28.40		JUw	27.85		JUw	27.27	19.18	Jw	30.14
	Perylene	198-55-0	ng/g			Uw	28.40		Uw	27.85		Uw	27.27		Uw	30.14
	Pyrene	129-00-0	ng/g			Uw	26.74		Uw	25.88		Uw	25.30	12.82	Jw	28.21
	Group total (ng/g):													**97.12**		
LMW-PAH	Acenaphthene	83-32-9	ng/g			Uw	26.74		Uw	25.88		Uw	25.30		Uw	28.21
	Acenaphthylene	208-96-8	ng/g			Uw	26.74		Uw	25.88		Uw	25.30		Uw	28.21
	Anthracene	120-12-7	ng/g		3.37	Jw	26.74		Uw	25.88		Uw	25.30	6.54	Jw	28.21
	Biphenyl	92-52-4	ng/g			Uw	26.70		Uw	25.90		Uw	25.30		Uw	28.20
	Fluorene	86-73-7	ng/g			Uw	26.74		Uw	25.88		Uw	25.30		Uw	28.21
	Naphthalene	91-20-3	ng/g			Uw	56.25		Uw	55.70		Uw	53.25		Uw	59.72
	Phenanthrene	85-01-8	ng/g			Uw	26.74		Uw	25.88		Uw	25.30		Uw	41.03
	Group total (ng/g):				**3.37**									**6.54**		
PAH - other	1-Methylnaphthalene	90-12-0	ng/g		9.88	Jw	28.75	10.63	Jw	27.85	11.17	Jw	27.27	13.89	Jw	30.56
	1-Methylphenanthrene	832-69-9	ng/g			Uw	26.74		Uw	25.88		Uw	25.30		Uw	28.21
	2,3,5-Trimethylnaphthalene	2245-38-7	ng/g			Uw	26.74		Uw	25.88		Uw	25.30		Uw	28.21
	2,6-Dimethylnaphthalene	581-42-0	ng/g			Uw	26.74		Uw	25.88	8.43	Jw	25.30	9.49	Jw	28.21
	2-Methylnaphthalene	91-57-6	ng/g		15.00	Jw	56.25	15.19	Jw	55.70	14.29	Jw	53.25	20.83	Jw	59.72
	Group total (ng/g):				**24.88**			**25.82**			**33.89**			**44.21**		
Total NOAA PAH (ng/g)					**28.25**			**25.82**			**33.89**			**147.87**		

Appendix Table B-11. 2006 NOAA PAH in Liver

				Stat Id			OS								
				Sample Id	FF06120C3			FF06140C1			FF06140C2			FF06140C3		
				Bottle Id	20C3_LIV			40C1_LIV			40C2_LIV			40C3_LIV		
				Fraction Code	LIVER			LIVER			LIVER			LIVER		
				Anal Lab Id	CAS			CAS			CAS			CAS		
				Meth Code	EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte group	Descr	Param Code	Unit Code													
HMW-PAH	Benz(a)anthracene	56-55-3	ng/g			Uw	27.85		Uw	28.21		Uw	25.30		Uw	30.56
	Benzo(a)pyrene	50-32-8	ng/g			Uw	27.85		Uw	28.21		Uw	25.30		Uw	30.56
	Benzo(b)fluoranthene	205-99-2	ng/g			Uw	27.85		Uw	28.21		Uw	25.30		Uw	30.56
	Benzo(e)pyrene	192-97-2	ng/g			Uw	27.85		Uw	28.21		Uw	25.30		Uw	30.56
	Benzo(g,h,i)perylene	191-24-2	ng/g			JUw	27.85		JUw	28.21	8.55	Jw	25.30	8.61	Jw	30.56
	Benzo(k)fluoranthene	207-08-9	ng/g			Uw	27.85		Uw	28.21		Uw	25.30		Uw	30.56
	Chrysene	218-01-9	ng/g			Uw	27.85		Uw	28.21		Uw	25.30		Uw	30.56
	Dibenzo(a,h)anthracene	53-70-3	ng/g			Uw	27.85		Uw	28.21		Uw	25.30		Uw	30.56
	Fluoranthene	206-44-0	ng/g			Uw	25.58	27.38	w	26.19		Uw	23.08		Uw	28.21
	Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g			JUw	27.85		JUw	28.21		JUw	25.30		JUw	30.56
	Perylene	198-55-0	ng/g			Uw	27.85		Uw	28.21		Uw	25.30		Uw	30.56
	Pyrene	129-00-0	ng/g			Uw	25.58	13.10	Jw	26.19		Uw	23.08		Uw	28.21
	Group total (ng/g):							**40.48**			**8.55**			**8.61**		
LMW-PAH	Acenaphthene	83-32-9	ng/g			Uw	25.58		Uw	26.19		Uw	23.08		Uw	28.21
	Acenaphthylene	208-96-8	ng/g			Uw	25.58		Uw	26.19		Uw	23.08		Uw	28.21
	Anthracene	120-12-7	ng/g	4.88	Jw	25.58	9.17	Jw	26.19	6.26	Jw	23.08	4.49	Jw	28.21
	Biphenyl	92-52-4	ng/g		Uw	25.60		Uw	26.20		Uw	23.10		Uw	28.20
	Fluorene	86-73-7	ng/g		Uw	25.58	16.67	Jw	26.19		Uw	23.08		Uw	28.21
	Naphthalene	91-20-3	ng/g		Uw	55.00		Uw	56.41		Uw	48.81		Uw	60.27
	Phenanthrene	85-01-8	ng/g		Uw	25.58		Uw	42.86		Uw	23.08		Uw	28.21
	Group total (ng/g):			**4.88**			**25.83**			**6.26**			**4.49**		
PAH - other	1-Methylnaphthalene	90-12-0	ng/g	15.00	Jw	27.50	12.31	Jw	28.21	11.07	Jw	25.00	13.70	Jw	30.14
	1-Methylphenanthrene	832-69-9	ng/g		Uw	25.58		Uw	26.19		Uw	23.08		Uw	28.21
	2,3,5-Trimethylnaphthalene	2245-38-7	ng/g		Uw	25.58		Uw	26.19		Uw	23.08		Uw	28.21
	2,6-Dimethylnaphthalene	581-42-0	ng/g	8.61	Jw	25.58	10.12	Jw	26.19	7.25	Jw	23.08		Uw	28.21
	2-Methylnaphthalene	91-57-6	ng/g	17.50	Jw	55.00	15.39	Jw	56.41	17.86	Jw	48.81	15.07	Jw	60.27
	Group total (ng/g):			**41.11**			**37.81**			**36.18**			**28.77**		
Total NOAA PAH (ng/g)				**45.99**			**104.12**			**51.00**			**41.87**		

APPENDIX C

Summary Tables of Chemistry Results for Individual Composites of Lobster Tissues

Appendix Table C-1. 2006 Locations and Dates

Stat Id	Loc Desc	Date
DIF	DEER ISLAND FLATS	25-Jul-2006
ECCB	EASTERN CAPE COD BAY	07-Sep-2006
OS	OUTFALL SITE	09-Oct-2006

Appendix Table C-2. 2006 Value Qualifiers Used

Anal Lab Id	Val Qual	Descr
BOS	a	Usable non-detect result; not detected at or above the minimum detection limit (MDL). Database value input as null or negative. DETECT_LIMIT is the MDL.
CAS	+J	Usable detected result with a potential high bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit. See explanatory comment.
	+Js	Suspect/invalid detected result with a potential high bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit.
	+Jw	Use with caution - see comment. Detected result with a potential high bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit.
	J	Usable detected result with potential indeterminate bias to to QC exceedance(s). DETECT_LIMIT is the quantitation limit. See comments.
	-J	Usable detected result with a potential low bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit. See explanatory comment.
	Js	Suspect/invalid detected result with a potential indeterminate bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit.
	JU	Non-detect at or above sample-specific quantitation limit (QL). Value entered as null. DETECT_LIMIT is the QL. Potential indeterminate bias in the level of the QL due to QC
	-JU	Non-detect at or above sample-specific quantitation limit (QL). Value entered as null. DETECT_LIMIT is the QL. Potential low bias in the level of the QL due to QC exceedance(s). See
	JUw	Use with caution - see comment. Not detected at or above sample-specific quantitation limit (QL). Value entered as null. Potential indeterm. bias due to QC exceedance(s). DETECT_LIMIT is QL
	Jw	Use with caution - see comment. Detected result with potential indeterminate bias to to QC exceedance(s). DETECT_LIMIT is the quantitation limit.
	-Jw	Use with caution - see comment. Detected result with a potential low bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit.
	s	Suspect/invalid. Not fit for use. See comment.
	sU	Suspect value - see comment. Non-detected result; not detected at or above the sample-specific quantiation limit (QL). DETECT_LIMIT is the QL.
	U	Usable non-detected result; not detected at or above the sample-specific quantiation limit (QL). DETECT_LIMIT is the QL.
	Uw	Use with caution - see comments. Non-detected result; not detected at or above the sample-specific quantiation limit (QL). DETECT_LIMIT is the QL.
	w	This datum should be used with caution, see comment field
NAI	s	Suspect/invalid. Not fit for use. See comment.

Appendix Table C-3. 2006 Lipids and % Dry Weight

					Param Code	LIPID			PCTDRYWT		
						Value	Q	MDL	Value	Q	MDL
Stat Id	Sample Id	Lab ID	Bottle Id	Fraction Code							
DIF	FL06110C1	CAS	10C1_HEP	HEPATOPANC		56.60		0.05	28.80		
			10C1_MEA	MEAT		4.49		0.05	16.70		
	FL06110C2	CAS	10C2_HEP	HEPATOPANC		54.80		0.05	32.30		
			10C2_MEA	MEAT		5.12		0.05	17.00		
	FL06110C3	CAS	10C3_HEP	HEPATOPANC		69.94		0.05	30.60		
			10C3_MEA	MEAT		4.15		0.05	16.40		
ECCB	FL06150C1	CAS	50C1_HEP	HEPATOPANC		59.06		0.05	25.40		
			50C1_MEA	MEAT		3.83		0.05	16.20		
	FL06150C2	CAS	50C2_HEP	HEPATOPANC		60.20		0.05	40.20		
			50C2_MEA	MEAT		3.39		0.05	18.00		
	FL06150C3	CAS	50C3_HEP	HEPATOPANC		64.62		0.05	27.70		
			50C3_MEA	MEAT		6.39		0.05	15.50		
OS	FL06140C1	BOS	40C1_MEA_BOS	MEAT		4.01			14.43		
		CAS	40C1_HEP	HEPATOPANC		50.18		0.05	27.30		
			40C1_MEA	MEAT		4.69		0.05	14.70		
	FL06140C2	BOS	40C2_MEA_BOS	MEAT		3.04			14.76		
		CAS	40C2_HEP	HEPATOPANC		62.26		0.05	36.30		
			40C2_MEA	MEAT		4.33		0.05	15.70		
	FL06140C3	BOS	40C3_MEA_BOS	MEAT		4.06			14.29		
		CAS	40C3_HEP	HEPATOPANC		42.81		0.05	33.40		
			40C3_MEA	MEAT		3.77		0.05	14.60		

Appendix Table C-4. 2006 Metals in Hepatopancreas

			Descr	Cadmium			Chromium			Copper			Lead		
			Abbrev	Cd			Cr			Cu			Pb		
			Param Code	7440-43-9			7440-47-3			7440-50-8			7439-92-1		
			Unit Code	ug/g			ug/g			ug/g			ug/g		
			Fraction Code	HEPATOPANC			HEPATOPANC			HEPATOPANC			HEPATOPANC		
			Meth Code	EPA6020			EPA6010B			EPA6010B			EPA6020		
			Anal Lab Id	CAS			CAS			CAS			CAS		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Stat Id	Sample Id	Bottle Id													
DIF	FL06110C1	10C1_HEP		5.56		0.02		U	0.50	669.00		1.00	0.29		0.02
	FL06110C2	10C2_HEP		5.38		0.02		U	0.50	548.00		1.00	0.24		0.02
	FL06110C3	10C3_HEP		6.73		0.02		U	0.50	381.00		1.00	0.42		0.02
ECCB	FL06150C1	50C1_HEP		7.17		0.02		U	0.50	558.00		1.00	0.11		0.02
	FL06150C2	50C2_HEP		16.30		0.02		U	0.50	297.00		1.00	0.04		0.02
	FL06150C3	50C3_HEP		8.49		0.02		U	0.50	376.00		1.00	0.09		0.02
OS	FL06140C1	40C1_HEP		19.40		0.02		U	0.50	828.00		1.00	0.57		0.02
	FL06140C2	40C2_HEP		11.20		0.02		U	0.50	834.00		1.00	0.39		0.02
	FL06140C3	40C3_HEP		16.10		0.02		U	0.50	657.00		1.00	0.34		0.02

Appendix Table C-4. 2006 Metals in Hepatopancreas

			Mercury			Nickel			Silver			Zinc		
			Hg			Ni			Ag			Zn		
			7439-97-6			7440-02-0			7440-22-4			7440-66-6		
			ug/g			ug/g			ug/g			ug/g		
			HEPATOPANC			HEPATOPANC			HEPATOPANC			HEPATOPANC		
			EPA7471A			EPA6020			EPA6020			EPA6010B		
			CAS			CAS			CAS			CAS		
			Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Stat Id	Sample Id	Bottle Id												
DIF	FL06110C1	10C1_HEP	0.14	w	0.02	0.67		0.20	6.08		0.04	54.30		1.00
	FL06110C2	10C2_HEP	0.18	w	0.02	0.77		0.20	9.29		0.04	50.20		1.00
	FL06110C3	10C3_HEP	0.14	w	0.02	0.59		0.20	8.51		0.04	66.10		1.00
ECCB	FL06150C1	50C1_HEP	0.17	w	0.02	2.09		0.20	4.87		0.04	63.50		1.00
	FL06150C2	50C2_HEP	0.16	w	0.02	1.62		0.20	13.50		0.04	54.80		1.00
	FL06150C3	50C3_HEP	0.12	w	0.02	1.49		0.20	15.50		0.04	56.50		1.00
OS	FL06140C1	40C1_HEP	0.25	w	0.02	1.70		0.20	5.86		0.04	122.00		1.00
	FL06140C2	40C2_HEP	0.24	w	0.02	0.76		0.19	6.89		0.04	76.00		1.00
	FL06140C3	40C3_HEP	0.30	w	0.02	0.47		0.20	7.89		0.04	225.00		1.00

Appendix Table C-5. 2006 Metals in Meat

			Descr	Mercury		
			Abbrev	Hg		
			Param Code	7439-97-6		
			Unit Code	ug/g		
			Fraction Code	MEAT		
			Meth Code	EPA7471A		
			Anal Lab Id	CAS		
				Value	Q	RL
Stat Id	Sample Id	Bottle Id				
DIF	FL06110C1	10C1_MEA		0.50	-Jw	0.02
	FL06110C2	10C2_MEA		0.54	-Jw	0.02
	FL06110C3	10C3_MEA		0.42	-Jw	0.02
ECCB	FL06150C1	50C1_MEA		0.33	-Jw	0.02
	FL06150C2	50C2_MEA		0.35	-Jw	0.02
	FL06150C3	50C3_MEA		0.28	-Jw	0.02
OS	FL06140C1	40C1_MEA		0.42	-Jw	0.02
	FL06140C2	40C2_MEA		0.46	-Jw	0.02
	FL06140C3	40C3_MEA		0.46	-Jw	0.02

Appendix Table C-6. 2006 PCBs

					Stat Id	DIF														
					Sample Id	FL06110C1						FL06110C2						FL06110C3		
					Bottle Id	10C1_HEP			10C1_MEA			10C2_HEP			10C2_MEA			10C3_HEP		
					Fraction Code	HEPATOPANC			MEAT			HEPATOPANC			MEAT			HEPATOPANC		
					Anal Lab Id	CAS			CAS			CAS			CAS			CAS		
					Meth Code	EPA8082			EPA8082			EPA8082			EPA8082			EPA8082		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code																
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g			U	29.41	2.95	-J	2.46		U	28.44		U	2.38		U	28.95
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g			U	37.23		U	3.33		U	32.29		U	3.66		U	34.38
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g			U	37.23		U	3.33		U	32.29		U	3.66		U	34.38
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g		85.11		37.23	5.67		3.33	125.00		32.29	3.42	J	3.66	135.42		34.38
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g			U	37.23	2.56	J	3.33		U	32.29		U	3.66	13.54	J	34.38
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g		64.89	+J	37.23		U	7.33	50.00	+J	32.29		U	3.66	76.04	+J	34.38
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g		180.85	+J	37.23	13.33	+J	3.33	354.17	+J	32.29	11.83	+J	3.66	333.33	+J	34.38
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g			U	29.41	11.48		2.46		U	100.92	7.94		2.38		U	87.72
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g		127.66	+J	37.23	31.11	+J	3.33	239.58	+J	32.29	21.95	+J	3.66	250.00	+J	34.38
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g		218.49	+J	29.41	12.30	+J	2.46	513.76	+J	28.44	11.11	+J	2.38	429.83	+J	28.95
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g		588.24	+J	29.41	31.97	+J	2.46	1376.15	+J	28.44	31.75	+J	2.38	1140.35	+J	28.95
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g			U	29.41	0.79	J	2.46		U	28.44		U	2.38		U	28.95
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g		142.86	+J	29.41	7.21	J	2.46	330.28	+J	28.44	6.27	+J	2.38	280.70	+J	28.95
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g		672.27	+J	29.41	27.05	+J	2.46	1559.63	+J	28.44	27.78	+J	2.38	1315.79	+J	28.95
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g		756.30		29.41	29.51		2.46	1743.12		28.44	30.16		2.38	1491.23		28.95
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g		142.86		29.41	3.36	-J	2.46	321.10		28.44		U	2.38	280.70		28.95
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g		252.10	+J	29.41	7.38	+J	2.46	614.68	+J	28.44	7.46	+J	2.38	482.46	+J	28.95
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g		243.70		29.41	9.84		2.46	605.51		28.44	10.32		2.38	473.68		28.95
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g		9.24	J	29.41		U	2.46	11.93	J	28.44		U	2.38	19.30	J	28.95
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	ng/g		14.29	J	29.41	2.21	J	2.46	35.78		28.44		U	2.38	33.33		28.95
	Total PCB (ng/g)					3498.85			198.70			7880.68			169.97			6755.70		

Appendix Table C-6. 2006 PCBs

					Stat Id				ECCB											
					Sample Id				FL06150C1						FL06150C2					
					Bottle Id	10C3_MEA			50C1_HEP			50C1_MEA			50C2_HEP			50C2_MEA		
					Fraction Code	MEAT			HEPATOPANC			MEAT			HEPATOPANC			MEAT		
					Anal Lab Id	CAS			CAS			CAS			CAS			CAS		
					Meth Code	EPA8082			EPA8082			EPA8082			EPA8082			EPA8082		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code																
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g			U	2.50	16.98	J	36.79		U	2.59	8.93	J	24.27		U	2.52
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g			U	3.40		U	42.39		U	5.58		U	28.41		U	3.01
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g			U	3.20		U	43.48		U	3.61		U	28.41		U	3.01
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g		3.51	-J	3.20	33.70	J	42.39		U	3.49	20.46	J	28.41		U	3.01
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g			U	3.20		U	42.39		U	3.49		U	28.41		U	3.01
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g			U	3.20	26.09	J	42.39		U	3.49		U	28.41		U	3.01
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g		11.34	+J	3.20	103.26	+J	42.39	5.35	+J	3.49	57.96	+J	28.41		U	3.01
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g		6.94		2.50		U	41.51		U	2.59		U	24.27		U	2.52
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g		15.46	+J	3.20	130.44	+J	42.39	15.12	+J	3.49	50.00	+J	28.41	7.31	+J	3.01
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g		9.68	+J	2.50	113.21	+J	36.79	2.67	J	2.59	73.79	+J	24.27	1.80	J	2.52
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g		29.03	+J	2.50	405.66	+J	36.79	12.07	+J	2.59	262.14	+J	24.27	5.86	+J	2.52
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g			U	4.11		U	36.79		U	2.59		U	24.27		U	2.52
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g		5.48	+J	2.50	113.21	+J	36.79	2.67	J	2.59	71.85	+J	24.27	1.44	J	2.52
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g		24.19	+J	2.50	584.91	+J	36.79	11.21	+J	2.59	368.93	+J	24.27	5.86	+J	2.52
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g		26.61		2.50	754.72		36.79	14.66		2.59	495.15		24.27	7.57		2.52
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g			U	6.86	60.38		37.74		U	2.67	51.46		24.27		U	2.52
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g		5.89	+J	2.50	198.11	+J	37.74		U	2.67	106.80	+J	24.27		U	2.52
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g		8.07		2.50	264.15		36.79	4.57		2.59	184.47		24.27	2.88		2.52
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g			U	2.50		U	36.79		U	2.59		U	24.27		U	2.52
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	ng/g			U	2.50	33.02	J	36.79		U	2.59	22.33	J	24.27		U	2.52
	Total PCB (ng/g)					146.20			2837.82			68.31			1774.24			32.72		

Appendix Table C-6. 2006 PCBs

					Stat Id												
					Sample Id	FL06150C3						OS					
					Bottle Id	50C3_HEP			50C3_MEA			40C1_HEP			40C1_MEA		
					Fraction Code	HEPATOPANC			MEAT			HEPATOPANC			MEAT		
					Anal Lab Id	CAS			CAS			CAS			CAS		
					Meth Code	EPA8082			EPA8082			EPA8082			EPA8082		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code													
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g		22.00	J	36.00		U	3.40	13.00	J	37.00		U	3.54
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g		54.84		38.71		U	3.88		U	41.57		U	4.00
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g		129.03		39.79		U	3.88		JU	41.57		U	4.12
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g		225.81		38.71	4.59		3.88	41.57		41.57	1.53	J	4.00
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g		33.33	J	38.71		U	3.88		U	41.57		U	4.00
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g		161.29	+J	38.71	4.82	J	3.88		U	41.57		U	4.00
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g		107.53	+J	38.71	3.88	+J	3.88	146.07	+J	41.57	5.06	+J	4.00
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g			U	36.00	1.86	J	3.40		U	37.00		U	3.54
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g		75.27	+J	38.71	5.77	+J	3.88	76.40	+J	41.57	2.00	J	4.00
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g		130.00	+J	36.00	3.40	+J	3.40	210.00	+J	37.00	6.98	+J	3.54
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g		460.00	+J	36.00	13.40	+J	3.40	610.00	+J	37.00	22.92	+J	3.54
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g			U	36.00		U	3.40		U	37.00		U	3.54
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g		130.00	+J	36.00	3.40	J	3.40	170.00	+J	37.00	4.90	J	3.54
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g		620.00	+J	36.00	12.37	+J	3.40	810.00	+J	37.00	20.83	+J	3.54
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g		790.00		36.00	16.50		3.40	1100.00		37.00	28.13		3.54
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g		83.00		37.00		U	3.40	130.00	+J	37.00		U	3.65
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g		170.00	+J	37.00		U	3.40	300.00	+J	37.00	6.04	+J	3.65
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g		300.00		36.00	6.08		3.40	390.00		37.00	10.10		3.54
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g			U	36.00		U	3.40	13.00	J	37.00		U	3.54
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	ng/g		39.00		36.00	1.24	J	3.40	37.00		37.00	1.35	J	3.54
	Total PCB (ng/g)					3531.10			77.31			4047.04			109.84		

Appendix Table C-6. 2006 PCBs

					Stat Id												
					Sample Id	FL06140C2						FL06140C3					
					Bottle Id	40C2_HEP			40C2_MEA			40C3_HEP			40C3_MEA		
					Fraction Code	HEPATOPANC			MEAT			HEPATOPANC			MEAT		
					Anal Lab Id	CAS			CAS			CAS			CAS		
					Meth Code	EPA8082			EPA8082			EPA8082			EPA8082		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code													
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g		15.09	J	26.42		U	2.58		U	30.00		sU	54.55
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g			U	29.47		U	3.52		U	32.61		sU	71.74
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g			U	29.47		U	3.52		U	32.61		sU	75.00
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g		51.58		29.47		U	3.52	29.35	J	32.61	163.04	s	71.74
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g			U	29.47		U	3.52		U	32.61		sU	71.74
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g		17.90	J	29.47		U	3.52		U	32.61	119.57	+Js	71.74
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g		136.84	+J	29.47	7.14	J	3.52	86.96	+J	32.61	358.70	+Js	71.74
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g			U	26.42		U	2.58		U	30.00		sU	54.55
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g		82.11	+J	29.47	14.29	+J	3.52	38.04	+J	32.61	239.13	+Js	71.74
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g		198.11	+J	26.42	4.76	+J	2.58	120.00	+J	30.00	396.69	+Js	54.55
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g		547.17	+J	26.42	15.32	+J	2.58	360.00	+J	30.00	1074.38	+Js	54.55
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g			U	26.42		U	2.58		U	30.00		sU	54.55
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g		160.38	+J	26.42	3.23	J	2.58	98.00	+J	30.00	256.20	+Js	54.55
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g		726.42	+J	26.42	13.71	+J	2.58	490.00	+J	30.00	1239.67	+Js	54.55
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g		896.23		26.42	17.74		2.58	640.00		30.00	1404.96	s	54.55
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g		103.77		26.42		U	2.58	69.00		30.00	264.46	s	57.03
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g		245.28	+J	26.42		U	2.58	160.00	+J	30.00	471.07	+Js	57.03
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g		330.19		26.42	6.21		2.58	230.00		30.00	462.81	s	54.55
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g		12.26	J	26.42		U	2.58		U	30.00	15.70	Js	54.55
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	ng/g		30.19		26.42		U	2.58	20.00	J	30.00	28.93	Js	54.55
	Total PCB (ng/g)					3553.52			82.40			2341.35			6495.31		

Appendix Table C-7. 2006 DDTs

					Stat Id	DIF											
					Sample Id	FL06110C1						FL06110C2					
					Bottle Id	10C1_HEP			10C1_MEA			10C2_HEP			10C2_MEA		
					Fraction Code	HEPATOPANC			MEAT			HEPATOPANC			MEAT		
					Anal Lab Id	CAS			CAS			CAS			CAS		
					Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code													
DDT	2,4'-DDD	o,p'-DDD	53-19-0	ng/g			-JU	1.97		-JU	3.75		-JU	2.24		-JU	3.81
	2,4'-DDE	o,p'-DDE	3424-82-6	ng/g		2.25		1.97		U	3.75	2.41		2.24		U	3.81
	2,4'-DDT	o,p'-DDT	789-02-6	ng/g			U	1.97		U	3.75		U	2.24		U	3.81
	4,4'-DDD	p,p'-DDD	72-54-8	ng/g		60.56		1.97		U	3.75	65.52		2.24		U	3.81
	4,4'-DDE	p,p'-DDE	72-55-9	ng/g		1126.76		19.72	14.22		3.75	1568.97		22.41	14.29		3.81
	4,4'-DDT	p,p'-DDT	50-29-3	ng/g		1.41	J	4.93	2.50	J	9.38	1.38	J	5.35	2.70	J	9.37
	Total (ng/g)					**1190.99**			**16.72**			**1638.28**			**16.98**		
DDT - other	DDMU	4,4 DDD olefin (DDMU)	1022-22-6	ng/g		52.11	+J	4.93		U	9.38	75.86	+J	5.35		U	9.37

Appendix Table C-7. 2006 DDTs

					Stat Id							ECCB					
					Sample Id	FL06110C3						FL06150C1					
					Bottle Id	10C3_HEP			10C3_MEA			50C1_HEP			50C1_MEA		
					Fraction Code	HEPATOPANC			MEAT			HEPATOPANC			MEAT		
					Anal Lab Id	CAS			CAS			CAS			CAS		
					Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code													
DDT	2,4'-DDD	o,p'-DDD	53-19-0	ng/g		1.48	J	2.92		-JU	4.10	1.19	J	2.76		-JU	4.03
	2,4'-DDE	o,p'-DDE	3424-82-6	ng/g			U	2.92		U	4.10	4.66		2.76		U	4.03
	2,4'-DDT	o,p'-DDT	789-02-6	ng/g			U	2.92		U	4.10		U	2.76		U	4.03
	4,4'-DDD	p,p'-DDD	72-54-8	ng/g		85.42		2.92		U	4.10	70.69		2.76		U	4.03
	4,4'-DDE	p,p'-DDE	72-55-9	ng/g		1437.50		29.17	11.31		4.10	862.07		27.59	6.61		4.03
	4,4'-DDT	p,p'-DDT	50-29-3	ng/g		4.79	J	6.88		U	10.00	15.69		6.90		U	10.00
	Total (ng/g)					**1529.19**			**11.31**			**954.29**			**6.61**		
DDT - other	DDMU	4,4 DDD olefin (DDMU)	1022-22-6	ng/g		50.00	+J	6.88		U	10.00	29.31	+J	6.90		U	10.00

Appendix Table C-7. 2006 DDTs

					Stat Id														
					Sample Id	FL06150C2						FL06150C3						FL06140C1	
					Bottle Id	50C2_HEP			50C2_MEA			50C3_HEP			50C3_MEA			40C1_HEP	
					Fraction Code	HEPATOPANC			MEAT			HEPATOPANC			MEAT			HEPATOPANC	
					Anal Lab Id	CAS			CAS			CAS			CAS			CAS	
					Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS	
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code															
DDT	2,4'-DDD	o,p'-DDD	53-19-0	ng/g			-JU	2.04		-JU	3.77		-JU	2.89		-JU	3.51	0.71	J	2.38
	2,4'-DDE	o,p'-DDE	3424-82-6	ng/g		1.16	J	2.04		U	3.77		U	2.89		U	3.51		U	2.38
	2,4'-DDT	o,p'-DDT	789-02-6	ng/g			U	2.04		U	3.77		U	2.89		U	3.51		U	2.38
	4,4'-DDD	p,p'-DDD	72-54-8	ng/g		30.61		2.04		U	3.77	28.85		2.89		U	3.51	25.40		2.38
	4,4'-DDE	p,p'-DDE	72-55-9	ng/g		693.88		20.41	5.41		3.77	788.46		28.85	6.35		3.51	714.29		23.81
	4,4'-DDT	p,p'-DDT	50-29-3	ng/g		7.14		5.10	2.30	J	9.18	3.27	J	7.12	2.43	J	8.78	2.38	J	5.87
	Total (ng/g)					**732.80**			**7.71**			**820.58**			**8.78**			**742.78**		
DDT - other	DDMU	4,4 DDD olefin (DDMU)	1022-22-6	ng/g		13.67	+J	5.10		U	9.18	18.08	+J	7.12		U	8.78	7.62	+J	5.87

Appendix Table C-7. 2006 DDTs

					Stat Id														
					Sample Id				FL06140C2						FL06140C3				
					Bottle Id	40C1_MEA			40C2_HEP			40C2_MEA			40C3_HEP			40C3_MEA	
					Fraction Code	MEAT			HEPATOPANC			MEAT			HEPATOPANC			MEAT	
					Anal Lab Id	CAS			CAS			CAS			CAS			CAS	
					Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS	
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code															
DDT	2,4'-DDD	o,p'-DDD	53-19-0	ng/g			-JU	4.52	1.02	J	2.16		-JU	4.56		-JU	1.77		-JU	5.28
	2,4'-DDE	o,p'-DDE	3424-82-6	ng/g			U	4.52	1.24	J	2.16		U	4.56		U	1.77		U	5.28
	2,4'-DDT	o,p'-DDT	789-02-6	ng/g			U	4.52		U	2.16		U	4.56		U	1.77		U	5.28
	4,4'-DDD	p,p'-DDD	72-54-8	ng/g			U	4.52	29.41		2.16		U	4.56	13.68		1.77		U	5.28
	4,4'-DDE	p,p'-DDE	72-55-9	ng/g		7.58		4.52	960.78		21.57	12.11		4.56	500.00		17.65	8.87		5.28
	4,4'-DDT	p,p'-DDT	50-29-3	ng/g			U	10.97	2.16	J	5.49		U	11.23	1.62	J	4.41		U	13.02
	Total (ng/g)					**7.58**			**994.61**			**12.11**			**515.29**			**8.87**		
DDT - other	DDMU	4,4 DDD olefin (DDMU)	1022-22-6	ng/g			U	10.97	11.37	+J	5.49		U	11.23	6.32	+J	4.41		U	13.02

Appendix Table C-8. 2006 Pesticides

					Stat Id	DIF											
					Sample Id	FL06110C1						FL06110C2					
					Bottle Id	10C1_HEP			10C1_MEA			10C2_HEP			10C2_MEA		
					Fraction Code	HEPATOPANC			MEAT			HEPATOPANC			MEAT		
					Anal Lab Id	CAS			CAS			CAS			CAS		
					Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code													
PEST		Aldrin	309-00-2	ng/g			Uw	1.97		Uw	3.75		Uw	2.24		Uw	3.81
		Dieldrin	60-57-1	ng/g		50.70	w	1.97	3.75	w	3.75	41.38	w	2.24	4.76	w	3.81
		Endrin	72-20-8	ng/g			Uw	1.97		Uw	3.75		Uw	2.24		Uw	3.81
		Hexachlorobenzene	118-74-1	ng/g		6.06	w	1.97		Uw	3.75	7.24	w	2.24		Uw	3.81
		Lindane	58-89-9	ng/g		0.73	Jw	1.97		Uw	3.75	1.10	Jw	2.24		Uw	3.81
		Mirex	2385-85-5	ng/g		5.63	w	1.97		Uw	3.75	11.03	w	2.24		Uw	3.81
Total PEST (ng/g)						**63.13**			**3.75**			**60.76**			**4.76**		

Appendix Table C-8. 2006 Pesticides

					Stat Id												
					Sample Id	FL06110C3						FL06150C1					
					Bottle Id	10C3_HEP			10C3_MEA			50C1_HEP			50C1_MEA		
					Fraction Code	HEPATOPANC			MEAT			HEPATOPANC			MEAT		
					Anal Lab Id	CAS			CAS			CAS			CAS		
					Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code													
PEST		Aldrin	309-00-2	ng/g			Uw	2.92		Uw	4.10		Uw	2.76		Uw	4.03
		Dieldrin	60-57-1	ng/g		68.75	w	2.92	3.44	Jw	4.10	37.93	w	2.76		Uw	4.03
		Endrin	72-20-8	ng/g			Uw	2.92		Uw	4.10		Uw	2.76		Uw	4.03
		Hexachlorobenzene	118-74-1	ng/g		3.54	w	2.92		Uw	4.10		Uw	2.76		Uw	4.03
		Lindane	58-89-9	ng/g		1.27	Jw	2.92		Uw	4.10	1.31	Jw	2.76		Uw	4.03
		Mirex	2385-85-5	ng/g		9.17	w	2.92		Uw	4.10	7.07	w	2.76		Uw	4.03
Total PEST (ng/g)						**82.73**			**3.44**			**46.31**					

Appendix Table C-8. 2006 Pesticides

					Stat Id												
					Sample Id	FL06150C2						FL06150C3					
					Bottle Id	50C2_HEP			50C2_MEA			50C3_HEP			50C3_MEA		
					Fraction Code	HEPATOPANC			MEAT			HEPATOPANC			MEAT		
					Anal Lab Id	CAS			CAS			CAS			CAS		
					Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code													
PEST		Aldrin	309-00-2	ng/g			Uw	2.04		Uw	3.77		Uw	2.89		Uw	3.51
		Dieldrin	60-57-1	ng/g		36.74	w	2.04		Uw	3.77	34.62	w	2.89		Uw	3.51
		Endrin	72-20-8	ng/g			Uw	2.04		Uw	3.77		Uw	2.89		Uw	3.51
		Hexachlorobenzene	118-74-1	ng/g		1.49	Jw	2.04		Uw	3.77	9.42	w	2.89		Uw	3.51
		Lindane	58-89-9	ng/g		1.55	Jw	2.04		Uw	3.77	1.12	Jw	2.89		Uw	3.51
		Mirex	2385-85-5	ng/g		6.94	w	2.04		Uw	3.77	7.89	w	2.89		Uw	3.51
Total PEST (ng/g)						**46.72**						**53.04**					

Appendix Table C-8. 2006 Pesticides

					Stat Id	OS											
					Sample Id	FL06140C1						FL06140C2					
					Bottle Id	40C1_HEP			40C1_MEA_BOS			40C2_HEP			40C2_MEA_BOS		
					Fraction Code	HEPATOPANC			MEAT			HEPATOPANC			MEAT		
					Anal Lab Id	CAS			BOS			CAS			BOS		
					Meth Code	GC_MS_MS			BSOP5-128DUAL			GC_MS_MS			BSOP5-128DUAL		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code													
PEST		Aldrin	309-00-2	ng/g			Uw	2.38		a	0.27		Uw	2.16		a	0.27
		Dieldrin	60-57-1	ng/g		33.33	w	2.38	3.11		0.37	37.26	w	2.16	2.48		0.37
		Endrin	72-20-8	ng/g			Uw	2.38		a	0.22		Uw	2.16		a	0.22
		Hexachlorobenzene	118-74-1	ng/g		6.19	-Jw	2.38	0.98		0.24	1.71	Jw	2.16	0.53		0.24
		Lindane	58-89-9	ng/g		0.98	Jw	2.38	1.97		0.17	1.67	Jw	2.16	1.14		0.17
		Mirex	2385-85-5	ng/g		5.71	w	2.38		a	0.38	7.06	w	2.16		a	0.38
Total PEST (ng/g)						**46.22**			**6.06**			**47.69**			**4.15**		

Appendix Table C-8. 2006 Pesticides

					Stat Id						
					Sample Id	FL06140C3					
					Bottle Id	40C3_HEP			40C3_MEA_BOS		
					Fraction Code	HEPATOPANC			MEAT		
					Anal Lab Id	CAS			BOS		
					Meth Code	GC_MS_MS			BSOP5-128DUAL		
						Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code							
PEST		Aldrin	309-00-2	ng/g			Uw	1.77		a	0.28
		Dieldrin	60-57-1	ng/g		25.00	w	1.77	2.23		0.38
		Endrin	72-20-8	ng/g			Uw	1.77		a	0.23
		Hexachlorobenzene	118-74-1	ng/g		6.62	w	1.77	0.65		0.25
		Lindane	58-89-9	ng/g		0.65	Jw	1.77	2.34		0.18
		Mirex	2385-85-5	ng/g		4.56	w	1.77		a	0.39
Total PEST (ng/g)						**36.82**			**5.22**		

Appendix Table C-9. 2006 Chlordanes

				Stat Id	DIF														
				Sample Id	FL06110C1						FL06110C2						FL06110C3		
				Bottle Id	10C1_HEP			10C1_MEA			10C2_HEP			10C2_MEA			10C3_HEP		
				Fraction Code	HEPATOPANC			MEAT			HEPATOPANC			MEAT			HEPATOPANC		
				Anal Lab Id	CAS			CAS			CAS			CAS			CAS		
				Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Descr	Param Code	Unit Code																
CHLOR	Heptachlor	76-44-8	ng/g			Uw	1.97		Uw	3.75		Uw	2.24		Uw	3.81		Uw	2.92
	Heptachlorepoxide	1024-57-3	ng/g		6.76	w	1.97		Uw	3.75	8.97	w	2.24		Uw	3.81	10.83	w	2.92
	cis-Chlordane	5103-71-9	ng/g		25.35	w	1.97		Uw	3.75	18.97	w	2.24		Uw	3.81	31.25	w	2.92
	trans-Nonachlor	39765-80-5	ng/g		59.16	+Jw	1.97		JUw	3.75	129.31	+Jw	2.24		Uw	3.81	79.17	+Jw	2.92
Total CHLORs (ng/g)					**91.27**						**157.24**						**121.25**		

Appendix Table C-9. 2006 Chlordanes

				Stat Id				ECCB											
				Sample Id				FL06150C1						FL06150C2					
				Bottle Id	10C3_MEA			50C1_HEP			50C1_MEA			50C2_HEP			50C2_MEA		
				Fraction Code	MEAT			HEPATOPANC			MEAT			HEPATOPANC			MEAT		
				Anal Lab Id	CAS			CAS			CAS			CAS			CAS		
				Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Descr	Param Code	Unit Code																
CHLOR	Heptachlor	76-44-8	ng/g			Uw	4.10		Uw	2.76		Uw	4.03		Uw	2.04		Uw	3.77
	Heptachlorepoxide	1024-57-3	ng/g			Uw	4.10	5.86	w	2.76		Uw	4.03	6.33	w	2.04		Uw	3.77
	cis-Chlordane	5103-71-9	ng/g			Uw	4.10	43.10	w	2.76		Uw	4.03	17.14	w	2.04		Uw	3.77
	trans-Nonachlor	39765-80-5	ng/g			Uw	4.10	82.76	+Jw	2.76		Uw	4.03	36.74	+Jw	2.04		Uw	3.77
Total CHLORs (ng/g)								**131.72**						**60.21**					

Appendix Table C-9. 2006 Chlordanes

				Stat Id							OS								
				Sample Id	FL06150C3						FL06140C1						FL06140C2		
				Bottle Id	50C3_HEP			50C3_MEA			40C1_HEP			40C1_MEA_BOS			40C2_HEP		
				Fraction Code	HEPATOPANC			MEAT			HEPATOPANC			MEAT			HEPATOPANC		
				Anal Lab Id	CAS			CAS			CAS			BOS			CAS		
				Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			BSOP5-128DUAL			GC_MS_MS		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Descr	Param Code	Unit Code																
CHLOR	Heptachlor	76-44-8	ng/g			Uw	2.89		Uw	3.51		Uw	2.38		a	0.32		Uw	2.16
	Heptachlorepoxide	1024-57-3	ng/g		6.35	w	2.89		Uw	3.51	7.30	w	2.38		a	0.57	6.67	w	2.16
	cis-Chlordane	5103-71-9	ng/g		11.73	w	2.89		Uw	3.51	13.33	w	2.38		a	0.31	15.69	w	2.16
	trans-Nonachlor	39765-80-5	ng/g		36.54	+Jw	2.89		Uw	3.51	42.86	+Jw	2.38		a	0.29	37.26	+Jw	2.16
Total CHLORs (ng/g)					**54.62**						**63.49**						**59.61**		

Appendix Table C-9. 2006 Chlordanes

				Stat Id										
				Sample Id				FL06140C3						
				Bottle Id	40C2_MEA_BOS			40C3_HEP			40C3_MEA_BOS		
				Fraction Code	MEAT			HEPATOPANC			MEAT		
				Anal Lab Id	BOS			CAS			BOS		
				Meth Code	BSOP5-128DUAL			GC_MS_MS			BSOP5-128DUAL		
					Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Descr	Param Code	Unit Code										
CHLOR	Heptachlor	76-44-8	ng/g			a	0.32		Uw	1.77		a	0.33
	Heptachlorepoxide	1024-57-3	ng/g			a	0.57	4.71	w	1.77		a	0.58
	cis-Chlordane	5103-71-9	ng/g			a	0.31	6.91	w	1.77		a	0.32
	trans-Nonachlor	39765-80-5	ng/g			a	0.29	33.82	+Jw	1.77	0.39		0.30
Total CHLORs (ng/g)								**45.44**			**0.39**		

Appendix Table C-10. 2006 PAHs

						Stat Id	DIF								
						Sample Id	FL06110C1			FL06110C2			FL06110C3		
						Bottle Id	10C1_HEP			10C2_HEP			10C3_HEP		
						Fraction Code	HEPATOPANC			HEPATOPANC			HEPATOPANC		
						Anal Lab Id	CAS			CAS			CAS		
							Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code	Meth Code										
HMW-PAH		Benz(a)anthracene	56-55-3	ng/g	EPA8270C_SIM		171.43	w	124.29	613.33	w	102.67	246.58	w	110.96
		Benzo(a)pyrene	50-32-8	ng/g	EPA8270C_SIM		157.14	w	124.29	480.00	w	102.67	260.27	w	110.96
		Benzo(b)fluoranthene	205-99-2	ng/g	EPA8270C_SIM		228.57	w	124.29	720.00	w	102.67	315.07	w	110.96
		Benzo(e)pyrene	192-97-2	ng/g	EPA8270C_SIM		228.57	w	124.29	426.67	w	102.67	301.37	w	110.96
		Benzo(g,h,i)perylene	191-24-2	ng/g	EPA8270C_SIM		141.43	w	124.29	240.00	w	102.67	205.48	w	110.96
		Benzo(k)fluoranthene	207-08-9	ng/g	EPA8270C_SIM		118.57	Jw	124.29	360.00	w	102.67	205.48	w	110.96
		C1-Chrysenes	MWRA70	ng/g	EPA8270C_SIM			Uw	124.29		Uw	102.67		Uw	110.96
		C1-Fluoranthenes/Pyrenes	MWRA69	ng/g	EPA8270C_SIM			Uw	114.47	1234.57	w	950.62		Uw	103.85
		C2-Chrysenes	MWRA4	ng/g	EPA8270C_SIM			Uw	124.29		Uw	102.67		Uw	110.96
		C2-Fluoranthenes/Pyrenes	MWRA83	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06		Uw	103.85
		C3-Chrysenes	MWRA71	ng/g	EPA8270C_SIM			Uw	124.29		Uw	102.67		Uw	110.96
		C3-Fluoranthenes/Pyrenes	MWRA84	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06		Uw	103.85
		C4-Chrysenes	MWRA72	ng/g	EPA8270C_SIM			Uw	124.29		Uw	102.67		Uw	110.96
		Chrysene	218-01-9	ng/g	EPA8270C_SIM		614.29	w	124.29	1133.33	w	102.67	726.03	w	110.96
		Dibenzo(a,h)anthracene	53-70-3	ng/g	EPA8270C_SIM			JUw	124.29	54.67	Jw	102.67	32.88	Jw	110.96
		Fluoranthene	206-44-0	ng/g	EPA8270C_SIM		973.68	w	114.47	3703.70	w	95.06	1410.26	w	103.85
		Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g	EPA8270C_SIM		157.14	Jw	124.29	386.67	Jw	102.67	205.48	Jw	110.96
		Perylene	198-55-0	ng/g	EPA8270C_SIM		38.57	Jw	124.29	108.00	w	102.67	53.43	Jw	110.96
		Pyrene	129-00-0	ng/g	EPA8270C_SIM		710.53	w	114.47	1975.31	w	95.06	1115.39	w	103.85
	Group Total (ng/g)						3539.92			11436.24			5077.70		

Appendix Table C-10. 2006 PAHs

						Stat Id	DIF								
						Sample Id	FL06110C1			FL06110C2			FL06110C3		
						Bottle Id	10C1_HEP			10C2_HEP			10C3_HEP		
						Fraction Code	HEPATOPANC			HEPATOPANC			HEPATOPANC		
						Anal Lab Id	CAS			CAS			CAS		
							Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code	Meth Code										
LMW-PAH		Acenaphthene	83-32-9	ng/g	EPA8270C_SIM		22.37	w	11.45	37.04	w	9.51	29.49	w	10.39
		Acenaphthylene	208-96-8	ng/g	EPA8270C_SIM		7.63	Jw	11.45	10.25	w	9.51	11.80	w	10.39
		Anthracene	120-12-7	ng/g	EPA8270C_SIM		42.11	Jw	114.47	197.53	w	95.06	75.64	Jw	103.85
		Biphenyl	92-52-4	ng/g	EPA8270C_SIM			Uw	11.45		Uw	13.58		Uw	12.82
		C1-Dibenzothiophenes	MWRA68	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06		Uw	103.85
		C1-Fluorenes	MWRA65	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06		Uw	103.85
		C1-Phenanthrenes/Anthracenes	MWRA67	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06		Uw	103.85
		C2-Dibenzothiophenes	MWRA5	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06		Uw	103.85
		C2-Fluorenes	MWRA6	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06		Uw	103.85
		C2-Naphthalenes	MWRA7	ng/g	EPA8270C_SIM			Uw	114.47	96.30	w	95.06	110.26	w	103.85
		C2-Phenanthrenes/Anthracenes	MWRA57	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06		Uw	103.85
		C3-Dibenzothiophenes	MWRA9	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06		Uw	103.85
		C3-Fluorenes	MWRA66	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06		Uw	103.85
		C3-Naphthalenes	MWRA10	ng/g	EPA8270C_SIM			Uw	114.47	135.80	w	95.06	333.33	w	103.85
		C3-Phenanthrenes/Anthracenes	MWRA52	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06		Uw	103.85
		C4-Naphthalenes	MWRA11	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06	346.15	w	103.85
		C4-Phenanthrenes/Anthracenes	MWRA54	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06		Uw	103.85
		Dibenzofuran	132-64-9	ng/g	EPA8270C_SIM		21.05	w	11.45	39.51	w	9.51	29.49	w	10.39
		Dibenzothiophene	132-65-0	ng/g	EPA8270C_SIM		25.00	Jw	114.47	34.57	w	9.51	32.05	Jw	103.85
		Fluorene	86-73-7	ng/g	EPA8270C_SIM		27.63	w	11.45	55.56	w	9.51	37.18	w	10.39
		Naphthalene	91-20-3	ng/g	EPA8270C_SIM			Uw	34.33		Uw	22.97		Uw	42.03
		Phenanthrene	85-01-8	ng/g	EPA8270C_SIM		184.21	w	114.47	777.78	w	95.06	307.69	w	103.85
	Group Total (ng/g)						330.00			1384.32			1313.08		
PAH - other		1-Methylnaphthalene	90-12-0	ng/g	EPA8270C_SIM		28.36	w	12.99	27.03	w	10.41	31.88	w	11.74
		1-Methylphenanthrene	832-69-9	ng/g	EPA8270C_SIM			Uw	114.47		Uw	95.06		Uw	103.85
		2,3,5-Trimethylnaphthalene	2245-38-7	ng/g	EPA8270C_SIM		35.53	w	11.45	35.80	w	9.51	74.36	w	10.39
		2,6-Dimethylnaphthalene	581-42-0	ng/g	EPA8270C_SIM		28.95	w	11.45	37.04	w	9.51	37.18	w	10.39
		2-Methylnaphthalene	91-57-6	ng/g	EPA8270C_SIM		44.78	w	26.87	39.19	w	21.62	53.62	w	24.64
		Benzothiazole	95-16-9	ng/g	EPA8270C_SIM_B			Uw	350.00		Uw	357.14		Uw	382.35
	Group Total (ng/g)						137.61			139.06			197.05		

Appendix Table C-10. 2006 PAHs

						Stat Id	ECCB								
						Sample Id	FL06150C1			FL06150C2			FL06150C3		
						Bottle Id	50C1_HEP			50C2_HEP			50C3_HEP		
						Fraction Code	HEPATOPANC			HEPATOPANC			HEPATOPANC		
						Anal Lab Id	CAS			CAS			CAS		
							Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code	Meth Code										
HMW-PAH		Benz(a)anthracene	56-55-3	ng/g	EPA8270C_SIM			Uw	143.48		Uw	72.94		Uw	145.16
		Benzo(a)pyrene	50-32-8	ng/g	EPA8270C_SIM			Uw	143.48		Uw	72.94		Uw	145.16
		Benzo(b)fluoranthene	205-99-2	ng/g	EPA8270C_SIM		31.88	Jw	143.48	25.88	Jw	72.94	46.77	Jw	145.16
		Benzo(e)pyrene	192-97-2	ng/g	EPA8270C_SIM		52.17	Jw	143.48	35.29	Jw	72.94	75.81	Jw	145.16
		Benzo(g,h,i)perylene	191-24-2	ng/g	EPA8270C_SIM		49.28	Jw	143.48	29.41	Jw	72.94	77.42	Jw	145.16
		Benzo(k)fluoranthene	207-08-9	ng/g	EPA8270C_SIM			Uw	143.48	16.47	Jw	72.94	33.87	Jw	145.16
		C1-Chrysenes	MWRA70	ng/g	EPA8270C_SIM			Uw	143.48		Uw	72.94		Uw	145.16
		C1-Fluoranthenes/Pyrenes	MWRA69	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C2-Chrysenes	MWRA4	ng/g	EPA8270C_SIM			Uw	143.48		Uw	72.94		Uw	145.16
		C2-Fluoranthenes/Pyrenes	MWRA83	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C3-Chrysenes	MWRA71	ng/g	EPA8270C_SIM			Uw	143.48		Uw	72.94		Uw	145.16
		C3-Fluoranthenes/Pyrenes	MWRA84	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C4-Chrysenes	MWRA72	ng/g	EPA8270C_SIM			Uw	143.48		Uw	72.94		Uw	145.16
		Chrysene	218-01-9	ng/g	EPA8270C_SIM			Uw	143.48		Uw	72.94	135.48	Jw	145.16
		Dibenzo(a,h)anthracene	53-70-3	ng/g	EPA8270C_SIM			JUw	143.48		JUw	72.94		JUw	145.16
		Fluoranthene	206-44-0	ng/g	EPA8270C_SIM		115.49	Jw	139.44	112.36	w	69.66	203.39	w	152.54
		Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g	EPA8270C_SIM		31.88	Jw	143.48	34.12	Jw	72.94		JUw	145.16
		Perylene	198-55-0	ng/g	EPA8270C_SIM			Uw	143.48		Uw	72.94		Uw	145.16
		Pyrene	129-00-0	ng/g	EPA8270C_SIM		38.03	w	13.94	67.42	Jw	69.66	118.64	Jw	152.54
	Group Total (ng/g)						318.74			320.95			691.39		

Appendix Table C-10. 2006 PAHs

						Stat Id	ECCB								
						Sample Id	FL06150C1			FL06150C2			FL06150C3		
						Bottle Id	50C1_HEP			50C2_HEP			50C3_HEP		
						Fraction Code	HEPATOPANC			HEPATOPANC			HEPATOPANC		
						Anal Lab Id	CAS			CAS			CAS		
							Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code	Meth Code										
LMW-PAH		Acenaphthene	83-32-9	ng/g	EPA8270C_SIM		4.23	Jw	13.94	3.03	Jw	6.97	3.90	Jw	15.25
		Acenaphthylene	208-96-8	ng/g	EPA8270C_SIM			Uw	13.94		Uw	6.97		Uw	15.25
		Anthracene	120-12-7	ng/g	EPA8270C_SIM			Uw	139.44	8.88	Jw	69.66	4.75	Jw	15.25
		Biphenyl	92-52-4	ng/g	EPA8270C_SIM			Uw	13.94		Uw	7.53		Uw	15.25
		C1-Dibenzothiophenes	MWRA68	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C1-Fluorenes	MWRA65	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C1-Phenanthrenes/Anthracenes	MWRA67	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C2-Dibenzothiophenes	MWRA5	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C2-Fluorenes	MWRA6	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C2-Naphthalenes	MWRA7	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C2-Phenanthrenes/Anthracenes	MWRA57	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66	186.44	w	152.54
		C3-Dibenzothiophenes	MWRA9	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C3-Fluorenes	MWRA66	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C3-Naphthalenes	MWRA10	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C3-Phenanthrenes/Anthracenes	MWRA52	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C4-Naphthalenes	MWRA11	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		C4-Phenanthrenes/Anthracenes	MWRA54	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	152.54
		Dibenzofuran	132-64-9	ng/g	EPA8270C_SIM		5.78	Jw	13.94	4.83	Jw	6.97	8.64	Jw	15.25
		Dibenzothiophene	132-65-0	ng/g	EPA8270C_SIM			Uw	139.44	1.57	Jw	6.97	4.92	Jw	15.25
		Fluorene	86-73-7	ng/g	EPA8270C_SIM		8.87	Jw	13.94	7.64	w	6.97	13.39	Jw	15.25
		Naphthalene	91-20-3	ng/g	EPA8270C_SIM			Uw	33.33		Uw	19.40		Uw	29.51
		Phenanthrene	85-01-8	ng/g	EPA8270C_SIM		71.83	Jw	139.44	51.69	Jw	69.66	84.75	Jw	152.54
	Group Total (ng/g)						90.70			77.64			306.78		
PAH - other		1-Methylnaphthalene	90-12-0	ng/g	EPA8270C_SIM			Uw	16.67		Uw	11.19		Uw	18.03
		1-Methylphenanthrene	832-69-9	ng/g	EPA8270C_SIM			Uw	139.44		Uw	69.66		Uw	15.25
		2,3,5-Trimethylnaphthalene	2245-38-7	ng/g	EPA8270C_SIM		8.59	Jw	13.94		Uw	6.97	11.02	Jw	15.25
		2,6-Dimethylnaphthalene	581-42-0	ng/g	EPA8270C_SIM		16.90	w	13.94	14.61	w	6.97	16.95	w	15.25
		2-Methylnaphthalene	91-57-6	ng/g	EPA8270C_SIM			Uw	33.33		Uw	19.40		Uw	29.51
		Benzothiazole	95-16-9	ng/g	EPA8270C_SIM_B			Uw	457.14		Uw	471.70		Uw	460.32
	Group Total (ng/g)						25.49			14.61			27.97		

Appendix Table C-10. 2006 PAHs

						Stat Id	OS								
						Sample Id	FL06140C1			FL06140C2			FL06140C3		
						Bottle Id	40C1_HEP			40C2_HEP			40C3_HEP		
						Fraction Code	HEPATOPANC			HEPATOPANC			HEPATOPANC		
						Anal Lab Id	CAS			CAS			CAS		
							Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code	Meth Code										
HMW-PAH		Benz(a)anthracene	56-55-3	ng/g	EPA8270C_SIM		30.14	Jw	126.03	62.82	Jw	88.46	45.00	Jw	92.50
		Benzo(a)pyrene	50-32-8	ng/g	EPA8270C_SIM		45.21	Jw	126.03	47.44	Jw	88.46	46.25	Jw	92.50
		Benzo(b)fluoranthene	205-99-2	ng/g	EPA8270C_SIM		58.90	Jw	126.03	61.54	Jw	88.46	66.25	Jw	92.50
		Benzo(e)pyrene	192-97-2	ng/g	EPA8270C_SIM		91.78	Jw	126.03	88.46	Jw	88.46	71.25	Jw	92.50
		Benzo(g,h,i)perylene	191-24-2	ng/g	EPA8270C_SIM		68.49	Jw	126.03	70.51	Jw	88.46	52.50	Jw	92.50
		Benzo(k)fluoranthene	207-08-9	ng/g	EPA8270C_SIM		39.73	Jw	126.03	42.31	Jw	88.46	41.25	Jw	92.50
		C1-Chrysenes	MWRA70	ng/g	EPA8270C_SIM			Uw	126.03		Uw	88.46		Uw	92.50
		C1-Fluoranthenes/Pyrenes	MWRA69	ng/g	EPA8270C_SIM			Uw	143.75	139.44	w	97.18	130.77	w	113.85
		C2-Chrysenes	MWRA4	ng/g	EPA8270C_SIM			Uw	126.03		Uw	88.46		Uw	92.50
		C2-Fluoranthenes/Pyrenes	MWRA83	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C3-Chrysenes	MWRA71	ng/g	EPA8270C_SIM			Uw	126.03		Uw	88.46		Uw	92.50
		C3-Fluoranthenes/Pyrenes	MWRA84	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C4-Chrysenes	MWRA72	ng/g	EPA8270C_SIM			Uw	126.03		Uw	88.46		Uw	92.50
		Chrysene	218-01-9	ng/g	EPA8270C_SIM		150.69	w	126.03	153.85	w	88.46	125.00	w	92.50
		Dibenzo(a,h)anthracene	53-70-3	ng/g	EPA8270C_SIM			JUw	126.03		JUw	88.46		JUw	92.50
		Fluoranthene	206-44-0	ng/g	EPA8270C_SIM		218.75	w	14.38	267.61	w	9.72	307.69	w	11.39
		Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g	EPA8270C_SIM		60.27	Jw	126.03	56.41	Jw	88.46	55.00	Jw	92.50
		Perylene	198-55-0	ng/g	EPA8270C_SIM			Uw	126.03		Uw	88.46		Uw	92.50
		Pyrene	129-00-0	ng/g	EPA8270C_SIM		203.13	w	14.38	169.01	w	9.72	200.00	w	11.39
	Group Total (ng/g)						967.08			1159.39			1140.96		

Appendix Table C-10. 2006 PAHs

						Stat Id	OS								
						Sample Id	FL06140C1			FL06140C2			FL06140C3		
						Bottle Id	40C1_HEP			40C2_HEP			40C3_HEP		
						Fraction Code	HEPATOPANC			HEPATOPANC			HEPATOPANC		
						Anal Lab Id	CAS			CAS			CAS		
							Value	Q	RL	Value	Q	RL	Value	Q	RL
Group Id	Abbrev	Descr	Param Code	Unit Code	Meth Code										
LMW-PAH		Acenaphthene	83-32-9	ng/g	EPA8270C_SIM		8.91	Jw	14.38	8.73	Jw	9.72	10.00	Jw	11.39
		Acenaphthylene	208-96-8	ng/g	EPA8270C_SIM			Uw	14.38	6.20	Jw	9.72		Uw	11.39
		Anthracene	120-12-7	ng/g	EPA8270C_SIM		13.28	Jw	14.38	16.90	w	9.72	10.62	Jw	11.39
		Biphenyl	92-52-4	ng/g	EPA8270C_SIM			Uw	14.38		Uw	9.72		Uw	11.39
		C1-Dibenzothiophenes	MWRA68	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C1-Fluorenes	MWRA65	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C1-Phenanthrenes/Anthracenes	MWRA67	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C2-Dibenzothiophenes	MWRA5	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C2-Fluorenes	MWRA6	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C2-Naphthalenes	MWRA7	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C2-Phenanthrenes/Anthracenes	MWRA57	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C3-Dibenzothiophenes	MWRA9	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C3-Fluorenes	MWRA66	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C3-Naphthalenes	MWRA10	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C3-Phenanthrenes/Anthracenes	MWRA52	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C4-Naphthalenes	MWRA11	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		C4-Phenanthrenes/Anthracenes	MWRA54	ng/g	EPA8270C_SIM			Uw	143.75		Uw	97.18		Uw	113.85
		Dibenzofuran	132-64-9	ng/g	EPA8270C_SIM		9.69	Jw	14.38	10.85	w	9.72	10.77	Jw	11.39
		Dibenzothiophene	132-65-0	ng/g	EPA8270C_SIM			Uw	14.38	4.09	Jw	9.72	4.92	Jw	11.39
		Fluorene	86-73-7	ng/g	EPA8270C_SIM		14.84	w	14.38	13.24	w	9.72	14.62	w	11.39
		Naphthalene	91-20-3	ng/g	EPA8270C_SIM			Uw	29.69		Uw	19.18		Uw	23.08
		Phenanthrene	85-01-8	ng/g	EPA8270C_SIM		54.69	w	14.38	53.52	w	9.72	49.23	w	11.39
	Group Total (ng/g)						101.41			113.52			100.15		
PAH - other		1-Methylnaphthalene	90-12-0	ng/g	EPA8270C_SIM			Uw	15.16		Uw	13.15		Uw	13.85
		1-Methylphenanthrene	832-69-9	ng/g	EPA8270C_SIM			Uw	14.38		Uw	9.72	67.69	w	11.39
		2,3,5-Trimethylnaphthalene	2245-38-7	ng/g	EPA8270C_SIM			Uw	14.38	9.72	Jw	9.72		Uw	11.39
		2,6-Dimethylnaphthalene	581-42-0	ng/g	EPA8270C_SIM		18.75	w	14.38	15.49	w	9.72	23.08	w	11.39
		2-Methylnaphthalene	91-57-6	ng/g	EPA8270C_SIM			Uw	29.69		Uw	20.55		Uw	23.08
		Benzothiazole	95-16-9	ng/g	EPA8270C_SIM_B			Uw	535.71		Uw	528.30		Uw	406.78
	Group Total (ng/g)						18.75			25.21			90.77		

Appendix Table C-11. 2006 NOAA PAHs

					Stat Id	DIF									
					Sample Id	FL06110C1			FL06110C2			FL06110C3			
					Bottle Id	10C1_HEP			10C2_HEP			10C3_HEP			
					Fraction Code	HEPATOPANC			HEPATOPANC			HEPATOPANC			
					Anal Lab Id	CAS			CAS			CAS			
					Meth Code	EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			
						Value	Q	RL	Value	Q	RL	Value	Q	RL	
Group Id	Abbrev	Descr	Param Code	Unit Code											
HMW-PAH		Benz(a)anthracene	56-55-3	ng/g		171.43	w	124.29	613.33	w	102.67	246.58	w	110.96	
		Benzo(a)pyrene	50-32-8	ng/g		157.14	w	124.29	480.00	w	102.67	260.27	w	110.96	
		Benzo(b)fluoranthene	205-99-2	ng/g		228.57	w	124.29	720.00	w	102.67	315.07	w	110.96	
		Benzo(e)pyrene	192-97-2	ng/g		228.57	w	124.29	426.67	w	102.67	301.37	w	110.96	
		Benzo(g,h,i)perylene	191-24-2	ng/g		141.43	w	124.29	240.00	w	102.67	205.48	w	110.96	
		Benzo(k)fluoranthene	207-08-9	ng/g		118.57	Jw	124.29	360.00	w	102.67	205.48	w	110.96	
		Chrysene	218-01-9	ng/g		614.29	w	124.29	1133.33	w	102.67	726.03	w	110.96	
		Dibenzo(a,h)anthracene	53-70-3	ng/g			JUw	124.29	54.67	Jw	102.67	32.88	Jw	110.96	
		Fluoranthene	206-44-0	ng/g		973.68	w	114.47	3703.70	w	95.06	1410.26	w	103.85	
		Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g		157.14	Jw	124.29	386.67	Jw	102.67	205.48	Jw	110.96	
		Perylene	198-55-0	ng/g		38.57	Jw	124.29	108.00	w	102.67	53.43	Jw	110.96	
		Pyrene	129-00-0	ng/g		710.53	w	114.47	1975.31	w	95.06	1115.39	w	103.85	
LMW-PAH		Acenaphthene	83-32-9	ng/g		22.37	w	11.45	37.04	w	9.51	29.49	w	10.39	
		Acenaphthylene	208-96-8	ng/g		7.63	Jw	11.45	10.25	w	9.51	11.80	w	10.39	
		Anthracene	120-12-7	ng/g		42.11	Jw	114.47	197.53	w	95.06	75.64	Jw	103.85	
		Biphenyl	92-52-4	ng/g			Uw	11.45		Uw	13.58		Uw	12.82	
		Fluorene	86-73-7	ng/g		27.63	w	11.45	55.56	w	9.51	37.18	w	10.39	
		Naphthalene	91-20-3	ng/g			Uw	34.33		Uw	22.97		Uw	42.03	
		Phenanthrene	85-01-8	ng/g		184.21	w	114.47	777.78	w	95.06	307.69	w	103.85	
PAH - other		1-Methylnaphthalene	90-12-0	ng/g		28.36	w	12.99	27.03	w	10.41	31.88	w	11.74	
		1-Methylphenanthrene	832-69-9	ng/g			Uw	114.47		Uw	95.06		Uw	103.85	
		2,3,5-Trimethylnaphthalene	2245-38-7	ng/g		35.53	w	11.45	35.80	w	9.51	74.36	w	10.39	
		2,6-Dimethylnaphthalene	581-42-0	ng/g		28.95	w	11.45	37.04	w	9.51	37.18	w	10.39	
		2-Methylnaphthalene	91-57-6	ng/g		44.78	w	26.87	39.19	w	21.62	53.62	w	24.64	
Total NOAA PAH (ng/g)						**3961.48**			**11418.88**			**5736.54**			

Appendix Table C-11. 2006 NOAA PAHs

					Stat Id	ECCB									
					Sample Id	FL06150C1			FL06150C2			FL06150C3			
					Bottle Id	50C1_HEP			50C2_HEP			50C3_HEP			
					Fraction Code	HEPATOPANC			HEPATOPANC			HEPATOPANC			
					Anal Lab Id	CAS			CAS			CAS			
					Meth Code	EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			
						Value	Q	RL	Value	Q	RL	Value	Q	RL	
Group Id	Abbrev	Descr	Param Code	Unit Code											
HMW-PAH		Benz(a)anthracene	56-55-3	ng/g			Uw	143.48		Uw	72.94		Uw	145.16	
		Benzo(a)pyrene	50-32-8	ng/g			Uw	143.48		Uw	72.94		Uw	145.16	
		Benzo(b)fluoranthene	205-99-2	ng/g		31.88	Jw	143.48	25.88	Jw	72.94	46.77	Jw	145.16	
		Benzo(e)pyrene	192-97-2	ng/g		52.17	Jw	143.48	35.29	Jw	72.94	75.81	Jw	145.16	
		Benzo(g,h,i)perylene	191-24-2	ng/g		49.28	Jw	143.48	29.41	Jw	72.94	77.42	Jw	145.16	
		Benzo(k)fluoranthene	207-08-9	ng/g			Uw	143.48	16.47	Jw	72.94	33.87	Jw	145.16	
		Chrysene	218-01-9	ng/g			Uw	143.48		Uw	72.94	135.48	Jw	145.16	
		Dibenzo(a,h)anthracene	53-70-3	ng/g			JUw	143.48		JUw	72.94		JUw	145.16	
		Fluoranthene	206-44-0	ng/g		115.49	Jw	139.44	112.36	w	69.66	203.39	w	152.54	
		Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g		31.88	Jw	143.48	34.12	Jw	72.94		JUw	145.16	
		Perylene	198-55-0	ng/g			Uw	143.48		Uw	72.94		Uw	145.16	
		Pyrene	129-00-0	ng/g		38.03	w	13.94	67.42	Jw	69.66	118.64	Jw	152.54	
LMW-PAH		Acenaphthene	83-32-9	ng/g		4.23	Jw	13.94	3.03	Jw	6.97	3.90	Jw	15.25	
		Acenaphthylene	208-96-8	ng/g			Uw	13.94		Uw	6.97		Uw	15.25	
		Anthracene	120-12-7	ng/g			Uw	139.44	8.88	Jw	69.66	4.75	Jw	15.25	
		Biphenyl	92-52-4	ng/g			Uw	13.94		Uw	7.53		Uw	15.25	
		Fluorene	86-73-7	ng/g		8.87	Jw	13.94	7.64	w	6.97	13.39	Jw	15.25	
		Naphthalene	91-20-3	ng/g			Uw	33.33		Uw	19.40		Uw	29.51	
		Phenanthrene	85-01-8	ng/g		71.83	Jw	139.44	51.69	Jw	69.66	84.75	Jw	152.54	
PAH - other		1-Methylnaphthalene	90-12-0	ng/g			Uw	16.67		Uw	11.19		Uw	18.03	
		1-Methylphenanthrene	832-69-9	ng/g			Uw	139.44		Uw	69.66		Uw	15.25	
		2,3,5-Trimethylnaphthalene	2245-38-7	ng/g		8.59	Jw	13.94		Uw	6.97	11.02	Jw	15.25	
		2,6-Dimethylnaphthalene	581-42-0	ng/g		16.90	w	13.94	14.61	w	6.97	16.95	w	15.25	
		2-Methylnaphthalene	91-57-6	ng/g			Uw	33.33		Uw	19.40		Uw	29.51	
Total NOAA PAH (ng/g)						**429.16**			**406.80**			**826.13**			

Appendix Table C-11. 2006 NOAA PAHs

					Stat Id	OS									
					Sample Id	FL06140C1			FL06140C2			FL06140C3			
					Bottle Id	40C1_HEP			40C2_HEP			40C3_HEP			
					Fraction Code	HEPATOPANC			HEPATOPANC			HEPATOPANC			
					Anal Lab Id	CAS			CAS			CAS			
					Meth Code	EPA8270C_SIM			EPA8270C_SIM			EPA8270C_SIM			
						Value	Q	RL	Value	Q	RL	Value	Q	RL	
Group Id	Abbrev	Descr	Param Code	Unit Code											
HMW-PAH		Benz(a)anthracene	56-55-3	ng/g		30.14	Jw	126.03	62.82	Jw	88.46	45.00	Jw	92.50	
		Benzo(a)pyrene	50-32-8	ng/g		45.21	Jw	126.03	47.44	Jw	88.46	46.25	Jw	92.50	
		Benzo(b)fluoranthene	205-99-2	ng/g		58.90	Jw	126.03	61.54	Jw	88.46	66.25	Jw	92.50	
		Benzo(e)pyrene	192-97-2	ng/g		91.78	Jw	126.03	88.46	Jw	88.46	71.25	Jw	92.50	
		Benzo(g,h,i)perylene	191-24-2	ng/g		68.49	Jw	126.03	70.51	Jw	88.46	52.50	Jw	92.50	
		Benzo(k)fluoranthene	207-08-9	ng/g		39.73	Jw	126.03	42.31	Jw	88.46	41.25	Jw	92.50	
		Chrysene	218-01-9	ng/g		150.69	w	126.03	153.85	w	88.46	125.00	w	92.50	
		Dibenzo(a,h)anthracene	53-70-3	ng/g			JUw	126.03		JUw	88.46		JUw	92.50	
		Fluoranthene	206-44-0	ng/g		218.75	w	14.38	267.61	w	9.72	307.69	w	11.39	
		Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g		60.27	Jw	126.03	56.41	Jw	88.46	55.00	Jw	92.50	
		Perylene	198-55-0	ng/g			Uw	126.03		Uw	88.46		Uw	92.50	
		Pyrene	129-00-0	ng/g		203.13	w	14.38	169.01	w	9.72	200.00	w	11.39	
LMW-PAH		Acenaphthene	83-32-9	ng/g		8.91	Jw	14.38	8.73	Jw	9.72	10.00	Jw	11.39	
		Acenaphthylene	208-96-8	ng/g			Uw	14.38	6.20	Jw	9.72		Uw	11.39	
		Anthracene	120-12-7	ng/g		13.28	Jw	14.38	16.90	w	9.72	10.62	Jw	11.39	
		Biphenyl	92-52-4	ng/g			Uw	14.38		Uw	9.72		Uw	11.39	
		Fluorene	86-73-7	ng/g		14.84	w	14.38	13.24	w	9.72	14.62	w	11.39	
		Naphthalene	91-20-3	ng/g			Uw	29.69		Uw	19.18		Uw	23.08	
		Phenanthrene	85-01-8	ng/g		54.69	w	14.38	53.52	w	9.72	49.23	w	11.39	
PAH - other		1-Methylnaphthalene	90-12-0	ng/g			Uw	15.16		Uw	13.15		Uw	13.85	
		1-Methylphenanthrene	832-69-9	ng/g			Uw	14.38		Uw	9.72	67.69	w	11.39	
		2,3,5-Trimethylnaphthalene	2245-38-7	ng/g			Uw	14.38	9.72	Jw	9.72		Uw	11.39	
		2,6-Dimethylnaphthalene	581-42-0	ng/g		18.75	w	14.38	15.49	w	9.72	23.08	w	11.39	
		2-Methylnaphthalene	91-57-6	ng/g			Uw	29.69		Uw	20.55		Uw	23.08	
Total NOAA PAH (ng/g)						**1077.55**			**1143.76**			**1185.42**			

APPENDIX D

Summary Tables of Chemistry Results for Individual Composites of Mussel Tissue

Appendix Table D-1. 2006 Locations and Dates

Event Id	Stat Id	Location	Date
FM061	SP	STOVERS POINT	27-Jun-2006
FM062	OS-M3	Between 60 - 100 m from the diffuser	09-Aug-2006
	DIL	DEER I. DEPLOYMENT SITE	09-Aug-2006
	IH	BOSTON INNER HARBOR (AQUARIUM)	09-Aug-2006
	CCB	CENTRAL CAPE COD BAY	09-Aug-2006
FM063	CCB	CENTRAL CAPE COD BAY	30-Aug-2006
	OS-M1	Between 60 - 100 m from the diffuser	30-Aug-2006
	OS-M5	Between 60 - 100 m from the diffuser	30-Aug-2006
	OS-M2	Between 60 - 100 m from the diffuser	30-Aug-2006
	LNB	Large Navigation Buoy, AKA Buoy B, near Mass. Bay outfall. Do	30-Aug-2006
	IH	BOSTON INNER HARBOR (AQUARIUM)	30-Aug-2006
	DIL	DEER I. DEPLOYMENT SITE	30-Aug-2006

Appendix Table D-2. 2006 Value Qualifiers Used

Lab Id	Val Qual	Description
BOS	a	Usable non-detect result; not detected at or above the minimum detection limit (MDL). Database value input as null or negative. DETECT_LIMIT is the MDL.
	f	Value reported is below method detection limit
CAS	+J	Usable detected result with a potential high bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit. See explanatory comment.
	-J	Usable detected result with a potential low bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit. See explanatory comment.
	-JU	Non-detect at or above sample-specific quantitation limit (QL). Value entered as null. DETECT_LIMIT is the QL. Potential low bias in the level of the QL due to QC exceedance(s). See comment.
	-Jw	Use with caution - see comment. Detected result with a potential low bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit.
	J	Usable detected result with potential indeterminate bias to to QC exceedance(s). DETECT_LIMIT is the quantitation limit. See comments.
	Js	Suspect/invalid detected result with a potential indeterminate bias due to QC exceedance(s). DETECT_LIMIT is the quantitation limit.
	Jw	Use with caution - see comment. Detected result with potential indeterminate bias to to QC exceedance(s). DETECT_LIMIT is the quantitation limit.
	U	Usable non-detected result; not detected at or above the sample-specific quantiation limit (QL). DETECT_LIMIT is the QL.
	Uw	Use with caution - see comments. Non-detected result; not detected at or above the sample-specific quantiation limit (QL). DETECT_LIMIT is the QL.
	sU	Suspect value - see comment. Non-detected result; not detected at or above the sample-specific quantiation limit (QL). DETECT_LIMIT is the QL.
	w	This datum should be used with caution, see comment field

Appendix Table D-3. 2006 Lipids and % Dry Weight

					Param Code	LIPID			PCTDRYWT		
						Value	Q	MDL	Value	Q	MDL
Stat Id	Sample Id	Lab ID	Bottle Id	Fraction Code							
CCB	FM063901	BOS	901_SOF_BOS	SOFT_TISSUE		7.07			14.19		
		CAS	901_SOF	SOFT_TISSUE		9.29		0.05	14.00		
	FM063902	BOS	902_SOF_BOS	SOFT_TISSUE		9.44			14.07		
		CAS	902_SOF	SOFT_TISSUE		9.04		0.05	16.60		
	FM063903	CAS	903_SOF	SOFT_TISSUE		7.29		0.05	19.20		
	FM063904	CAS	904_SOF	SOFT_TISSUE		8.89		0.05	13.50		
DIL	FM0631M01	BOS	1M01_SOF_BOS	SOFT_TISSUE		6.69			13.38		
		CAS	1M01_SOF	SOFT_TISSUE		8.58		0.05	11.30		
	FM0631M02	BOS	1M02_SOF_BOS	SOFT_TISSUE		7.59			14.46		
		CAS	1M02_SOF	SOFT_TISSUE		8.89		0.05	13.50		
	FM0631M03	CAS	1M03_SOF	SOFT_TISSUE		8.00		0.05	12.50		
	FM0631M04	CAS	1M04_SOF	SOFT_TISSUE		7.58		0.05	13.20		
	FM0631M05	CAS	1M05_SOF	SOFT_TISSUE		8.00		0.05	15.00		
IH	FM063601	BOS	601_SOF_BOS	SOFT_TISSUE		6.33			9.74		
		CAS	601_SOF	SOFT_TISSUE		6.90		0.05	10.00		
	FM063602	BOS	602_SOF_BOS	SOFT_TISSUE		5.65			8.16		
		CAS	602_SOF	SOFT_TISSUE		5.77		0.05	9.18		
	FM063603	CAS	603_SOF	SOFT_TISSUE		5.71		0.05	9.63		
	FM063604	CAS	604_SOF	SOFT_TISSUE		8.26		0.05	10.90		
	FM063605	CAS	605_SOF	SOFT_TISSUE		4.05		0.05	11.10		
LNB	FM063B01	BOS	B01_SOF_BOS	SOFT_TISSUE		8.02			14.32		
		CAS	B01_SOF	SOFT_TISSUE		9.27		0.05	15.10		
	FM063B02	BOS	B02_SOF_BOS	SOFT_TISSUE		7.15			15.13		
		CAS	B02_SOF	SOFT_TISSUE		10.00		0.05	17.00		
	FM063B03	CAS	B03_SOF	SOFT_TISSUE		9.64		0.05	16.60		
	FM063B04	CAS	B04_SOF	SOFT_TISSUE		11.39		0.05	15.80		
OS-M2	FM063M201	BOS	M201_SOF_BOS	SOFT_TISSUE		8.73			13.72		
		CAS	M201_SOF	SOFT_TISSUE		9.52		0.05	14.70		
	FM063M202	BOS	M202_SOF_BOS	SOFT_TISSUE		6.90			11.25		
		CAS	M202_SOF	SOFT_TISSUE		7.92		0.05	12.00		
	FM063M203	CAS	M203_SOF	SOFT_TISSUE		9.62		0.05	15.60		
	FM063M204	CAS	M204_SOF	SOFT_TISSUE		7.43		0.05	14.80		
OS-M5	FM063M501	BOS	M501_SOF_BOS	SOFT_TISSUE		6.64			11.11		
		CAS	M501_SOF	SOFT_TISSUE		8.12		0.05	12.20		
	FM063M502	BOS	M502_SOF_BOS	SOFT_TISSUE		8.17			13.67		
		CAS	M502_SOF	SOFT_TISSUE		7.35		0.05	17.70		
	FM063M503	CAS	M503_SOF	SOFT_TISSUE		8.18		0.05	15.90		
	FM063M504	CAS	M504_SOF	SOFT_TISSUE		7.91		0.05	13.90		
SP	FM061SP01	BOS	SP01_SOF_BOS	SOFT_TISSUE		7.73			11.31		
		CAS	SP01_SOF	SOFT_TISSUE		8.18		0.05	12.10		
	FM061SP02	BOS	SP02_SOF_BOS	SOFT_TISSUE		7.86			10.97		
		CAS	SP02_SOF	SOFT_TISSUE		9.09		0.05	11.00		
	FM061SP03	CAS	SP03_SOF	SOFT_TISSUE		8.35		0.05	10.30		
	FM061SP04	CAS	SP04_SOF	SOFT_TISSUE		10.11		0.05	8.61		
	FM061SP05	CAS	SP05_SOF	SOFT_TISSUE		9.60		0.05	12.50		

Appendix Table D-4. 2006 Metals

				Descr	Lead			Mercury		
				Abbrev	Pb			Hg		
				Param Code	7439-92-1			7439-97-6		
				Unit Code	ug/g			ug/g		
					Value	Q	RL	Value	Q	RL
Event Id	Stat Id	Sample Id	Bottle Id	Anal Lab Id						
FM061	SP	FM061SP01	SP01_SOF	CAS	1.67		0.02	0.06	w	0.02
		FM061SP02	SP02_SOF	CAS	2.86		0.02	0.08	w	0.02
		FM061SP03	SP03_SOF	CAS	1.74		0.02	0.11	w	0.02
		FM061SP04	SP04_SOF	CAS	2.6		0.02	0.09	w	0.02
		FM061SP05	SP05_SOF	CAS	2.01		0.02	0.08	w	0.02
FM063	CCB	FM063901	901_SOF	CAS	1.68		0.019	0.09	w	0.02
		FM063902	902_SOF	CAS	1.36		0.02	0.08	w	0.02
		FM063903	903_SOF	CAS	1.99		0.02	0.08	w	0.02
		FM063904	904_SOF	CAS	1.93		0.02	0.1	w	0.02
	DIL	FM0631M01	1M01_SOF	CAS	2.44		0.02	0.08	w	0.02
		FM0631M02	1M02_SOF	CAS	2.68		0.02	0.07	w	0.02
		FM0631M03	1M03_SOF	CAS	3.38		0.02	0.09	w	0.02
		FM0631M04	1M04_SOF	CAS	3.26		0.02	0.07	w	0.02
		FM0631M05	1M05_SOF	CAS	3.37		0.02	0.11	w	0.02
	IH	FM063601	601_SOF	CAS	3.8		0.02	0.1	w	0.02
		FM063602	602_SOF	CAS	2.95		0.02	0.11	w	0.02
		FM063603	603_SOF	CAS	3.17		0.02	0.1	w	0.02
		FM063604	604_SOF	CAS	3.67		0.02	0.1	w	0.02
		FM063605	605_SOF	CAS	4.53		0.02	0.12	w	0.02
	LNB	FM063B01	B01_SOF	CAS	1.48		0.019	0.07	w	0.02
		FM063B02	B02_SOF	CAS	1.83		0.02	0.08	w	0.02
		FM063B03	B03_SOF	CAS	1.67		0.02	0.06	w	0.02
		FM063B04	B04_SOF	CAS	1.64		0.019	0.08	w	0.02
	OS-M2	FM063M201	M201_SOF	CAS	1.65		0.02	0.07	w	0.02
		FM063M202	M202_SOF	CAS	1.8		0.02	0.07	w	0.02
		FM063M203	M203_SOF	CAS	2.17		0.02	0.09	w	0.02
		FM063M204	M204_SOF	CAS	1.54		0.02	0.08	w	0.02
	OS-M5	FM063M501	M501_SOF	CAS	2		0.02	0.1	w	0.02
		FM063M502	M502_SOF	CAS	2.06		0.019	0.08	w	0.02
		FM063M503	M503_SOF	CAS	1.41		0.02	0.06	w	0.02
		FM063M504	M504_SOF	CAS	2.4		0.02	0.09	w	0.02

Appendix Table D-5. 2006 PCBs

					Event Id	FM061																
					Stat Id	SP																
					Sample Id	FM061SP01						FM061SP02						FM061SP03			FM061SP04		
					Bottle Id	SP01_SOF			SP01_SOF_BOS			SP02_SOF			SP02_SOF_BOS			SP03_SOF			SP04_SOF		
					Anal Lab Id	CAS			BOS			CAS			BOS			CAS			CAS		
					Meth Code	EPA8082			BSOP5-128DUAL			EPA8082			BSOP5-128DUAL			EPA8082			EPA8082		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Abbrev	Descr	Param Code	Unit Code																		
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g		U	4.46		a	0.40		U	4.65		a	0.53		U	5.05		U	6.30
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g		U	5.33		a	4.63		U	5.97		a	6.16		U	6.36		U	7.73
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g		U	5.46		a	0.76		U	5.97		a	1.01		U	6.36		U	7.87
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g		U	5.33		a	0.47		U	5.97	1.15		0.63	12.34		6.36		U	7.73
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g		U	5.33		a	0.33		U	5.97	1.77		0.44		U	6.36		U	7.73
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g		U	5.33		a	0.47		U	5.97	2.83		0.63		U	6.36		U	7.73
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g		U	5.33		a	0.13		U	5.97	2.01		0.17		U	6.36		U	7.73
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g		U	4.46		a	0.92	8.79	-Jw	4.65		a	1.22		U	5.46		U	6.30
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g		U	5.33	1.87		0.55		U	12.08	2.56		0.73		U	15.58		U	10.67
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g		U	4.46	0.77		0.42		U	4.65	1.22		0.56		U	5.05		U	6.30
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g		U	4.46	2.19		0.45	1.82	J	4.65	2.49		0.59		U	5.05		U	6.30
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g		U	4.46		a	7.01		U	4.65		a	9.33		U	5.05		U	6.30
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g		U	4.46	0.62		0.35		U	4.65	0.75		0.47		U	5.05		U	6.30
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g	2.72	J	4.46	3.89		0.46	3.13	J	4.65	4.94		0.61	2.68	J	5.05	4.24	J	6.30
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g	4.89		4.46	5.81		0.42	6.06		4.65	7.26		0.56	4.95	J	5.05	6.96		6.30
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g		U	4.57		a	0.62		U	4.65		a	0.83		U	5.05		U	6.41
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g		U	4.57		a	0.81		U	4.65		a	1.08		U	5.05		U	6.41
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g		U	4.46		a	0.34		U	4.65		a	0.46		U	5.05		U	6.30
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g		U	4.46		a	0.73		U	4.65		a	0.98		U	5.05		U	6.30
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobipheny	40186-72-9	ng/g		U	4.46		a	0.55		U	4.65		a	0.73		U	5.05		U	6.30
	Total PCB (ng/g)				**7.61**			**15.15**			**19.80**			**26.98**			**19.97**			**11.20**		

Appendix Table D-5. 2006 PCBs

				Event Id				FM063											
				Stat Id				CCB											
				Sample Id	FM061SP05			FM063901			FM063902			FM063903			FM063904		
				Bottle Id	SP05_SOF			901_SOF			902_SOF			903_SOF			904_SOF		
				Anal Lab Id	CAS			CAS			CAS			CAS			CAS		
				Meth Code	EPA8082			EPA8082			EPA8082			EPA8082			EPA8082		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Abbrev	Descr	Param Code	Unit Code															
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g		U	4.21		U	3.71		U	2.75		U	2.60		U	3.56
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g		U	5.48		U	4.68		U	3.90		U	3.25		U	4.63
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g		U	5.48		U	4.68		U	4.03		U	3.38		-JU	4.75
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g		U	5.48		U	4.68		U	3.90		U	3.25		U	4.63
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g		U	5.48		U	4.68		U	3.90		U	3.25		U	4.63
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g		U	5.48		U	4.68		U	3.90		U	3.25		U	4.63
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g		U	5.48	4.29	J	4.68	4.03	J	3.90	3.38	J	3.25	4.25	J	4.63
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g	8.00	w	4.21		U	5.88	6.88	Jw	2.75		U	3.10		U	4.71
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g		U	12.19	8.44	J	4.68	8.05	J	3.90	7.50	J	3.25		U	5.75
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g		U	4.21	1.86	J	3.71	1.38	J	2.75		U	2.60		U	3.56
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g	2.21	J	4.21	7.32	+J	3.71	6.79	+J	2.75	6.60	+J	2.60	7.98	+J	3.56
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g		U	4.21		U	3.71		U	2.75		U	2.60		U	3.56
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g		U	4.21		U	3.71	2.11	J	2.75	1.70	J	2.60	2.12	J	3.56
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g	3.68	J	4.21	10.31	+J	3.71	9.17	+J	2.75	8.60	+J	2.60	10.58	+J	3.56
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g	6.42		4.21	13.40		3.71	11.93		2.75	11.00		2.60	12.50		3.56
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g		U	4.21		U	3.71		U	2.84		U	2.70		U	3.65
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g		U	4.21		U	3.71		U	2.84		U	2.70		U	3.65
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g	4.32		4.21	4.74		3.71	4.40		2.75	4.80		2.60	4.42		3.56
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g		U	4.21		U	3.71		U	2.75		U	2.60		U	3.56
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobipheny	40186-72-9	ng/g		U	4.21		U	3.71		U	2.75		U	2.60		U	3.56
	Total PCB (ng/g)				**24.63**			**50.36**			**54.74**			**43.58**			**41.85**		

Appendix Table D-5. 2006 PCBs

					Event Id														
					Stat Id	DIL													
					Sample Id	FM0631M01			FM0631M02			FM0631M03			FM0631M04			FM0631M05		
					Bottle Id	1M01_SOF			1M02_SOF			1M03_SOF			1M04_SOF			1M05_SOF		
					Anal Lab Id	CAS			CAS			CAS			CAS			CAS		
					Meth Code	EPA8082			EPA8082			EPA8082			EPA8082			EPA8082		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Abbrev	Descr	Param Code	Unit Code															
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g		U	4.50		U	3.94		U	4.49		U	3.88		U	3.43
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g		U	5.63		U	4.87		U	5.71		U	4.94		U	4.47
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g		U	5.63		U	5.00		U	5.71		U	4.94		U	4.47
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g		U	5.63	5.00		4.87	4.71	J	5.71	4.16	J	4.94	5.13		4.47
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g	5.50	-J	5.63	5.66	-J	4.87	5.71	-J	5.71	5.33	-J	4.94	6.05	-J	4.47
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g		U	15.00	17.11	-J	4.87		U	17.14		U	14.29		U	17.11
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g	17.50	-J	5.63	17.11	-J	4.87	17.14	-J	5.71	15.58	-J	4.94	17.11	-J	4.47
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g		U	7.10		U	4.04		U	4.49		U	4.59		U	5.35
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g	52.50	+J	5.63	48.68	+J	4.87	51.43	+J	5.71	48.05	+J	4.94	51.32	+J	4.47
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g	9.80		4.50	10.32		3.94	8.99		4.49	9.29		3.88	10.10		3.43
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g	31.00		4.50	30.85		3.94	30.34		4.49	27.55		3.88	29.29		3.43
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g		U	4.50		U	3.94		U	4.49		U	3.88		U	3.43
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g	6.70		4.50	6.60		3.94	6.40		4.49	5.71		3.88	6.36		3.43
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g	35.00		4.50	35.11		3.94	33.71		4.49	30.61		3.88	33.33		3.43
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g	41.00		4.50	39.36		3.94	39.33		4.49	34.69		3.88	38.38		3.43
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g		U	4.50		U	4.04		U	4.49		U	3.88		U	3.43
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g		U	4.50		U	4.04		U	4.49		U	3.88		U	3.43
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g	12.00		4.50	10.64		3.94	10.79		4.49	9.39		3.88	10.10		3.43
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g		U	4.50		U	3.94		U	4.49		U	3.88		U	3.43
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobipheny	40186-72-9	ng/g		U	4.50		U	3.94		U	4.49		U	3.88		U	3.43
	Total PCB (ng/g)				**211.00**			**226.42**			**208.55**			**190.36**			**207.18**		

Appendix Table D-5. 2006 PCBs

					Event Id														
					Stat Id	IH													
					Sample Id	FM063601			FM063602			FM063603			FM063604			FM063605		
					Bottle Id	601_SOF			602_SOF			603_SOF			604_SOF			605_SOF		
					Anal Lab Id	CAS			CAS			CAS			CAS			CAS		
					Meth Code	EPA8082			EPA8082			EPA8082			EPA8082			EPA8082		
Analyte Group	Abbrev	Descr	Param Code	Unit Code		Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g			U	4.39		U	4.74		U	4.60		U	3.83		U	3.95
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g			U	6.17		U	7.05		U	6.34		U	5.90		U	5.84
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g			U	6.17		U	7.05		U	6.34		U	5.90		U	5.97
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g			U	10.62		U	9.23		U	7.32		U	16.67		U	5.84
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g	12.22	J	6.17	10.90		7.05	10.00	J	6.34	23.08		5.90	6.36	J	5.84
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g		U	32.10		U	29.49		U	25.61		U	43.59		U	18.18
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g	29.63	J	6.17	25.64	J	7.05	25.61	J	6.34	41.03	J	5.90	16.88	J	5.84
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g		U	16.67		U	16.38		U	13.27		U	18.33		U	12.28
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g	95.06	+J	6.17	87.18	+J	7.05	84.15	+J	6.34	107.69	+J	5.90	55.84	+J	5.84
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g	14.91	+J	4.39	11.21	+J	4.74	13.27	+J	4.60	19.17	+J	3.83	8.07	+J	3.95
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g	45.61	+J	4.39	40.52	+J	4.74	45.13	+J	4.60	53.33	+J	3.83	28.07	+J	3.95
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g		U	6.58		U	4.74		U	4.60		U	3.83		U	3.95
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g	8.25	+J	4.39	7.67	+J	4.74	8.32	+J	4.60	9.17	+J	3.83	5.35	+J	3.95
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g	43.86	+J	4.39	38.79	+J	4.74	45.13	+J	4.60	48.33	+J	3.83	28.95	+J	3.95
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g	50.00		4.39	45.69		4.74	52.21		4.60	53.33		3.83	33.33		3.95
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g		U	4.39		U	4.74		U	4.60		U	3.83		U	4.04
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g		U	4.39		U	4.74		U	4.60		U	3.83		U	4.04
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g	12.28		4.39	11.21		4.74	13.27		4.60	13.33		3.83	8.77		3.95
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g		U	4.39		U	4.74		U	4.60		U	3.83		U	3.95
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobipheny	40186-72-9	ng/g		U	4.39		U	4.74		U	4.60		U	3.83		U	3.95
	Total PCB (ng/g)				**311.83**			**278.80**			**297.10**			**368.46**			**191.63**		

Appendix Table D-5. 2006 PCBs

					Event Id																	
					Stat Id	LNB											OS-M2					
					Sample Id	FM063B01			FM063B02			FM063B03			FM063B04			FM063M201			FM063M202		
					Bottle Id	B01_SOF			B02_SOF			B03_SOF			B04_SOF			M201_SOF			M202_SOF		
					Anal Lab Id	CAS			CAS			CAS			CAS			CAS			CAS		
					Meth Code	EPA8082			EPA8082			EPA8082			EPA8082			EPA8082			EPA8082		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Abbrev	Descr	Param Code	Unit Code																		
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g			U	3.44		U	3.00		U	3.26		U	3.37		U	2.98		U	3.96
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g			U	4.40		U	3.85		U	4.05		U	4.27		U	4.30		U	5.25
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g			U	4.53		U	3.85		U	4.19		U	4.27		U	4.43		U	5.25
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g			U	4.40		U	3.85		U	4.05		U	4.27		U	4.30		U	5.25
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g			U	4.40		U	3.85		U	4.05		U	4.27	2.91	J	4.30		U	5.25
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g			U	4.40		U	4.10		U	4.05		U	4.27		U	4.30		U	5.25
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g			U	4.40	5.39		3.85	4.73		4.05	5.73		4.27		U	4.30	3.50	J	5.25
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g			U	3.85		U	3.40		U	3.26		U	3.37	8.07	Jw	2.98	7.55	Jw	3.96
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g	8.93	J	4.40		U	6.92		U	11.49		U	11.60		U	20.25		U	17.50
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g	1.77	J	3.44	2.20	J	3.00	3.15	J	3.26		U	3.37	3.07	+J	2.98		U	3.96
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g	6.25		3.44	6.80		3.00	6.85		3.26	7.37		3.37	5.00	+J	2.98	5.85	+J	3.96
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g			U	3.44		U	3.00		U	3.26		U	3.37		U	2.98		U	3.96
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g			U	3.44		U	3.00	1.30	J	3.26		U	3.37		U	2.98		U	3.96
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g	6.98		3.44	7.60		3.00	8.04		3.26	8.63		3.37	6.84	+J	2.98	6.60	+J	3.96
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g	9.79		3.44	11.00		3.00	10.87		3.26	12.63		3.37	9.65		2.98	8.96		3.96
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g			U	3.54		U	3.00		U	3.37		U	3.37		U	3.07		U	3.96
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g			U	3.54		U	3.00		U	3.37		U	3.37		U	3.07		U	3.96
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g	3.65		3.44	4.60		3.00	3.91		3.26	5.90		3.37	4.83		2.98	4.81		3.96
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g			U	3.44		U	3.00		U	3.26		U	3.37		U	2.98		U	3.96
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobipheny	40186-72-9	ng/g			U	3.44		U	3.00		U	3.26		U	3.37		U	2.98		U	3.96
	Total PCB (ng/g)				**37.37**			**37.59**			**38.86**			**40.26**			**40.37**			**37.27**		

Appendix Table D-5. 2006 PCBs

					Event Id																	
					Stat Id									OS-M5								
					Sample Id	FM063M203			FM063M204			FM063M501			FM063M502			FM063M503			FM063M504		
					Bottle Id	M203_SOF			M204_SOF			M501_SOF			M502_SOF			M503_SOF			M504_SOF		
					Anal Lab Id	CAS			CAS			CAS			CAS			CAS			CAS		
					Meth Code	EPA8082			EPA8082			EPA8082			EPA8082			EPA8082			EPA8082		
						Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Abbrev	Descr	Param Code	Unit Code																		
PCB	CL10(209)	Decachlorobiphenyl	2051-24-3	ng/g		U	3.05		U	3.24		U	4.32		U	3.09		U	3.37		U	3.46
	CL2(8)	2,4'-Dichlorobiphenyl	34883-43-7	ng/g		U	4.16		U	4.42		U	5.40		U	3.87		U	4.21		U	4.62
	CL3(18)	2,2',5-Trichlorobiphenyl	37680-65-2	ng/g		U	4.29		U	4.42		U	5.40		U	3.87		U	4.21		U	4.62
	CL3(28)	2,4,4'-Trichlorobiphenyl	7012-37-5	ng/g		U	4.16		U	4.42		U	5.40		U	3.87		U	7.90		U	4.62
	CL4(44)	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	ng/g		U	4.16		U	4.42		U	5.40		U	3.87		U	4.21		U	4.62
	CL4(52)	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	ng/g		U	4.16		U	4.42		U	5.40		U	3.87		U	4.21		U	4.62
	CL4(66)	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	ng/g		U	4.29	2.86	J	4.42		U	5.40	3.20	J	3.87		U	4.21		U	4.62
	CL4(77)	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	ng/g		U	4.86	5.71	Jw	3.24		U	4.32		U	4.79		U	3.37		U	4.90
	CL5(101)	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	ng/g		U	15.58		U	14.29		U	8.03		U	11.33		U	8.03	14.10	+J	4.62
	CL5(105)	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	ng/g		U	3.05		U	3.24		U	4.32	2.23	J	3.09	2.11	J	3.37	2.12	J	3.46
	CL5(118)	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	ng/g	6.19	+J	3.05	4.10	+J	3.24	5.58		4.32	5.75		3.09	5.90	+J	3.37	6.44	+J	3.46
	CL5(126)	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	ng/g		U	3.05		U	3.24		U	4.32		U	3.09		U	3.37		U	3.46
	CL6(128)	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	ng/g		U	3.05		U	3.24		U	4.32		U	3.09	1.26	J	3.37		U	3.46
	CL6(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	ng/g	6.29	+J	3.05	5.24	+J	3.24	7.05		4.32	6.38		3.09	7.79	+J	3.37	7.40	+J	3.46
	CL6(153)	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	ng/g	9.05		3.05	7.24		3.24	9.79		4.32	9.89		3.09	10.11		3.37	9.62		3.46
	CL7(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	ng/g		U	3.14		U	3.24		U	4.32		U	3.09		U	3.37		U	3.46
	CL7(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	ng/g		U	3.14		U	3.24		U	4.32		U	3.09		U	3.37		U	3.46
	CL7(187)	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	ng/g	3.81		3.05		U	3.24	4.95		4.32		U	3.09	4.11		3.37	4.33		3.46
	CL8(195)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	ng/g		U	3.05		U	3.24		U	4.32		U	3.09		U	3.37		U	3.46
	CL9(206)	2,2',3,3',4,4',5,5',6-Nonachlorobipheny	40186-72-9	ng/g		U	3.05		U	3.24		U	4.32		U	3.09		U	3.37		U	3.46
	Total PCB (ng/g)				**25.33**			**25.14**			**27.37**			**27.46**			**31.26**			**44.01**		

Appendix Table D-6. 2006 DDTs

			Event Id	FM061																			
			Stat Id	SP																			
			Sample Id	FM061SP01						FM061SP02						FM061SP03			FM061SP04			FM061SP05		
			Bottle Id	SP01_SOF			SP01_SOF_BOS			SP02_SOF			SP02_SOF_BOS			SP03_SOF			SP04_SOF			SP05_SOF		
			Anal Lab Id	CAS			BOS			CAS			BOS			CAS			CAS			CAS		
			Meth Code	GC_MS_MS			BSOP5-128DUAL			GC_MS_MS			BSOP5-128DUAL			GC_MS_MS			GC_MS_MS			GC_MS_MS		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Abbrev	Descr	Param Code	Unit Code																				
DDT	2,4'-DDD	o,p'-DDD	53-19-0	ng/g		U	6.42	0.58		0.53		U	5.61	0.63	f	0.70		U	5.20		U	6.91		U	4.44
	2,4'-DDE	o,p'-DDE	3424-82-6	ng/g		U	6.42		a	1.36		U	5.61		a	1.82		U	5.20		U	6.91		U	4.44
	2,4'-DDT	o,p'-DDT	789-02-6	ng/g		U	6.42		a	0.63		U	5.61		a	0.84		U	5.20		U	6.91		U	4.44
	4,4'-DDD	p,p'-DDD	72-54-8	ng/g		U	6.42	1.52		0.92		U	5.61	1.65		1.22		U	5.20		U	6.91	1.53	J	4.44
	4,4'-DDE	p,p'-DDE	72-55-9	ng/g	10.94	J	15.66	3.93		0.58	10.61	J	13.79	4.75		0.77	10.00	J	12.93		-JU	17.65	7.64	J	11.11
	4,4'-DDT	p,p'-DDT	50-29-3	ng/g		U	15.66	0.34	f	1.28		U	13.79	0.44	f	1.70		U	12.93		U	17.65		U	11.11
	Total (ng/g)				**10.94**			**6.37**			**10.61**			**7.47**			**10.00**						**9.17**		
DDT - other	DDMU	4,4 DDD olefin (DDMU)	1022-22-6	ng/g		U	15.66		a	0.64		U	13.79		a	0.85		U	12.93		U	17.65		U	11.11

Appendix Table D-6. 2006 DDTs

			Event Id	FM063																			
			Stat Id	CCB												DIL							
			Sample Id	FM063901			FM063902			FM063903			FM063904			FM0631M01			FM0631M02			FM0631M03		
			Bottle Id	901_SOF			902_SOF			903_SOF			904_SOF			1M01_SOF			1M02_SOF			1M03_SOF		
			Anal Lab Id	CAS			CAS			CAS			CAS			CAS			CAS			CAS		
			Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Abbrev	Descr	Param Code	Unit Code																				
DDT	2,4'-DDD	o,p'-DDD	53-19-0	ng/g	1.23	J	3.92	1.01	J	2.87	0.99	J	2.33	0.98	J	2.92	1.80	J	3.60	2.14	J	2.91	2.17	J	3.86
	2,4'-DDE	o,p'-DDE	3424-82-6	ng/g		U	3.92		U	2.87		U	2.33		U	2.92		U	3.60		U	2.91		U	3.86
	2,4'-DDT	o,p'-DDT	789-02-6	ng/g		U	3.92		U	2.87		U	2.33		U	2.92		U	3.60		U	2.91		U	3.86
	4,4'-DDD	p,p'-DDD	72-54-8	ng/g	2.84	J	3.92	2.64	J	2.87	2.44		2.33	2.71	J	2.92	6.40		3.60	6.89		2.91	7.47		3.86
	4,4'-DDE	p,p'-DDE	72-55-9	ng/g	13.38	J	9.73	11.38	J	7.01	8.89	J	5.78	8.54	J	7.19	16.00	-J	8.90	15.53	J	7.18	18.07	-J	9.64
	4,4'-DDT	p,p'-DDT	50-29-3	ng/g		U	9.73		U	7.01		U	5.78		U	7.19		U	8.90		U	7.18		U	9.64
	Total (ng/g)				**17.45**			**15.03**			**12.32**			**12.23**			**24.20**			**24.56**			**27.71**		
DDT - other	DDMU	4,4 DDD olefin (DDMU)	1022-22-6	ng/g		U	9.73		U	7.01		U	5.78		U	7.19		U	8.90		U	7.18		U	9.64

Appendix Table D-6. 2006 DDTs

			Event Id																				
			Stat Id								IH												
			Sample Id	FM0631M04			FM0631M05			FM063601			FM063602			FM063603			FM063604			FM063605		
			Bottle Id	1M04_SOF			1M05_SOF			601_SOF			602_SOF			603_SOF			604_SOF			605_SOF		
			Anal Lab Id	CAS			CAS			CAS			CAS			CAS			CAS			CAS		
			Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Abbrev	Descr	Param Code	Unit Code																				
DDT	2,4'-DDD	o,p'-DDD	53-19-0	ng/g	2.41	J	3.56	2.99	J	3.51	5.52		4.60	4.81	J	5.71	4.58		4.38	8.63		5.07	2.60	J	3.56
	2,4'-DDE	o,p'-DDE	3424-82-6	ng/g		U	3.56		U	3.51		U	4.60		U	5.71		U	4.38		U	5.07		U	3.56
	2,4'-DDT	o,p'-DDT	789-02-6	ng/g		U	3.56		U	3.51		U	4.60		U	5.71		U	4.38		U	5.07		U	3.56
	4,4'-DDD	p,p'-DDD	72-54-8	ng/g	6.67		3.56	8.05		3.51	17.24		4.60	16.88		5.71	12.50		4.38	31.51		5.07	7.89		3.56
	4,4'-DDE	p,p'-DDE	72-55-9	ng/g	10.46	-J	8.74	10.91	-J	8.70	21.84	J	11.49	16.88	J	14.29	11.46	J	11.46	26.03	J	12.60	14.42	J	8.75
	4,4'-DDT	p,p'-DDT	50-29-3	ng/g		U	8.74		U	8.70		U	11.49		U	14.29		U	11.46		U	12.60		U	8.75
	Total (ng/g)				**19.54**			**21.95**			**44.60**			**38.57**			**28.54**			**66.16**			**24.90**		
DDT - other	DDMU	4,4 DDD olefin (DDMU)	1022-22-6	ng/g		U	8.74		U	8.70		U	11.49		U	14.29		U	11.46		U	12.60		U	8.75

Appendix Table D-6. 2006 DDTs

			Event Id																					
			Stat Id	LNB												OS-M2								
			Sample Id	FM063B01			FM063B02			FM063B03			FM063B04			FM063M201			FM063M202			FM063M203		
			Bottle Id	B01_SOF			B02_SOF			B03_SOF			B04_SOF			M201_SOF			M202_SOF			M203_SOF		
			Anal Lab Id	CAS			CAS			CAS			CAS			CAS			CAS			CAS		
			Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Abbrev	Descr	Param Code	Unit Code																				
DDT	2,4'-DDD	o,p'-DDD	53-19-0	ng/g	1.10	J	3.51	1.60	J	3.20	1.32	J	3.38	1.49	J	2.99	1.52	J	3.54	0.64	Js	1.99	1.14	J	2.48
	2,4'-DDE	o,p'-DDE	3424-82-6	ng/g		U	3.51		U	3.20		U	3.38		U	2.99		U	3.54		sU	1.99		U	2.48
	2,4'-DDT	o,p'-DDT	789-02-6	ng/g		U	3.51		U	3.20		U	3.38		U	2.99		U	3.54		sU	1.99		U	2.48
	4,4'-DDD	p,p'-DDD	72-54-8	ng/g	1.95	J	3.51	2.27	J	3.20	2.30	J	3.38	2.30	J	2.99	2.53	J	3.54	0.88	Js	1.99	2.00	J	2.48
	4,4'-DDE	p,p'-DDE	72-55-9	ng/g	6.49	J	8.70		-JU	7.87	6.08	J	8.24	8.62	-J	7.36	10.25	J	8.61	5.21	Js	4.91	8.57	J	6.19
	4,4'-DDT	p,p'-DDT	50-29-3	ng/g		U	8.70		U	7.87		U	8.24		U	7.36		U	8.61		sU	4.91		U	6.19
	Total (ng/g)				**9.55**			**3.87**			**9.70**			**12.41**			**14.30**			**6.73**			**11.71**		
DDT - other	DDMU	4,4 DDD olefin (DDMU)	1022-22-6	ng/g		U	8.70		U	7.87		U	8.24		U	7.36		U	8.61		sU	4.91		U	6.19

Appendix Table D-6. 2006 DDTs

			Event Id																
			Stat Id				OS-M5												
			Sample Id	FM063M204			FM063M501			FM063M502			FM063M503			FM063M504		
			Bottle Id	M204_SOF			M501_SOF			M502_SOF			M503_SOF			M504_SOF		
			Anal Lab Id	CAS			CAS			CAS			CAS			CAS		
			Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Abbrev	Descr	Param Code	Unit Code															
DDT	2,4'-DDD	o,p'-DDD	53-19-0	ng/g	1.77	J	3.54		U	4.46	0.80	J	1.95	1.29	J	3.06	1.11	J	3.30
	2,4'-DDE	o,p'-DDE	3424-82-6	ng/g		U	3.54		U	4.46		U	1.95		U	3.06		U	3.30
	2,4'-DDT	o,p'-DDT	789-02-6	ng/g		U	3.54		U	4.46		U	1.95		U	3.06		U	3.30
	4,4'-DDD	p,p'-DDD	72-54-8	ng/g	2.41	J	3.54		U	4.46	1.02	J	1.95	1.65	J	3.06	1.71	J	3.30
	4,4'-DDE	p,p'-DDE	72-55-9	ng/g	7.85	J	8.61	10.54	J	11.08	4.66	J	4.83	5.77	J	7.41	6.48	J	8.18
	4,4'-DDT	p,p'-DDT	50-29-3	ng/g		U	8.61		U	11.08		U	4.83		U	7.41		U	8.18
	Total (ng/g)				**12.03**			**10.54**			**6.48**			**8.71**			**9.30**		
DDT - other	DDMU	4,4 DDD olefin (DDMU)	1022-22-6	ng/g		U	8.61		U	11.08		U	4.83		U	7.41		U	8.18

Appendix Table D-7. 2006 Pesticides

				Event Id	FM061																				FM063					
				Stat Id	SP																				CCB					
				Sample Id	FM061SP01						FM061SP02						FM061SP03			FM061SP04			FM061SP05			FM063901			FM063902		
				Bottle Id	SP01_SOF			SP01_SOF_BOS			SP02_SOF			SP02_SOF_BOS			SP03_SOF			SP04_SOF			SP05_SOF			901_SOF			902_SOF		
				Anal Lab Id	CAS			BOS			CAS			BOS			CAS			CAS			CAS			CAS			CAS		
				Meth Code	GC_MS_MS			BSOP5-128DUAL			GC_MS_MS			BSOP5-128DUAL			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Descr	Param Code	Unit Code																											
PEST	Aldrin	309-00-2	ng/g			Uw	6.42		a	0.33		Uw	5.61		a	0.44		Uw	5.20		Uw	6.91		Uw	4.44		Uw	3.92		Uw	2.87
	Dieldrin	60-57-1	ng/g			Uw	6.42	0.90		0.46		Uw	5.61	1.14		0.61		Uw	5.20		Uw	6.91		Uw	4.44		Uw	3.92		Uw	2.87
	Endrin	72-20-8	ng/g			Uw	6.42		a	0.28		Uw	5.61		a	0.37		Uw	5.20		Uw	6.91		Uw	4.44		Uw	3.92		Uw	2.87
	Hexachlorobenzene	118-74-1	ng/g			Uw	6.42	0.35		0.30		Uw	5.61	1.04		0.40		Uw	5.20		Uw	6.91		Uw	4.44		Uw	3.92		Uw	2.87
	Lindane	58-89-9	ng/g			Uw	6.42		a	0.21		Uw	5.61		a	0.28		Uw	5.20		Uw	6.91		Uw	4.44		Uw	3.92		Uw	2.87
	Mirex	2385-85-5	ng/g			Uw	6.42		a	0.47		Uw	5.61		a	0.63		Uw	5.20		Uw	6.91		Uw	4.44		Uw	3.92		Uw	2.87
	Total PEST (ng/g)							**1.25**						**2.18**																

Appendix Table D-7. 2006 Pesticides

			Event Id								
			Stat Id								
			Sample Id	FM063903			FM063904				
			Bottle Id	903_SOF			904_SOF				
			Anal Lab Id	CAS			CAS				
			Meth Code	GC_MS_MS			GC_MS_MS				
				Value	Q	RL	Value	Q	RL		
Analyte Group	Descr	Param Code	Unit Code								
PEST	Aldrin	309-00-2	ng/g		Uw	2.33		Uw	2.92		
	Dieldrin	60-57-1	ng/g		Uw	2.33		Uw	2.92		
	Endrin	72-20-8	ng/g		Uw	2.33		Uw	2.92		
	Hexachlorobenzene	118-74-1	ng/g		Uw	2.33		Uw	2.92		
	Lindane	58-89-9	ng/g		Uw	2.33		Uw	2.92		
	Mirex	2385-85-5	ng/g		Uw	2.33		Uw	2.92		
	Total PEST (ng/g)										

Appendix Table D-7. 2006 Pesticides

			Event Id																
			Stat Id	DIL															
			Sample Id	FM0631M01			FM0631M02			FM0631M03			FM0631M04			FM0631M05		
			Bottle Id	1M01_SOF			1M02_SOF			1M03_SOF			1M04_SOF			1M05_SOF		
			Anal Lab Id	CAS			CAS			CAS			CAS			CAS		
			Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Descr	Param Code	Unit Code																
PEST	Aldrin	309-00-2	ng/g		Uw	3.60		Uw	2.91		Uw	3.86		Uw	3.56		Uw	3.51
	Dieldrin	60-57-1	ng/g		Uw	3.60		Uw	2.91		Uw	3.86		Uw	3.56		Uw	3.51
	Endrin	72-20-8	ng/g		Uw	3.60		Uw	2.91		Uw	3.86		Uw	3.56		Uw	3.51
	Hexachlorobenzene	118-74-1	ng/g		Uw	3.60		Uw	2.91		Uw	3.86		Uw	3.56		Uw	3.51
	Lindane	58-89-9	ng/g		Uw	3.60		Uw	2.91		Uw	3.86		Uw	3.56		Uw	3.51
	Mirex	2385-85-5	ng/g		Uw	3.60		Uw	2.91		Uw	3.86		Uw	3.56		Uw	3.51
	Total PEST (ng/g)																	

Appendix Table D-7. 2006 Pesticides

				Event Id																
				Stat Id	IH															
				Sample Id	FM063601			FM063602			FM063603			FM063604			FM063605		
				Bottle Id	601_SOF			602_SOF			603_SOF			604_SOF			605_SOF		
				Anal Lab Id	CAS			CAS			CAS			CAS			CAS		
				Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Descr	Param Code	Unit Code																
PEST	Aldrin	309-00-2	ng/g		Uw	4.60		Uw	5.71		Uw	4.38		Uw	5.07		Uw	3.56	
	Dieldrin	60-57-1	ng/g		Uw	4.60		Uw	5.71		Uw	4.38		Uw	5.07		Uw	3.56	
	Endrin	72-20-8	ng/g		Uw	4.60		Uw	5.71		Uw	4.38		Uw	5.07		Uw	3.56	
	Hexachlorobenzene	118-74-1	ng/g		Uw	4.60		Uw	5.71		Uw	4.38		Uw	5.07		Uw	3.56	
	Lindane	58-89-9	ng/g		Uw	4.60		Uw	5.71		Uw	4.38		Uw	5.07		Uw	3.56	
	Mirex	2385-85-5	ng/g		Uw	4.60		Uw	5.71		Uw	4.38		Uw	5.07		Uw	3.56	
	Total PEST (ng/g)																		

Appendix Table D-7. 2006 Pesticides

			Event Id													
			Stat Id	LNB												
			Sample Id	FM063B01			FM063B02			FM063B03			FM063B04			
			Bottle Id	B01_SOF			B02_SOF			B03_SOF			B04_SOF			
			Anal Lab Id	CAS			CAS			CAS			CAS			
			Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte Group	Descr	Param Code	Unit Code													
PEST	Aldrin	309-00-2	ng/g		Uw	3.51		Uw	3.20		Uw	3.38		Uw	2.99	
	Dieldrin	60-57-1	ng/g		Uw	3.51		Uw	3.20		Uw	3.38		Uw	2.99	
	Endrin	72-20-8	ng/g		Uw	3.51		Uw	3.20		Uw	3.38		Uw	2.99	
	Hexachlorobenzene	118-74-1	ng/g		Uw	3.51		Uw	3.20		Uw	3.38		Uw	2.99	
	Lindane	58-89-9	ng/g		Uw	3.51		Uw	3.20		Uw	3.38		Uw	2.99	
	Mirex	2385-85-5	ng/g		Uw	3.51		Uw	3.20		Uw	3.38		Uw	2.99	
	Total PEST (ng/g)															

Appendix Table D-7. 2006 Pesticides

			Event Id													
			Stat Id	OS-M2						OS-M5						
			Sample Id	FM063M201			FM063M202			FM063M501			FM063M502			
			Bottle Id	M201_SOF_BOS			M202_SOF_BOS			M501_SOF_BOS			M502_SOF_BOS			
			Anal Lab Id	BOS			BOS			BOS			BOS			
			Meth Code	BSOP5-128DUAL			BSOP5-128DUAL			BSOP5-128DUAL			BSOP5-128DUAL			
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte Group	Descr	Param Code	Unit Code													
PEST	Aldrin	309-00-2	ng/g		a	0.28		a	0.35		a	0.36		a	0.28	
	Dieldrin	60-57-1	ng/g	1.08		0.39	0.94		0.48	0.57		0.49	0.72		0.38	
	Endrin	72-20-8	ng/g		a	0.24		a	0.29		a	0.30		a	0.24	
	Hexachlorobenzene	118-74-1	ng/g	0.46		0.25	0.43		0.31	0.35		0.32	0.31		0.25	
	Lindane	58-89-9	ng/g	0.37		0.18	0.30		0.22	0.21	f	0.23	0.24		0.18	
	Mirex	2385-85-5	ng/g		a	0.40		a	0.50		a	0.50		a	0.40	
	Total PEST (ng/g)			**1.91**			**1.67**			**1.13**			**1.27**			

Appendix Table D-8. 2006 Chlordanes

			Event Id	FM061																					FM063					
			Stat Id	SP																					CCB					
			Sample Id	FM061SP01						FM061SP02						FM061SP03			FM061SP04			FM061SP05			FM063901			FM063902		
			Bottle Id	SP01_SOF			SP01_SOF_BOS			SP02_SOF			SP02_SOF_BOS			SP03_SOF			SP04_SOF			SP05_SOF			901_SOF			902_SOF		
			Anal Lab Id	CAS			BOS			CAS			BOS			CAS			CAS			CAS			CAS			CAS		
			Meth Code	GC_MS_MS			BSOP5-128DUAL			GC_MS_MS			BSOP5-128DUAL			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Descr	Param Code	Unit Code																											
CHLOR	Heptachlor	76-44-8	ng/g		Uw	6.42		a	0.40		Uw	5.61		a	0.53		Uw	5.20		Uw	6.91		Uw	4.44		Uw	3.92		Uw	2.87
	Heptachlorepoxide	1024-57-3	ng/g		Uw	6.42		a	0.71		Uw	5.61		a	0.94		Uw	5.20		Uw	6.91		Uw	4.44		Uw	3.92		Uw	2.87
	cis-Chlordane	5103-71-9	ng/g		Uw	6.42	0.87		0.38		Uw	5.61	1.05		0.51		Uw	5.20		Uw	6.91		Uw	4.44	1.27	Jw	3.92		Uw	2.87
	trans-Nonachlor	39765-80-5	ng/g		Uw	6.42	0.82		0.36		Uw	5.61	1.03		0.48		Uw	5.20		Uw	6.91		Uw	4.44		Uw	3.92		Uw	2.87
	Total CHLOR (ng/g)						**1.69**						**2.08**												**1.27**					

Appendix Table D-8. 2006 Chlordanes

			Event Id						
			Stat Id						
			Sample Id	FM063903			FM063904		
			Bottle Id	903_SOF			904_SOF		
			Anal Lab Id	CAS			CAS		
			Meth Code	GC_MS_MS			GC_MS_MS		
				Value	Q	RL	Value	Q	RL
Analyte Group	Descr	Param Code	Unit Code						
CHLOR	Heptachlor	76-44-8	ng/g		Uw	2.33		Uw	2.92
	Heptachlorepoxide	1024-57-3	ng/g		Uw	2.33		Uw	2.92
	cis-Chlordane	5103-71-9	ng/g		Uw	2.33		Uw	2.92
	trans-Nonachlor	39765-80-5	ng/g		Uw	2.33		Uw	2.92
	Total CHLOR (ng/g)								

Appendix Table D-8. 2006 Chlordanes

				Event Id															
				Stat Id	DIL														
				Sample Id	FM0631M01			FM0631M02			FM0631M03			FM0631M04			FM0631M05		
				Bottle Id	1M01_SOF			1M02_SOF			1M03_SOF			1M04_SOF			1M05_SOF		
				Anal Lab Id	CAS			CAS			CAS			CAS			CAS		
				Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Descr	Param Code	Unit Code																
CHLOR	Heptachlor	76-44-8	ng/g		Uw	3.60		Uw	2.91		Uw	3.86		Uw	3.56		Uw	3.51	
	Heptachlorepoxide	1024-57-3	ng/g		Uw	3.60		Uw	2.91		Uw	3.86		Uw	3.56		Uw	3.51	
	cis-Chlordane	5103-71-9	ng/g	2.80	Jw	3.60	1.75	Jw	2.91		Uw	3.86	1.84	Jw	3.56	1.56	Jw	3.51	
	trans-Nonachlor	39765-80-5	ng/g	2.70	Jw	3.60	2.52	Jw	2.91	2.41	Jw	3.86	3.22	Jw	3.56	3.51	Jw	3.51	
	Total CHLOR (ng/g)			**5.50**			**4.27**			**2.41**			**5.06**			**5.06**			

Appendix Table D-8. 2006 Chlordanes

				Event Id															
				Stat Id	IH														
				Sample Id	FM063601			FM063602			FM063603			FM063604			FM063605		
				Bottle Id	601_SOF			602_SOF			603_SOF			604_SOF			605_SOF		
				Anal Lab Id	CAS			CAS			CAS			CAS			CAS		
				Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Descr	Param Code	Unit Code																
CHLOR	Heptachlor	76-44-8	ng/g		Uw	4.60		Uw	5.71		Uw	4.38		Uw	5.07		Uw	3.56	
	Heptachlorepoxide	1024-57-3	ng/g		Uw	4.60		Uw	5.71		Uw	4.38		Uw	5.07		Uw	3.56	
	cis-Chlordane	5103-71-9	ng/g	2.99	Jw	4.60	3.64	Jw	5.71	3.33	Jw	4.38	6.03	w	5.07	1.64	Jw	3.56	
	trans-Nonachlor	39765-80-5	ng/g	3.45	Jw	4.60	3.38	Jw	5.71	3.23	Jw	4.38	4.52	Jw	5.07	1.64	Jw	3.56	
	Total CHLOR (ng/g)			**6.44**			**7.01**			**6.56**			**10.55**			**3.27**		

Appendix Table D-8. 2006 Chlordanes

				Event Id													
				Stat Id	LNB												
				Sample Id	FM063B01			FM063B02			FM063B03			FM063B04			
				Bottle Id	B01_SOF			B02_SOF			B03_SOF			B04_SOF			
				Anal Lab Id	CAS			CAS			CAS			CAS			
				Meth Code	GC_MS_MS			GC_MS_MS			GC_MS_MS			GC_MS_MS			
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	
Analyte Group	Descr	Param Code	Unit Code														
CHLOR	Heptachlor	76-44-8	ng/g		Uw	3.51		Uw	3.20		Uw	3.38		Uw	2.99		
	Heptachlorepoxide	1024-57-3	ng/g		Uw	3.51		Uw	3.20		Uw	3.38		Uw	2.99		
	cis-Chlordane	5103-71-9	ng/g		Uw	3.51	1.33	Jw	3.20		Uw	3.38		Uw	2.99		
	trans-Nonachlor	39765-80-5	ng/g	1.69	Jw	3.51	2.40	Jw	3.20	1.89	Jw	3.38		Uw	2.99		
	Total CHLOR (ng/g)			**1.69**			**3.73**			**1.89**							

Appendix Table D-8. 2006 Chlordanes

				Event Id											
				Stat Id	OS-M2						OS-M5					
				Sample Id	FM063M201			FM063M202			FM063M501			FM063M502		
				Bottle Id	M201_SOF_BOS			M202_SOF_BOS			M501_SOF_BOS			M502_SOF_BOS		
				Anal Lab Id	BOS			BOS			BOS			BOS		
				Meth Code	BSOP5-128DUAL			BSOP5-128DUAL			BSOP5-128DUAL			BSOP5-128DUAL		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Descr	Param Code	Unit Code													
CHLOR	Heptachlor	76-44-8	ng/g			a	0.34		a	0.42		a	0.43		a	0.34
	Heptachlorepoxide	1024-57-3	ng/g			a	0.60		a	0.74		a	0.75		a	0.60
	cis-Chlordane	5103-71-9	ng/g	5.21			0.32	3.82		0.40	2.62		0.41	3.52		0.32
	trans-Nonachlor	39765-80-5	ng/g	2.58			0.31	2.00		0.38	1.56		0.39	2.00		0.31
	Total CHLOR (ng/g)			**7.79**				**5.82**			**4.18**			**5.52**		

Appendix Table D-9. 2006 PAHs

				Event Id	FM061						FM063											
				Stat Id	SP						CCB						DIL					
				Sample Id	FM061SP01			FM061SP02			FM063901			FM063902			FM0631M01			FM0631M02		
				Bottle Id	SP01_SOF_BOS			SP02_SOF_BOS			901_SOF_BOS			902_SOF_BOS			1M01_SOF_BOS			1M02_SOF_BOS		
				Anal Lab Id	BOS			BOS			BOS			BOS			BOS			BOS		
				Meth Code	BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Descr	Param Code	Unit Code																			
HMW-PAH	Benz(a)anthracene	56-55-3	ng/g		1.18		0.48	1.07		0.51	1.25		0.39	1.20		0.38	3.51		0.40	4.94		0.39
	Benzo(a)pyrene	50-32-8	ng/g		1.11	f	1.12	1.48		1.19	1.02		0.93	1.20		0.90	2.38		0.95	4.68		0.91
	Benzo(b)fluoranthene	205-99-2	ng/g		2.30		0.75	2.30		0.79	2.57		0.62	2.37		0.60	7.69		0.63	8.62		0.61
	Benzo(e)pyrene	192-97-2	ng/g		3.65		1.35	4.18		1.43	4.78		1.11	5.76		1.08	13.96		1.14	16.28		1.10
	Benzo(g,h,i)perylene	191-24-2	ng/g		1.92		1.87	2.23		1.99	2.06		1.55	2.18		1.50	5.21		1.59	7.01		1.52
	Benzo(k)fluoranthene	207-08-9	ng/g		2.26		0.67	2.36		0.72	2.19		0.56	2.32		0.54	6.31		0.57	7.86		0.55
	C1-Chrysenes	MWRA70	ng/g		1.09		0.84	1.10		0.89	1.14		0.70	0.95		0.67	3.32		0.71	4.04		0.68
	C1-Fluoranthenes/Pyrenes	MWRA69	ng/g		4.33		2.73	4.92		2.90	4.98		2.26	5.66		2.18	13.86		2.31	16.61		2.22
	C2-Chrysenes	MWRA4	ng/g			a	0.84		a	0.89		a	0.70		a	0.67		a	0.71		a	0.68
	C2-Fluoranthenes/Pyrenes	MWRA83	ng/g			a	2.73		a	2.90	2.32		2.26	2.57		2.18	6.97		2.31	8.26		2.22
	C3-Chrysenes	MWRA71	ng/g			a	0.84		a	0.89		a	0.70		a	0.67		a	0.71		a	0.68
	C3-Fluoranthenes/Pyrenes	MWRA84	ng/g			a	2.73		a	2.90		a	2.26		a	2.18		a	2.31	4.33		2.22
	C4-Chrysenes	MWRA72	ng/g			a	0.84		a	0.89		a	0.70		a	0.67		a	0.71		a	0.68
	Chrysene	218-01-9	ng/g		3.16		0.84	2.83		0.89	2.65		0.70	3.08		0.67	8.68		0.71	10.10		0.68
	Dibenzo(a,h)anthracene	53-70-3	ng/g			a	0.29		a	0.31		a	0.24	0.41		0.23	0.77		0.25	0.96		0.24
	Fluoranthene	206-44-0	ng/g		10.42		1.63	9.89		1.73	9.07		1.35	10.79		1.30	23.80		1.38	29.81		1.32
	Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g		1.42		1.22	1.42		1.29	0.92	f	1.01	1.06		0.97	2.68		1.03	4.32		0.99
	Perylene	198-55-0	ng/g		2.30		0.67	2.15		0.72	1.06		0.56	1.20		0.54	1.77		0.57	2.29		0.55
	Pyrene	129-00-0	ng/g		8.61		2.73	10.19		2.90	9.98		2.26	10.88		2.18	22.46		2.31	24.65		2.22
	Group Total (ng/g)				**43.75**			**46.12**			**45.99**			**51.63**			**123.37**			**154.76**		

				Event Id	FM061						FM063											
				Stat Id	SP						CCB						DIL					
				Sample Id	FM061SP01			FM061SP02			FM063901			FM063902			FM0631M01			FM0631M02		
				Bottle Id	SP01_SOF_BOS			SP02_SOF_BOS			901_SOF_BOS			902_SOF_BOS			1M01_SOF_BOS			1M02_SOF_BOS		
				Anal Lab Id	BOS			BOS			BOS			BOS			BOS			BOS		
				Meth Code	BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157		
Analyte Group	Descr	Param Code	Unit Code		Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
LMW-PAH	Acenaphthene	83-32-9	ng/g			a	1.11		a	1.18		a	0.92		a	0.89		a	0.94		a	0.91
	Acenaphthylene	208-96-8	ng/g		1.07		0.27	1.01		0.29	1.71		0.22	1.41		0.22	2.00		0.23	2.26		0.22
	Anthracene	120-12-7	ng/g		0.85		0.58	1.04		0.62	0.82		0.48	0.88		0.46	2.60		0.49	2.95		0.47
	Biphenyl	92-52-4	ng/g		0.92	f	0.95	1.28		1.00	0.94		0.78	1.04		0.76	1.05		0.80		a	0.77
	C1-Dibenzothiophenes	MWRA68	ng/g		1.17		0.62	2.36		0.66	1.18		0.51	1.43		0.49	2.78		0.52	3.30		0.50
	C1-Fluorenes	MWRA65	ng/g			a	1.21		a	1.28		a	1.00		a	0.96		a	1.02		a	0.98
	C1-Naphthalenes	MWRA64	ng/g		3.02	f	3.59	3.83		3.81	1.90	f	2.97	1.92	f	2.87	4.19		3.04	4.44		2.92
	C1-Phenanthrenes/Anthracen	MWRA67	ng/g		5.88		1.70	8.00		1.81	4.00		1.41	4.35		1.36	9.60		1.44	9.82		1.38
	C2-Dibenzothiophenes	MWRA5	ng/g		4.20		0.62	5.56		0.66	3.32		0.51	4.77		0.49	9.29		0.52	8.56		0.50
	C2-Fluorenes	MWRA6	ng/g			a	1.21		a	1.28		a	1.00		a	0.96		a	1.02		a	0.98
	C2-Naphthalenes	MWRA7	ng/g		6.29		3.59		a	3.81		a	2.97		a	2.87		a	3.04	5.81		2.92
	C2-Phenanthrenes/Anthracen	MWRA57	ng/g		8.77		1.70	11.59		1.81	5.93		1.41	6.10		1.36	17.07		1.44	16.60		1.38
	C3-Dibenzothiophenes	MWRA9	ng/g			a	0.62	3.29		0.66	2.65		0.51	4.10		0.49	9.84		0.52	9.94		0.50
	C3-Fluorenes	MWRA66	ng/g			a	1.21		a	1.28		a	1.00		a	0.96		a	1.02		a	0.98
	C3-Naphthalenes	MWRA10	ng/g		8.27		3.59	8.20		3.81		a	2.97	3.23		2.87	7.68		3.04	6.86		2.92
	C3-Phenanthrenes/Anthracen	MWRA52	ng/g		5.95		1.70	6.18		1.81	5.29		1.41	6.67		1.36	16.34		1.44	18.53		1.38
	C4-Naphthalenes	MWRA11	ng/g		5.90		3.59	7.41		3.81		a	2.97	18.74		2.87	12.07		3.04	12.84		2.92
	C4-Phenanthrenes/Anthracen	MWRA54	ng/g		2.35		1.70	3.04		1.81	2.50		1.41	2.17		1.36	7.63		1.44	9.08		1.38
	Dibenzofuran	132-64-9	ng/g		1.28		0.53	1.32		0.57	1.25		0.44	1.35		0.43	1.59		0.45	1.90		0.43
	Dibenzothiophene	132-65-0	ng/g		0.81		0.62	1.53		0.66	0.76		0.51	0.97		0.49	1.53		0.52	1.10		0.50
	Fluorene	86-73-7	ng/g		1.75		1.21	1.51		1.28	1.02		1.00	0.83	f	0.96		a	1.02	1.60		0.98
	Naphthalene	91-20-3	ng/g		3.58	f	3.59	4.70		3.81	3.94		2.97	3.95		2.87	4.49		3.04	4.35		2.92
	Phenanthrene	85-01-8	ng/g		4.29		1.70	5.12		1.81	3.48		1.41	3.81		1.36	6.00		1.44	6.56		1.38
	Group Total (ng/g)				**66.35**			**76.97**			**40.69**			**67.72**			**115.75**			**126.50**		
PAH - other	1-Methylnaphthalene	90-12-0	ng/g		1.15	f	1.67	1.96		1.78	1.02	f	1.39	1.02	f	1.34	1.69		1.42	2.36		1.36
	1-Methylphenanthrene	832-69-9	ng/g		1.76		0.47	1.74		0.50	1.16		0.39	1.14		0.37	1.60		0.40	2.34		0.38
	2,3,5-Trimethylnaphthalene	2245-38-7	ng/g		0.95	f	1.07	1.13	f	1.14		a	0.89	0.34	f	0.86	0.59	f	0.91	0.78	f	0.87
	2,6-Dimethylnaphthalene	581-42-0	ng/g			a	2.42		a	2.57		a	2.00		a	1.93		a	2.05	2.42		1.97
	2-Methylnaphthalene	91-57-6	ng/g		3.04		2.70	3.51		2.87	1.43	f	2.23	1.51	f	2.16	3.05		2.29	3.95		2.20
	Benzothiazole	95-16-9	ng/g		7.86		4.79	9.84		5.09	10.11		3.96	8.76		3.83	8.13		4.06	7.75		3.90
	Group Total (ng/g)				**14.76**			**18.18**			**13.72**			**12.77**			**15.06**			**19.60**		

Appendix Table D-9. 2006 PAHs

				Event Id												
				Stat Id	IH						LNB					
				Sample Id	FM063601			FM063602			FM063B01			FM063B02		
				Bottle Id	601_SOF_BOS			602_SOF_BOS			B01_SOF_BOS			B02_SOF_BOS		
				Anal Lab Id	BOS			BOS			BOS			BOS		
				Meth Code	BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Descr	Param Code	Unit Code													
HMW-PAH	Benz(a)anthracene	56-55-3	ng/g		72.72		0.57	49.69		0.66	3.11		0.39	2.69		0.35
	Benzo(a)pyrene	50-32-8	ng/g		36.08		1.33	19.24		1.56	2.41		0.91	1.59		0.83
	Benzo(b)fluoranthene	205-99-2	ng/g		102.03		0.89	67.34		1.04	5.41		0.61	4.36		0.56
	Benzo(e)pyrene	192-97-2	ng/g		142.28		1.60	117.92		1.87	11.22		1.09	10.41		1.00
	Benzo(g,h,i)perylene	191-24-2	ng/g		30.03		2.22	25.41		2.59	2.96		1.52	3.13		1.39
	Benzo(k)fluoranthene	207-08-9	ng/g		86.33		0.80	55.03		0.93	4.36		0.55	3.96		0.50
	C1-Chrysenes	MWRA70	ng/g		49.29		1.00	31.12		1.17	2.50		0.68	2.29		0.63
	C1-Fluoranthenes/Pyrenes	MWRA69	ng/g		228.52		3.23	181.88		3.78	11.97		2.21	12.47		2.03
	C2-Chrysenes	MWRA4	ng/g		27.56		1.00	17.06		1.17		a	0.68		a	0.63
	C2-Fluoranthenes/Pyrenes	MWRA83	ng/g		107.92		3.23	82.81		3.78	6.33		2.21	4.46		2.03
	C3-Chrysenes	MWRA71	ng/g			a	1.00		a	1.17		a	0.68		a	0.63
	C3-Fluoranthenes/Pyrenes	MWRA84	ng/g		55.50		3.23	41.57		3.78	3.37		2.21		a	2.03
	C4-Chrysenes	MWRA72	ng/g			a	1.00		a	1.17		a	0.68		a	0.63
	Chrysene	218-01-9	ng/g		127.77		1.00	99.42		1.17	7.59		0.68	7.09		0.63
	Dibenzo(a,h)anthracene	53-70-3	ng/g		4.98		0.34	3.06		0.40	0.46		0.23	0.50		0.22
	Fluoranthene	206-44-0	ng/g		392.91		1.93	360.43		2.26	11.05		1.32	11.43		1.21
	Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g		18.97		1.44	14.09		1.69	1.70		0.99	1.44		0.90
	Perylene	198-55-0	ng/g		13.48		0.80	9.63		0.93	1.21		0.55	1.67		0.50
	Pyrene	129-00-0	ng/g		235.85		3.23	201.29		3.78	21.11		2.21	20.08		2.03
	Group Total (ng/g)				**1732.22**			**1376.99**			**96.76**			**87.57**		

				Event Id												
				Stat Id	IH						LNB					
				Sample Id	FM063601			FM063602			FM063B01			FM063B02		
				Bottle Id	601_SOF_BOS			602_SOF_BOS			B01_SOF_BOS			B02_SOF_BOS		
				Anal Lab Id	BOS			BOS			BOS			BOS		
				Meth Code	BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157		
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Descr	Param Code	Unit Code													
LMW-PAH	Acenaphthene	83-32-9	ng/g		13.06		1.32	9.12		1.54		a	0.90		a	0.83
	Acenaphthylene	208-96-8	ng/g		9.50		0.32	8.36		0.38	1.58		0.22	1.30		0.20
	Anthracene	120-12-7	ng/g		13.44		0.69	12.19		0.80	1.12		0.47	1.56		0.43
	Biphenyl	92-52-4	ng/g			a	1.12		a	1.31		a	0.77		a	0.70
	C1-Dibenzothiophenes	MWRA68	ng/g		9.62		0.73	7.81		0.86	2.73		0.50	2.69		0.46
	C1-Fluorenes	MWRA65	ng/g		11.11		1.43	10.73		1.67		a	0.98		a	0.90
	C1-Naphthalenes	MWRA64	ng/g		4.54		4.25	3.38	f	4.98	4.04		2.91	4.56		2.67
	C1-Phenanthrenes/Anthracen	MWRA67	ng/g		34.96		2.02	28.80		2.36	6.30		1.38	7.47		1.27
	C2-Dibenzothiophenes	MWRA5	ng/g		59.82		0.73	50.63		0.86	11.71		0.50	10.32		0.46
	C2-Fluorenes	MWRA6	ng/g		60.92		1.43	54.84		1.67		a	0.98		a	0.90
	C2-Naphthalenes	MWRA7	ng/g		7.22		4.25		a	4.98		a	2.91		a	2.67
	C2-Phenanthrenes/Anthracen	MWRA57	ng/g		129.21		2.02	96.06		2.36	19.32		1.38	16.92		1.27
	C3-Dibenzothiophenes	MWRA9	ng/g		117.12		0.73	90.88		0.86	13.86		0.50	13.25		0.46
	C3-Fluorenes	MWRA66	ng/g		135.67		1.43	119.47		1.67		a	0.98		a	0.90
	C3-Naphthalenes	MWRA10	ng/g		19.19		4.25	13.94		4.98	5.67		2.91	4.06		2.67
	C3-Phenanthrenes/Anthracen	MWRA52	ng/g		166.07		2.02	120.69		2.36	17.01		1.38	16.72		1.27
	C4-Naphthalenes	MWRA11	ng/g		59.49		4.25	49.90		4.98	19.99		2.91	23.25		2.67
	C4-Phenanthrenes/Anthracen	MWRA54	ng/g		88.63		2.02	57.12		2.36	6.18		1.38	7.35		1.27
	Dibenzofuran	132-64-9	ng/g		5.25		0.63	4.09		0.74	1.51		0.43	1.59		0.40
	Dibenzothiophene	132-65-0	ng/g		2.00		0.73	2.49		0.86	0.94		0.50	0.94		0.46
	Fluorene	86-73-7	ng/g		3.78		1.43	4.27		1.67	1.09		0.98	1.33		0.90
	Naphthalene	91-20-3	ng/g		7.92		4.25	8.97		4.98	4.87		2.91	5.98		2.67
	Phenanthrene	85-01-8	ng/g		10.41		2.02	7.93		2.36	4.09		1.38	4.25		1.27
	Group Total (ng/g)				**968.93**			**761.67**			**122.01**			**123.54**		
PAH - other	1-Methylnaphthalene	90-12-0	ng/g		2.23		1.98	1.91	f	2.32	1.83		1.36	2.29		1.25
	1-Methylphenanthrene	832-69-9	ng/g		4.62		0.55	4.01		0.65	1.78		0.38	2.18		0.35
	2,3,5-Trimethylnaphthalene	2245-38-7	ng/g		1.50		1.27	1.49		1.49		a	0.87	0.59	f	0.80
	2,6-Dimethylnaphthalene	581-42-0	ng/g		2.94		2.87		a	3.36		a	1.96	1.33	f	1.80
	2-Methylnaphthalene	91-57-6	ng/g		3.98		3.20	2.91	f	3.74	3.79		2.19	4.07		2.01
	Benzothiazole	95-16-9	ng/g		6.98		5.68	10.49		6.65	6.69		3.88	8.53		3.56
	Group Total (ng/g)				**22.25**			**20.81**			**14.09**			**18.99**		

Appendix Table D-9. 2006 PAHs

				Event Id											
				Stat Id	OS-M2						OS-M5				
				Sample Id	FM063M201			FM063M202			FM063M501			FM063M502	
				Bottle Id	M201_SOF_BOS			M202_SOF_BOS			M501_SOF_BOS			M502_SOF_BOS	
				Anal Lab Id	BOS			BOS			BOS			BOS	
				Meth Code	BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157	
					Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Descr	Param Code	Unit Code													
HMW-PAH	Benz(a)anthracene	56-55-3	ng/g		7.48		0.40	4.84		0.50	6.02		0.50	5.97		0.40
	Benzo(a)pyrene	50-32-8	ng/g		4.02		0.95	3.43		1.17	4.80		1.19	3.96		0.94
	Benzo(b)fluoranthene	205-99-2	ng/g		10.87		0.63	8.48		0.78	9.52		0.79	9.83		0.63
	Benzo(e)pyrene	192-97-2	ng/g		21.65		1.14	15.48		1.41	16.43		1.42	16.70		1.13
	Benzo(g,h,i)perylene	191-24-2	ng/g		4.43		1.58	3.85		1.95	5.15		1.98	4.18		1.57
	Benzo(k)fluoranthene	207-08-9	ng/g		9.59		0.57	6.75		0.70	9.16		0.71	7.46		0.57
	C1-Chrysenes	MWRA70	ng/g		5.68		0.71	4.37		0.88	4.58		0.89	4.79		0.71
	C1-Fluoranthenes/Pyrenes	MWRA69	ng/g		26.86		2.31	18.64		2.85	20.17		2.88	21.21		2.29
	C2-Chrysenes	MWRA4	ng/g		3.37		0.71		a	0.88		a	0.89	2.77		0.71
	C2-Fluoranthenes/Pyrenes	MWRA83	ng/g		15.34		2.31	10.66		2.85	9.77		2.88	12.02		2.29
	C3-Chrysenes	MWRA71	ng/g			a	0.71		a	0.88		a	0.89		a	0.71
	C3-Fluoranthenes/Pyrenes	MWRA84	ng/g		7.02		2.31		a	2.85		a	2.88	5.80		2.29
	C4-Chrysenes	MWRA72	ng/g			a	0.71		a	0.88		a	0.89		a	0.71
	Chrysene	218-01-9	ng/g		16.48		0.71	12.02		0.88	12.78		0.89	11.59		0.71
	Dibenzo(a,h)anthracene	53-70-3	ng/g		0.65		0.25	0.67		0.30	0.89		0.31	0.58		0.24
	Fluoranthene	206-44-0	ng/g		21.84		1.38	14.69		1.70	14.13		1.72	13.98		1.37
	Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g		2.17		1.03	2.09		1.27	2.92		1.29	2.35		1.02
	Perylene	198-55-0	ng/g		2.84		0.57	1.99		0.70	2.66		0.71	2.98		0.57
	Pyrene	129-00-0	ng/g		44.24		2.31	33.36		2.85	28.46		2.88	30.45		2.29
	Group Total (ng/g)				**204.53**			**141.32**			**147.44**			**156.62**		

			Event Id														
			Stat Id	OS-M2						OS-M5							
			Sample Id	FM063M201			FM063M202			FM063M501			FM063M502		
			Bottle Id	M201_SOF_BOS			M202_SOF_BOS			M501_SOF_BOS			M502_SOF_BOS		
			Anal Lab Id	BOS			BOS			BOS			BOS		
			Meth Code	BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157		
				Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Descr	Param Code	Unit Code												
LMW-PAH	Acenaphthene	83-32-9	ng/g		a	0.94		a	1.16		a	1.18		a	0.93
	Acenaphthylene	208-96-8	ng/g	2.09		0.23	2.34		0.28	2.55		0.29	2.43		0.23
	Anthracene	120-12-7	ng/g	2.23		0.49	1.60		0.61	1.56		0.61	1.56		0.49
	Biphenyl	92-52-4	ng/g	1.63		0.80		a	0.99		a	1.00		a	0.79
	C1-Dibenzothiophenes	MWRA68	ng/g	7.24		0.52	5.92		0.64	3.98		0.65	5.23		0.52
	C1-Fluorenes	MWRA65	ng/g		a	1.02		a	1.26		a	1.28		a	1.01
	C1-Naphthalenes	MWRA64	ng/g	6.38		3.03	4.31		3.74	7.77		3.79	8.74		3.01
	C1-Phenanthrenes/Anthracen	MWRA67	ng/g	12.81		1.44	9.29		1.78	7.94		1.80	8.04		1.43
	C2-Dibenzothiophenes	MWRA5	ng/g	24.75		0.52	18.00		0.64	13.57		0.65	17.57		0.52
	C2-Fluorenes	MWRA6	ng/g	24.59		1.02		a	1.26		a	1.28	16.18		1.01
	C2-Naphthalenes	MWRA7	ng/g		a	3.03		a	3.74		a	3.79	4.09		3.01
	C2-Phenanthrenes/Anthracen	MWRA57	ng/g	42.56		1.44	31.59		1.78	26.30		1.80	28.10		1.43
	C3-Dibenzothiophenes	MWRA9	ng/g	33.56		0.52	26.32		0.64	18.54		0.65	24.37		0.52
	C3-Fluorenes	MWRA66	ng/g	60.22		1.02		a	1.26		a	1.28	47.78		1.01
	C3-Naphthalenes	MWRA10	ng/g	9.95		3.03	8.70		3.74	6.52		3.79	6.91		3.01
	C3-Phenanthrenes/Anthracen	MWRA52	ng/g	43.19		1.44	33.97		1.78	27.27		1.80	28.68		1.43
	C4-Naphthalenes	MWRA11	ng/g	31.71		3.03	25.91		3.74	21.91		3.79	25.90		3.01
	C4-Phenanthrenes/Anthracen	MWRA54	ng/g	17.20		1.44	13.41		1.78	10.58		1.80	12.83		1.43
	Dibenzofuran	132-64-9	ng/g	1.96		0.45	2.08		0.56	1.77		0.56	1.65		0.45
	Dibenzothiophene	132-65-0	ng/g	1.72		0.52	1.76		0.64	0.79		0.65	0.75		0.52
	Fluorene	86-73-7	ng/g	1.69		1.02	1.81		1.26		a	1.28		a	1.01
	Naphthalene	91-20-3	ng/g	8.13		3.03	7.54		3.74	9.81		3.79	12.57		3.01
	Phenanthrene	85-01-8	ng/g	7.96		1.44	5.34		1.78	4.64		1.80	4.59		1.43
	Group Total (ng/g)			**341.57**			**199.89**			**165.50**			**257.97**		
PAH - other	1-Methylnaphthalene	90-12-0	ng/g	3.06		1.41	2.25		1.75	4.03		1.77	4.25		1.40
	1-Methylphenanthrene	832-69-9	ng/g	3.40		0.40	2.39		0.49	2.35		0.49	2.20		0.39
	2,3,5-Trimethylnaphthalene	2245-38-7	ng/g	1.18		0.91	0.86	f	1.12		a	1.14	1.06		0.90
	2,6-Dimethylnaphthalene	581-42-0	ng/g		a	2.04		a	2.52		a	2.56	1.40	f	2.03
	2-Methylnaphthalene	91-57-6	ng/g	5.69		2.28	3.49		2.82	7.01		2.85	7.77		2.27
	Benzothiazole	95-16-9	ng/g	9.18		4.05	7.49		5.00	8.25		5.07	8.43		4.02
	Group Total (ng/g)			**22.51**			**16.48**			**21.64**			**25.11**		

Appendix Table D-10. 2006 NOAA PAHs

						Event Id	FM061						FM063													
						Stat Id	SP						CCB						DIL						IH		
						Sample Id	FM061SP01			FM061SP02			FM063901			FM063902			FM0631M01			FM0631M02			FM063601			FM06360
						Bottle Id	SP01_SOF_BOS			SP02_SOF_BOS			901_SOF_BOS			902_SOF_BOS			1M01_SOF_BOS			1M02_SOF_BOS			601_SOF_BOS			602_SOF_E
						Anal Lab Id	BOS			BOS			BOS			BOS			BOS			BOS			BOS			BOS
						Meth Code	BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-1
							Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value
Analyte Group	Abbrev	Descr	Param Code	Unit Code																								
HMW-PAH		Benz(a)anthracene	56-55-3	ng/g		1.18		0.48	1.07		0.51	1.25		0.39	1.20		0.38	3.51		0.40	4.94		0.39	72.72		0.57	49.69
		Benzo(a)pyrene	50-32-8	ng/g		1.11	f	1.12	1.48		1.19	1.02		0.93	1.20		0.90	2.38		0.95	4.68		0.91	36.08		1.33	19.24
		Benzo(b)fluoranthene	205-99-2	ng/g		2.30		0.75	2.30		0.79	2.57		0.62	2.37		0.60	7.69		0.63	8.62		0.61	102.03		0.89	67.34
		Benzo(e)pyrene	192-97-2	ng/g		3.65		1.35	4.18		1.43	4.78		1.11	5.76		1.08	13.96		1.14	16.28		1.10	142.28		1.60	117.92
		Benzo(g,h,i)perylene	191-24-2	ng/g		1.92		1.87	2.23		1.99	2.06		1.55	2.18		1.50	5.21		1.59	7.01		1.52	30.03		2.22	25.41
		Benzo(k)fluoranthene	207-08-9	ng/g		2.26		0.67	2.36		0.72	2.19		0.56	2.32		0.54	6.31		0.57	7.86		0.55	86.33		0.80	55.03
		Chrysene	218-01-9	ng/g		3.16		0.84	2.83		0.89	2.65		0.70	3.08		0.67	8.68		0.71	10.10		0.68	127.77		1.00	99.42
		Dibenzo(a,h)anthracene	53-70-3	ng/g			a	0.29		a	0.31		a	0.24	0.41		0.23	0.77		0.25	0.96		0.24	4.98		0.34	3.06
		Fluoranthene	206-44-0	ng/g		10.42		1.63	9.89		1.73	9.07		1.35	10.79		1.30	23.80		1.38	29.81		1.32	392.91		1.93	360.43
		Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g		1.42		1.22	1.42		1.29	0.92	f	1.01	1.06		0.97	2.68		1.03	4.32		0.99	18.97		1.44	14.09
		Perylene	198-55-0	ng/g		2.30		0.67	2.15		0.72	1.06		0.56	1.20		0.54	1.77		0.57	2.29		0.55	13.48		0.80	9.63
		Pyrene	129-00-0	ng/g		8.61		2.73	10.19		2.90	9.98		2.26	10.88		2.18	22.46		2.31	24.65		2.22	235.85		3.23	201.29
LMW-PAH		Acenaphthene	83-32-9	ng/g			a	1.11		a	1.18		a	0.92		a	0.89		a	0.94		a	0.91	13.06		1.32	9.12
		Acenaphthylene	208-96-8	ng/g		1.07		0.27	1.01		0.29	1.71		0.22	1.41		0.22	2.00		0.23	2.26		0.22	9.50		0.32	8.36
		Fluorene	86-73-7	ng/g		1.75		1.21	1.51		1.28	1.02		1.00	0.83	f	0.96		a	1.02	1.60		0.98	3.78		1.43	4.27
		Naphthalene	91-20-3	ng/g		3.58	f	3.59	4.70		3.81	3.94		2.97	3.95		2.87	4.49		3.04	4.35		2.92	7.92		4.25	8.97
		Phenanthrene	85-01-8	ng/g		4.29		1.70	5.12		1.81	3.48		1.41	3.81		1.36	6.00		1.44	6.56		1.38	10.41		2.02	7.93
PAH - other		1-Methylnaphthalene	90-12-0	ng/g		1.15	f	1.67	1.96		1.78	1.02	f	1.39	1.02	f	1.34	1.69		1.42	2.36		1.36	2.23		1.98	1.91
		1-Methylphenanthrene	832-69-9	ng/g		1.76		0.47	1.74		0.50	1.16		0.39	1.14		0.37	1.60		0.40	2.34		0.38	4.62		0.55	4.01
		2,3,5-Trimethylnaphthalene	2245-38-7	ng/g		0.95	f	1.07	1.13	f	1.14		a	0.89	0.34	f	0.86	0.59	f	0.91	0.78	f	0.87	1.50		1.27	1.49
		2,6-Dimethylnaphthalene	581-42-0	ng/g			a	2.42		a	2.57		a	2.00		a	1.93		a	2.05	2.42		1.97	2.94		2.87	
		2-Methylnaphthalene	91-57-6	ng/g		3.04		2.70	3.51		2.87	1.43	f	2.23	1.51	f	2.16	3.05		2.29	3.95		2.20	3.98		3.20	2.91
Total NOAA PAH (ng/g)						**55.92**			**60.78**			**51.31**			**56.46**			**118.64**			**148.14**			**1323.37**			**1071.52**

Appendix Table D-10. 2006 NOAA PAHs

				Event Id																					
				Stat Id				LNB						OS-M2						OS-M5					
				Sample Id	)2			FM063B01			FM063B02			FM063M201			FM063M202			FM063M501			FM063M502		
				Bottle Id	3OS			B01_SOF_BOS			B02_SOF_BOS			M201_SOF_BOS			M202_SOF_BOS			M501_SOF_BOS			M502_SOF_BOS		
				Anal Lab Id				BOS			BOS			BOS			BOS			BOS			BOS		
				Meth Code	L57			BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157			BSOP5-157		
						Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL	Value	Q	RL
Analyte Group	Abbrev	Descr	Param Code	Unit Code																					
HMW-PAH		Benz(a)anthracene	56-55-3	ng/g			0.66	3.11		0.39	2.69		0.35	7.48		0.40	4.84		0.50	6.02		0.50	5.97		0.40
		Benzo(a)pyrene	50-32-8	ng/g			1.56	2.41		0.91	1.59		0.83	4.02		0.95	3.43		1.17	4.80		1.19	3.96		0.94
		Benzo(b)fluoranthene	205-99-2	ng/g			1.04	5.41		0.61	4.36		0.56	10.87		0.63	8.48		0.78	9.52		0.79	9.83		0.63
		Benzo(e)pyrene	192-97-2	ng/g			1.87	11.22		1.09	10.41		1.00	21.65		1.14	15.48		1.41	16.43		1.42	16.70		1.13
		Benzo(g,h,i)perylene	191-24-2	ng/g			2.59	2.96		1.52	3.13		1.39	4.43		1.58	3.85		1.95	5.15		1.98	4.18		1.57
		Benzo(k)fluoranthene	207-08-9	ng/g			0.93	4.36		0.55	3.96		0.50	9.59		0.57	6.75		0.70	9.16		0.71	7.46		0.57
		Chrysene	218-01-9	ng/g			1.17	7.59		0.68	7.09		0.63	16.48		0.71	12.02		0.88	12.78		0.89	11.59		0.71
		Dibenzo(a,h)anthracene	53-70-3	ng/g			0.40	0.46		0.23	0.50		0.22	0.65		0.25	0.67		0.30	0.89		0.31	0.58		0.24
		Fluoranthene	206-44-0	ng/g			2.26	11.05		1.32	11.43		1.21	21.84		1.38	14.69		1.70	14.13		1.72	13.98		1.37
		Indeno(1,2,3-c,d)pyrene	193-39-5	ng/g			1.69	1.70		0.99	1.44		0.90	2.17		1.03	2.09		1.27	2.92		1.29	2.35		1.02
		Perylene	198-55-0	ng/g			0.93	1.21		0.55	1.67		0.50	2.84		0.57	1.99		0.70	2.66		0.71	2.98		0.57
		Pyrene	129-00-0	ng/g			3.78	21.11		2.21	20.08		2.03	44.24		2.31	33.36		2.85	28.46		2.88	30.45		2.29
LMW-PAH		Acenaphthene	83-32-9	ng/g			1.54		a	0.90		a	0.83		a	0.94		a	1.16		a	1.18		a	0.93
		Acenaphthylene	208-96-8	ng/g			0.38	1.58		0.22	1.30		0.20	2.09		0.23	2.34		0.28	2.55		0.29	2.43		0.23
		Fluorene	86-73-7	ng/g			1.67	1.09		0.98	1.33		0.90	1.69		1.02	1.81		1.26		a	1.28		a	1.01
		Naphthalene	91-20-3	ng/g			4.98	4.87		2.91	5.98		2.67	8.13		3.03	7.54		3.74	9.81		3.79	12.57		3.01
		Phenanthrene	85-01-8	ng/g			2.36	4.09		1.38	4.25		1.27	7.96		1.44	5.34		1.78	4.64		1.80	4.59		1.43
PAH - other		1-Methylnaphthalene	90-12-0	ng/g		f	2.32	1.83		1.36	2.29		1.25	3.06		1.41	2.25		1.75	4.03		1.77	4.25		1.40
		1-Methylphenanthrene	832-69-9	ng/g			0.65	1.78		0.38	2.18		0.35	3.40		0.40	2.39		0.49	2.35		0.49	2.20		0.39
		2,3,5-Trimethylnaphthalene	2245-38-7	ng/g			1.49		a	0.87	0.59	f	0.80	1.18		0.91	0.86	f	1.12		a	1.14	1.06		0.90
		2,6-Dimethylnaphthalene	581-42-0	ng/g		a	3.36		a	1.96	1.33	f	1.80		a	2.04		a	2.52		a	2.56	1.40	f	2.03
		2-Methylnaphthalene	91-57-6	ng/g		f	3.74	3.79		2.19	4.07		2.01	5.69		2.28	3.49		2.82	7.01		2.85	7.77		2.27
Total NOAA PAH (ng/g)								**91.62**			**91.67**			**179.46**			**133.67**			**143.31**			**146.30**		

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