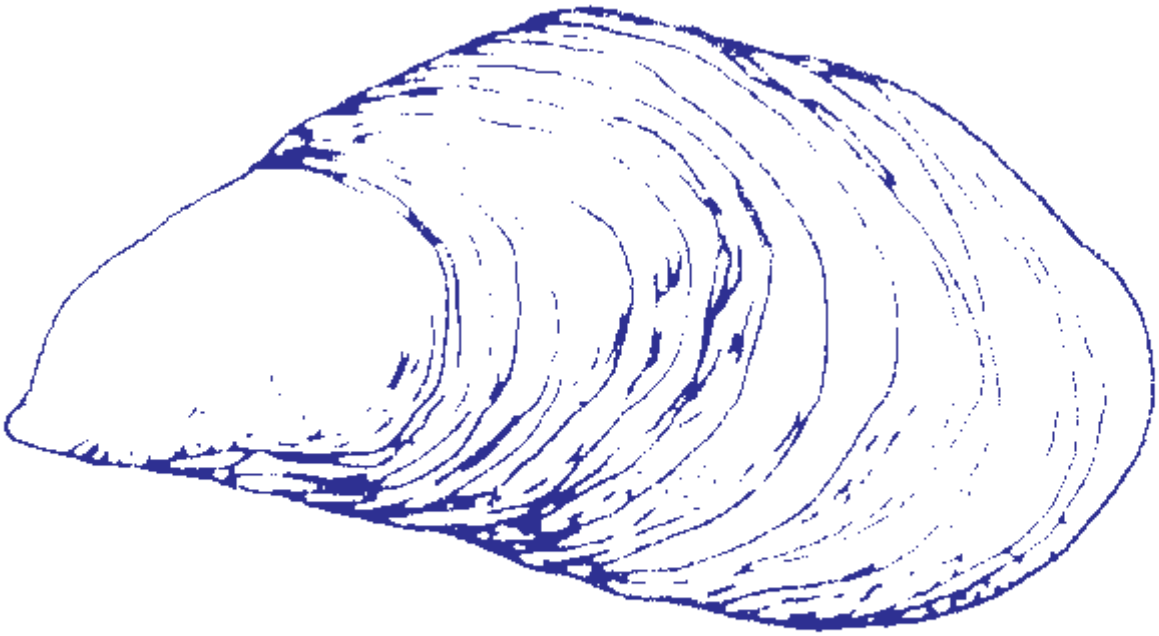
Pub. No. 608.00.1

PRINCE WILLIAM SOUND RCAC

LONG-TERM ENVIRONMENTAL MONITORING PROGRAM

1999 - 2000 LTEMP MONITORING REPORT



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December 22, 2000

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EXECUTIVE SUMMARY

The Long-Term Environmental Monitoring Program was designed to provide measurements of hydrocarbon concentrations and sources at program sites within areas of Prince William Sound and the Gulf of Alaska under the auspices of the Prince William Sound Regional Citizens' Advisory Council. These measurements provide a basis for the examination of spatial and temporal changes in hydrocarbon levels that are the result of both natural and man-induced inputs to the environment. The program focuses on sampling of intertidal mussels and nearby sediments to provide information on hydrocarbon levels that exist in the study area. The program is performed by Kinnetic Laboratories, Inc. under the administration of the Council's Scientific Advisory Committee.

This monitoring report includes data collected during July 1999, October 1999, and March 2000. Mussel samples were collected from indigenous (native) intertidal blue mussel populations for the analysis of hydrocarbons in tissues at ten sites during July 1999 and March 2000. Stations sampled included Aialik Bay, Alyeska Marine Terminal, Disk Island, Gold Creek, Knowles Head, Sheep Bay, Shuyak Harbor, Sleepy Bay, Windy Bay, and Zaikof Bay. The station at Zaikof Bay was added to the program this year to increase the geographical coverage of the program within Prince William Sound. An additional mussel sampling effort was completed at the Port Valdez stations (Alyeska Marine Terminal and Gold Creek) during October 1999 to increase temporal coverage of this area. Subtidal sediments were also collected at the two Port Valdez stations during March 2000.

Chemical analyses were performed for a number of parameters that are indicative of possible petroleum contamination. These include various components of petroleum, such as polycyclic aromatic hydrocarbons, aliphatic hydrocarbons, and the unresolved complex mixture that contains compounds that cannot be identified using currently-available techniques. These parameters provide information on the levels of hydrocarbons in mussel tissues and marine sediments. Various types of hydrocarbon ratios were also used to help determine the potential source of hydrocarbons found in the sediment samples. Chemical analyses were performed using state-of-the art techniques following specific protocols to ensure the validity and integrity of the data. Analytical strategy for the 1999 - 2000 program was the same as the prior year of the program.

Hydrocarbons in the marine environment, particularly in the study area, can have a multitude of origins and include both human-induced and naturally-occurring inputs. These include the release of oil through man's activities such as the T/V *Exxon Valdez* oil spill in March 1989, operations at the Alyeska Marine Terminal, or other oil transportation activities; combustion sources such as stack exhaust or forest fires; boating and ship activities; natural oil seepage or coal deposits; biological processes from bacteria or other organisms; and atmospheric fallout. Natural events such as earthquakes can also result in the release of hydrocarbons. All of these may contribute hydrocarbons to resident biota and sediments in Prince William Sound and the Gulf of Alaska. For purposes of this report, hydrocarbons were classified as having several distinct sources. Hydrocarbons resulting from biological processes were classified as biogenic, while those from a combustion source, such as boat exhausts or industrial emissions, were classified as pyrogenic. Hydrocarbons of a petroleum (petrogenic) nature that might be found in the study area include Alaska North Slope crude, *Exxon Valdez* oil spill residues, residues from natural coal deposits, natural petroleum seeps from the eastern Gulf of Alaska area, and refined products such as diesel or Bunker C fuel oil. Alaska North Slope crude consists of a mixture of petroleum from the various production fields on the Alaskan North Slope, and exhibits a fingerprint that is quite distinct from that of oil found in other geographic areas. The *Exxon Valdez* spill consisted of Alaska North Slope crude, which over time has weathered to produce a slightly different fingerprint than that of fresh crude. Coal deposits in the Gulf of Alaska are now considered by some researchers to be the predominant source of naturally-occurring petrogenic hydrocarbons (or "background hydrocarbons") in the study area, and these also exhibit a distinctly different fingerprint from Alaska North Slope crude and other oils.

Examination of hydrocarbon data for both tissues and sediments indicated that hydrocarbons from a variety of sources can be identified in the 1999 - 2000 program. For many stations, these sources are similar to those identified in earlier program reports and by other researchers examining program data. However, it should be noted that many of the concentrations reported here are at or below method detection limits that have been determined using the same procedures and instruments used to analyze the samples. Put simply, these detection limits are based on a statistical method that is used to indicate how reliable the data may be. Values below these limits, while still valid, are less reliable, and this fact should be taken into account when reviewing the data and discussion presented in this report.

This year's program data indicate that hydrocarbons in tissues in the study area vary considerably between stations and over time. The polycyclic aromatic hydrocarbon levels in tissues were generally low and, for the most part, within the historical range of levels seen at each site. The increasing trend in total polycyclic aromatic hydrocarbons levels that had been seen in tissues prior to March 1998 was not evident in the 1998 – 1999 data, which showed decreased concentrations. While data from July 1999 were elevated compared to the 1998 – 1999 data, they were still within the historical range of values at all but one site. Data from this survey indicate that the alkylated fluorenes were responsible for the relatively high polycyclic aromatic hydrocarbon levels seen and this may be due to naturally-occurring materials in these mussels. Total polycyclic aromatic hydrocarbon data from October 1999 (Port Valdez stations only) and March 2000 (all stations) showed relatively low levels as compared to the July 1999 results.
Although tissue polycyclic aromatic hydrocarbon concentrations were low, the fingerprints from many stations exhibited a petrogenic hydrocarbon signal which could be attributed to several sources. As in many of the past surveys, hydrocarbons in the tissues at both Alyeska Marine Terminal and Gold Creek during July 1999 and October 1999 were attributed to Alaska North Slope crude, with the most likely source identified as the Alyeska Marine Terminal and tanker operations. Lesser amounts of pyrogenic hydrocarbons were also seen at both of these stations. In contrast to most past results, a background signature was present in mussels at the Alyeska Marine Terminal station during March 2000 (also seen in July 1998). This low-level signature may reflect normal "non-contaminated" levels of hydrocarbons in these mussels when there are no petroleum inputs from operations at the Alyeska Marine Terminal. The polycyclic aromatic hydrocarbon concentrations at the Gold Creek station were also very low in March 2000, with a relatively high contribution of pyrogenics.

Mussels collected at the other program stations (Aialik Bay, Disk Island, Knowles Head, Sheep Bay, Shuyak Harbor, Sleepy Bay, Windy Bay, and Zaikof Bay) typically showed inputs from primarily background sources with lesser pyrogenic or biogenic inputs. This included the Disk Island station, which had low levels of primarily background hydrocarbons along with pyrogenics and some evidence of residual Alaska North Slope crude or spill oil. An opportunistic tissue sample collected from a still-visibly oiled beach area near the Disk Island site still showed elevated hydrocarbon levels and a clear *Exxon Valdez* oil spill/Alaska North Slope crude signature. Mussels collected at the newly-implemented station in Zaikof Bay exhibited the lowest polycyclic aromatic hydrocarbon concentrations seen at all stations during the July 1999 and March 2000 surveys. The fingerprints at Zaikof Bay indicated a clear background signature. Because the initial data indicate that hydrocarbon levels are naturally quite low at this location, it appears that inclusion of this station in the program will be helpful in determining potential future impacts of hydrocarbon transportation in the study area.

The aliphatic hydrocarbon levels in tissues were considerably higher than the polycyclic aromatic hydrocarbon concentrations, as was expected due to the naturally-occurring lipid compounds in these animals that interfere with the aliphatic hydrocarbon analyses. As in the 1998- 1999 results, it appears that inclusion of this analysis for mussel tissues did not provide additional information that was helpful in assessing hydrocarbon contamination or potential sources. Extremely high levels of aliphatics seen at Gold Creek and to a lesser extent at Alyeska Marine Terminal and Windy Bay during July 1999 have been attributed to lipid interference with the analysis. Although the Gold Creek station also exhibited elevated levels of polycyclic aromatic hydrocarbons with a North Slope crude signature in July 1999, the majority of the aliphatic hydrocarbons seen there were not attributable to petroleum and are considered to be naturally-occurring materials that probably originated in the planktonic food source of the mussels.

Subtidal sediments were collected during March 2000 at the pre-existing Port Valdez stations, Alyeska Marine Terminal and Gold Creek. Concentrations of polycyclic aromatic and aliphatic hydrocarbon values at the Alyeska station were well within the historical range of values seen at this station. Hydrocarbons seen in sediments at the Alyeska Marine Terminal site are the result of long-term chronic inputs and exhibited a signature typical of weathered Alaska North Slope crude along with low levels of pyrogenic hydrocarbons along with some biogenic inputs. Total polycyclic aromatic hydrocarbon levels at the Gold Creek sediment station were higher than that seen historically at this station. The signature here showed both petrogenic and pyrogenic inputs with a predominance of pyrogenic components; some biogenic input was also noted. As in the past, this signature was not attributed to Alaska North Slope crude. The aliphatic hydrocarbon levels seen at this station were within the historical range of the station.

1.0 INTRODUCTION

The Prince William Sound Regional Citizens' Advisory Council (RCAC) is an independent organization that was formed in 1989 in response to the T/V *Exxon Valdez* oil spill (EVOS). The RCAC was later certified under the Federal Oil Pollution Act of 1990. Operating under a contract with Alyeska Pipeline Service Company, the RCAC acts to minimize the environmental impacts associated with the terminal and the oil transportation tanker fleet. The RCAC's mission includes the performance of research designed to help understand and evaluate environmental impacts associated with oil transportation, including baseline research conducted prior to another spill event.

The purpose of the Long-Term Environmental Monitoring Program (LTEMP), implemented in 1993, is to provide long-term baseline measurements of hydrocarbon levels and sources in sediments and indigenous (native) blue mussels at program sites within areas of Prince William Sound (PWS) and the Gulf of Alaska represented by the RCAC. The program objective has been modified over the course of the program to provide emphasis on the development of a long-term comprehensive dataset that can be used to evaluate both temporal and spatial trends in hydrocarbon levels and to help determine potential impacts of oil transportation on the ecosystem. The program is performed by Kinnetic Laboratories, Inc. (KLI) in Anchorage, Alaska, under the administration of the RCAC's Scientific Advisory Committee. Chemical analyses were performed by the Geochemical and Environmental Research Group (GERG) of Texas A&M University in College Station, Texas.

The purpose of this report is to present data from the seventh year of the monitoring program. It includes results from the three LTEMP surveys performed during the RCAC's 1999 - 2000 fiscal year. Only limited data from prior program years are provided or discussed in this report; for more information concerning prior data, the reader is referred to earlier program reports (e.g., KLI, 1993a; 1993b; 1994a; 1994d; 1995a; 1995b; 1996a; 1997a; 1997d; 1998; and 1999). For the reader's convenience, a Glossary and List of Acronyms is provided at the end of this document. In addition, information on web site access to LTEMP information is provided in Section 9.0 of this report.

Intertidal indigenous blue mussel tissue samples were collected during three field surveys at LTEMP stations. During July 1999 and March 2000, intertidal mussel samples were collected at ten sites for the analysis of hydrocarbon and chemical parameters. Additional mussels were collected for measurement of gonadal index. During October 1999, mussel samples were collected in Port Valdez at the Alyeska Marine Terminal and Gold Creek stations. This fall sampling event was added to the program this year to allow greater temporal coverage of the area. In addition to the mussel sampling, nearshore subtidal sediments were collected in March 2000 at these two Port Valdez stations for the analysis of hydrocarbon, organic carbon, and sediment grain size. This subtidal sediment sampling was re-implemented on the program this year at these two sites because hydrocarbon inputs from oil industry operations have been seen at these locations in the past and because of heightened public interest in the overall health of Port Valdez in terms of potential contaminant inputs.

2.0 STUDY DESIGN AND APPROACH

2.1 Sampling Design

As discussed in earlier program documents, the basic sampling approach for the LTEMP is consistent with the National Oceanographic and Atmospheric Administration's (NOAA) National Mussel Watch Project where native populations of sedentary organisms are utilized as bioindicators of chemical contamination and nearby sediments are used to evaluate trends in contamination in the marine environment (NOAA, 1989a). A full description of sampling methods may be found in earlier program documents (e.g., KLI, 1993a; 1994a; 1995a; 1996a; and 1997a).

Sampling reported here was performed in July/August 1999 (Survey 14), October 1999 (Survey 15), and March/April 2000 (Survey 16). For convenience, these surveys are referred to using the survey number or the first month during which samples were collected for that survey (e.g., Survey 14 or July 1999). Indigenous mussel samples for hydrocarbon analysis were collected by hand from the mid-intertidal zone of each station using a stratified random sampling design. Three replicates of 30 individuals each were collected from three randomly-selected points along a 30-m transect. Replicate mussel samples were analyzed for polycyclic aromatic hydrocarbons (PAH); aliphatic hydrocarbons (AHC) which included the total resolved aliphatic hydrocarbons (TRAHC) and the unresolved complex mixture (UCM); and percent lipid content. Twenty additional mussels were collected at each station for assessment of gonadal state.

Sediments were obtained from the nearshore subtidal areas immediately adjacent to the mussel sampling site at two stations (Alyeska Marine Terminal and Gold Creek). Three replicate samples of surficial sediment (0 - 2 centimeters [cm]) from each subtidal sediment station were collected using a modified Van Veen grab, as described in earlier program reports. These sediment samples were analyzed for PAH' AHC, TRAHC, and UCM; total organic carbon (TOC); and particle grain size (PGS).

Analytical strategy is summarized in Table 1; analytical methods are described in Section 3.2. The analytical approach included the use of compound-specific measurements for organic parameters such as PAH and AHC to allow the assessment of hydrocarbon concentrations in tissue and sediment. Mussels were also analyzed for percent lipids and gonadal index. Additional parameters examined in sediments included PGS and TOC, which are typically analyzed to evaluate their correlation with the hydrocarbon parameters.

2.2 Site Selection Criteria

As indicated in the initial study plan (KLI, 1993a) and program survey reports (e.g., KLI, 1993c and 1993d), individual sampling sites were selected on the basis of several criteria. These included presence or absence of known or potential sources of hydrocarbon contamination, including the T/V *Exxon Valdez* oil spill (EVOS), the Alyeska Marine Terminal in Port Valdez, and the Knowles Head tanker anchorage area; the extent of native intertidal mussel populations; geographic features such as rocky benches in the intertidal area; and nearshore bathymetry and soft-bottom sediment to allow subtidal sediment collection. The extent of the mussel population became particularly important in March 1999, when it was discovered that many of the mussels (and other intertidal organisms) at the LTEMP sites in the Gulf of Alaska sites had been subject to die-off, probably due to extreme winter temperatures. These sites had begun to recover and be re-colonized in July 1999, but sampling at Windy Bay had to be shifted by 30 m during this reporting period to obtain the mussel samples because the original transect no longer contained mussels large enough to sample.

Ten stations were sampled during LTEMP 1999 - 2000: Aialik Bay (AIB), Alyeska Marine Terminal (AMT; Saw Island), Disk Island (DII), Gold Creek (GOC), Knowles Head (KNH), Sheep Bay (SHB), Shuyak Harbor (SHH), Sleepy Bay (SLB), Windy Bay (WIB), and Zaikof Bay (ZAB; Table 2; Figures 1 – 10). These were all pre-existing stations with the exception of Zaikof Bay, sampling at which began during this reporting year to increase the geographical coverage of PWS. This area is also one of the sites likely to be impacted in the event of a oil release in or near Hinchinbrook Entrance. The new Zaikof Bay station was located in a wide, healthy mussel band on a prominent rocky outcropping on the southeast side of the bay.

Table 1. 1999 - 2000 LTEMP Analytical Strategy.

Parameter/ Matrix	Description	Relevance
Polycyclic aromatic hydrocarbons (PAH)/ Mussel tissue and sediment	2 to 6-ring polycyclic aromatic hydrocarbon compounds; includes homologous series of aromatic hydrocarbons consisting of unsubstituted (parent) compounds, such as naphthalene, and substituted compounds, which are similar structures with alkyl side chains that replace hydrogen ions, such as C_1-naphthalene	Useful for determining hydrocarbon contamination and the relative contribution of petrogenic, pyrogenic, and diagenic sources; useful in source identification and determination of weathering rates
Aliphatic hydrocarbons (AHC)/ Mussel tissue and sediment	The aliphatic analysis this year includes the measure of hydrocarbons defined and undefined by the gas chromatographic technique, including the following: AHC – aliphatic hydrocarbons defined as fully saturated normal alkanes (paraffins) and branched alkanes, n-C_{10} to n-C_{34}; includes the isoprenoid compounds pristane (C_{19}) and phytane (C_{20}) that are often the most abundant isoprenoids in petroleum hydrocarbons TRAHC – the total resolved aliphatic hydrocarbons, which includes the AHC analytes (n-C_{10} through n-C_{34} and pristane and phytane) plus other compounds such as plant waxes and lipids which are not individually identified or reported UCM – the unresolved complex mixture of hydrocarbons of undefined structure that are not separated by gas chromatographic techniques; represented by the total resolved plus unresolved area minus the total area of all peaks that have been integrated TRUAHC – the total area of resolved and unresolved aliphatic hydrocarbons represented by the total area of the GC run, whether or not these compounds have been identified	Useful for determining hydrocarbon contamination and the relative contribution of petrogenic and biogenic sources; useful in determination of weathering rates and rates of oil degradation
Percent lipid/ Mussel tissue	Lipid material in mussel tissue is primary storage area for hydrocarbons; gametes are mostly comprised of lipids	Useful in determining spawning state of mussels; hydrocarbon body burdens decrease when lipid-rich gametes are released
Gonadal index/ Mussel tissue and shell	Measure of shell length, shell volume, volume and weight of gonadal tissue, volume and weight of non-gonadal tissue	Useful in determining spawning state of mussels; hydrocarbon body burdens decrease when lipid-rich gametes are released
Particle grain size (PGS)/ Sediment	Percent gravel, sand, silt, and clay	Assessment of particle size distribution in sediments; potentially used to standardize organic parameters such as PAH and AHC
Total organic carbon (TOC)/ Sediment	Organic carbon	Assessment of organic carbon load in sediment; potentially used to standardize organic parameters (PAH and AHC)

Table 2. Station Locations and Sampling Information for the 1999 – 2000 LTEMP.

Station Location	Station Designation	Station Type	Sampling Date	Survey No.	Average Height (m) Above or Below MLLW	Global Positioning System (GPS) Coordinates	
						Latitude (N)	Longitude (W)
AIALIK BAY	AIB-B	Intertidal Mussel	08/03/99	14	1.4	59°52'47.1"	149°39'38.3"
			03/22/00	16	1.2	59°52'45.6"	149°39'35.5"
ALYESKA MARINE TERMINAL	AMT-B	Intertidal Mussel	08/01/99	14	1.5	61°05'28.4"	146°24'28.4"
			10/26/99	15	1.8	61°05'29.7"	146°24'31.1"
			04/05/00	16	1.7	61°05'24.5"	146°24'31.7"
	AMT-S	Subtidal Sediment	04/05/00	16	-68.1	61°05'23.5"*	146°23'41.6"*
DISK ISLAND	DII-B	Intertidal Mussel	07/29/99	14	1.6	60°29'54.8"	147°39'39.1"
			04/04/00	16	1.5	60°29'54.2"	147°39'38.2"
GOLD CREEK	GOC-B	Intertidal Mussel	08/01/99	14	1.1	61°07'27.1"	146°29'45.1"
			10/26/99	15	1.5	61°07'28.2"	146°29'46.5"
			04/05/00	16	0.9	61°07'27.4"	146°29'45.9"
	GOC-S	Subtidal Sediment	04/05/00	16	-28.5	61°07'25.8"*	146°29'35.3"*
KNOWLES HEAD	KNH-B	Intertidal Mussel	07/28/99	14	2.6	60°41'28.1"	146°35'07.9"
			04/03/00	16	2.8	60°41'26.4"	146°35'10.0"
SHEEP BAY	SHB-B	Intertidal Mussel	07/28/99	14	2.0	60°38'46.3"	145°59'45.8"
			04/03/00	16	2.3	60°38'45.5"	145°59'51.0"
SHUYAK HARBOR	SHH-B	Intertidal Mussel	08/11/99	14	2.6	58°30'07.7"	152°37'43.7"
			03/22/00	16	2.6	58°30'06.3"	152°37'37.2"
SLEEPY BAY	SLB-B	Intertidal Mussel	07/31/99	14	2.5	60°04'02.8"	147°49'58.4"
			04/04/00	16	2.5	60°04'02.2"	147°50'00.0"
WINDY BAY	WIB-B	Intertidal Mussel	08/11/99	14	2.5	59°13'04.1"	151°31'08.7"
			03/22/00	16	1.8	59°13'05.5"	151°31'14.4"
ZAIKOF BAY	ZAB-B	Intertidal Mussel	07/30/99	14	2.3	60°15'56.6"	147°05'04.5"
			04/03/00	16	1.3	60°15'54.6"	147°05'07.0"

***** Differential Global Positioning System (DGPS) used to document station position

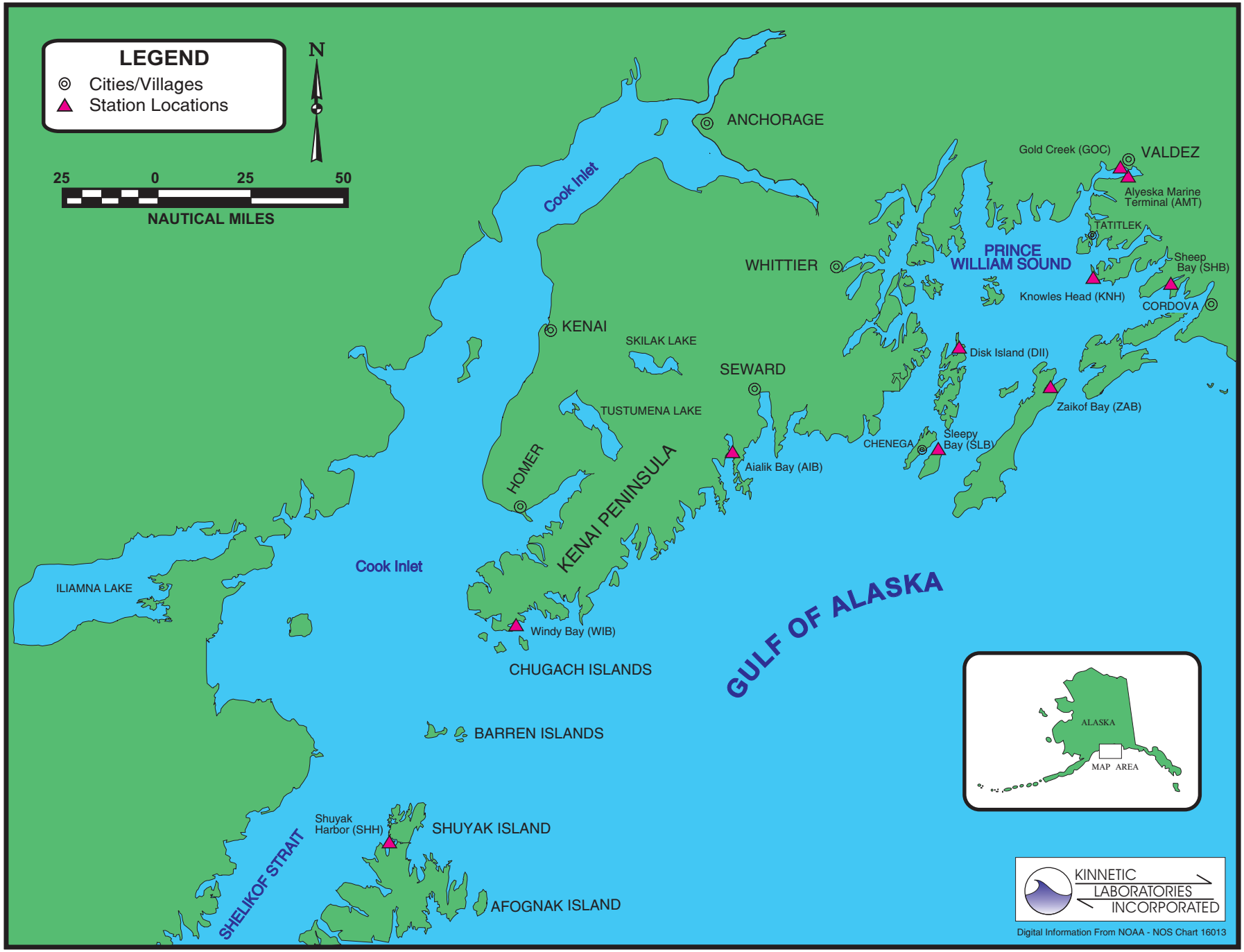

Figure 1. LTEMP Station Locations (Overall Study Area).

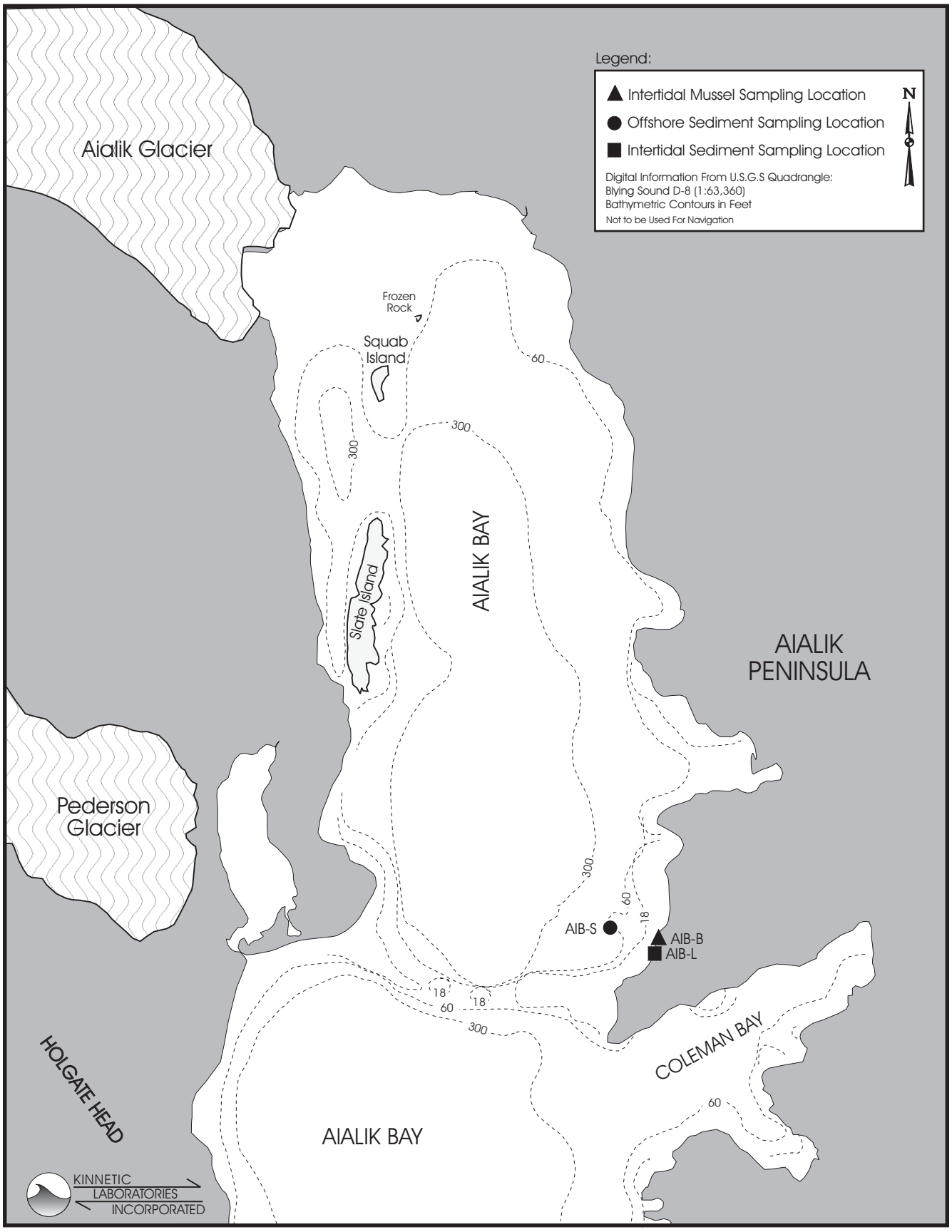

Figure 2. LTEMP Sampling Locations at the Aialik Bay Station.

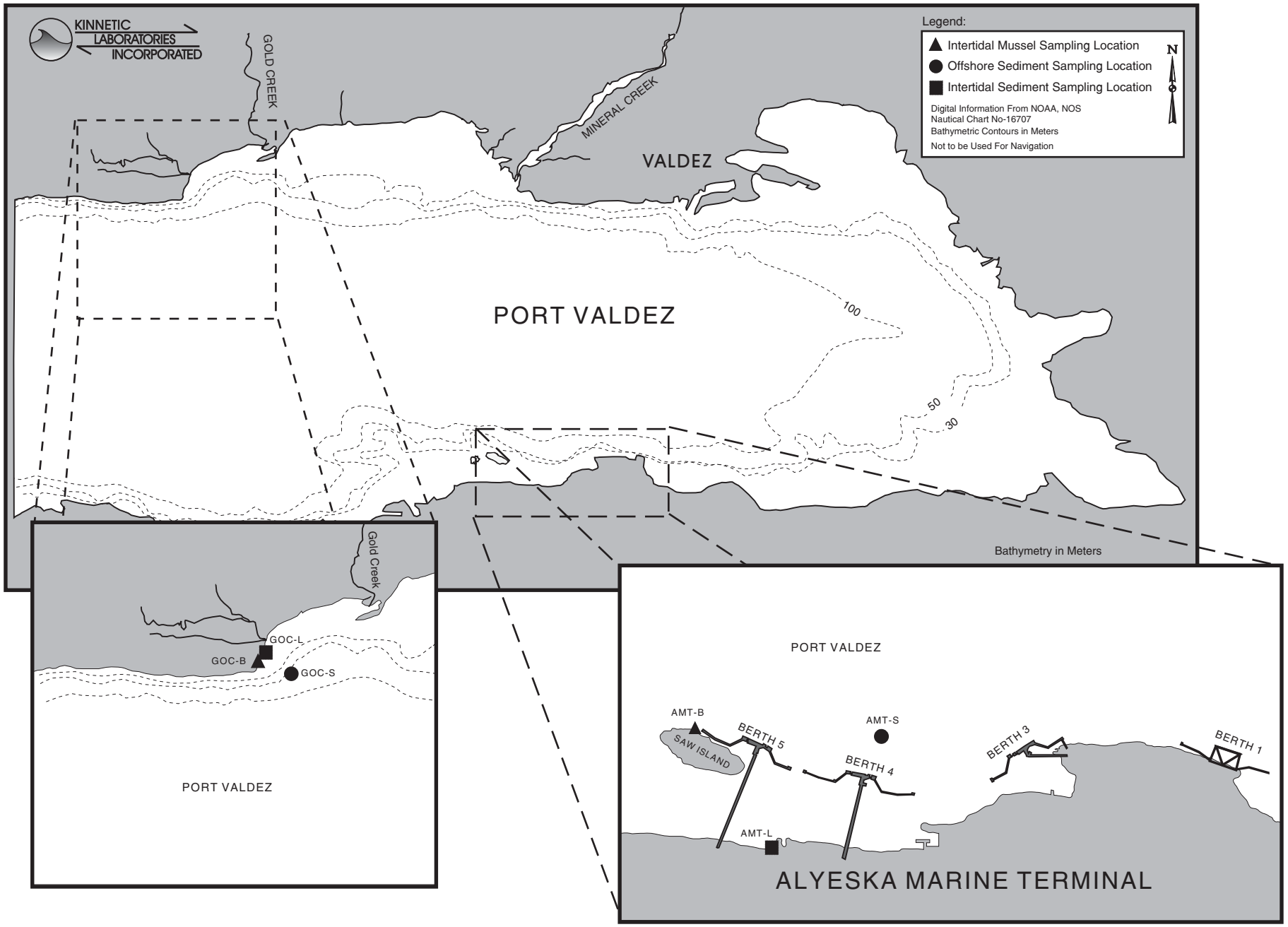

Figure 3. LTEMP Sampling Locations at the Alyeska Marine Terminal and Gold Creek Stations.

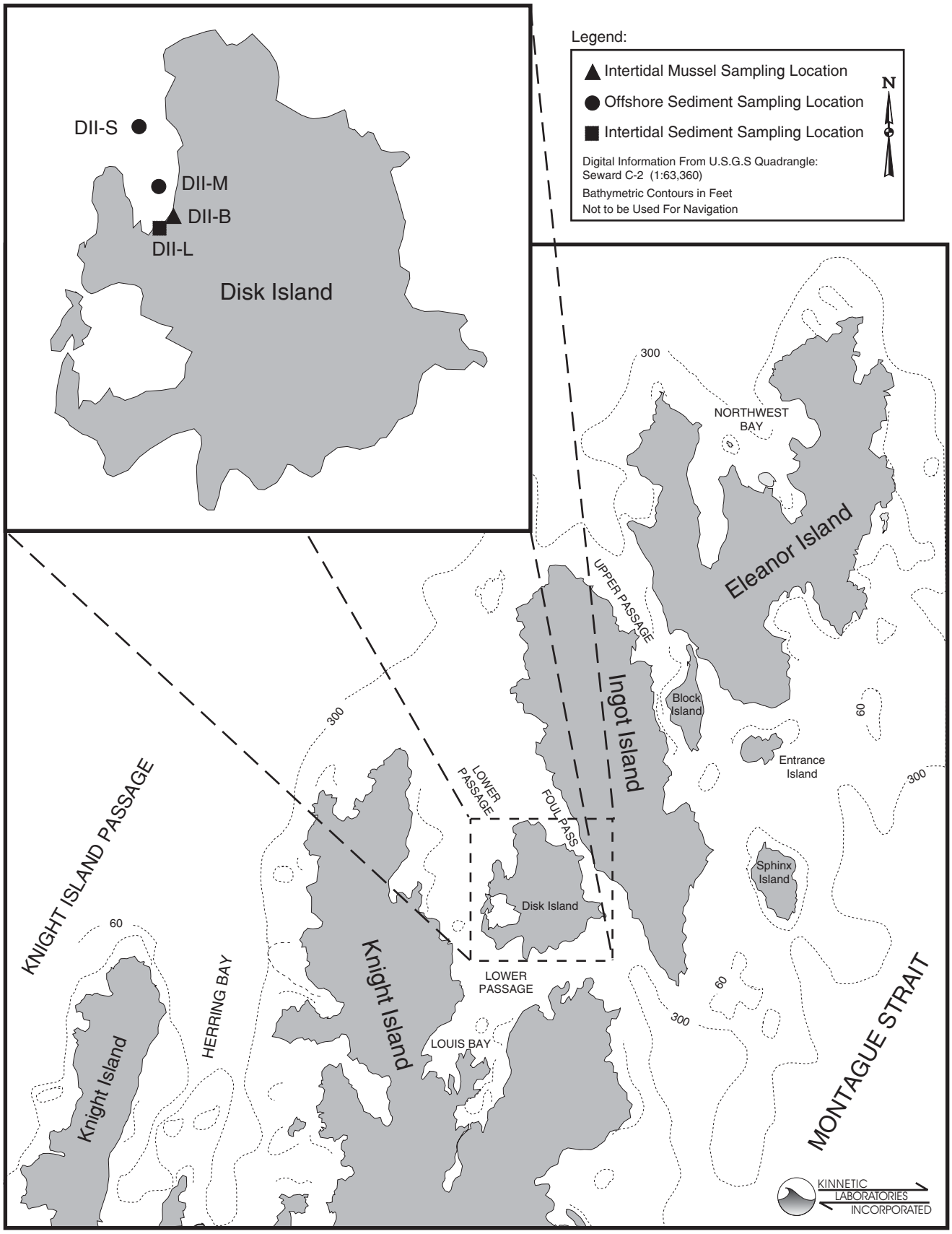

Figure 4. LTEMP Sampling Locations at the Disk Island Station.

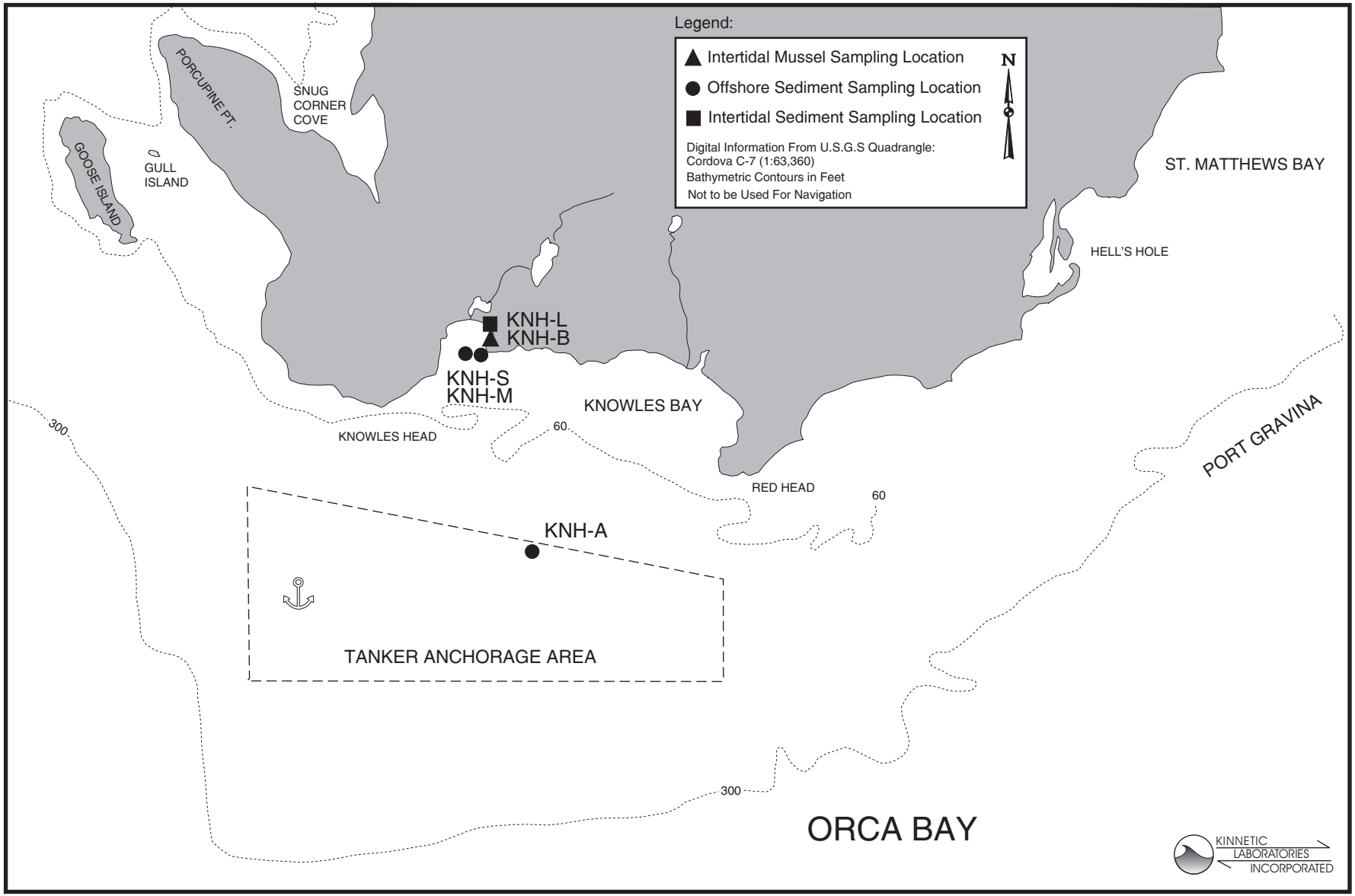

Figure 5. LTEMP Sampling Locations at the Knowles Head Station.

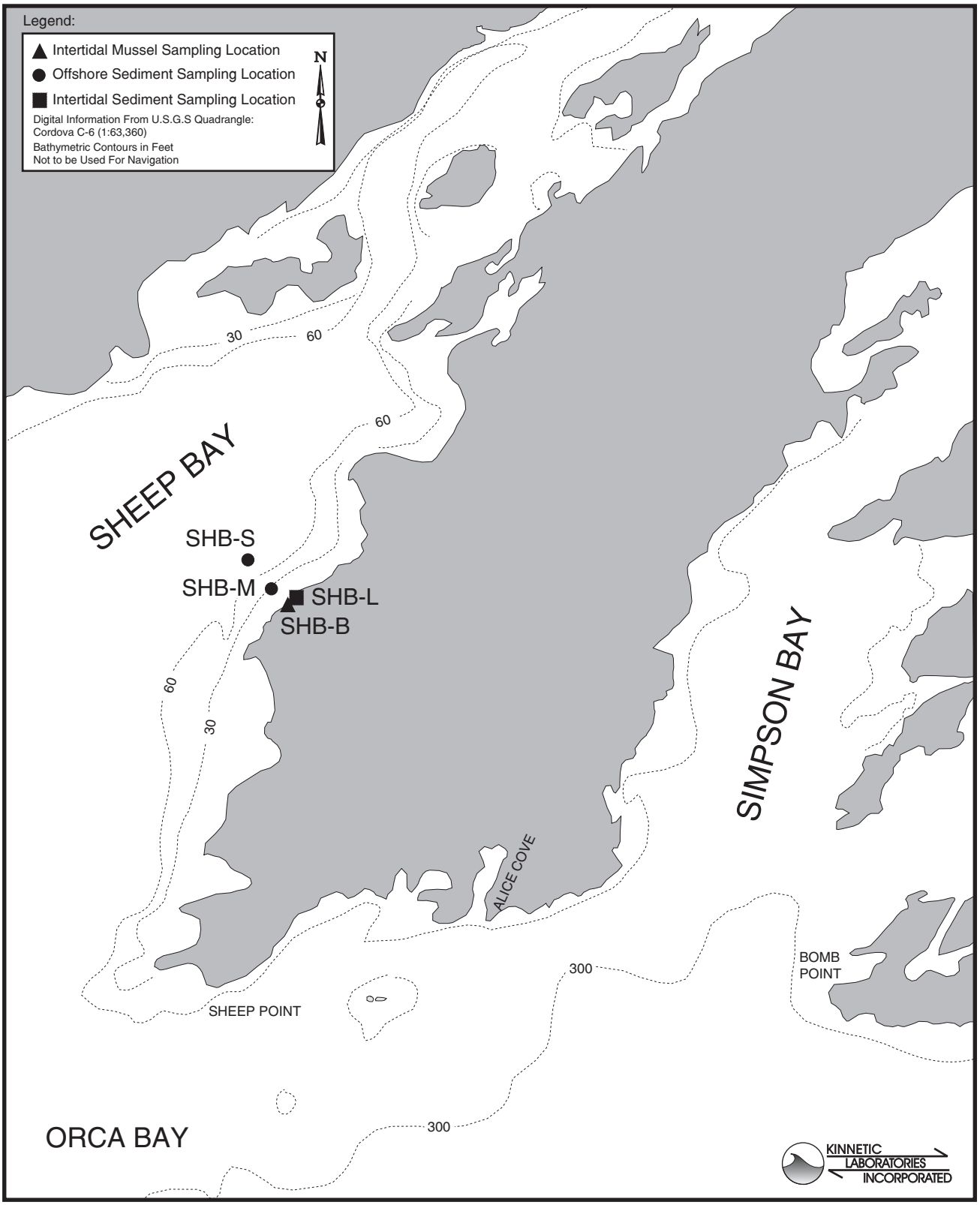

Figure 6. LTEMP Sampling Locations at the Sheep Bay Station.

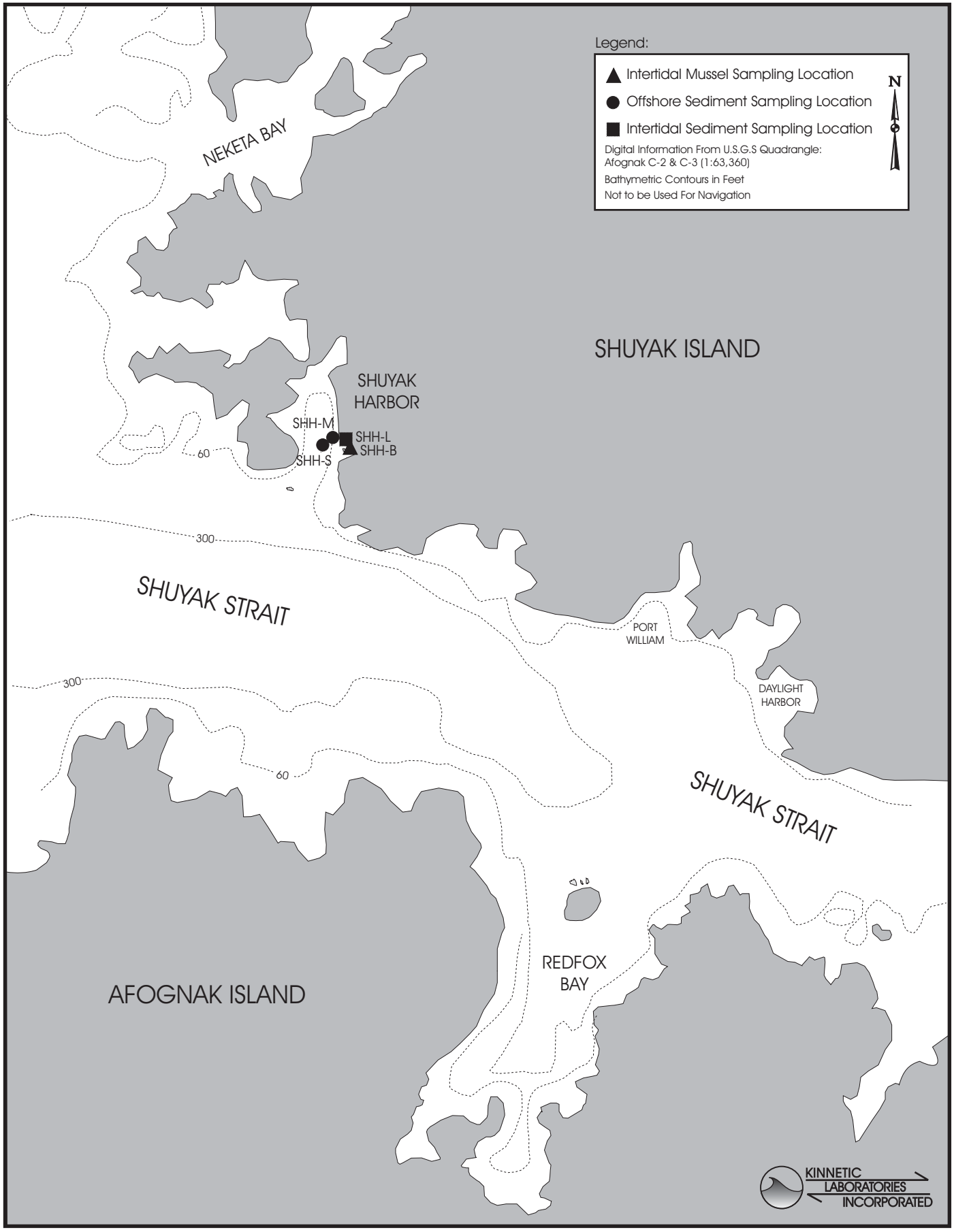

Figure 7. LTEMP Sampling Locations at the Shuyak Harbor Station.

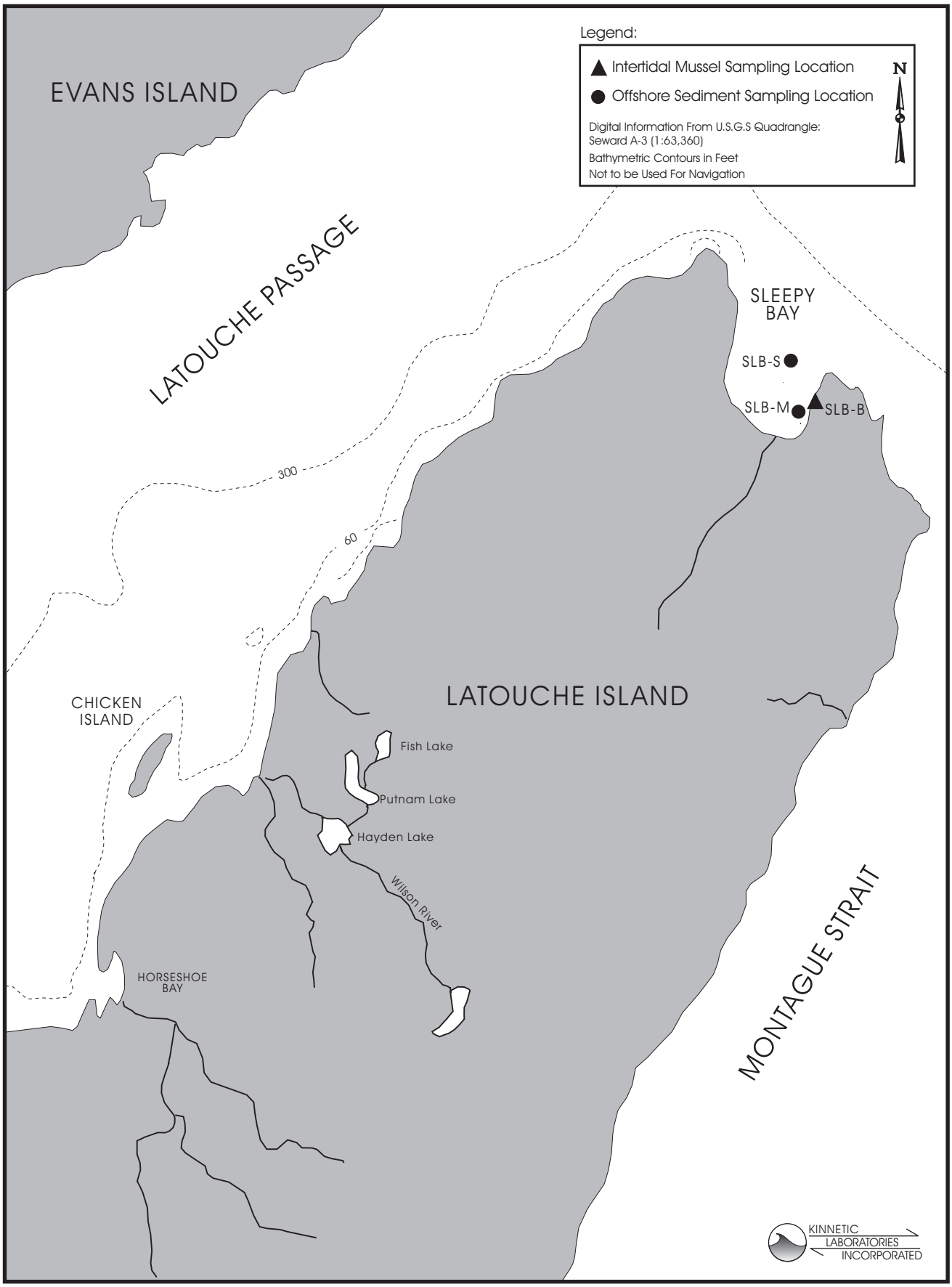

Figure 8. LTEMP Sampling Locations at the Sleepy Bay Station.

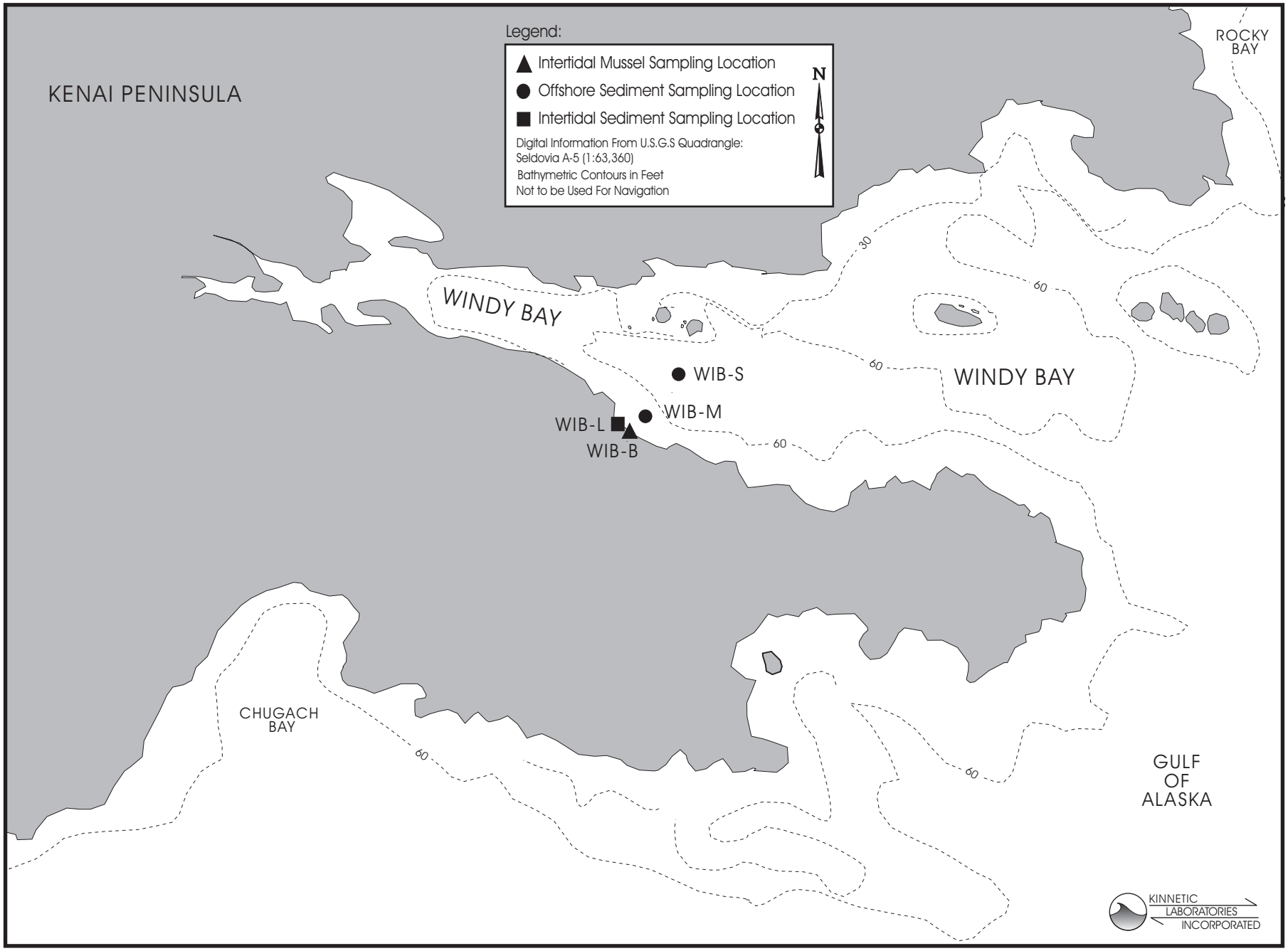

Figure 9. LTEMP Sampling Locations at the Windy Bay Station.

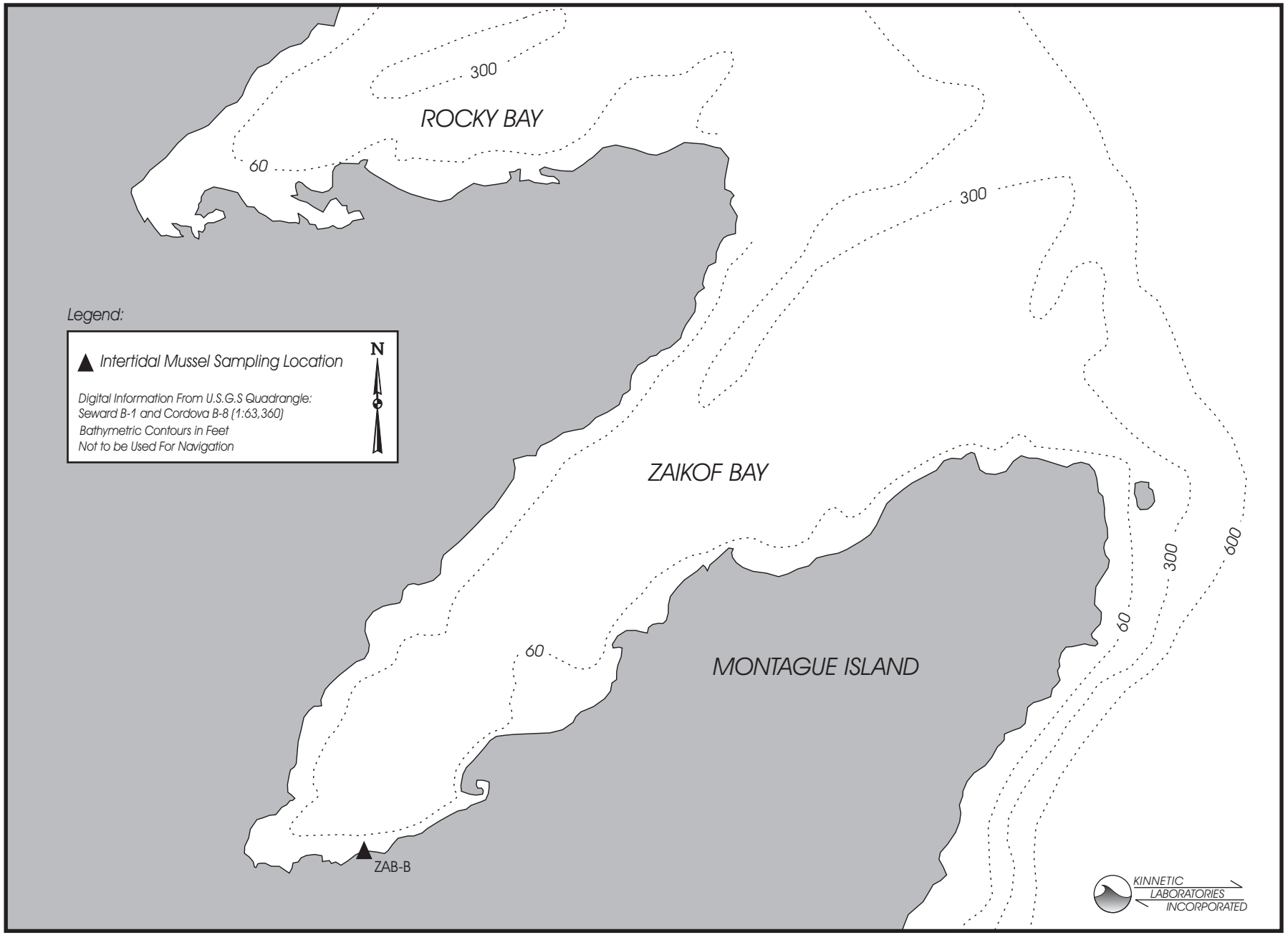

Figure 10. LTEMP Sampling Location at the Zaikof Bay Station.

Station designations used throughout this report as provided in Table 2 include a station abbreviation followed by a station type code ("B" for intertidal mussel, "S" for subtidal sediment, “I” for an opportunistic intertidal station). The sampling sites can be separated into three groupings based on potential or known hydrocarbon contamination: (1) reference sites believed to be relatively remote from oil industry activities (Stations AIB, GOC, and SHB), (2) sites previously identified as EVOS-impacted (Stations DII, SHH, SLB, and WIB), and (3) sites related to the marine terminal operations in Port Valdez and tanker operations (Stations AMT, KNH, and ZAB). Table 2 provides sampling information such as average station height relative to Mean Lower Low Water (MLLW).

3.0 METHODOLOGY

3.1 Field Methods

Sampling and handling procedures followed those described in prior program reports (KLI, 1994a; 1995a; 1996a; 1997a; 1998; and 1999). Intertidal mussel samples were collected using a stratified random sampling design as depicted in Figure 11. Each transect was divided into three zones (0-10 m, 11-20 m, and 21-30 m), and one replicate of a minimum of 30 individual mussels (*Mytilus trossulus*, formerly *M. edulis*) was collected from within each of these zones using random numbers to determine placement. Due to lack of tissue material in some prior surveys, additional mussels were collected at some sites where the mussels were smaller to ensure sufficient material for chemical analysis. Up to 40 mussels may have been collected for each replicate. Additional mussels were collected from each transect for gonadal index determination.

Subtidal sediment collection was performed using a modified Van Veen grab as described in earlier program reports. Three discrete replicate sediment samples of surficial sediment (0 - 2 cm) were collected from the grab at the two Port Valdez stations (AMT-S and GOC-S) during March 2000.

Sample documentation followed procedures outlined in prior program reports and included the use of project-specific log forms, labels, and chain of custody forms. Sample identification and integrity were ensured by a rigidly-enforced chain of custody program.

Navigation and station location included the use of nautical charts and a global positioning system (GPS). A hand-held GPS was used to obtain the coordinates of intertidal stations when possible. A differential GPS system (DGPS) was used during the March 2000 survey to more accurately document the location of the subtidal sediment sampling sites.

The M/V *Auklet* out of Cordova was used for sampling within PWS. Stations in the Gulf of Alaska were sampled from a float plane chartered through Jim Air or Great Northern Air Guides, both located in Anchorage.

3.2 Analytical Methods

Tissue samples were analyzed for PAH, AHC, and lipid content. In addition to the tissue samples designated for chemical analysis, a separate sample of mussels was collected at each station for the determination of gonadal index. Subtidal sediment samples were analyzed for PAH, AHC, PGS, and TOC. With the exception of gonadal index which was determined in the field or at KLI's Anchorage office, all samples were analyzed at the Geochemical and Environmental Research Group (GERG) of Texas A&M University.

Sample receipt, preparation, and analyses followed procedures outlined in earlier program reports and described by GERG Standard Operating Procedures (SOPs; Table 3). New SOP numbers provided in the table generally reflect revision of the old SOPs to include more detail, with little substantive changes to the methods.

3.2.1 Sample Preparation and Percent Moisture Determination

Tissue samples arrived at the laboratory whole and were rinsed with reagent water to remove extraneous material as necessary. Mussels were shucked and dissected with solvent-rinsed tools. Tissue was homogenized using a Tekmar Tissumizer®. A 1 - 5 gram (g) aliquot of tissue was removed and weighed for percent moisture determination (GERG SOP-9415). After drying at 50° C, the tissue was reweighed and percent moisture calculated. Remaining tissue material was stored in the dark at -20° C.

Sediment samples designated for PAH/AHC/TOC analysis were thoroughly homogenized by stirring with a clean stainless steel or Teflon® utensil, and representative subsamples were then removed as required for the individual analyses. An aliquot (≈1 g wet weight) for dry weight determination was removed, weighed, freeze-dried, and reweighed to determine percent moisture (GERG SOP-9712). A 30 g wet weight aliquot for PAH/AHC analysis was placed in a labeled pre-combusted jar for chemical drying with sodium sulfate until the sample was dry, free-flowing, and homogeneous. Remaining sediment was also dried for archival.

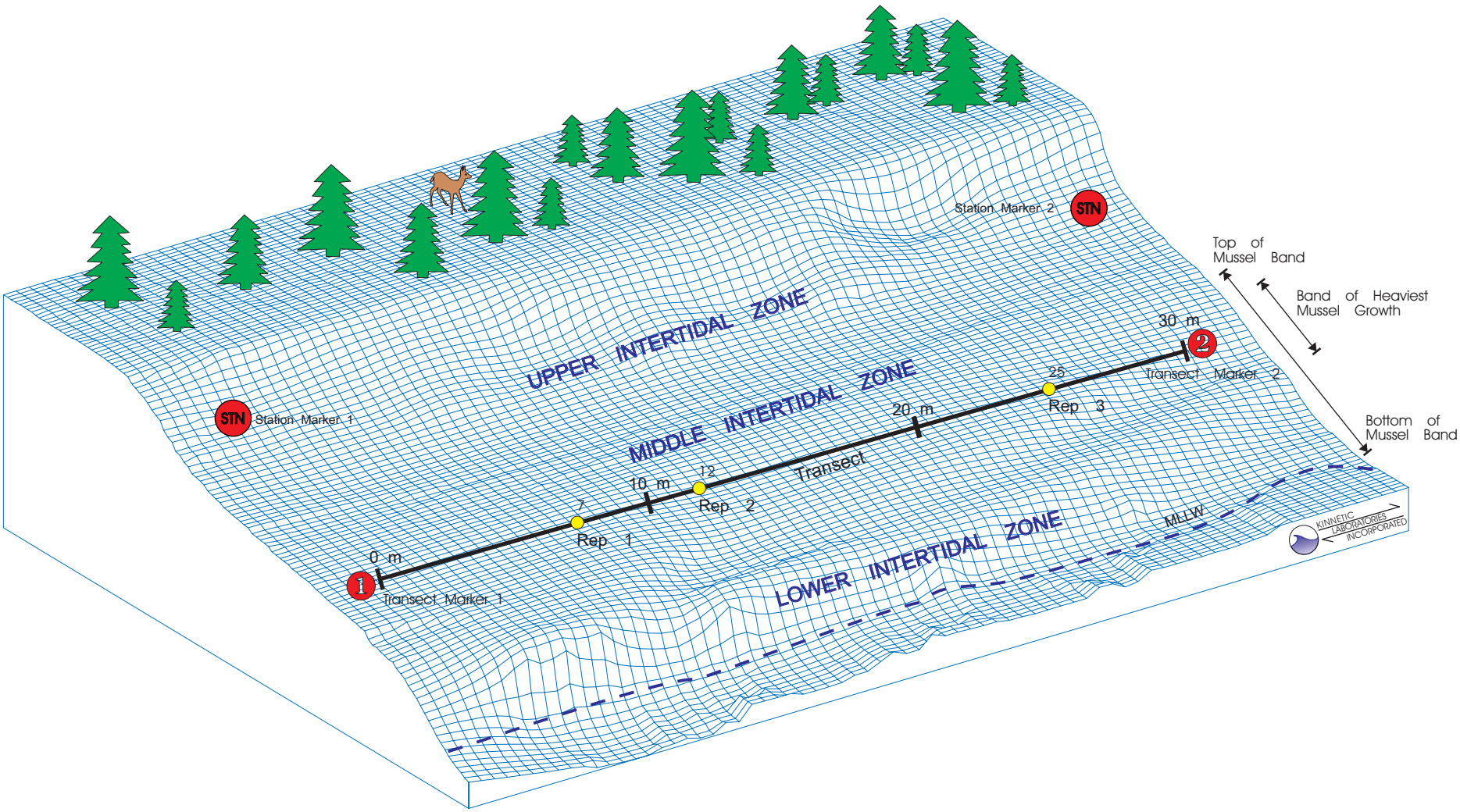

Figure 11. Diagram of LTEMP Intertidal Mussel Sampling Design with Example Replicates at 7, 12, and 25 Meters.

Table 3. List of Applicable Geochemical and Environmental Research Group Standard Operating Procedures used for the 1999 - 2000 LTEMP.

Procedure	GERG SOP No.
Sample receipt/sample preparation	SOP-9225
Percent moisture determination (tissue)	SOP-9415 (replaces SOP-8903)
Percent moisture determination (sediment)	SOP-9712 (replaces SOP-8902 and SOP-9419)
Extraction of tissue for hydrocarbon analysis	SOP-9807 (replaces SOP-8903)
Silica/alumina chromatography purification of tissues, AHC and PAH	SOP-9720
Gel permeation chromatography purification of tissues, PAH only	SOP-9724
Extraction of sediment for hydrocarbon analysis	SOP-8902
Alumina chromatography purification of sediments, AHC and PAH	SOP-9721
Polycyclic aromatic hydrocarbon determination	SOP-9733 (replaces SOP-8905 and SOP-9406)
Aliphatic hydrocarbon determination	SOP-8904
Weighing lipids (percent lipid determination)	SOP-9727 (replaces SOP-9231 and SOP-9414)
Particle grain size analysis	SOP-8908
Total organic carbon analysis	SOP-9730 (replaces SOP-8907)

Sediment samples designated for particle grain size analysis were homogenized and subsampled prior to analysis (GERG SOP-8908). Excess PGS sediment was archived at 4°C.

Just prior to extraction, all hydrocarbon samples and quality control samples were spiked with surrogate solutions. The PAH surrogate solution contained naphthalene-d_8, acenaphthene-d_{10}, phenanthrene-d_{10}, chrysene-d_{12}, and perylene-d_{12}. The PAH surrogate solution was added to each sample in the amount of 40 nanograms (ng) per sample for tissue and sediment matrices. The surrogate solution for AHC analysis was comprised of deuterated n-alkanes with 12, 20, 24, and 30 carbons. A total of 2 micrograms (μg) of AHC surrogate solution was added to each sample before extraction for tissue and sediment matrices.

3.2.2 Tissue Extraction Procedures

Extraction of tissue samples followed procedures outlined in GERG SOP-9807. Approximately 5 g (wet weight) of tissue was homogenized and then macerated in 100 milliliters (mL) of methylene chloride and 50 g of sodium sulfate for chemical drying. The sample was then concentrated to 2.0 mL and purified to remove non-hydrocarbon material using a combination of EPA Methods 3611 and 3630 (US EPA, 1986), alumina/silica chromatography purification (GERG SOP-9720) and silica gel purification (GERG SOP-9724). The latter step was used as an additional cleanup step prior to analysis for PAH only to remove interfering lipids using high-performance liquid chromatography (HPLC) and a gel permeation column. Extracts were stored at or below 4° C.

3.2.3 Sediment Extraction Procedures

Extraction procedures followed those described in GERG SOP-8902. Thirty g (wet weight) of chemically-dried sediment was extracted using a Soxhlet extractor with methylene chloride. The extract was concentrated and then purified using a modification of EPA Method 3611 alumina column purification (US EPA, 1986) to remove matrix interferences following GERG SOP-9721. This clean-up step removes non-hydrocarbons that might otherwise cause interference during analysis. The aliphatic and aromatic fractions were collected in a single fraction and concentrated to 0.5 mL, and aliquots of this were used for analysis of PAH and AHC. Extracts were stored at or below 4° C prior to and after analysis.

3.2.4 Determination of Polycyclic Aromatic Hydrocarbons

Polycyclic aromatic hydrocarbons and their alkylated homologues listed in Table 4 were determined using a gas chromatograph/mass spectrometry (GC/MS) technique in the selected ion monitoring (SIM) mode as described by GERG SOP-9733. This newer SOP is essentially identical to those used on prior LTEMP sediment samples (SOP-8905 and SOP-9406) except that the quality control requirements have been described more fully. As in GERG SOP-9406, the most recent SOP revision calls for the use of the deuterated perylene surrogate (perylene-d_{12}) only on an advisory basis. This has little effect on the LTEMP due to the fact that perylene, which is largely biogenic in nature, is reported but has been excluded from the calculation of total PAH (TPAH).

Gas chromatographic (GC) separation was accomplished on a fused-silica capillary column with a DB-5 bond phase. The GC column fed directly into the ion source of the mass spectrometer (MS) operating in the SIM and electron-impact ionization mode. A computer system interfaced with the MS continuously acquired and stored all mass-spectral data during the analysis. This system also allowed display of a GC/MS data file for ions of specific mass and plotting ion abundances versus time or scan number. Quantitation followed standard procedures as provided in the GERG SOP-9733 and summarized in the Mussel Watch procedural document (NOAA, 1993). Identification of the analyte peaks in the chromatograms of the sample extracts was performed by comparing them with the target retention times in the calibration curve for single analyte compounds or the analyte retention times in the chromatogram of the GERG reference oils (GERG Standard Check) for the multiple analyte groups. Tissue and sediment PAH results were reported in ng/g (parts-per-billion [ppb]) dry weight.

Extracts were spiked prior to analysis with internal standard solutions comprised of fluorene-d_{10} and benzo(a)pyrene-d_{12}. An amount of 40 ng per sample was used for tissue and sediment matrices. In addition, spike standard solutions were used for matrix spike or laboratory blank spike samples, as described in Section 4.2.4. The matrix spike solution (100 ng per sample) consisted of 2- to 5-ring PAH shown in Table 4.

The method detection limit (MDL) for each analyte, defined as the lowest concentration of analyte that a method can reliably detect, was calculated by performing analyses on pre-extracted sediment and fresh biological tissue following procedures outlined in the Federal Register 40 CFR Part 136, Appendix B (1988) and described in Section 4.2.3. The MDLs listed in Table 5 for this reporting period were determined in Spring 1999 for tissue and Spring 1998 for sediment. For data reporting, the MDL was adjusted to account for actual sample size used for the analysis. Analyte concentrations falling below the calculated MDL but above zero (0) were considered estimates and were qualified with the "J" qualifier (see Section 4.2.1). Concentrations equal to zero (0) were not measured and were qualified with the "ND" code for non-detect.

For mathematically summed parameters such as TPAH, the cumulative MDLs reflected in Table 5 are the sum of individual MDLs for all the analytes within that parameter. This excludes perylene and the five specific isomers listed at the bottom of the table. Because there is no widely-accepted standard concerning the calculation of the MDL for summed parameters, this cumulative value is intended to provide a rough measure of what portion of each sum *may* have fallen below the MDL. Individual TPAH values are not qualified with the “J” qualifier in this data set.

3.2.5 Determination of Aliphatic Hydrocarbons

Aliphatic hydrocarbon (AHC) concentrations for analytes provided in Table 4 were determined utilizing high resolution capillary gas chromatography with flame ionization detection (GC/FID) as described by GERG SOP-8904. The method, based on modification of EPA Method 8100 (US EPA, 1986), is typically used for the analysis of

Table 4. List of Target Analytes for the 1999 - 2000 LTEMP Hydrocarbon Analyses.

Polycyclic Aromatic Hydrocarbons (PAH)			Aliphatic Hydrocarbons (AHC)		
Analyte	**Internal Standard Reference**	**Surrogate Reference**	**Analyte**	**Internal Standard Reference**	**Surrogate Reference**
Naphthalene	A	1	**Normal Alkanes**		
C_1-Naphthalenes	A	1	n-C_{10}	A	1
C_2-Naphthalenes	A	2	n-C_{11}	A	1
C_3-Naphthalenes	A	2	n-C_{12}	A	1
C_4-Naphthalenes	A	2	n-C_{13}	A	1
Biphenyl	A	2	n-C_{14}	A	1
Acenaphthylene	A	2	n-C_{15}	A	1
Acenaphthene	A	2	n-C_{16}	A	1
Fluorene	A	2	n-C_{17}	A	1
C_1-Fluorenes	A	2	n-C_{18}	A	1
C_2-Fluorenes	A	2	n-C_{19}	A	1
C_3-Fluorenes	A	2	n-C_{20}	A	1
Phenanthrene	A	3	n-C_{21}	A	1
Anthracene	A	3	n-C_{22}	A	1
C_1-Phenanthrenes/Anthracenes	A	3	n-C_{23}	A	1
C_2-Phenanthrenes/Anthracenes	A	3	n-C_{24}	A	1
C_3-Phenanthrenes/Anthracenes	A	3	n-C_{25}	A	1
C_4-Phenanthrenes/Anthracenes	A	3	n-C_{26}	A	1
Dibenzothiophene	A	3	n-C_{27}	A	1
C_1-Dibenzothiophenes	A	3	n-C_{28}	A	1
C_2-Dibenzothiophenes	A	3	n-C_{29}	A	1
C_3-Dibenzothiophenes	A	3	n-C_{30}	A	1
Fluoranthene	B	3	n-C_{31}	A	1
Pyrene	B	3	n-C_{32}	A	1
C_1-Fluoranthenes/Pyrenes	B	3	n-C_{33}	A	1
Benzo(a)anthracene	B	4	n-C_{34}	A	1
Chrysene	B	4			
C_1-Chrysenes	B	4	**Isoprenoid Hydrocarbons**		
C_2-Chrysenes	B	4	Pristane	A	1
C_3-Chrysenes	B	4	Phytane	A	1
C_4-Chrysenes	B	4			
Benzo(b)fluoranthene	B	4			
Benzo(k)fluoranthene	B	4			
Benzo(e)pyrene	B	4			
Benzo(a)pyrene	B	4			
Perylene	B	5 advisory only			
Indeno(1,2,3-c,d)pyrene	B	4			
Dibenzo(a,h)anthracene	B	4			
Benzo(g,h,i)perylene	B	4			
Specific Isomers					
1-methylnaphthalene	A	1			
2-methylnaphthalene	A	1			
2,6-dimethylnaphthalene	A	2			
1,6,7-trimethylnaphthalene	A	2			
1-methylphenanthrene	A	3			
Internal Standards			**Internal Standards**		
Fluorene-d_{10}	A		deuterated n-c_{16}	A	
Benzo(a)pyrene-d_{12}	B				
Surrogates			**Surrogates**		
Naphthalene-d_8		1	deuterated n-C_{20}		1
Acenaphthene-d_{10}		2	deuterated n-C_{12}	Other surrogates for aliphatics are monitored to insure performance of the method; if deuterated n-C_{20} exhibits a matrix interference, the closest surrogate not exhibiting an interference is used for calculations.	
Phenanthrene-d_{10}		3	deuterated n-C_{24}		
Chrysene-d_{12}		4	deuterated n-C_{30}		
Perylene-d_{12} (advisory only)		5			

Table 5. Method Detection Limits (Dry Weight in ng/g) Determined for the 1999 - 2000 LTEMP Hydrocarbon Analyses.

POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			ALIPHATIC HYDROCARBONS (AHC)		
Analyte	**Tissue**	**Sediment**	**Analyte**	**Tissue**	**Sediment**
Naphthalene	2.6	1.6	n-C10	154.9	2.5
C1-Naphthalenes	6.0	1.6	n-C11	154.9	2.5
C2-Naphthalenes	3.4	1.3	n-C12	154.9	2.5
C3-Naphthalenes	2.9	1.6	n-C13	154.9	3.4
C4-Naphthalenes	2.9	1.6	n-C14	154.9	4.4
Biphenyl	1.3	0.5	n-C15	333.9	6.3
Acenaphthylene	0.7	0.4	n-C16	183.0	1.8
Acenaphthene	0.7	0.6	n-C17	206.7	1.4
Fluorene	2.1	0.8	Pristane	145.2	1.0
C1-Fluorenes	4.2	1.6	n-C18	56.6	10.2
C2-Fluorenes	4.2	1.6	Phytane	45.8	1.0
C3-Fluorenes	4.2	1.6	n-C19	68.1	0.6
Phenanthrene	2.3	0.4	n-C20	48.8	0.9
Anthracene	1.6	0.4	n-C21	77.3	0.9
C1-Phenanthrenes/Anthracenes	3.2	1.1	n-C22	77.3	1.2
C2-Phenanthrenes/Anthracenes	3.2	1.1	n-C23	77.3	2.1
C3-Phenanthrenes/Anthracenes	3.2	1.1	n-C24	77.3	1.5
C4-Phenanthrenes/Anthracenes	3.2	1.1	n-C25	77.3	2.3
Dibenzothiophene	1.2	0.5	n-C26	77.3	1.8
C1-Dibenzothiophenes	2.4	1.0	n-C27	77.3	3.5
C2-Dibenzothiophenes	2.4	1.0	n-C28	82.7	3.4
C3-Dibenzothiophenes	2.4	1.0	n-C29	128.2	7.4
Fluoranthene	1.9	0.5	n-C30	77.5	1.9
Pyrene	3.1	0.6	n-C31	77.5	6.5
C1-Fluoranthenes/Pyrenes	5.0	1.1	n-C32	62.1	6.1
Benzo(a)anthracene	2.4	0.3	n-C33	62.1	3.0
Chrysene	4.2	0.5	n-C34	61.0	4.0
C1-Chrysenes	8.5	1.0			
C2-Chrysenes	8.5	1.0	**Total AHC**	2955	84
C3-Chrysenes	8.5	1.0			
C4-Chrysenes	8.5	1.0			
Benzo(b)fluoranthene	3.0	0.5			
Benzo(k)fluoranthene	2.6	0.2			
Benzo(e)pyrene	3.0	0.7			
Benzo(a)pyrene	2.5	1.4			
Perylene	1.5	3.1			
Indeno(1,2,3-c,d)pyrene	2.8	0.8			
Dibenzo(a,h)anthracene	2.2	0.7			
Benzo(g,h,i)perylene	2.0	0.6			
Total PAH (excluding perylene)	129	35			
1-Methylnaphthalene	2.5	0.7			
2-Methylnaphthalene	3.5	0.9			
2,6-Dimethylnaphthalene	1.7	0.6			
1,6,7-Trimethylnaphthalene	1.5	0.8			
1-Methylphenanthrene	4.6	0.5			

environmental samples for normal alkanes, pristane and phytane, and the UCM. For this program year, the TRUAHC and TRAHC, as defined in Table 1, were also reported. Deviations from the SOP for the LTEMP included the reduction in amounts of surrogate, internal standard, and matrix spike solutions added to the samples or extracts prior to analysis.

Gas chromatographic (GC) separation was similar to that described for PAH and used a column that provided baseline resolution of alkanes (n-C_{10} to n-C_{34}), pristane/n-C_{17}, phytane/n-C_{18}, surrogates, and internal standards. The flame ionization output was collected and processed by a data acquisition package. Analyte peaks in the chromatograms were identified by comparing them with the analyte retention times in the chromatograms of the reference mixture (GERG Standard Check).

Internal standard solutions consisting of deuterated n-C_{16}, (2 μg per sample) were added to each tissue and sediment extract. Matrix spiking solution consisting of alkanes from n-C_{10} to n-C_{34} and pristane were added to matrix spike and laboratory blank spike samples (10 μg per sample) for tissue and sediment matrices.

Analyte concentrations were determined based on the concentration of deuterated n-C_{20} surrogate added before extraction. If this surrogate failed to comply with quality control criteria due to a matrix interference, the closest interference-free surrogate was used in the calculations. Data were generally reported on a dry weight basis in ng/g (ppb) for AHC and μg/g (parts-per-million [ppm]) for TRUAHC, TRAHC, and UCM. Quantitation followed standard procedures as provided in the GERG SOP-8904 and summarized in the Mussel Watch procedural document (NOAA, 1993).

Method detection limits for individual alkanes and isoprenoids (aliphatic compounds) are provided in Table 5. The MDLs were determined following procedures outlined in Section 4.2.3 during Spring 1999 for tissue and Spring 1998 for sediment. For data reporting, the MDL was adjusted to account for actual sample size used for the analysis. The cumulative MDL for the summed parameter of total AHC (TAHC) reflected in the table is the sum of individual MDLs for all the analytes within that parameter. As there is no widely-accepted standard concerning the MDL for summed parameters, this cumulative value is intended to provide a measure of what portion of each sum may have fallen below the MDL. Individual TAHC, TRUAHC, and TRAHC values have not been qualified with the "J" in this data set.

Individual AHC analyte concentrations falling below the calculated MDL but above zero (0) are considered estimates and are qualified with the "J" qualifier (see Section 4.2.1). Concentrations equal to zero (0) are not measured and are qualified with the "ND" code for non-detect.

3.2.6 Percent Lipid Determination

Lipid content is defined by GERG SOP-9727 as the weight of material extracted from tissue samples with methylene chloride. Percent lipid material was calculated in tissue extracts by diluting to a known volume, removing an aliquot, evaporating the aliquot to dryness, and weighing the dried material. The weight was then corrected for volume and divided by the sample weight to determine percent lipid.

3.2.7 Gonadal Index Determination

Reproductive state of the mussels was determined for a discrete sample of 20 individual mussels collected from each station during each survey. For each individual mussel collected, four separate measurements were obtained: shell length, shell volume, weight of gonadal tissue, and weight of non-gonadal tissue (excluding byssal threads). After dissection of the bivalves, shell length was measured using metric calipers and recorded to the nearest millimeter (mm). Shell volumes were calculated by measuring the amount of water required to fill the shell and were recorded to the nearest 0.1 mL. Weights of gonadal and non-gonadal tissue were determined using a Ohaus Scout II® Model SC2020 electronic balance and recorded with precision of 0.01 g. After all individual mussels had been measured, gonadal tissue from all individuals was pooled for the measurement of total gonad volume, which was accomplished by measuring the volume of displacement in a graduated cylinder. Non-gonadal tissue was pooled and measured in the same manner. Each total volume measurement was recorded to the nearest 0.5 mL. In addition to these measurements, visual observations concerning shell characteristics, gonad or body appearance, or other distinguishing factors were recorded as appropriate.

3.2.8 Particle Grain Size Determination

The determination of PGS was performed using a method adapted from Folk (1974), as described by GERG SOP-8908. Sediment samples were homogenized and a subsample of 15 - 20 g removed for analysis. The subsample was treated with 30 percent hydrogen peroxide for 12 hours to oxidize organic matter and washed with distilled water to remove soluble salts. After the addition of dispersant and shaking for approximately 24 hours, this sediment solution was sieved to separate the gravel/sand fraction from the silt/clay fraction. Dry-sieve techniques were used to determine the sand and gravel fractions. Silt and clay fractions were determined by a pipetting technique. Results were reported in percent (%) gravel, sand, silt, and clay on a dry weight basis.

3.2.9 Total Organic Carbon Analysis

Total organic carbon analysis was performed as described by GERG SOP-9730 using a 500-mg aliquot of freeze-dried sediment. This recent SOP describes quality control procedures more fully than the previously-used GERG SOP-8907. The sediment was placed in an induction furnace designed to burn samples in an oxygen atmosphere. Gases produced by the combustion were processed and put through an infrared detector for quantification of carbon dioxide. Total organic carbon was determined after sample acidification. Carbonate carbon (inorganic carbon) was determined as the difference between total carbon and total organic carbon. Results were reported in percent TOC and percent total inorganic carbon (TIC, or carbonate carbon) on a dry weight basis.

3.3 Data Management and Analysis

3.3.1 Data Management

Data handling and management followed procedures outlined in prior LTEMP reports. The LTEMP data reside in a relational database consisting of eleven tables in Microsoft® Access® (Table 6). This relational database was used for all aspects of data storage, error checking, and reporting. Microsoft Excel® was also used for data entry, data verification, and calculation of summary statistics.

Table 6. Tables in the LTEMP Database.

Table	Contents
STATION	field sampling information on a by-station basis
SAMPLE	field sampling and sample shipment information on a by-sample basis
ANALYSIS	analytical method and handling data on a by-sample and analysis basis, for field-collected samples
RESULT	analytical results on a by-sample, analysis type, and individual analyte basis, for field-collected samples
QCANAL	analytical method and handling data on a by-sample and analysis basis, for laboratory QC samples
QCRESULT	analytical results on a by-sample, analysis type, and individual analyte basis, for laboratory QC samples
GONINF	field sampling information for pooled gonadal index measurements (gonadal and non-gonadal tissue volume)
GONIND	gonadal index data on a by-mussel basis (shell length, shell volume, non-gonadal weight, and gonadal weight)
COC	chain of custody (COC) data on a COC basis
COC_XFER	COC information on a COC, relinquish date, and time basis
VALIDVAL	provides valid values that may be found for different types of fields in the other tables (a look-up table)

3.3.2 Statistical Design

As indicated in prior LTEMP reports, the program was designed to determine baseline conditions and help identify potential future impacts of oil transportation in the study area. It was also designed to provide sufficient data to test three null hypotheses addressing differences in chemical and physical characteristics among sampling sites and through time. The initial program applied statistics to test these hypotheses, and the results were reported in annual reports. More recent work on the program (1994 - 2000) has placed emphasis on the collection of more data rather than the statistical testing of those data. In addition, a separate program was performed in 1998 to evaluate the 1993 – 1997 LTEMP data and apply statistical testing (Payne et al., 1998).

3.3.3 Data Analysis

A number of PAH and AHC parameters indicative of possible petroleum contamination were utilized for summarizing the results of the 1999 - 2000 program (Table 7). Polycyclic aromatic hydrocarbon parameters included TPAH and the fossil fuel pollution index (FFPI; Boehm and Farrington, 1984). Aliphatic hydrocarbon parameters included TAHC, TRAHC, and the carbon preference index (CPI; Farrington and Tripp, 1977), also known as the odd-even preference index. The UCM was also used as a diagnostic indicator of petroleum contamination and is indicative of petroleum products that have been extensively biodegraded. Finally, the CRUDE index (Payne et al., 1998), which incorporates both PAH and AHC parameters, has been calculated to further investigate the source of the hydrocarbons seen in the LTEMP samples. The CRUDE calculation serves to normalize the concentrations against the sources so that actual petroleum contamination can be identified by magnifying petrogenic inputs relative to biogenic inputs in the AHC fraction, magnifying petrogenic inputs relative to pyrogenic inputs in the PAH fraction, and accounting for weathered petroleum in the UCM fraction.

While the summed parameters of TPAH and TAHC indicate the total level of hydrocarbon input at a site, they provide no information on the possible sources (i.e., contamination of petrogenic, biogenic, pyrogenic, or diagenic origin; see glossary). The other parameters described by Table 7 provide a means of identifying the potential sources of the hydrocarbon inputs. Ratios such as the FFPI are extremely useful for determining potential sources of petroleum in sediments, but are considered less appropriate for tissue analyses because levels of tissue contamination are affected by factors such as preferential uptake of hydrocarbons, bioaccumulation rates, depuration, and other biological processes. Nevertheless, these ratios have been calculated and reported for tissues this year because they are used in the CRUDE index calculation.

Additional parameters were analyzed so that they could be evaluated in terms of their correlation with hydrocarbon parameters, particularly important if hypothesis testing will be performed on these data. These include TOC and PGS in sediments and percent lipid in tissues. In addition, two measures of reproductive state were recorded to help evaluate the general condition and reproductive state of the mussels. These included the ratios of gonadal weight to total body tissue weight (proportional gonadal weight) and gonadal weight to shell volume.

Certain conventions were used in preparing the data for analysis. All data were reported, including values below MDL. Use of data below the MDL (as defined for this program in Sections 3.2.4, 3.2.5, and 4.2.3) is considered valid and useful, particularly when assessing low-level environmental contamination (US EPA, 1993). See prior program reports (e.g., KLI, 1996a and 1997a) for further discussion concerning the use of uncensored data for this program. When calculating summed or ratio parameters, all values and estimated values (below MDL, indicated with a "J" qualifier) were used. For parameters where individual analytes were used for calculating summed parameters (TPAH and TAHC) and indices (FFPI, CPI, and gonadal ratios), non-detect concentrations represented with a zero (0) value and/or the "ND" qualifier were assigned a value of zero. For calculation of ratios based on individual analyte values, non-detect or zero values were assigned a small replacement value (0.05 ng/g) in order to avoid division by zero errors. This method has been shown to cause less bias in estimating population parameters than several alternative methods (Gilbert, 1987).

Table 7. Hydrocarbon Parameters used in the 1999 - 2000 LTEMP Data Analysis.

Parameter	Relevance
TPAH	Total PAH as determined by high resolution GC/MS with quantification by selected ion monitoring; defined as the sum of 2 to 5-ring polycyclic aromatic hydrocarbons: Naphthalene + fluorene + dibenzothiophene + phenanthrene + chrysene, and their alkyl homologues + other PAH (excluding perylene); useful for determining TPAH contamination; includes petrogenic, pyrogenic, and diagenic sources
FFPI	The fossil fuel pollution index is the ratio of fossil-derived PAH to TPAH and is defined as follows: FFPI = (N + F + P + D)/TPAH x 100, where: N (Naphthalene series) = C_0-N + C_1-N + C_2-N + C_3-N + C_4-N F (Fluorene series) = C_0-F + C_1-F + C_2-F + C_3-F P (Phenanthrene/Anthracene series) = C_0-A +C_0-P + C_1-P + C_2-P + C_3-P + C_4-P D (Dibenzothiophene series) = C_0-D + C_1-D + C_2-D + C_3-D FFPI is near 100 for petrogenic PAH; FFPI for pyrogenic PAH is near 0 (Boehm and Farrington, 1984)
TAHC	Total AHC as defined for the LTEMP quantifies the total n-alkanes (n-C_{10} to n-C_{34}) plus pristane and phytane; represents the total resolved aliphatic hydrocarbons as determined by high resolution gas chromatography with flame ionization detection (GC/FID); includes both petrogenic and biogenic sources
TRAHC	The total resolved aliphatic hydrocarbons, which includes the historical LTEMP AHC analytes (n-C_{10} through n-C_{34} and pristane and phytane) plus other compounds such as plant waxes and lipids which are not individually identified or reported; includes both petrogenic and biogenic sources
UCM	Petroleum compounds represented by the total resolved plus unresolved area minus the total area of all peaks that have been integrated; a characteristic of some fresh oils and most weathered oils
CPI	The carbon preference index represents the relative amounts of odd and even chain alkanes within a specific boiling range and is defined as follows: CPI = $2(C_{27} + C_{29})/(C_{26} + 2C_{28} + C_{30})$ Odd and even numbered n-alkanes are equally abundant in petroleum but have an odd numbered preference in biological material; a CPI close to 1 is an indication of petroleum and higher values indicate biogenic input (Farrington and Tripp, 1977)
CRUDE Index	The CRUDE index incorporates the other indices to provide a single value which can be used as a relative indication of the probable presence of petroleum hydrocarbons (Payne et al., 1998) CRUDE = (TPAH x FFPI/100) + $(TAHC/CPI^2)$ + UCM/1000 (where all concentrations are in the same units)

4.0 QUALITY ASSURANCE/QUALITY CONTROL

Since program inception in 1993, the LTEMP has included a comprehensive quality assurance/quality control (QA/QC) program that encompassed all aspects of the project, from initial sample collection through laboratory analysis and data analysis to reporting. The objectives of the QA/QC program were to fully document the field and laboratory data and to maintain data integrity. The QA/QC program has been more fully described by prior program reports (e.g., KLI, 1994a and 1997a) and was designed to allow the data to be assessed by the following parameters:

- Precision
- Accuracy
- Comparability
- Representativeness
- Completeness.

These parameters are controlled by adhering to documented methods and procedures and by the analysis of quality control (QC) samples on a routine basis.

4.1 Field Quality Control

Quality control activities in the field included adherence to documented procedures, including those in the study plan and the comprehensive documentation of sample collection and sample identification information.

Sampling procedures used for this program have been fully documented in the study plan and prior annual reports. They have also been successfully used on a large number of scientific programs. The use of documented and well-known procedures provided for greater likelihood of obtaining samples uncontaminated by sampling procedures or apparatus. It also helped ensure that data collected over the course of the program are comparable and that the study results are representative of conditions existing at the sampling sites.

Use of extensive field documentation provided a paper trail that existed for each sample and ensured credibility of the data. In addition, sample integrity and identification were ensured by a rigidly-enforced chain of custody program. The chain of custody procedure documented the handling of a sample from the time the sample was collected to the arrival of the sample at the laboratory.

4.2 Laboratory Quality Control

Analytical quality control for this program included adherence to documented procedures, particularly SOPs; calibration of analytical instruments; determination of method detection limits; and use of quality control samples, internal standards, and surrogate solutions.

4.2.1 Adherence to Documented Procedures

The analytical laboratory, GERG, operates under a quality assurance (QA) program described in their QA management plan and an overall QA project plan. This program involves the participation of qualified and trained personnel; the use of standard operating procedures for analytical methodology and procedures; a rigorous system of documenting and validating measurements; maintenance and calibration of instruments; and the analysis of QC samples for precision and accuracy tracking.

Documentation in the laboratory included finalizing the original chain of custody forms and generating the internal documents to track samples through the laboratory, as outlined in GERG SOP-9225. The paper trail included the records of various steps of analysis, including calibration and maintenance of equipment, preparation and analyses of samples, and storage conditions (e.g., refrigerator logs).

Analytical procedures were documented by the GERG SOPs listed in Table 3. Any deviations from the SOPs were documented in the GERG project files. Data affected by such deviations were appropriately qualified as described in Section 4.2.4. The SOPs are comprehensive and typically provide information concerning proper sample collection, storage, and preservation; required apparatus and materials; analytical procedure; standardization and calibration techniques; quality control samples required; methods of calculating values and assessing data quality; and reporting and performance criteria.

The laboratory followed specific procedures when the data results did not meet acceptable quality criteria, as outlined in the appropriate SOPs. This included the re-analysis of samples, if necessary, due to matrix interferences or other problems. All sample results that did not meet QC criteria, if any, were qualified as falling outside QC limits using data qualifiers provided in Table 8. Values that met QC criteria were not typically qualified in the data, but in some cases, a "Y" or "<3xMDL" qualifier may have been used.

Table 8. Qualifiers for LTEMP Data Reporting.

Data Code	Description
B	Analyte reported in blank
D	Sample diluted in order to analyze, therefore surrogate is diluted
I	Interference noted in sample results
J	Quantity below the MDL
ND	Not detected (not measured above zero)
NA	Not applicable
M	Matrix interference
N	Values identified as not within QC criteria
Q	Does not meet QA criteria
Y	Values identified as within QC criteria
<3xMDL	Values at concentrations greater than MDL but less than three times the MDL and within QC criteria (used for procedural blanks)

4.2.2 Instrument Calibration

Calibration is an integral part of any instrumental analysis. Calibration requirements for each type of analysis used on this program are fully described in the appropriate GERG SOP. Typically, instrument calibration was performed daily and on a per batch basis. For example, for AHC analysis, the gas chromatograph calibration was performed with at least five standards with different concentrations, one of which was near the method detection limit. This initial calibration was verified by the measurement of a calibration standard every six to eight samples.

4.2.3 Determination of Method Detection Limits

The MDLs for the PAH and AHC analyses provided in Table 5 were determined following the method detailed in the Federal Register 40 CFR Part 136, Appendix B (1988). The MDL is defined as the lowest concentration of analyte that a method can reliably detect. The MDLs were determined by calculating results of seven replicate measurements of one low-level or spiked sample. The results of a Student's t-test at the 99 percent confidence level was multiplied by the standard deviation of the seven replicates to obtain the lowest possible concentration that is quantifiable at this 99 percent confidence limit (i.e., that is not considered an estimate). The MDL determinations for the LTEMP were based on 1 g dry weight for tissues with a final extract volume of 1.0 mL and 15 g dry weight for sediment with a final extract volume of 0.5 mL.

MDLs were estimated for analytes not available in the spike solution or in the actual matrix (i.e., biological tissue) by using the closest-related compound. For alkylated homologues such as C_2-naphthalene, MDLs were estimated as

twice that of a similar authentic compound. As called for by the procedure, analyte levels greater than 10 times the historical MDL were not used to calculate MDLs; for analytes exhibiting this matrix interference, the MDL was estimated using the closest related compound.

The MDL was adjusted for sample size for each individual sample and each individual analyte for reporting purposes. Analyte concentrations that fell below the calculated MDL but above zero (0) were considered estimates and were qualified with the "J" qualifier. Concentrations equal to zero (0) were not measured and were qualified with the "ND" code for non-detect.

During prior LTEMP reporting periods (1993 - 1997), TPAH and TAHC values were qualified with the "J" if the qualifier was used on all but two of the individual analytes within that summed parameter. This practice has been discontinued by GERG as it provides no information about how much of the total value actually falls above or below the MDL and is somewhat misleading. Therefore, the summed parameters of TPAH and TAHC do not include qualifiers in this report.

4.2.4 Internal Quality Control Checks

Internal laboratory QC checks included the use of surrogate solutions and QC samples such as procedural blanks, matrix spike/spike duplicates, laboratory blank spike/spike duplicates, standard reference materials (SRMs), reference oils, and duplicates. Results from these QC samples allow the assessment of quality assurance parameters such as accuracy and precision of the data. A summary of the QC and acceptable results criteria is provided in Table 9.

Surrogate compounds, described in Section 3.2.1, were spiked into all PAH/AHC samples prior to extraction to measure individual sample matrix effects which are associated with sample preparation and analysis. This included QC samples such as procedural blanks and matrix spike or laboratory blank spike samples. Surrogate compound analyses were reported in percent recovery. If a surrogate could not be measured because the sample required dilution, the surrogate recovery was appropriately qualified ("D"). All surrogate percent recoveries must fall within 40 to 120 percent. If the surrogate recoveries were outside these limits, the laboratory took corrective actions, such as rechecking calculations, ensuring the purity of internal standards and surrogate solutions, verifying instrument performance, or other appropriate steps. If a matrix interference or other problem was identified, the data were appropriately qualified. If investigative and corrective actions failed to identify a problem, the extract was re-injected on the gas chromatograph and the surrogate recoveries again compared to the acceptable limits of 40 to 120 percent. If the surrogate recoveries fell within these limits, the reanalysis data were reported. If QC standards were still not met, the sample may have been re-extracted (if sufficient volume existed) and analyzed. If insufficient volume existed, the data were reported but designated as outside acceptable QC limits. Surrogates that co-eluted with interferences were appropriately qualified and an alternative, closest-eluting surrogate exhibiting no interferences was used for calculations.

A procedural blank of reagent was run with each batch or at least once in 20 tissue and sediment samples for PAH, AHC, and TOC analyses. Procedural blanks were subject to the entire analytical procedure. Procedural blank levels less than three times the MDL were acceptable for PAH, AHC, and TOC. If blank levels for any component were greater than three times the MDL, the procedure and instruments were investigated to identify sources of contamination. The sample set was typically re-extracted and re-analyzed. Should insufficient sample material be available, the data may be reported with the appropriate qualifier. An analyte exhibiting levels at greater than three times the MDL in the blank would be qualified with the "B", as would the same analyte in the samples in that analytical batch showing that analyte at a level of less than 10 times the MDL. For samples within that batch showing that analyte at concentrations of greater than 10 times the MDL, no qualifier was necessary.

Matrix spike and matrix spike duplicates were also run with each batch or for every 20 PAH and AHC samples, whichever was more frequent. For this type of quality control analysis, a sample was randomly chosen and split into three subsamples. Two of these subsamples were fortified with the matrix spike solutions. All three subsamples were analyzed following routine procedure, and the fortified samples were reported in percent recovery of the matrix spike solution. If insufficient sample material existed, a laboratory blank spike and laboratory blank spike duplicate were analyzed. This consisted of two laboratory blank material samples that were fortified with the spike material. The QC criteria for matrix spikes or laboratory blank spikes for both PAH and AHC were that the average recoveries for all

Table 9. Schedule of Internal Quality Control (QC) Checks and Acceptance Criteria for Each Analysis Performed for the LTEMP.

Type of QC (reporting method)	Type of Analysis			
	PAH	AHC	TOC	PGS
Surrogate Spike Solution (% recovery)	✓ all samples and QC samples; 40 - 120 %	✓ all samples and QC samples; 40 - 120 %		
Procedural Blank (concentration)	✓ 1 in 20 samples or 1 per batch; < 3x MDL	✓ 1 in 20 samples or 1 per batch; < 3x MDL	✓ 1 in 20 samples or 1 per batch; < 3x MDL	
Matrix Spike/ Spike Duplicate or Lab Blank Spike/Spike Duplicate) (% recovery)	✓ 1 in 20 samples or 1 per batch; average of all compounds 40 - 120 %. See also duplicate (below)	✓ 1 in 20 samples or 1 per batch; average of all compounds 40 - 120 %. See also duplicate (below)		
Standard Reference Material (SRM)	✓ 1 in 20 samples or 1 per batch for sediment and tissue; < 30 % of the analytes should deviate more than ±35 % from certified range; average values must fall within ±30 of certified values %		✓ Reference material (LECO® pin and ring carbon standards) are used as calibration standard; values must fall within laboratory's calibration curve	
Reference Oil (concentration)	✓ 1 in 20 samples or 1 per batch; averages, standard deviations, and ranges are calculated to provide an estimate of precision	✓ 1 in 20 samples or 1 per batch; averages, standard deviations, and ranges are calculated to provide an estimate of precision		
Duplicate (concentration or relative percent difference [RPD])	✓ 1 in 20 samples or 1 per batch; used to assess laboratory performance	✓ 1 in 20 samples or 1 per batch; used to assess laboratory performance	✓ 1 in 20 samples or 1 per batch; ±20 % for low level (<1.0 %) carbon samples and ±10 % for normal/high carbon (>1.0 % carbon)	✓ 1 in 20 samples or 1 per batch; used for qualitative assessment of homogeneity of sediment

compounds must fall between 40 and 120 percent. If these criteria were not met, the spike sample was re-injected on the GC. If the results met the criteria, they were reported. If the re-injection results failed, the entire batch of samples was resubmitted for extraction (if sufficient sample material was available). If insufficient sample existed, the data were reported but designated as falling outside the QC criteria.

The SRMs used for the LTEMP were obtained from the National Institute of Standards and Technology (NIST). The SRMs analyzed for tissue PAH and AHC was NIST SRM 2974, while NIST SRM 1941a was analyzed for sediment PAH, AHC, and TOC. For PAH analyses, average values must fall within ±30 percent of the certified values. In addition, less than 30 percent of the analytes having certified values of greater than 10 times the laboratory MDL should exceed ±35 percent of the certified range of values. If these criteria are not met but all other quality control criteria are in control, no corrective action is required, and the data are qualified with the "Q" qualifier code. No certified or noncertified SRM values are available for AHC analyses using the GC/FID method, so while these analyses are reported, they are not used for QC purposes. For TOC, the reference material values must fall within the laboratory's calibration curve.

Laboratory reference oils consisting of laboratory-prepared *Exxon Valdez* crude oil standards were analyzed with each batch of PAH and AHC. These samples are analyzed as an instrument standard check solution with each analytical batch. This material is also used to define the retention time windows for the alkylated PAH homologue clusters. Results of the reference oil analyses were used to provide an estimate of precision of each analytical batch by comparing results to the running average for the laboratory for all single analyte peaks. The control limits for each single component analyte is ±25 percent of the laboratory's running average. Descriptive statistics calculated from these results included averages, standard deviations, and ranges. For the analysis of TOC, LECO® pin and ring carbon standards were run as reference materials and used essentially as calibration standards. For this type of quality control check, sample results must fall within the laboratory's calibration curve.

Duplicate samples were analyzed for the PAH, AHC, TOC, and PGS parameters at a rate of one per batch or one in every 20 samples if sufficient sample material existed. Samples were split into two subsamples or duplicates and analyzed following normal protocol. Total organic carbon duplicates must fall within ±20 percent for low level samples (<1.0 percent carbon) and ±10 percent for normal and high level samples (>1.0 percent carbon). Duplicate results for PAH, AHC, and PGS do not have formal acceptance criteria and are used as a more qualitative measure of laboratory performance or sediment homogeneity. In addition, relative percent difference (RPD) criteria were applied to the matrix spike/spike duplicate, laboratory blank spike/spike duplicate, and sample/duplicate results as a measure of precision. All RPD results recorded at the laboratory are charted to ensure that 95 percent of the points are within two standard deviations of the mean. Separate charts are maintained for each matrix and analyte. For analytes having concentrations of greater than 10 times the MDL, an average RPD of less than 25 is generally considered optimal. In calculating the RPD, the value of half the MDL was used for any analyte where the concentration fell below the MDL.

5.0 RESULTS AND DISCUSSION

5.1 Introduction

The purpose of the LTEMP is to provide long-term baseline measurements of hydrocarbon levels and sources in mussels and sediments at program sites within areas of PWS and the Gulf of Alaska represented by the RCAC. These data may then be used to determine future potential impacts of petroleum industry activities on these measurable aspects of the ecosystem. This report primarily presents results from surveys performed during July 1999, October 1999, and March 2000. Where pertinent, summary data from prior years of the LTEMP have been included for comparison. This includes depiction of the historical station means (mean of all replicates collected over time) and error bars representing variability of the survey means.

A summary of samples collected during 1999 - 2000 is provided in Table 10. Appendices A and B provide sampling information as well as analytical results for each sample collected and analyzed. This section provides an overview and discussion of analytical results. Where data from prior program years have been included in the text or summarized in tables or figures, the reader is referred to prior reports for additional information as required.

All hydrocarbon parameters include analyte values as well as estimated concentrations (i.e., those that were qualified as below the MDL). Therefore, results and discussion presented in this report are based on data that have not been censored by removing concentrations below the MDL. The reader is referred to the appendices for the full data, including individual analyte values and data qualifiers. The low levels of some of the analytes and the prevalence of estimated concentrations (values below MDL) should be kept in mind while reading this report. In some tables and most of the text, values have been rounded to the nearest integer for ease of presentation.

Hydrocarbons are an important constituent of petroleum, with PAH and AHC accounting for more than 70 percent of petroleum by weight. While hydrocarbons are ubiquitous in the marine environment, petroleum-derived hydrocarbons can be used to trace petroleum contamination (Brassell et al., 1978; Boehm and Requejo, 1988; Kennicutt and Comet, 1992). Aliphatic hydrocarbons can also be synthesized by planktonic and terrestrial organisms.

Petroleum contains a homologous series of n-alkanes with one to more than 30 carbons with odd and even n-alkanes present in nearly equal amounts, whereas organisms preferentially produce specific suites of normal alkanes with odd numbers of carbons from 15 to 33. Petroleum also contains a complex mixture of branched and cycloalkanes generally not found in organisms, although the latter may be found as degradation products in bacteria. This complex mixture consists of both a resolved and unresolved mixture of compounds, the TRAHC and the UCM, respectively. The TRAHC value, newly reported during this year of the program, gives additional sourcing information as it may provide a relative measure of biogenic contributions as compared to other sources. The presence and amount of the UCM can be an indicator of petroleum contamination, as it increases over time as petroleum is subject to biodegradation processes.

Petroleum contains monoaromatic and polycyclic aromatic hydrocarbons (PAH), both of which can be toxic to organisms. Monoaromatic hydrocarbons such as benzene, toluene, and xylene are highly volatile and are quickly lost through evaporative processes. These compounds do not persist in the marine environment for long periods of time and have not been measured in this study. Petroleum contains an extensive suite of PAH, and the amount and composition of the PAH fraction can be effectively used as a tracer of petroleum contamination. PAH are also toxic and serve as an indication of exposure in organisms. In general, PAH are more resistant to microbial breakdown than many aliphatic hydrocarbons and thus tend to persist in the environment longer. Based on consideration of the petroleum chemistry, biological occurrences of hydrocarbons (i.e., interferences), and toxicological effects, aliphatic hydrocarbons (AHC) and PAH were chosen as the preferred organic tracers of potential future petroleum contamination in PWS.

Table 10. Summary of Samples Collected for the 1999 - 2000 LTEMP.

Station Location	Station Designation	Station Type	Analysis Type	Matrix	Survey 14 (7/99)	Survey 15 (10/99)	Survey 16 (3/00)
AIALIK BAY	AIB-B	Intertidal Mussel	PAH/AHC/lipids	Tissue	3	NC	3
	AIB-B	Intertidal Mussel	Gonadal Index	Tissue	1	NC	1
ALYESKA MARINE TERMINCL	AMT-B	Intertidal Mussel	PAH/AHC/lipids	Tissue	3	3	3
	AMT-B	Intertidal Mussel	Gonadal Index	Tissue	1	1	1
	AMT-S	Subtidal Sediment	PAH/AHC/TOC/ PGS	Sediment	NC	NC	3
DISK ISLAND	DII-B	Intertidal Mussel	PAH/AHC/lipids	Tissue	3	NC	3
	DII-B	Intertidal Mussel	Gonadal Index	Tissue	1	NC	1
GOLD CREEK	GOC-B	Intertidal Mussel	PAH/AHC/lipids	Tissue	3	3	3
	GOC-B	Intertidal Mussel	Gonadal Index	Tissue	1	1	1
	GOC-S	Subtidal Sediment	PAH/AHC/TOC/ PGS	Sediment	NC	NC	3
KNOWLES HEAD	KNH-B	Intertidal Mussel	PAH/AHC/lipids	Tissue	3	NC	3
	KNH-B	Intertidal Mussel	Gonadal Index	Tissue	1	NC	1
SHEEP BAY	SHB-B	Intertidal Mussel	PAH/AHC/lipids	Tissue	3	NC	3
	SHB-B	Intertidal Mussel	Gonadal Index	Tissue	1	NC	1
SHUYAK HARBOR	SHH-B	Intertidal Mussel	PAH/AHC/lipids	Tissue	3	NC	3
	SHH-B	Intertidal Mussel	Gonadal Index	Tissue	1	NC	1
SLEEPY BAY	SLB-B	Intertidal Mussel	PAH/AHC/lipids	Tissue	3	NC	3
	SLB-B	Intertidal Mussel	Gonadal Index	Tissue	1	NC	1
WINDY BAY	WIB-B	Intertidal Mussel	PAH/AHC/lipids	Tissue	3	NC	3
	WIB-B	Intertidal Mussel	Gonadal Index	Tissue	1	NC	1
ZAIKOF BAY	ZAB-B	Intertidal Mussel	PAH/AHC/lipids	Tissue	3	NC	3
	ZAB-B	Intertidal Mussel	Gonadal Index	Tissue	1	NC	1

NC Not Collected

Polycyclic aromatic hydrocarbons are generally divided into three main sources: biogenic, petrogenic, and pyrogenic. Biogenic PAH are those formed by biological processes or those formed during the early stages of diagenesis. Biogenic PAH that are synthesized by organisms can be easily differentiated from those in petroleum. Most abundant of these is perylene, which is believed to be formed during the bacteriological breakdown of organic matter in marine sediments by a process called early diagenesis (Venkatesan, 1988). Since perylene is not found in petrogenic PAH, it has been excluded from the summation of TPAH in this report.

Petrogenic PAH include crude oil and its refined products as well as coal deposits. Potential sources of petrogenic PAH in the LTEMP study area include: Alaska North Slope (ANS) crude including EVOS oil residues; coal residue from natural coal deposits in the area; crude from Cook Inlet or other areas; Katalla, Yakataga, and other eastern Gulf of Alaska seep oil or petroleum source rock formations; oil products from the Alyeska Marine Terminal; and refined petroleum products that have made their way into the marine environment. Alaska North Slope crude consists of a mixture of petroleum from the various production fields on the Alaskan North Slope, including Prudhoe Bay, Kuparuk, Endicott, and Lisburne, and exhibits a fingerprint that is quite distinct from that of oil found in other

geographic areas. The EVOS of March 1989 consisted of Alaska North Slope crude, which over time has weathered to produce a slightly different fingerprint than that of fresh crude. One method of determining an ANS source is to compare the relative concentrations of the C_2- and C_3-dibenzothiophenes and phenanthrenes; for ANS crude, both of these ratios approximate 1, while the ratio for background sources is closer to 0.2 (Page et al., 1995).

Earlier studies in PWS indicated that petroleum originating from natural seeps in the Gulf of Alaska contributed to the natural hydrocarbons (or "background hydrocarbons") in the study area (Page et al., 1995). Prior LTEMP reports also ascribed the background signature seen in some samples to these petroleum seep sources. The source of this background signature is currently the subject of controversy. Recent work has indicated that natural coal deposits rather than oil seeps may be the predominant source of petrogenic hydrocarbons in the study area (Short et al., 1999). An important distinction between these two potential sources is that coal residues are much less biologically available than those seen in petroleum. The researchers found that the PAH fingerprints were similar, but biomarker analyses revealed differences between the coal and petroleum seep sources. However, other researchers contend that petroleum seeps and eroding petroleum source rock formations are the predominant source of hydrocarbons in the area. Work performed for the Minerals Management Service in Cook Inlet and Shelikof Strait indicated that while coal signatures exist in sediments from some areas of Cook Inlet, seep oil is responsible for the predominant background signature (Arthur D. Little, 1998).

Other petroleum products that may have been introduced into the marine environment in PWS include oil products from source-rock in locations other than Alaska. For example, the Great Alaskan Earthquake of 1964 and the resultant tsunamis caused the introduction of fuel oil and asphalt made from California source oils into Port Valdez, and subsequently into PWS (Kvenvolden et al., 1995). These authors noted that residues of these California-sourced products have been found throughout the northern and western parts of PWS, typically in the form of tar balls found on beaches at the high tide line.

Petrogenic PAH have a characteristic fingerprint where the parent compounds (i.e., C_0-naphthalenes, fluorenes, phenanthrenes, dibenzothiophenes, and chrysenes) are usually at lower concentrations than their alkyl homologues. With weathering, this feature becomes more prominent since the more soluble parent compound (C_0) disappears before the alkyl homologue (C_1), which in turn disappears more quickly than C_2, and so on. This characteristic weathering fingerprint is termed a 'water-washed profile' when the $C_0<C_1<C_2<C_3$ within each PAH group.

Pyrogenic PAH sources include atmospheric fallout and surface runoff from the burning of fossil fuels (diesel, heating oil, gasoline, etc.) and from other pyrogenic sources such as forest fires and camp fires. Creosote, which is used to preserve wood pilings, is usually included in this category also. Pyrogenic PAH are characterized by high molecular weight PAH, greater than C_3-dibenzothiophene, and by high concentrations of the parent compounds compared to their alkyl homologues. A typical pattern for pyrogenic PAH is decreasing concentration with molecular weight within a group, i.e., $C_0>C_1>C_2>C_3>C_4$. It has been noted, however, that the PAH in diesel soot has primarily a petrogenic signature (Bence and Burns, 1995).

5.2 Tissue

Polycyclic aromatic hydrocarbon concentrations were determined in mussel tissue to help assess the level of exposure of these native organisms to petroleum contamination. The determination of PAH in tissues has been widely used to assess the level of exposure to petroleum and other contamination. However, it is important to note that tissue contaminants may not directly reflect environmental levels due to several factors including bio-availability, preferential uptake, bioaccumulation, detoxification, metabolism, and depuration. These confounding factors can obscure the relationship between body burden and actual exposure. The uptake and ability to eliminate contaminants is dependent on species, with invertebrates such as mussels generally less capable of elimination than vertebrates such as fish. Mussels and other molluscs have been shown to adjust to changes in ambient conditions in 90 days or less (NOAA, 1989b), which means that contaminants in their body tissues are likely to indicate fairly recent exposure. For example, researchers have shown that concentrations of PAH and polychlorinated biphenyls (PCBs) increased in tissue to a level state in about 20 days when the animals were exposed to contaminated resuspended sediments (Pruell et al., 1987).

Aliphatic hydrocarbon concentrations were also determined in tissues during the 1999 – 2000 program year, as required by the program contract. The tissue AHC analyses had been omitted from the LTEMP after the first two years of the program because the 1993 – 1994 data had indicated that matrix interferences caused by naturally-occurring compounds in the tissues themselves were confounding interpretation. In addition, earlier LTEMP data indicated that the AHC fingerprints showed large seasonal variability that could be due to the reproductive state or seasonal feeding regime of the mussels, and the AHC concentrations in tissues did not correlate well with those seen in the corresponding sediments. However, a review of the LTEMP 1993 – 1997 was performed in 1998 under a separate contract to PWS RCAC (Payne et al., 1998). This report did not examine the tissue AHC data collected during the 1993-1994 LTEMP, but called for re-instituting the analysis of this parameter because AHC are much more abundant than PAH in crude oils and refined products. The authors believed that since AHC are such a predominant part of crude oil, elevated levels would be easily seen in tissues in the event of a spill. Although this point is well taken, naturally-occurring lipids in the tissues themselves mimic the target analytes in terms of the chromatographic analysis and cause a matrix interference that makes these data virtually unusable unless a spill event has occurred. While cleanup of the extracts removes significant portions of the fatty acids, phospholipids, and other compounds, these and other classes of lipids may remain. These fatty acid esters and other compounds cannot be fully removed from the sample extracts without removing the target alkanes themselves, which would render the analytical results even less valuable. These naturally-occurring compounds elute next to and co-elute with the n-alkanes that are measured during the aliphatic analysis (Table 4), making it difficult to quantify the alkanes since the chromatographic separation is problematic.

In addition to the parameters historically reported for AHC (TAHC and UCM), the TRAHC value was also included in the analytical strategy, as recommended in 1998 by the Payne report. This value is intended to offer further sourcing information as it provides an estimate of the resolvable aliphatic fraction that includes alkanes, pristane, phytane, biomarkers, and other compounds such as waxes and lipids. It should be noted that a major component of the TRAHC concentrations are the lipids that are still present in the extract. The TRAHC will show seasonal shifts in the make up of the lipids classes even if the total percent lipids remains fairly constant. While these AHC and corresponding data have been reported along with the corresponding values of CPI ratio and UCM, interpretation in this report relies more closely on PAH data than AHC data for tissue body burden results.

5.2.1 Polycyclic Aromatic Hydrocarbons

Overall, tissue concentrations of PAH compounds were low at most stations during the 1999 - 2000 LTEMP. Concentrations of TPAH in each replicate were all above the cumulative MDL (129 ppb) at each of the ten LTEMP stations sampled during July 1999 and the two Port Valdez stations sampled in October 1999, while many of the tissue samples collected in March 2000 showed TPAH concentrations below the cumulative MDL. As in the past, the majority of individual PAH analytes were found to be at very low (below MDL) but still detectable concentrations (Appendix A).

Anomalies noted during the data review process resulted in the further review of the July 1999 sample set at the analytical laboratory. For this sample set consisting of 30 tissue samples, the laboratory was asked to verify the results for several analytes that appeared elevated: the alkylated fluorenes, the C_1-phenathrene/anthracenes, and the C_2-chyrsenes. Data were reviewed by looking at the individual ion chromatograms for each sample.

Review of the alkylated fluorenes in the July 1999 sample set indicated that these compounds were elevated at most stations and the overall pattern of the fluorenes at these stations did not match that of the expected oil pattern in that some of the peaks were missing in the samples. However, the secondary confirmation ion was present in the existing peaks, and the peaks themselves could not be differentiated from the alkylated fluorene peaks in the GERG reference oils (GERG Standard Check Oil). Since there are no QC criteria for the ratio of the primary quantification ion to the secondary confirmation ion for these multi-peak analytes, and the peaks that were present in the samples could not be differentiated from the reference oil sample peaks, the concentrations were reported as the alkylated fluorenes. No changes were made for the alkylated fluorene data originally reported, but it is possible that some lipid interference was occurring for these analytes in the July 1999 data set. The alkylated fluorenes accounted for 26 to 58 % of the mean TPAH (based on station means) during July 1999, 2 to 8 % during March 2000, and 14 and 19 % at the two Port Valdez stations sampled during October 1999. Although the alkylated fluorenes had been elevated at some stations in the past, such as during the July 1994 and July 1996 surveys, they had never been as prominent as they appear to be in

the July 1999 data set.
Review of the ion chromatograms for the compound C_1-phenanthrene/anthracene for this same sample set indicated that for selected samples with elevated levels of this compound, the pattern in the samples did not match the expected oil pattern in the reference oil samples. The peak for this compound was within the correct retention time window, but it was shifted slightly as compared to an overlaid reference oil pattern. The peak which had originally been identified as methyl anthracene by the analyst was therefore removed from the determination of the concentration for C_1-pheanthrene/anthracene, which resulted in decreased concentrations of this compound for eight samples. This included replicates two and three at Station AMT-B and all three replicates at Stations GOC-B and WIB-B. The problematic peak does not match a hydrocarbon signature and could be attributable to naturally-occurring lipids in the samples, as documented by the AHC analyses discussed below. The remaining 22 samples in the sample set were subject to review but this shifted peak was not present and no data changes were necessary.

Review of the ion chromatograms for the alkylated chrysenes, particularly C_2-chrysene, indicated that this compound did appear elevated as compared to the other alkylated chrysenes in this sample set, as has happened in the past. No anomalies were noted in the ion chromatograms. These elevated levels were still below MDLs and were in agreement with the general uncertainty associated with estimated concentrations. No changes were made for the C_2-chrysene data originally reported.

Mean TPAH concentrations at many stations varied both within and between surveys (Tables 11 and 12; Figure 12). Good agreement between replicates was shown at a number of stations, particularly during March 2000. Slightly higher within-station variability was seen during July 1999. The apparent increasing trend in tissue PAH that had been seen up until March 1998 was not apparent in last year's July 1998 and March 1999 data; however, mean TPAH values from July 1999 were elevated compared to two prior surveys as well as the March 2000 survey. The July 1999 values, however, were within the historic range of concentrations seen at each site at all but one station (Station GOC-B). Mean TPAH at Station GOC-B was approximately 949 ppb compared to a historical maximum of approximately 778 (see below).

The PAH concentrations at Station AIB-B were elevated during the July 1999 survey with a mean TPAH of 432 ppb as compared to the March 2000 survey (76 ppb) as well as the prior two surveys (Table 11 and Figure 12). The July 1999 mean TPAH value was well within the historical range seen at this station, which had peaked at 1012 ppb in March 1998. The alkylated fluorenes accounted for nearly half of the mean TPAH at this station in July 1999 compared to only 6 % in March 2000. In July 1998, when the maximum historical mean TPAH was encountered for this station, the alkylated fluorenes accounted for about 14 % of the mean TPAH. The PAH fingerprints for this station indicated a potential combination of petrogenic sources and pyrogenic sources, with lower relative inputs of pyrogenics seen in July 1999 than in March 2000. This site has been of particular concern in the past because it is a reference site. It is, however, subject to fairly heavy recreational use which may result in contamination from refined products.

The mean TPAH values reported for Station AMT-B were well within the range of values seen during earlier sampling events (Figure 12). The mean TPAH concentrations for this station were 628, 280, and 127 ppb for July 1999, October 1999, and March 2000, respectively, with a fair amount of within-station variability (Table 11). The historical range seen at this station was 87 to 1581 ppb (excluding the T/V *Eastern Lion* sampling event which exhibited a mean TPAH concentration of 14,351 ppb; Table 12). The alkylated fluorenes accounted for 58 % of the mean TPAH at this station in July 1999, as compared to only 14 and 5 % in October 1999 and March 2000, respectively. For the T/V *Eastern Lion* spill (ELS) sampling, when the mussels collected at this site were contaminated with ANS crude, the alkylated fluorenes accounted for only 14 % of the mean TPAH. The PAH fingerprint at Station AMT-B for October 1999 was consistent with ANS crude with lesser amounts of background and pyrogenic components (Figure 13). The ratio of C_2- and C_3-dibenzothiophenes to C_2- and C_3-phenanthrenes were typically less than 1 and alkyl chrysenes were present, which indicated that the contamination was not the result of diesel fuel. Naphthalenes and fluorenes were also abundant in the samples, indicating a fairly fresh, unweathered source. Also, the 5- and 6-ring PAH that are indicative of pyrogenic sources were relatively low, indicating a lesser contribution of pyrogenics. The July 1999 fingerprint (not depicted) was similar with the exception of the elevated alkylated fluorenes. The March 2000 fingerprint (also not depicted) was more consistent with background sources and pyrogenic inputs. The PAH values during this survey were very low, showing the lowest mean TPAH value to date (127 ppb) with the exception of one survey (July 1995 at 87 ppb). These March 2000 concentrations probably reflect normal ("non-contaminated") levels in these mussels (i.e., with no petroleum inputs from operations at the Alyeska Marine Terminal), which is why the background fingerprint is apparent.

Table 11. LTEMP Tissue TPAH, FFPI, CRUDE Index, and Lipid Results for July 1999, October 1999, and March 2000.

Station	TPAH (ng/g or ppb)											
	Survey 14 (July 1999)				Survey 15 (October 1999)				Survey 16 (March 2000)			
	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean
AIB-B	310.8	327.0	658.8	432.2	NC	NC	NC	NC	74.4	71.0	81.4	75.6
AMT-B	648.7	435.1	798.8	627.5	192.8	176.5	471.6	280.3	97.8	97.4	186.6	127.3
DII-B	222.0	294.5	290.9	269.1	NC	NC	NC	NC	69.0	69.9	61.7	66.9
GOC-B	1115.6	769.4	962.7	949.2	198.1	213.0	162.2	191.1	151.0	122.2	135.6	136.3
KNH-B	919.1	869.5	279.7	689.4	NC	NC	NC	NC	116.2	143.8	70.8	110.3
SHB-B	542.7	587.0	488.4	539.4	NC	NC	NC	NC	90.4	131.2	55.6	92.4
SHH-B	282.5	238.1	495.6	338.7	NC	NC	NC	NC	111.2	163.8	92.6	122.5
SLB-B	663.2	234.1	673.6	523.6	NC	NC	NC	NC	106.9	128.4	150.2	128.5
WIB-B	607.2	476.1	509.5	530.9	NC	NC	NC	NC	115.2	147.3	109.7	124.1
ZAB-B	244.0	191.2	279.2	238.1	NC	NC	NC	NC	59.1	56.3	59.2	58.2

Station	FFPI (ratio)											
	Survey 14 (July 1999)				Survey 15 (October 1999)				Survey 16 (March 2000)			
	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean
AIB-B	82.4	84.5	89.5	85.5	NC	NC	NC	NC	71.7	74.7	73.1	73.2
AMT-B	88.8	90.6	90.5	90.0	86.5	86.7	68.9	80.7	74.3	74.1	70.0	72.8
DII-B	82.8	81.2	83.2	82.4	NC	NC	NC	NC	71.1	72.7	73.9	72.6
GOC-B	91.3	92.0	90.6	91.3	85.4	81.6	83.9	83.6	75.7	69.6	70.7	72.0
KNH-B	90.1	86.6	82.2	86.3	NC	NC	NC	NC	78.5	80.9	76.3	78.6
SHB-B	92.0	90.5	89.6	90.7	NC	NC	NC	NC	78.9	40.2	77.0	65.3
SHH-B	85.5	83.2	88.2	85.6	NC	NC	NC	NC	73.6	82.8	73.8	76.7
SLB-B	86.5	85.7	87.6	86.6	NC	NC	NC	NC	71.9	76.0	73.2	73.7
WIB-B	89.3	88.0	87.8	88.4	NC	NC	NC	NC	71.3	77.1	73.3	73.9
ZAB-B	87.4	85.1	89.4	87.3	NC	NC	NC	NC	75.5	75.7	75.5	75.6

Station	CRUDE (ratio)											
	Survey 14 (July 1999)				Survey 15 (October 1999)				Survey 16 (March 2000)			
	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean
AIB-B	7881	23932	19146	16986	NC	NC	NC	NC	392	3355	802	1516
AMT-B	47466	75639	65449	62851	8335	14376	8262	10324	5940	6813	11469	8074
DII-B	229	346	521	365	NC	NC	NC	NC	4769	6036	20472	10426
GOC-B	376476	3754	259946	213392	3634	3284	7697	4872	7650	6931	4945	6508
KNH-B	2441	1794	909	1715	NC	NC	NC	NC	7222	7434	6466	7041
SHB-B	602	1030	1266	966	NC	NC	NC	NC	5328	1089	2417	2945
SHH-B	10175	8268	11003	9815	NC	NC	NC	NC	8308	2589	8647	6514
SLB-B	1218	560	28989	10256	NC	NC	NC	NC	20037	18041	17604	18560
WIB-B	104420	52046	60447	72304	NC	NC	NC	NC	657	979	1007	881
ZAB-B	1537	595	836	989	NC	NC	NC	NC	736	2607	7389	3577

Station	Lipids (%)											
	Survey 14 (July 1999)				Survey 15 (October 1999)				Survey 16 (March 2000)			
	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean
AIB-B	11.8	11.4	8.5	10.6	NC	NC	NC	NC	7.1	5.7	4.2	5.7
AMT-B	8.7	6.0	9.4	8.0	8.0	6.4	8.7	7.7	7.6	7.0	6.5	7.0
DII-B	5.4	5.3	4.7	5.1	NC	NC	NC	NC	5.9	6.7	6.1	6.2
GOC-B	13.6	8.6	11.6	11.3	4.1	5.2	7.5	5.6	6.5	7.6	9.3	7.8
KNH-B	6.8	2.6	4.6	4.7	NC	NC	NC	NC	6.8	5.3	7.8	6.6
SHB-B	3.8	0.1	3.6	2.5	NC	NC	NC	NC	5.6	5.2	6.0	5.6
SHH-B	8.3	8.1	6.8	7.7	NC	NC	NC	NC	3.7	6.4	6.7	5.6
SLB-B	2.5	3.4	8.7	4.9	NC	NC	NC	NC	5.1	4.5	5.4	5.0
WIB-B	14.9	13.2	8.8	12.3	NC	NC	NC	NC	6.1	7.2	6.6	6.6
ZAB-B	3.7	3.6	2.0	3.1	NC	NC	NC	NC	5.6	4.8	6.2	5.5

Table 12. Mean LTEMP Tissue Hydrocarbon Results by Station and Survey - 1993 through 2000.

Station (Survey)	TPAH (ng/g)	TAHC (ng/g)	TRAHC (μg/g)	UCM (μg/g)	Lipids (%)
AIB-B (3/93)	70.9	13008	NA	69.9	6.2
AIB-B (7/93)	104.5	33013	NA	0.8	5.9
AIB-B (3/94)	193.6	33529	NA	828.0	3.7
AIB-B (7/94)	126.0	17375	NA	18.6	8.4
AIB-B (3/95)	55.6	NA	NA	NA	4.7
AIB-B (7/95)	54.8	NA	NA	NA	7.0
AIB-B (3/96)	91.6	NA	NA	NA	4.2
AIB-B (7/96)	151.4	NA	NA	NA	10.7
AIB-B (3/97)	292.1	NA	NA	NA	4.7
AIB-B (7/97)	590.1	NA	NA	NA	6.0
AIB-B (3/98)	1012.1	NA	NA	NA	3.0
AIB-B (7/98)	82.5	11459	237.5	38.6	4.8
AIB-B (3/99)	93.8	4237	10.0	9.6	7.0
AIB-B (7/99)	432.2	28628	391.6	585.0	10.6
AIB-B (3/00)	75.6	4816	89.9	146.3	5.7
AMT-B (3/93)	325.0	24054	NA	297.6	7.6
AMT-B (7/93)	248.2	21144	NA	48.0	6.4
AMT-B (3/94)	797.3	20764	NA	964.0	3.8
AMT-B (ELS)	14351.2	131300	NA	1035.0	8.9
AMT-B (7/94)	1580.7	18013	NA	488.7	10.7
AMT-B (3/95)	517.1	NA	NA	NA	2.1
AMT-B (7/95)	87.3	NA	NA	NA	6.6
AMT-B (3/96)	241.6	NA	NA	NA	1.4
AMT-B (7/96)	229.2	NA	NA	NA	6.1
AMT-B (BWTP)	578.3	NA	NA	NA	4.7
AMT-B (3/97)	582.2	NA	NA	NA	3.8
AMT-B (7/97)	540.6	NA	NA	NA	7.6
AMT-B (3/98)	530.4	NA	NA	NA	2.4
AMT-B (7/98)	172.7	15008	396.6	56.9	3.2
AMT-B (3/99)	554.2	27862	183.6	838.8	13.4
AMT-B (7/99)	627.5	61377	646.8	199.6	8.0
AMT-B (10/99)	280.3	14208	72.0	253.4	7.7
AMT-B (3/00)	127.3	10772	356.8	219.0	7.0
DII-B (3/93)	107.0	18916	NA	326.8	4.5
DII-B (7/93)	92.1	33589	NA	18.1	6.8
DII-B (3/94)	290.4	26011	NA	151.7	6.5*
DII-B (7/94)	812.7	10066	NA	49.9	6.1
DII-B (3/95)	248.8	NA	NA	NA	3.1
DII-B (7/95)	113.3	NA	NA	NA	3.7
DII-B (3/96)	116.6	NA	NA	NA	0.8
DII-B (7/96)	120.3	NA	NA	NA	3.3
DII-B (3/97)	349.9	NA	NA	NA	3.0
DII-B (7/97)	291.4	NA	NA	NA	4.0
DII-B (3/98)	686.9	NA	NA	NA	2.3
DII-B (7/98)	55.5	12509	177.8	16.6	4.8
DII-B (3/99)	108.0	19691	155.7	312.3	10.4
DII-B (7/99)	269.1	8744	99.3	120.0	5.1
DII-B (3/00)	66.9	7022	209.1	352.6	6.2

Table 12. Mean LTEMP Tissue Hydrocarbon Results by Station and Survey - 1993 through 2000. (Continued)

Station (Survey)	TPAH (ng/g)	TAHC (ng/g)	TRAHC (μg/g)	UCM (μg/g)	Lipids (%)
GOC-B (3/93)	617.6	32585	NA	390.0	6.0
GOC-B (7/93)	127.1	10681	NA	2.8	7.0
GOC-B (3/94)	549.0	26338	NA	1023.8	4.1
GOC-B (7/94)	778.5	10875	NA	90.2	12.1
GOC-B (3/95)	644.5	NA	NA	NA	3.7
GOC-B (7/95)	77.5	NA	NA	NA	8.0
GOC-B (3/96)	151.0	NA	NA	NA	1.5
GOC-B (7/96)	132.7	NA	NA	NA	6.3
GOC-B (3/97)	391.2	NA	NA	NA	3.3
GOC-B (7/97)	423.8	NA	NA	NA	6.5
GOC-B (3/98)	472.2	NA	NA	NA	2.6
GOC-B (7/98)	155.7	27539	629.0	80.8	7.2
GOC-B (3/99)	252.9	18979	153.9	483.7	11.3
GOC-B (7/99)	949.2	252815	2546.5	191.4	11.3
GOC-B (10/99)	191.1	10537	52.0	252.9	5.6
GOC-B (3/00)	136.3	10393	385.1	171.4	7.8
KNH-B (3/93)	72.4	47773	NA	141.0	4.4
KNH-B (7/93)	106.4	34056	NA	2.9	6.7
KNH-B (3/94)	411.1	37436	NA	255.2	4.9
KNH-B (7/94)	375.7	26759	NA	21.7	7.3
KNH-B (3/95)	137.5	NA	NA	NA	4.5
KNH-B (7/95)	100.9	NA	NA	NA	8.7
KNH-B (3/96)	144.8	NA	NA	NA	3.5
KNH-B (7/96)	365.2	NA	NA	NA	7.9
KNH-B (3/97)	472.8	NA	NA	NA	2.8
KNH-B (7/97)	832.7	NA	NA	NA	4.6
KNH-B (3/98)	844.1	NA	NA	NA	5.3
KNH-B (7/98)	105.0	23629	318.0	17.4	6.0
KNH-B (3/99)	128.5	32940	218.4	518.2	12.4
KNH-B (7/99)	689.4	36497	218.6	52.9	4.7
KNH-B (3/00)	110.3	8806	230.5	184.7	6.6
SHB-B (3/93)	44.1	16030	NA	217.3	5.0
SHB-B (7/93)	293.1	43433	NA	6.1	5.7
SHB-B (3/94)	96.9	23329	NA	49.0	6.4
SHB-B (7/94)	203.6	18158	NA	4.0	7.9
SHB-B (3/95)	66.2	NA	NA	NA	4.0
SHB-B (7/95)	77.6	NA	NA	NA	6.8
SHB-B (3/96)	111.2	NA	NA	NA	2.5
SHB-B (7/96)	320.6	NA	NA	NA	7.7
SHB-B (3/97)	390.7	NA	NA	NA	3.9
SHB-B (7/97)	988.9	NA	NA	NA	4.6
SHB-B (3/98)	306.1	NA	NA	NA	3.7
SHB-B (7/98)	82.2	25061	246.4	19.6	3.2
SHB-B (3/99)	131.2	12822	77.4	170.2	16.4
SHB-B (7/99)	539.4	18461	148.0	79.1	2.5
SHB-B (3/00)	92.4	7064	148.6	159.9	5.6

Table 12. Mean LTEMP Tissue Hydrocarbon Results by Station and Survey - 1993 through 2000. (Continued)

Station (Survey)	TPAH (ng/g)	TAHC (ng/g)	TRAHC (μg/g)	UCM (μg/g)	Lipids (%)
SHH-B (7/93)	58.0	23226	NA	11.4	7.3
SHH-B (3/94)	83.3	26386	NA	487.1	5.4
SHH-B (7/94)	67.5	18882	NA	8.8	9.5
SHH-B (3/95)	58.9	NA	NA	NA	7.3
SHH-B (7/95)	55.7	NA	NA	NA	6.0
SHH-B (3/96)	100.0	NA	NA	NA	3.2
SHH-B (7/96)	341.0	NA	NA	NA	9.0
SHH-B (3/97)	319.1	NA	NA	NA	1.7
SHH-B (7/97)	595.4	NA	NA	NA	3.9
SHH-B (3/98)	460.1	NA	NA	NA	3.9
SHH-B (7/98)	90.8	12201	297.5	49.5	4.8
SHH-B (3/99)	162.6	17583	23.2	2.2	9.9
SHH-B (7/99)	338.7	13405	195.8	313.5	7.7
SHH-B (3/00)	122.5	8695	107.3	101.5	5.6
SLB-B (3/93)	358.4	27757	NA	266.8	4.8
SLB-B (7/93)	91.6	34659	NA	19.2	6.7
SLB-B (3/94)	2209.3	44978	NA	1276.5	5.7*
SLB-B (7/94)	385.8	12862	NA	36.6	8.1
SLB-B (3/95)	623.5	NA	NA	NA	4.5
SLB-B (7/95)	162.3	NA	NA	NA	8.2
SLB-B (3/96)	129.8	NA	NA	NA	2.3
SLB-B (7/96)	124.7	NA	NA	NA	4.6
SLB-B (3/97)	298.8	NA	NA	NA	2.4
SLB-B (7/97)	795.1	NA	NA	NA	4.9
SLB-B (3/98)	509.7	NA	NA	NA	2.8
SLB-B (7/98)	129.4	18577	194.3	14.6	4.4
SLB-B (3/99)	117.7	15969	168.2	341.7	8.5
SLB-B (7/99)	523.6	28592	104.2	246.5	4.9
SLB-B (3/00)	128.5	21262	379.4	468.4	5.0
WIB-B (3/93)	64.6	37216	NA	152.8	5.1
WIB-B (7/93)	84.4	27376	NA	14.2	8.2
WIB-B (3/94)	125.6	22329	NA	521.1	6.3
WIB-B (7/94)	86.3	23124	NA	35.4	7.7
WIB-B (3/95)	62.0	NA	NA	NA	8.4
WIB-B (7/95)	52.8	NA	NA	NA	6.1
WIB-B (3/96)	112.0	NA	NA	NA	2.9
WIB-B (7/96)	148.7	NA	NA	NA	6.9
WIB-B (3/97)	559.3	NA	NA	NA	2.7
WIB-B (7/97)	343.8	NA	NA	NA	4.3
WIB-B (3/98)	482.6	NA	NA	NA	2.7
WIB-B (7/98)	69.8	7698	175.5	40.6	5.3
WIB-B (3/99)	88.4	4696	12.6	2.7	7.3
WIB-B (7/99)	530.9	65764	952.1	276.4	12.3
WIB-B (3/00)	124.1	7319	104.8	101.0	6.6
ZAB-B (7/99)	238.1	17105	131.2	310.1	3.1
ZAB-B (3/00)	58.2	5658	155.9	228.0	5.5

NA Not Analyzed
* Mean of only two replicates; one replicate lost during processing

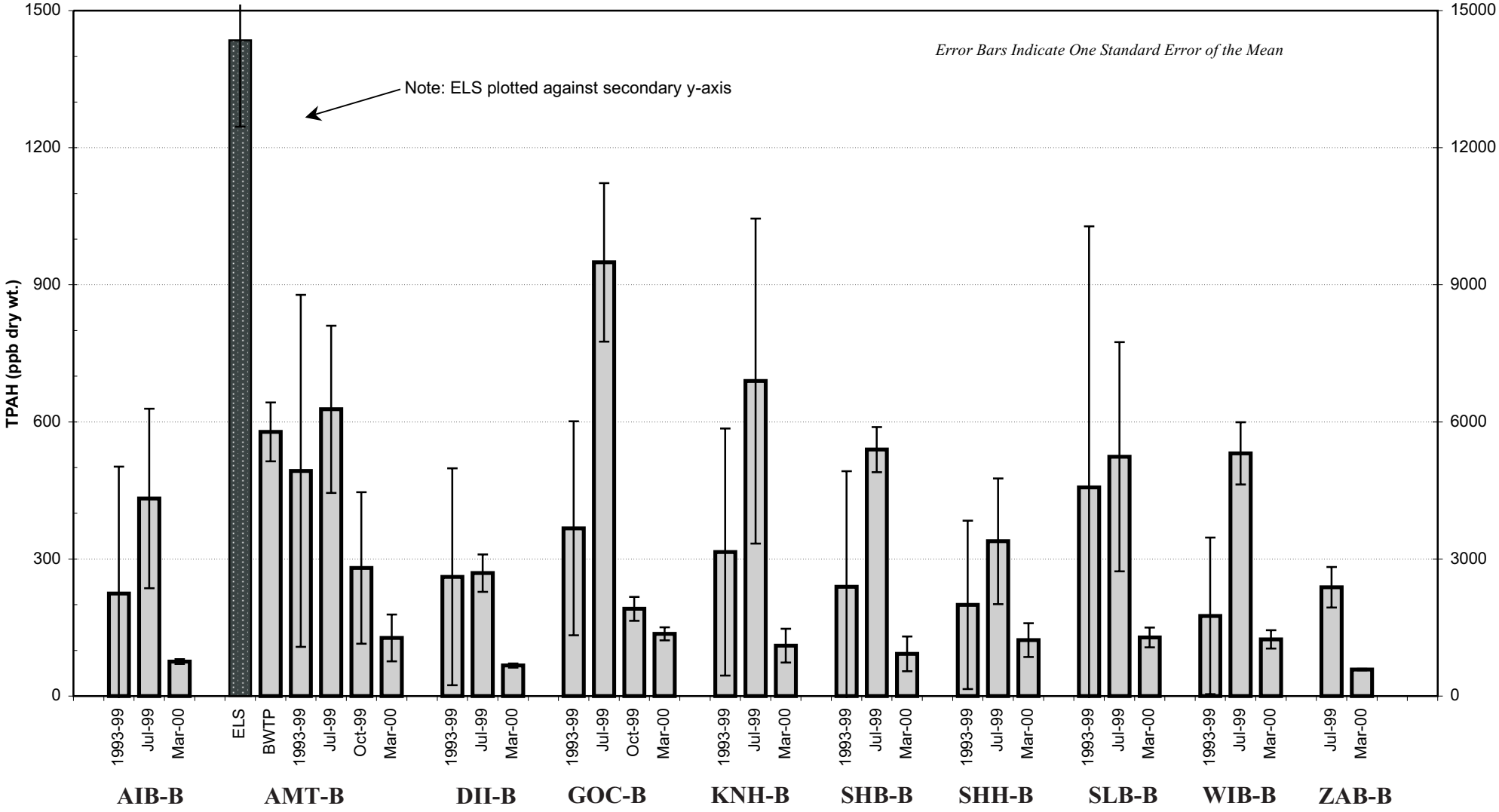

Figure 12. Mean LTEMP Tissue TPAH by Station and Survey - Historical, July 1999, October 1999, and March 2000.

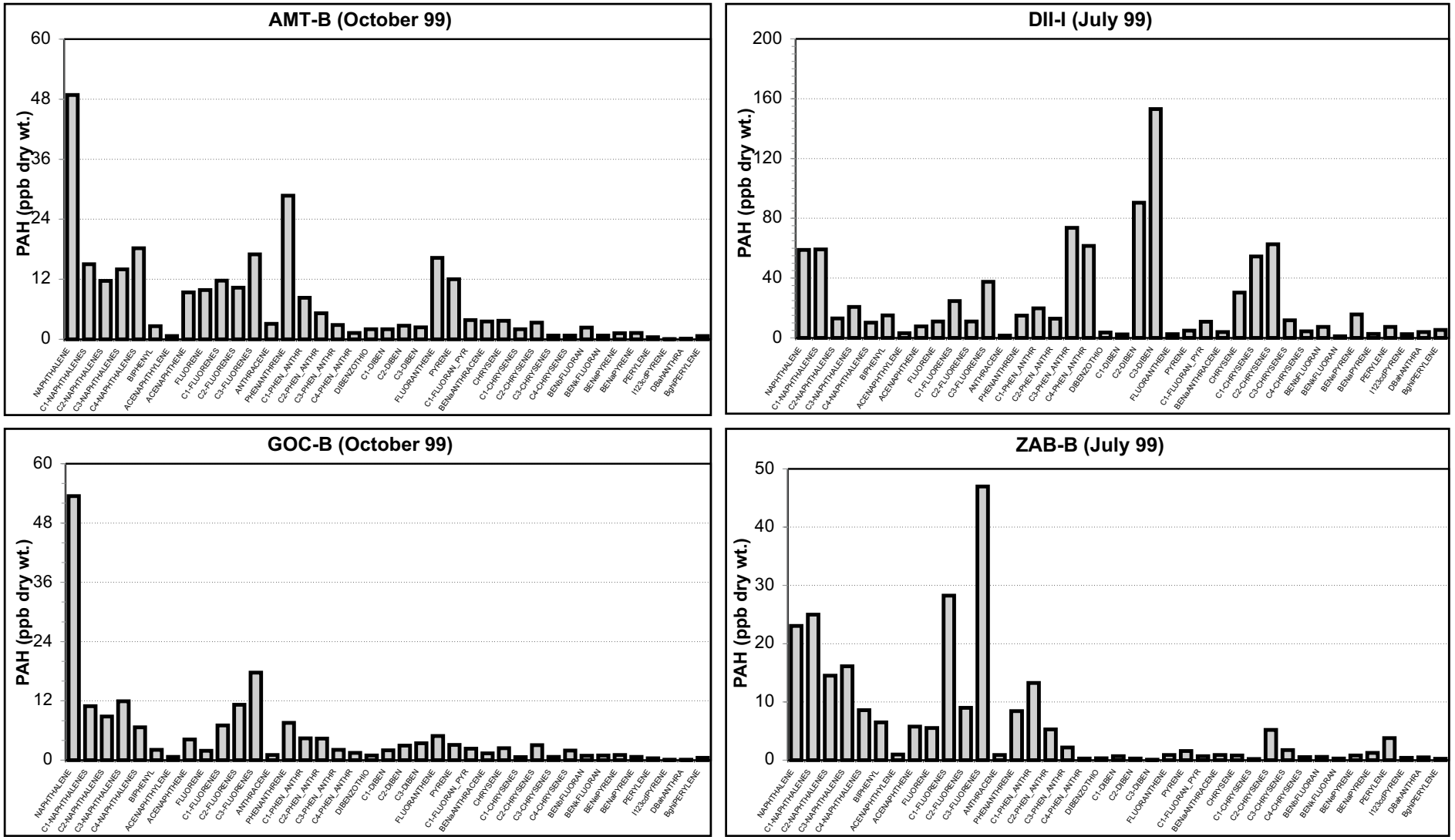

Figure 13. Mean LTEMP Tissue PAH Fingerprints - July 1999 and October 1999 Surveys, Stations AMT-B, DII-I, GOC-B, and ZAB-B.

The tissue TPAH concentrations at Station DII-B ranged from 222 to 294 ppb during July 1999, with a mean of 269 ppb (Table 11). The alkylated fluorenes were not as elevated here as at other stations and accounted for only 26 % of the mean TPAH. March 2000 PAH values were considerably lower, ranging from 62 to 70 ppb, with a mean of 67 ppb. These values were well within the range of historical values reported for this station to date (56 to 813 ppb; Table 12 and Figure 12). The PAH fingerprints from this station for July 1999 and March 2000 were primarily attributed to background and pyrogenic sources. Ratios of C_2- and C_3-dibenzothiophene to C_2- and C_3-phenanthrene were relatively low (~ 0.2), indicating background inputs. If present, the EVOS/ANS component at this station is relatively small. In contrast, the PAH data of the opportunistic tissue sample collected from a visibly oiled area of the adjacent beach clearly indicated elevated levels and an EVOS/ANS signature. A single mussel tissue sample collected at this site (Station DII-I) during the July 1999 survey showed a TPAH concentration of 930 ppb, with the majority of individual analytes above MDLs (Figure 13 and Appendix A). The ratios of C_2- and C_3-dibenzothiophene to C_2- and C_3-phenanthrene were approximately 1 for this sample, indicating the presence of EVOS/ANS oil. Chrysene concentrations were relatively large in this sample compared to the phenanthrenes, indicating a high degree of weathering of the source oil. Similar opportunistic tissue samples taken at the same general location in July 1995 and July 1996 had TPAH values of 8156 and 2058 ppb, respectively.

Mean TPAH values seen at Station GOC-B were approximately 949, 191, and 136 ppb for July 1999, October 1999, and March 2000, respectively (Tables 11 and 12). With the exception of the July 1999 survey, these values fell within the historical range of values seen at this site (Figure 12 and Table 12). Total PAH values for the July 1999 survey ranged from 769 to 1116 ppb for the three replicates, with relatively high levels of the alkylated fluorenes accounting for 51 % of the mean TPAH. In contrast, the alkylated fluorenes accounted for 19 and 3 % of the mean TPAH in the October 1999 and March 2000 surveys, respectively. In July 1994, the alkylated fluorenes accounted for 39 % of the mean TPAH at this station; all other surveys fell well below this level. All three replicates collected at this station in July 1999 showed the shifted peaks in the C_1-phenanthrene/anthracene area and the abbreviated fluorene pattern. Results from the other two surveys reported here were more typical, and the final sampling (March 2000) exhibited the second lowest mean TPAH encountered to date. As depicted in Figure 13, the PAH fingerprint at Station GOC-B during the October 1999 survey was typical of ANS crude with the alkyl phenanthrenes similar in concentration to that of the alkyl dibenzothiophenes and with lower levels of alkyl chrysenes. With the exception of the high peaks for some of the alkylated fluorenes, the July 1999 fingerprint was similar. These results were similar to that seen during many of the prior surveys. The March 2000 PAH concentrations were relatively low and the fingerprint indicated primarily a background and pyrogenic signature.

Levels of mean TPAH in mussel tissue from Station KNH-B collected during the 1999 - 2000 LTEMP were 689 ppb in July 1999 and 110 ppb in March 2000 (Tables 11 and 12). These values fell within the historical range of 72 to 844 ppb seen at this station (Figure 12 and Table 12). As in the past, the fingerprints from these samples exhibit patterns that are consistent with natural background for PWS.

The mean TPAH levels seen at Station SHB-B were 539 and 92 ppb for July 1999 and March 2000, respectively, well within the historical range of 44 to 989 ppb (Tables 11, 12; Figure 12). The ratio of the phenanthrenes to dibenzothiophenes indicated a source other than ANS crude for this station. As in the past, the mean fingerprint of the July 1999 tissue samples indicated a large predominance of lower-end PAH. This type of signature could be indicative of a fairly fresh source of hydrocarbons; however, the natural background signature has also been shown to have relatively high levels of naphthalenes and fluorenes (Short et al., 1999). The March 2000 fingerprint exhibited a relatively large contribution of pyrogenic inputs.

Station SHH-B showed mean TPAH values of 339 ppb (July 1999) and 122 ppb (March 2000), within the historical range of 56 to 595 ppb (Tables 11 and 12, Figure 12). As in the past, the fingerprints at this station were similar to that seen at Stations KNH-B and SHB-B, indicating natural background contributions.

Mean TPAH levels seen in tissues at Station SLB-B during July 1999 (524 ppb) and March 2000 (128 ppb) also fell within the historical range of 92 ppb to an extreme of 2209 ppb (March 1994). The median TPAH value for this station was 299 ppb. As in the 1998 – 1999 program, fingerprints from both recent surveys indicated background and pyrogenic contributions.

Station WIB-B showed an elevated mean TPAH value for the July 1999 survey (531 ppb), close to the historical maximum of 560 ppb seen at this station (Tables 11 and 12, Figure 12). Total PAH values for this survey ranged from 476 to 607 ppb for the three replicates. As in the Station GOC-B data for this survey, there were relatively high levels of the alkylated fluorenes accounting for about 54 % of the mean TPAH in these samples. Results from March 2000 were more typical, with the three replicates showing a mean TPAH of 124 ppb and the alkylated fluorenes accounting for only 2 % of the mean TPAH. The March 2000 fingerprint clearly exhibited the background signature, with a high perylene content indicating biogenic sources. Other than the high alkylated fluorenes, the fingerprint for the July 1999 survey also indicated background and biogenic sources.

Sampling at Station ZAB-B was initiated during this program year, so no historical data are available. During the July 1999 survey, this station exhibited TPAH values of 191 to 279 ppb, with a mean TPAH of 238 ppb (Table 11). During the March 2000 survey, the three replicates collected at Station ZAB-B ranged from 56 to 59 ppb, with a mean of 58 ppb. These mean TPAH values were the lowest of any station sampled during each of these two surveys. Fingerprints from the two surveys were indicative of background sources (Figure 13). It appears that selection of this station was appropriate to help determine potential future impacts of hydrocarbon transportation in PWS because these initial data indicate that hydrocarbon levels are naturally quite low there.

As in the past, in addition to the petrogenic PAH seen at many of the sites discussed above, small amounts of pyrogenic hydrocarbons consisting of fluoranthene, pyrene, and an assortment of 5- and 6-ring PAH were also found to be present at some locations. This pyrogenic material may come from combustion products (i.e., exhaust) or possibly creosote at some locations.

As in last year's program, but in contrast to some past annual reports, the laboratory procedural artifact pattern was not apparent in this year's data set. This artifact can occur when values greater than zero were reported for each analyte that had a laboratory calibration standard. It is due to the fact that parent analytes with calibration standards have much lower MDLs than their alkylated homologues, so these parent analytes are typically reported while their homologues may not be detected. This was not apparent in this year's data because very few analytes were reported at the non-detect level.

In general, low (below MDL) PAH hydrocarbon body burdens were seen in resident mussel populations at most locations during the 1999 – 2000 program. Since most of the measured concentrations were qualified as estimates ("J"), care needs to be taken in drawing any conclusions from the data.

The calculated FFPI ratios for tissues are also provided in Table 11. It should be remembered that these calculations are typically based on very low PAH concentrations, with most analytes at estimated levels below the MDLs. In addition, the use of ratios such as these for tissue burden data is less valuable than for sediment data due to preferential uptake, depuration, and other biological factors discussed above. Mean FFPI ratios ranged from approximately 82 (Station DII-B) to 91 (Stations GOC-B and SHB-B) during the July 1999 survey. The range was lower during the March 2000 survey, from 65 (Station SHB-B) to nearly 79 (Station KNH-B). For the Port Valdez sampling in October 1999, the mean FFPI values were approximately 81 and 84 for the AMT-B and GOC-B stations, respectively. As expected, many of the lowest FFPI ratios were seen at stations where the fingerprints exhibited a fairly clear indication of pyrogenic contributions. The FFPI value for the single opportunistic sample collected at DII-I was approximately 73.

5.2.2 Aliphatic Hydrocarbons

As expected, tissue concentrations of AHC were considerably higher than PAH levels (Tables 12 and 13; Figure 14). All of the sample results were well above the cumulative MDL values for this parameter (2955 ppb; Table 5). As in the past years, many of the individual AHC concentrations were reported at below-MDL levels in this year's data set. Extremely elevated AHC values seen at some stations (as discussed below) were also subject to additional review by the analytical laboratory, which confirmed that the large values seen for some compounds were due to lipid interference. As noted above, these lipids cannot be removed from the sample extract without removing some of the target n-alkanes themselves, and these lipids cause matrix interference which makes these data difficult to interpret.

Table 13. LTEMP Tissue TAHC, TRAHC, UCM, and CPI Results for July 1999, October 1999, and March 2000.

Station	TAHC (ng/g or ppb)											
	Survey 14 (July 1999)				Survey 15 (October 1999)				Survey 16 (March 2000)			
	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean
AIB-B	18336	22927	44621	28628	NC	NC	NC	NC	3673	4218	6559	4816
AMT-B	39582	56037	88512	61377	13802	16779	12044	14208	7040	10384	14893	10772
DII-B	6190	11086	8957	8744	NC	NC	NC	NC	6690	8170	6206	7022
GOC-B	371823	87966	298656	252815	8971	10222	12419	10537	11465	9141	10572	10393
KNH-B	55836	22707	30949	36497	NC	NC	NC	NC	7790	9665	8964	8806
SHB-B	17388	19570	18425	18461	NC	NC	NC	NC	9628	4973	6590	7064
SHH-B	18852	10351	11012	13405	NC	NC	NC	NC	10038	8379	7667	8695
SLB-B	15093	29278	41405	28592	NC	NC	NC	NC	23474	19235	21077	21262
WIB-B	53368	74103	69822	65764	NC	NC	NC	NC	6420	9283	6253	7319
ZAB-B	9547	20364	21405	17105	NC	NC	NC	NC	4901	6224	5849	5658
Station	TRAHC (µg/g or ppm)											
	Survey 14 (July 1999)				Survey 15 (October 1999)				Survey 16 (March 2000)			
	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean
AIB-B	344.7	450.2	379.8	391.6	NC	NC	NC	NC	78.9	78.1	112.6	89.9
AMT-B	478.0	556.1	906.3	646.8	69.5	108.3	38.2	72.0	328.8	341.6	400.0	356.8
DII-B	91.3	101.1	105.6	99.3	NC	NC	NC	NC	298.9	37.6	290.8	209.1
GOC-B	3793.1	926.4	2919.9	2546.5	47.3	64.0	44.8	52.0	373.3	379.2	402.7	385.1
KNH-B	292.1	116.9	246.7	218.6	NC	NC	NC	NC	174.6	260.9	256.0	230.5
SHB-B	163.8	121.6	158.7	148.0	NC	NC	NC	NC	234.0	75.2	136.5	148.6
SHH-B	275.9	217.9	93.6	195.8	NC	NC	NC	NC	85.0	107.2	129.8	107.3
SLB-B	54.6	191.7	66.4	104.2	NC	NC	NC	NC	378.7	370.7	388.8	379.4
WIB-B	805.1	875.7	1175.6	952.1	NC	NC	NC	NC	91.4	129.0	94.0	104.8
ZAB-B	82.1	176.3	135.2	131.2	NC	NC	NC	NC	140.7	152.0	175.1	155.9
Station	UCM (µg/g or ppm)											
	Survey 14 (July 1999)				Survey 15 (October 1999)				Survey 16 (March 2000)			
	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean
AIB-B	1252.1	373.4	129.6	585.0	NC	NC	NC	NC	83.2	68.6	287.0	146.3
AMT-B	210.0	207.7	181.1	199.6	296.8	271.5	191.9	253.4	206.5	178.7	271.9	219.0
DII-B	44.6	52.8	262.5	120.0	NC	NC	NC	NC	181.3	564.3	312.1	352.6
GOC-B	112.9	218.3	243.1	191.4	253.8	280.1	224.8	252.9	166.4	183.1	164.6	171.4
KNH-B	50.0	34.4	74.3	52.9	NC	NC	NC	NC	145.4	216.7	192.1	184.7
SHB-B	57.1	97.5	82.6	79.1	NC	NC	NC	NC	221.4	110.6	147.6	159.9
SHH-B	238.4	362.7	339.5	313.5	NC	NC	NC	NC	95.6	113.7	95.1	101.5
SLB-B	345.4	287.4	106.7	246.5	NC	NC	NC	NC	612.9	520.8	271.6	468.4
WIB-B	278.3	351.1	199.8	276.4	NC	NC	NC	NC	53.9	90.7	158.3	101.0
ZAB-B	335.2	310.3	284.7	310.1	NC	NC	NC	NC	168.7	228.9	286.3	228.0
Station	CPI (ratio)											
	Survey 14 (July 1999)				Survey 15 (October 1999)				Survey 16 (March 2000)			
	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean
AIB-B	1.7	1.0	1.6	1.4	NC	NC	NC	NC	3.8	1.1	3.8	2.9
AMT-B	0.9	0.9	1.2	1.0	1.3	1.1	1.2	1.2	1.1	1.3	1.2	1.2
DII-B	90.5	14.3	23.3	42.7	NC	NC	NC	NC	1.2	1.2	0.6	1.0
GOC-B	1.0	5.6	1.1	2.5	1.7	1.9	1.3	1.6	1.2	1.2	1.5	1.3
KNH-B	6.0	4.7	7.2	6.0	NC	NC	NC	NC	1.1	1.2	1.2	1.1
SHB-B	19.5	7.0	5.0	10.5	NC	NC	NC	NC	1.4	2.3	1.7	1.8
SHH-B	1.4	1.2	1.0	1.2	NC	NC	NC	NC	1.1	1.9	1.0	1.3
SLB-B	7.1	20.1	1.2	9.5	NC	NC	NC	NC	1.1	1.1	1.1	1.1
WIB-B	0.7	1.2	1.1	1.0	NC	NC	NC	NC	3.5	3.5	2.9	3.3
ZAB-B	3.1	12.9	8.4	8.2	NC	NC	NC	NC	3.1	1.6	0.9	1.9

NC Not Collected

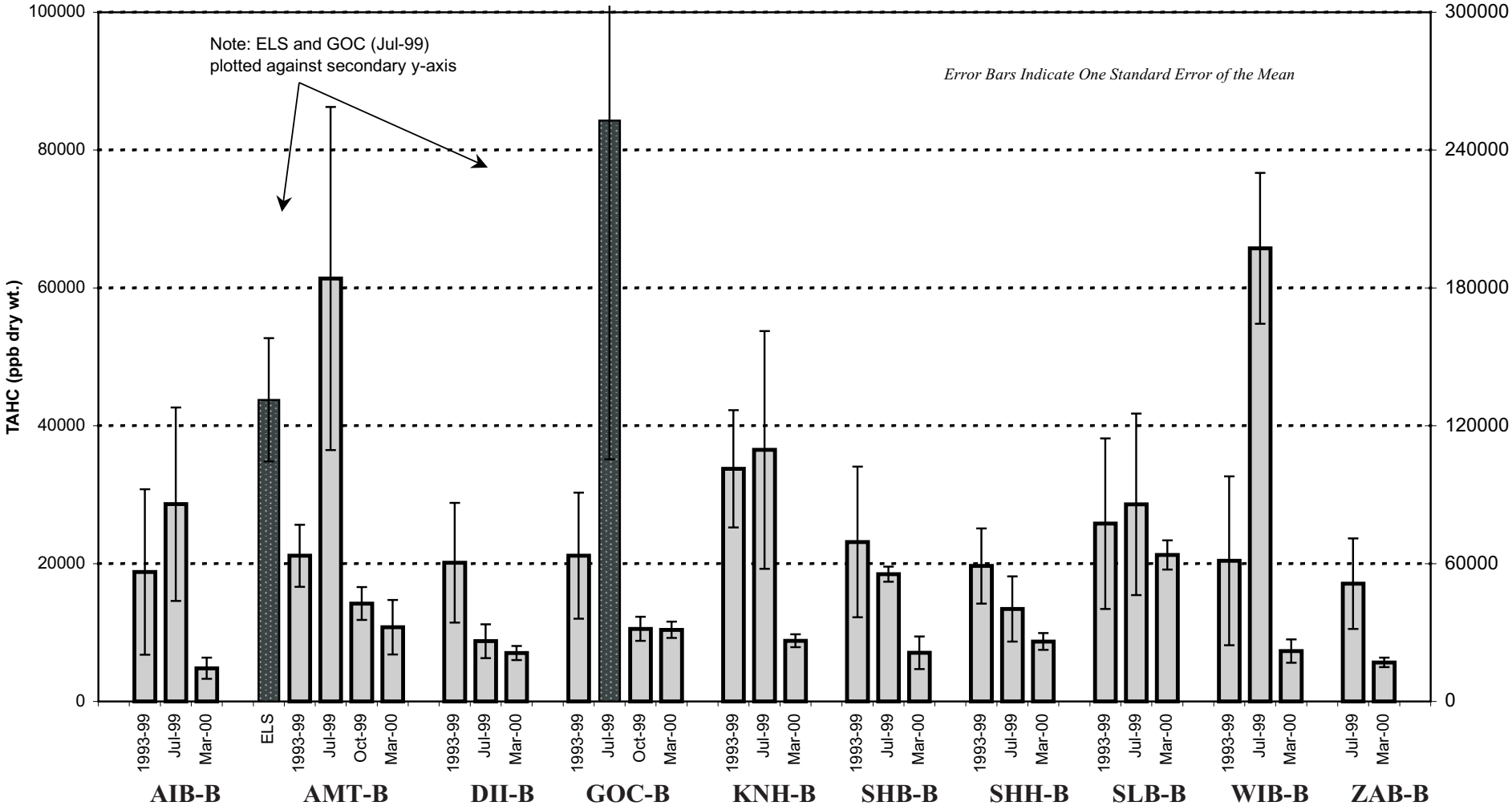

Figure 14. Mean LTEMP Tissue TAHC by Station and Survey - Historical, July 1999, October 1999, and March 2000.

Mean TAHC values ranged from approximately 8,744 ppb at Station DII-B to 252,815 ppb at Station GOC-B for July 1999 and from 4,816 ppb at Station AIB-B to 21,262 ppb at Station SLB-B in March 2000. During the October 1999 sampling, Stations AMT-B and GOC-B exhibited mean TAHC values of 14,208 and 10,537 ppb, respectively. The TAHC for the opportunistic Station DII-I sample was 14,090 ppb. Mean TAHC values from the July 1999 survey were considerably higher than those seen during the March 2000 survey, and a large part of this elevation has been ascribed to lipid interference, probably the result of feeding on a particular species of phytoplankton that was available during the plankton bloom of that summer period. Elevated levels of the alkanes n-C_{21} and n-C_{23} were seen at most stations during this survey, with extreme elevation of these two compounds seen at the three sites where mean TAHC values were extreme. Mean TAHC values for most stations fell within historical ranges for July 1999 and March 2000 (Table 12 and Figure 14). The exceptions to this were Stations WIB-B, GOC-B, and AMT-B, which in July 1999 were above the historic maxima seen at those sites. The data suggest that a large portion of the AHC seen during this survey was actually lipid material that eluted with the AHC on the gas chromatogram.

Mean TAHC at Station WIB-B in July 1999 was approximately 65,764 ppb compared to a historical maximum of 37,216 (March 1993). At Station WIB-B, n-C_{21} and n-C_{23} were extremely elevated in July 1999, accounting for 70 % of the mean TAHC. Replicate two of this station also showed an extremely elevated n-C_{22}. Mean TAHC concentration at Station GOC-B was extremely elevated in July 1999 at 252,815 ppb compared to a historical maximum of approximately 32,585 ppb. The three replicates collected at this station showed a high degree of variability with TAHC levels of 371,823; 87,966; and 298,656 ppb. The extreme peaks of n-C_{21} and n-C_{23} accounted for about 79 percent of the mean TAHC at this station. This high percentage contrasted with the 3 % value calculated for both the October 1999 and March 2000 surveys. In July 1999, Station AMT-B showed a mean TAHC value (61,377 ppb) outside the historical range of the station (excluding the T/V Eastern Lion sampling). The three replicates also showed relatively elevated levels of n-C_{21} and/or n-C_{23}, accounting for approximately 57 % of the mean TAHC. Replicates two and three in particular showed elevated n-C_{21} and n-C_{23}, with these compounds accounting for 62 and 69 % of the TAHC, respectively. In contrast, replicate one showed less elevated n-C_{21} and n-C_{23} concentrations that accounted for only 24 % of the TAHC. The n-C_{21} and n-C_{23} concentrations accounted for only 4 % of the mean TAHC during the ELS sampling at this station. The mean TAHC values seen at Stations AMT-B and GOC-B had dropped to within historical ranges (excluding the July 1999 values) for October 1999 and March 2000. In fact, the March 2000 mean TAHC values were the lowest encountered to date at Stations AMT-B (10,772 ppb) and GOC-B (10,393 ppb). The mean TAHC for Station WIB-B in March 2000 was one of the three lowest encountered to date at this station (7,319 ppb).

The percent of the mean TAHC that was attributable to n-C_{21} and n-C_{23} ranged from 22 to 79 for the July 1999 survey (based on station means), while the other two surveys reported here showed 10 % or less at all stations. It is interesting to note that while these two compounds were elevated for all stations during the July 1999 survey, the extremely elevated mean TAHC levels accompanied by extremely elevated n-C_{21} and/or n-C_{23} values occurred at the same eight replicates that showed the interfering peak that eluted within the retention time for the C_1-phenanthrene/anthracene as discussed in Section 5.1. This suggests that this interfering peak in the PAH analysis was also lipid material, since it is known that a large component of the TAHC is actually naturally-occurring lipids that are analytically indistinguishable from the n-alkanes that are summed for this parameter, as described in Section 5.2 above.

Fingerprints for selected stations are depicted in Figure 15. As in the past, most of the stations exhibited similar fingerprints within season, although there was less variability seen in the July 1999 survey than the March 2000 survey. For example, Station AMT-B for July 1999 compared well with the mean fingerprint for this survey; this station was selected for visual comparison because it was expected to show a different signature, but it was essentially the same as the remaining stations. One feature in the July 1999 fingerprint that was apparent at most stations was the elevated peaks in the AHC at n-C_{21} and n-C_{23}, as discussed above. At some stations (GOC-B, WIB-B, and AMT-B), this peak is extremely prominent, while at others it may be less dominant but still elevated. This feature was not evident in the March 2000 data where similar AHC levels (many below MDL) were seen for the various analytes. Earlier surveys showed the highest values for n-C_{21} and n-C_{23} expressed as the percent of the TPAH (again, based on station means) in July 1998, but the maximum mean value encountered during that survey was 39 % (Station SHH-B). The Station KNH-B (March 2000) fingerprint mirrors the pattern for the mean fingerprint for this survey. This year's data exhibited apparent differences between seasons, as they have in the past. The shift from higher-end alkanes in winter/spring (March 1999) to lower-end alkanes in summer (July 1999), but the shift back to the higher-end alkanes

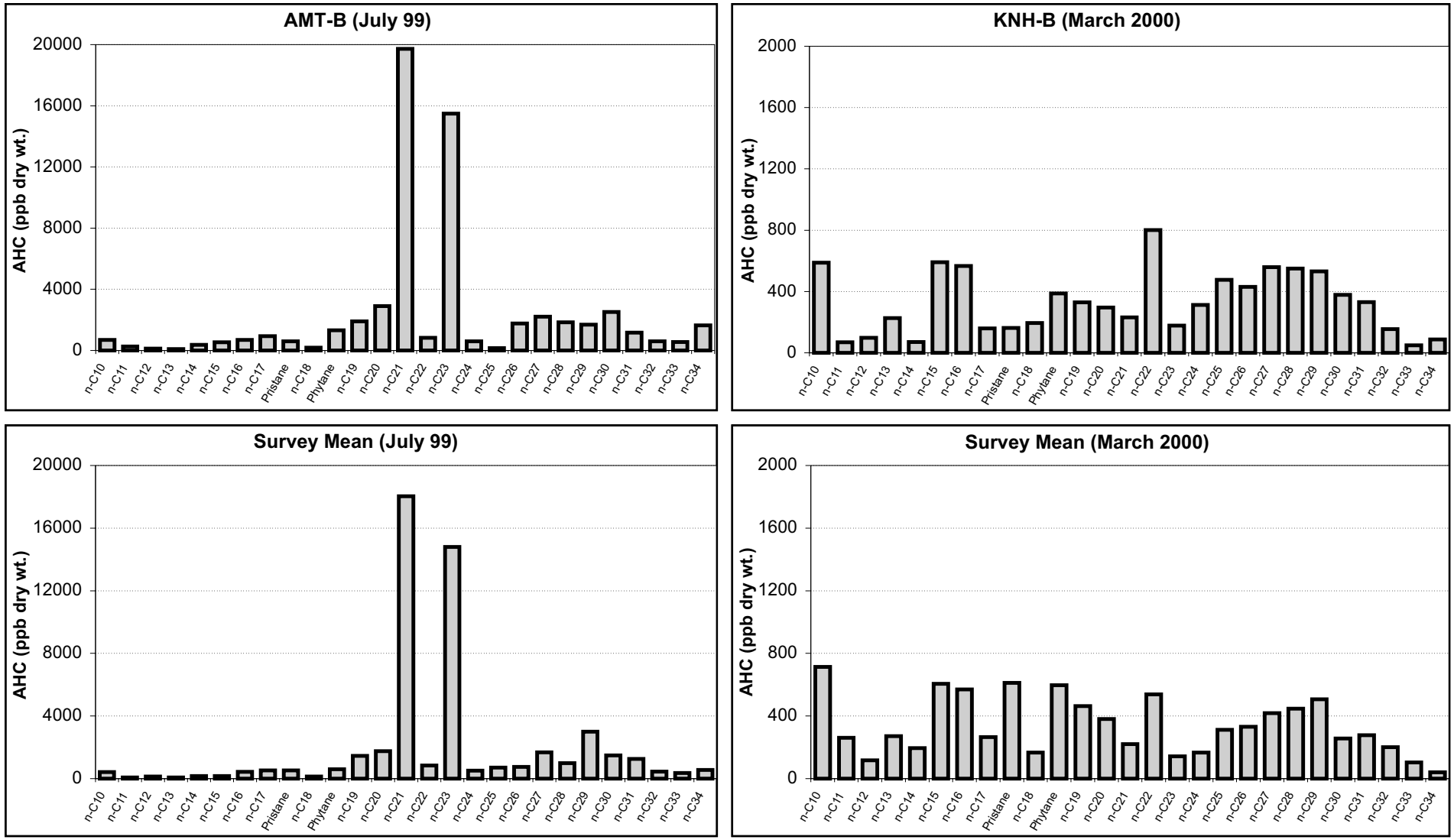

Figure 15. Mean LTEMP Tissue AHC Fingerprints - July 1999 and March 2000 Surveys, Stations AMT-B, KNH-B, and Survey Means.

in March 2000 was less apparent. Seasonal differences could be potentially due to spawning; the release of lipid-rich gametes may cause the fingerprint to shift from predominantly higher-end AHC in March to a more uniform distribution in July. Dietary influences may also contribute to this shift, since mussel feeding habits change throughout the year based on the seasonal availability of the plankton population. It has been noted by the analytical laboratory that there is a dominance in the lipids with a carbon number of around 20 in the summer samples, which would be similar to the lipids contained in phytoplankton, the primary food source for the mussels. This differs from the pattern from samples collected in late October, which contain lipids with much longer chains (carbon numbers from around 27 to 30). The shift to longer-chained lipids in the fall is probably indicative of less feeding and more reliance on storage within the mussel for subsistence at this time of year.

The mean TRAHC concentrations were found to correspond fairly well to fluctuations in TAHC concentrations; stations with high TAHC generally exhibited high TRAHC (Tables 12 and 13; Figure 16). The cause of this seasonal pattern has not been determined; however, within station temporal variability is likely due to spawning or feeding as seen with the AHC concentrations. Values ranged from a mean of approximately 99 ppm at Station DII-B to 2,547 ppm at Station GOC-B in July 1999, and from 90 ppm at Station AIB-B to 385 at Station GOC-B in March 2000. During the October 1999 sampling, mean TRAHC values were approximately 72 and 52 ppm for Stations AMT-B and GOC-B, respectively. The opportunistic sample collected at Station DII-I in July 1999 was approximately 75 ppm; this appears low considering the high TAHC concentration at this station (14,090 ppb). Station GOC-B exhibited the highest mean TRAHC value in July 1999 as well as the highest mean TAHC seen during this survey. Fairly good agreement between the minimum and maximum values for TRAHC and TAHC was also seen for March 2000, with the highest TRAHC values (Stations GOC-B and SLB-B) having relatively high TAHC values. The limited historical data available for the TRAHC parameter are depicted in Figure 16.

The UCM values reported for the 1999 - 2000 surveys showed a fairly high degree of between- and within-station variability (Tables 12 and 13; Figure 17). Mean UCM values ranged in July 1999 from approximately 53 ppm (Station KNH-B) to 585 ppm (Station AMT-B). Mean UCM values in March 2000 were similar and ranged from about 101 ppm (Stations WIB-B and SHH-B) to approximately 468 ppm (Station SLB-B). Mean UCM concentrations for the October 1999 sampling were around 253 at both AMT-B and GOC-B. The opportunistic sample collected at Station DII-I (July 1999) showed a UCM concentration of 412 ppm. Inspection of Figure 17 indicates that this year's mean UCM values typically fell within the range of the 1993 - 1994 and 1998 - 1999 historical data. In contrast to that seen for TPAH and TAHC, and most stations for TRAHC, the concentrations of UCM were elevated at only about half of the stations in July 1999 as compared to March 2000. The seasonal trend apparent in historical data of high UCM in the spring and a low UCM in the following summer was seen as in the past (Table 12) except for the Gulf of Alaska stations (Stations AIB-B, SHH-B, and WIB-B) which failed to exhibit this trend last year. As discussed in the last report, these three sites may have been responding to severe winter conditions shown by a large die-off of mussels and barnacles that was observed during the March 1999 survey. The cause of this die-off was believed to be due to heavy icing and freezing conditions in some bays during January 1999. Many of the observed mussel beds in Windy Bay, including Station WIB-B, had been almost completely removed. The sampling site at Station WIB-B was shifted by 30 m (the same length as the transect) to allow sampling in July 1999 and March 2000. Many of the mussels at Station SHH-B were still attached but were observed to be dead. Station AIB-B appeared to be visually healthy in comparison, but mussels at this site may also have been stressed by the extreme winter conditions. Therefore, the shift in relative UCM concentrations seen at these three stations during the last two years of LTEMP can probably be attributed to factors that caused extreme stress to the populations.

As noted above, calculation of ratios such as the CPI are somewhat less viable for tissues than sediments because of the biological factors involved, particularly availability, preferential uptake, depuration, and bioaccumulation in lipid-rich tissues which may be expelled as gamete material during spawning. The mean CPI ratios ranged from 1.0 (Stations AMT-B and WIB-B) to 42.7 (Station DII-B) in July 1999 (Table 13). In March 2000, mean CPI values ranged from 1.0 (Station DII-B) and 3.3 (Station WIB-B). At Station AMT-B, mean CPI was 1.2 during the October 1999 sampling, while at Station GOC-B it was 1.6. As expected based on the AHC fingerprints, there is a high degree of variability between surveys at some stations. The CPI at the opportunistic Station DII-I was 40.0, similar to that seen at the regular sampling stations on the adjacent beach. In sediment or water, CPI values close to 1.0 are an indication of petroleum, and higher values indicate biogenic input. However, for mussel tissues it is apparent that the CPI does not have the same direct correspondence due to matrix interference and other factors.

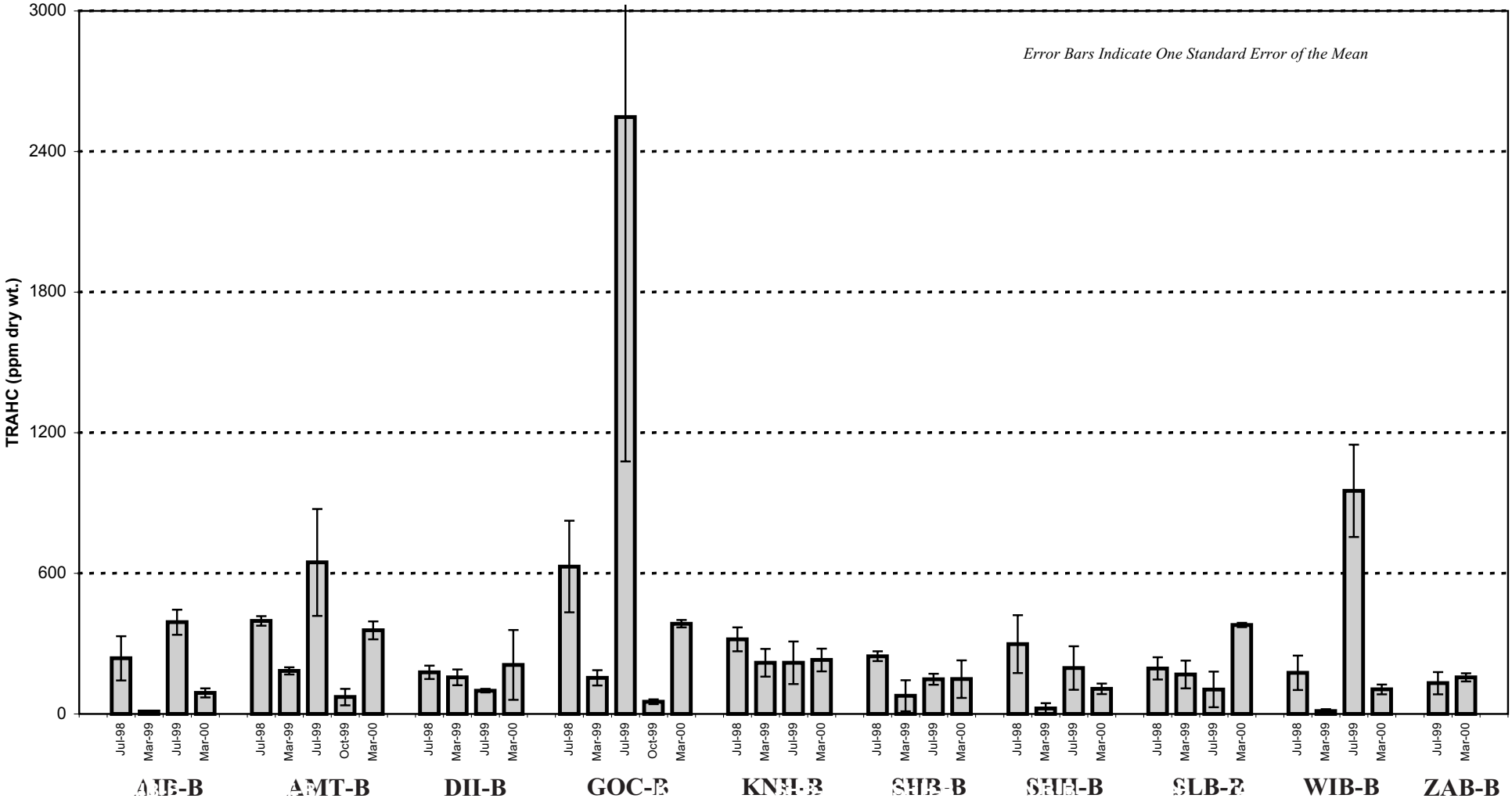

Figure 16. Mean LTEMP Tissue TRAHC by Station and Survey - July 1998, March 1999, July 1999, October 1999, and March 2000.

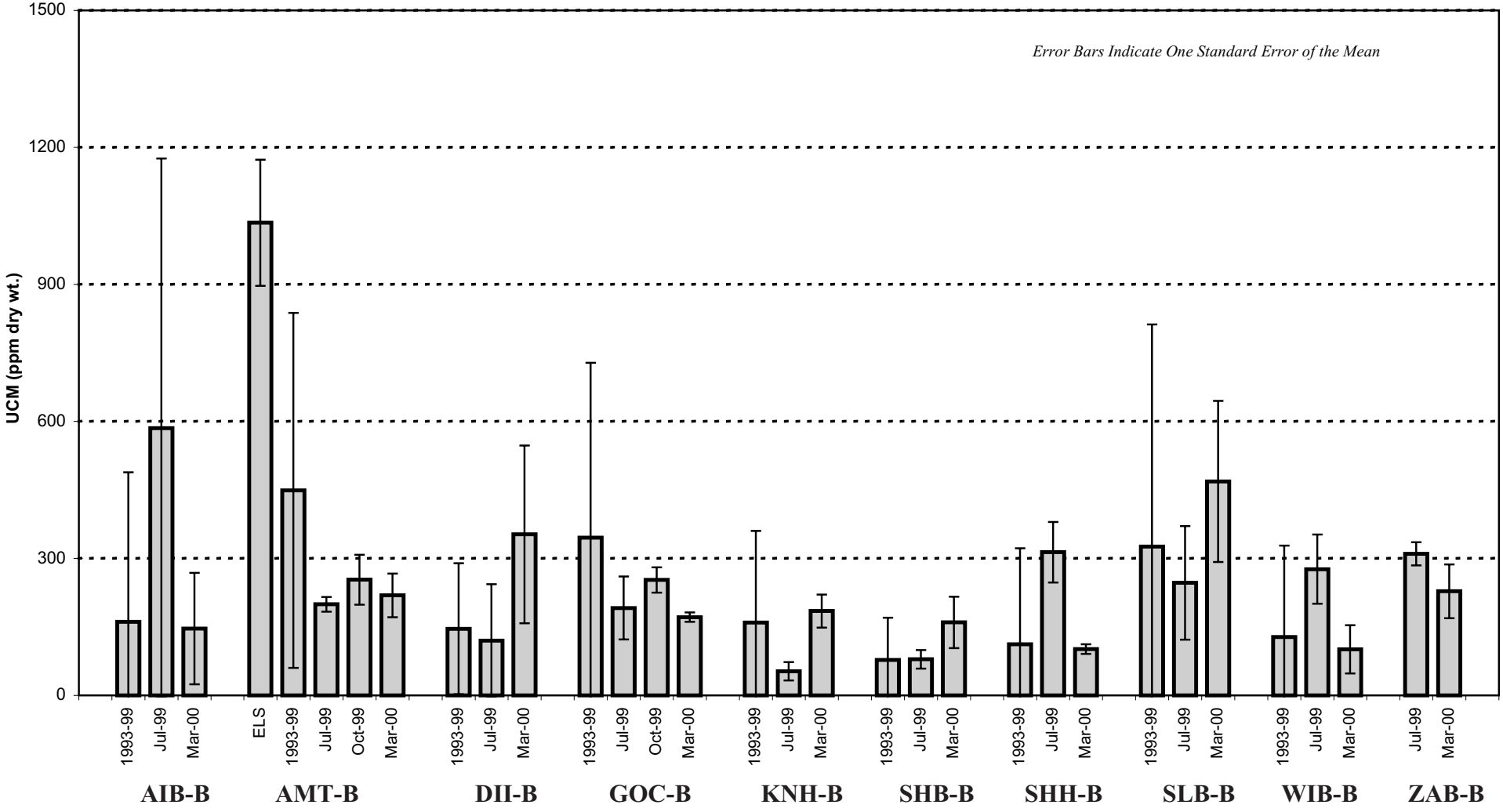

Figure 17. Mean LTEMP Tissue UCM by Station and Survey - Historical, July 1999, October 1999, and March 2000.

The CRUDE index values that were calculated after Payne et al. (1998) are reported in Table 11 although these values are not particularly helpful in assessing the petrogenic fraction of the hydrocarbons seen in the tissues. That is, the index does not provide any real new information due to the predominance of the AHC term in the calculation, which masks differences in the PAH and UCM terms that would normally be more indicative of source. Because the AHC values reported for tissues are so elevated with respect to the PAH and UCM values and so subject to lipid interference, this index is not very useful for assessing hydrocarbon source in tissues. The mean CRUDE index values ranged from 365 to 213,392 for July 1999 at Stations DII-B and GOC-B, respectively. The CRUDE index value reported for the opportunistic Disk Island sample (Station DII-I) was approximately 1,100, considerably higher than the mean of 365 reported from the adjacent beach, but surprisingly low considering the fingerprint at this opportunistic station clearly indicated the presence of EVOS/ANS oil. High values at Station GOC-B, along with that at Station WIB-B (72,304), were a direct result of the high AHC values reported at these stations, as discussed above. Mean values calculated for March 2000 ranged from 881 at Station WIB-B to18,560 at Station SLB-B. During October 1999, the mean CRUDE values were 10,324 and 4,872 at Stations AMT-B and GOC-B, respectively.

As noted in the 1998 - 1999 report and in this discussion, analysis and reporting of AHC and associated parameters (TRAHC, UCM, CPI, and CRUDE index) in mussel tissues does not appear to provide much useful information regarding hydrocarbon levels or sources other than confirming that large amounts of naturally-occurring compounds that are chromatographically indistinguishable from the target analytes exist in the mussel tissues. State-of-the-art purification steps are not sufficient in removing these interfering compounds without removing some of the target n-alkanes themselves, thereby further confounding the AHC results. In addition, while it is understood that AHC is a relatively large component of petroleum hydrocarbons in comparison to PAH, it is clear that PAH sampling in tissues has been sufficient to determine spill impacts in the past. For example, sampling at Station AMT-B in response to the ELS spill event indicated that tissue PAH levels, although considerably lower than tissue AHC levels, can be used to pinpoint spill events as the TPAH became highly elevated after the spill. In fact, mean tissue TPAH concentrations had increased approximately 31 times during the ELS sampling event (compared to the mean of the three prior surveys' means), as compared to mean tissue TAHC concentrations which only increased by a factor of 6. This disparity in the degree of increase of the two different types of hydrocarbons in mussel tissues during an actual spill event, when applied to the elevated levels of both TPAH and TAHC seen at Station GOC-B in July 1999, indicated that if an actual petroleum release had occurred, the TPAH would have been more elevated as compared to the level of TAHC. That is, if that level of TAHC were due to a petroleum release in the area of Gold Creek, the TPAH levels seen there would have been much higher. Finally, the straight-chained AHC components in petroleum are easily weathered, whereas the PAH compounds persist in the environment for much longer periods.

5.2.3 Percent Lipids

Tissue percent lipid concentrations showed a fairly high degree of variability among stations and among surveys (Tables 11 and 12; Figure 18). Mean concentrations of lipids in tissues during July 1999 ranged from 3.1 % at Station ZAB-B to 12.3 % at Station WIB-B. Mean lipid concentrations in March 2000 showed less variability and ranged from 5.0 % at Station SLB-B to 7.8 % at Station GOC-B. October 1999 values were 7.7 and 5.6 % at Stations AMT-B and GOC-B, respectively. Earlier data had indicated a trend at most sites of higher lipid concentrations during the summer surveys compared to the winter surveys; however, this was expected to reverse this year since March 1999 values were considerably higher than usual, in fact were the maximum encountered to date at many stations. Mean lipid values decreased in July 1999 compared to that peak at most stations. Stations AIB-B and WIB-B showed an increase in July 1999 compared to the March 1999 survey, perhaps as a result of the severe winter conditions encountered in winter 1999 that were discussed above. There was no clear pattern in the lipid data exhibited between the July 1999 survey and the subsequent March 2000 survey.

Historically there has been was some indication of seasonal effects on gonadal development and spawning, although there is sufficient scatter in the data to suggest that the timing of these activities is variable among stations and years (Table 12). It seems fairly certain that gonadal development occurs in the winter and early spring and that spawning occurs at least once in the late spring or early summer. This is supported by observations by Keiser (1978) *of Mytilus edulis* (now referred to as *Mytilus trossulus*) in Port Valdez, and is in contrast with those of Suchanek (1979) for Washington State and other areas (by reference). Although *Mytilus* apparently spawns in late winter to early spring in temperate areas, spawning may be retarded in more northern areas due to longer, more intense winters.

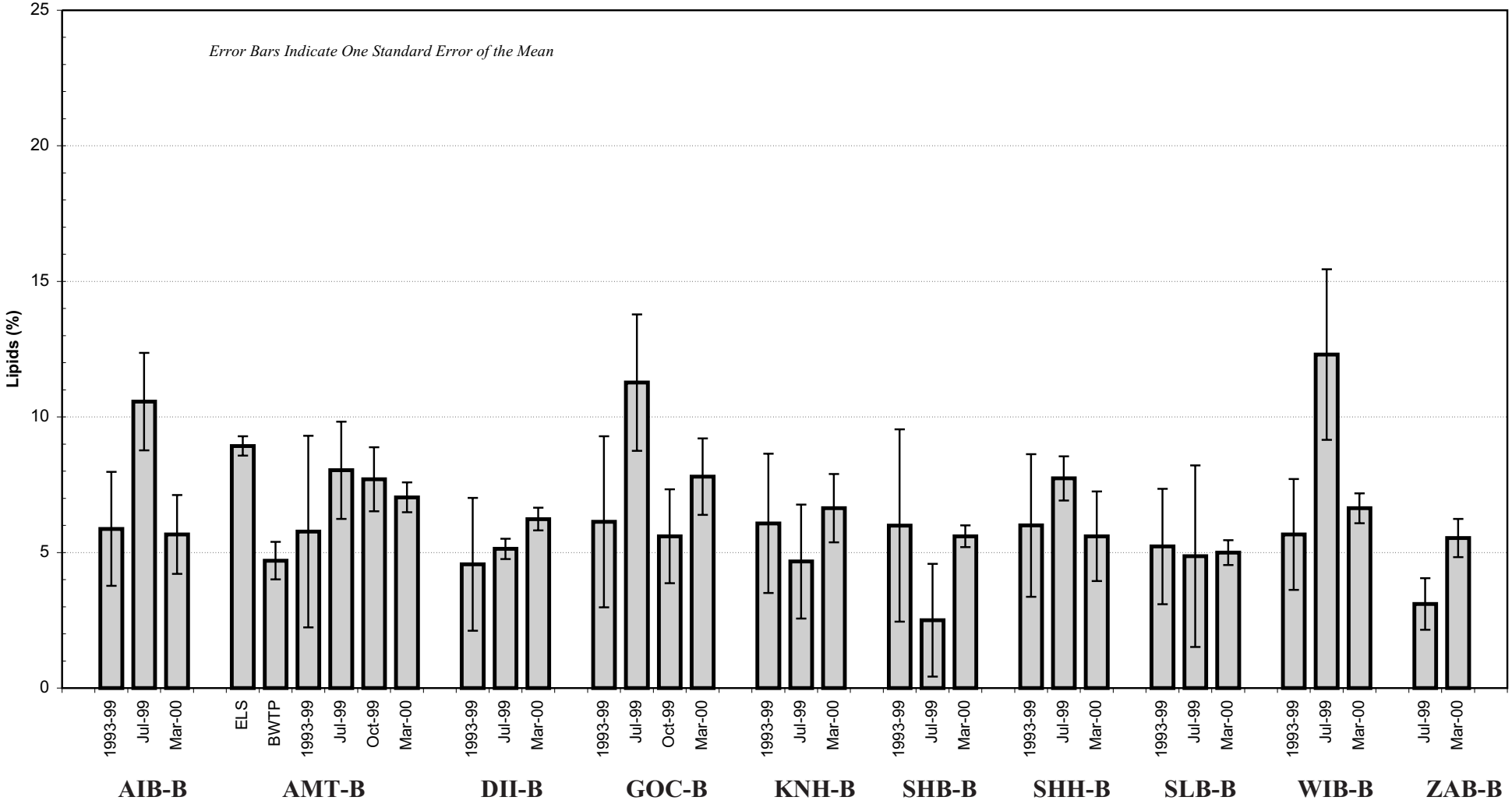

Figure 18. Mean LTEMP Tissue Percent Lipids by Station and Survey - Historical, July 1999, October 1999, and March 2000.

5.2.4 Gonadal Index

In general, values of shell length and volume, gonadal tissue weight, and non-gonadal weights corresponded well (Table 14; Appendix A), indicating that differences in these raw values were related more to the size of the mussels at a station than to the relative health or reproductive state of individuals among stations. When the gonadal data were evaluated using ratios of the gonadal weight to the total weight or to the shell volume, few outstanding differences were seen between either stations or surveys (Figures 19 and 20). One exception to this was Station WIB-B, where March 2000 ratios of gonadal weight to shell volume were elevated, most likely because smaller mussels were collected on that survey than in the past. This was due to the winter die-off that occurred in 1999 as discussed elsewhere. Mussels collected here had considerably smaller shell volume (about half) than those collected at any other station during this survey. Station SLB-B has also shown a noticeable decline in gonadal weights and indices, as indicated on Figures 19 and 20. Field records indicated that this station has undergone severe predation by whelks and other animals, with generally less mussels available for collection. Gonadal weights may also be decreasing at this station. Otherwise, although there was some variability, these biological attributes were generally similar at a given station among surveys. This suggests that, other than at Station WIB-B, there have been no major population shifts and that minor variations reflect somewhat patchy distributions of size classes. As in the past, mussels were largest overall at Stations AMT-B, GOC-B, and SHH-B followed by the new Station ZAB-B. Station WIB-B currently exhibits the smallest mussel lengths, a position historically held by Station KNH-B (Table 14).

5.3 Sediment

Marine sediments are a long-term repository of the residues of petroleum released to the marine environment. Petroleum in the offshore environment can be altered by natural dispersion, evaporation, dissolution, photo-oxidation, and microbial degradation. It tends to adhere to particulates, is deposited in sediments, and is associated with fine-grained material. The presence and composition of petroleum contaminants in sediment are a record of the long-term, chronic accumulation of contaminants thus reflecting the potential for exposure of the resident biota.

Aliphatic and polycyclic aromatic hydrocarbons were measured in subtidal sediments at the two Port Valdez LTEMP stations (AMT-S and GOC-S) during the survey which was performed in March/April 2000. No other LTEMP sediment stations were sampled during this reporting year. The Port Valdez sediment stations are scheduled to be sampled twice during the next program year (July 2000 and March 2001).

5.3.1 Polycyclic Aromatic Hydrocarbons

Subtidal sediment PAH chemistry results from the March 2000 LTEMP survey are summarized in Tables 15 and 16. Individual analyte sediment replicate data are provided in Appendix B. Total PAH at Station AMT-S ranged from approximately 313 to 412 ppb with a mean of 353 ppb. As shown in Figure 21 and Table 16, these values were well within the historical range of values seen at this station (202 - 880 ppb, with most falling between 202 and 418 ppb). Total PAH at Station GOC-S ranged from approximately 81 to 126 ppb with a mean of 111 ppb. These values were higher than that seen in the past at this station, which had ranged from approximately 38 to 89 ppb, with most values falling between 38 and 58 ppb. Most individual PAH analytes were seen at levels above MDLs at both of these stations, and the TPAH values reported were well above the cumulative MDL of 35 ppb.

Mean PAH fingerprints for the survey at the two stations are provided in Figure 22. As in the past, Station AMT-S exhibited a PAH signature typical of petroleum along with low levels of 5- and 6-ring PAH (above C_3-dibenzothiophene), suggesting some additional input of pyrogenic hydrocarbons that may have had a combustion or creosote origin. The petroleum component of the signature had a pattern that was typical of weathered ANS crude. The weathering is shown by the persistence of the alkylated homologues compared to their parent compounds as seen in the fluorene, phenanthrene/anthracene, dibenzothiophene, and chrysene series. ANS is indicated by the ratio of the C_2- and C_3-dibenzothiophenes to phenanthrenes (most values ~1). Previous work in the area by numerous investigators has shown the natural background PAH signature in the Prince William Sound region to have a ratio of ~ 0.2 for C_2- and C_3-dibenzothiophenes to phenanthrenes and ANS to have a value near 1.0. This difference clearly indicates that the PAH in the subtidal sediments seen at this location are not from natural background sources but are more likely due to the tanker operations and/or the ballast water discharge from the BWTP. The fact that the chrysenes are present would indicate an ANS crude rather than ANS diesel fuel as the source of the hydrocarbon input.

Table 14. Mean LTEMP Gonadal Index Results by Station and Survey - 1993 through 2000.

Station (Survey)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Ratio)	Gonadal Weight/ Shell Volume (Ratio)
AIB-B (3/93)	34	3.1	0.13	0.79	0.13	0.04
AIB-B (7/93)	31	2.4	0.05	0.61	0.08	0.02
AIB-B (3/94)	30	1.7	0.11	0.56	0.16	0.07
AIB-B (7/94)	37	3.1	0.14	0.95	0.13	0.05
AIB-B (3/95)	36	2.8	0.19	0.95	0.16	0.07
AIB-B (7/95)	38	3.7	0.46	1.40	0.24	0.12
AIB-B (3/96)	32	2.2	0.17	0.86	0.17	0.08
AIB-B (7/96)	34	2.9	0.28	1.06	0.20	0.10
AIB-B (3/97)	34	2.0	0.11	0.85	0.11	0.06
AIB-B (7/97)	35	2.7	0.24	0.99	0.18	0.09
AIB-B (3/98)	34	2.4	0.25	0.87	0.23	0.11
AIB-B (7/98)	34	2.7	0.11	0.82	0.12	0.04
AIB-B (3/99)	34	2.5	0.17	0.81	0.17	0.07
AIB-B (7/99)	36	3.3	0.23	1.09	0.17	0.07
AIB-B (3/00)	36	3.0	0.23	0.99	0.19	0.08
AMT-B (3/93)	42	5.7	0.40	1.55	0.20	0.07
AMT-B (7/93)	43	4.1	0.26	1.46	0.15	0.07
AMT-B (3/94)	41	4.4	0.32	1.22	0.19	0.07
AMT-B (ELS)	42	2.4	0.34	1.27	0.21	0.15
AMT-B (7/94)	40	3.7	0.22	1.21	0.15	0.06
AMT-B (3/95)	42	4.5	0.16	1.05	0.12	0.03
AMT-B (7/95)	42	4.4	0.47	1.88	0.20	0.11
AMT-B (3/96)	40	4.0	0.13	0.98	0.12	0.03
AMT-B (7/96)	42	4.4	0.42	1.61	0.20	0.10
AMT-B (BWTP)	42	4.2	0.26	1.34	0.16	0.06
AMT-B (3/97)	40	3.9	0.24	1.12	0.17	0.06
AMT-B (7/97)	42	4.9	0.38	1.64	0.19	0.08
AMT-B (3/98)	38	3.9	0.18	0.95	0.16	0.04
AMT-B (7/98)	41	4.0	0.18	1.07	0.14	0.05
AMT-B (3/99)	36	3.3	0.05	0.65	0.07	0.01
AMT-B (7/99)	42	4.9	0.12	1.05	0.10	0.03
AMT-B (10/99)	41	4.2	0.18	1.12	0.13	0.04
AMT-B (3/00)	36	3.2	0.15	0.92	0.14	0.04
DII-B (3/93)	36	3.7	0.13	0.81	0.14	0.04
DII-B (7/93)	40	4.6	0.23	1.33	0.15	0.05
DII-B (3/94)	39	3.9	0.29	1.19	0.19	0.07
DII-B (7/94)	41	4.3	0.24	1.30	0.16	0.06
DII-B (3/95)	40	3.9	0.28	1.29	0.17	0.07
DII-B (7/95)	42	5.0	0.32	1.50	0.17	0.07
DII-B (3/96)	38	3.7	0.11	0.89	0.11	0.03
DII-B (7/96)	37	3.5	0.14	0.95	0.13	0.04
DII-B (3/97)	34	2.6	0.16	0.87	0.15	0.06
DII-B (7/97)	35	2.8	0.17	0.98	0.14	0.06
DII-B (3/98)	34	2.6	0.32	0.96	0.25	0.13
DII-B (7/98)	34	2.2	0.08	0.77	0.09	0.04
DII-B (3/99)	34	3.0	0.16	0.83	0.14	0.05
DII-B (7/99)	34	3.0	0.14	0.87	0.13	0.05
DII-B (3/00)	34	3.1	0.13	1.00	0.11	0.04

Table 14. Mean LTEMP Gonadal Index Results by Station and Survey - 1993 through 2000. (Continued)

Station (Survey)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Ratio)	Gonadal Weight/ Shell Volume (Ratio)
GOC-B (3/93)	38	4.2	0.43	1.25	0.26	0.10
GOC-B (7/93)	41	4.9	0.25	1.47	0.14	0.05
GOC-B (3/94)	42	4.3	0.21	1.16	0.15	0.05
GOC-B (7/94)	43	4.3	0.31	1.66	0.16	0.07
GOC-B (3/95)	38	3.3	0.14	0.95	0.12	0.04
GOC-B (7/95)	41	4.2	0.41	1.64	0.20	0.10
GOC-B (3/96)	38	3.5	0.15	0.92	0.13	0.04
GOC-B (7/96)	40	3.6	0.42	1.54	0.21	0.12
GOC-B (3/97)	39	3.8	0.25	1.15	0.17	0.06
GOC-B (7/97)	41	4.0	0.34	1.56	0.17	0.08
GOC-B (3/98)	40	4.0	0.23	1.09	0.17	0.06
GOC-B (7/98)	40	3.3	0.15	1.23	0.11	0.05
GOC-B (3/99)	36	3.0	0.12	0.81	0.12	0.04
GOC-B (7/99)	40	5.0	0.18	1.31	0.12	0.04
GOC-B (10/99)	38	4.4	0.18	1.02	0.15	0.04
GOC-B (3/00)	37	3.2	0.15	0.93	0.14	0.05
KNH-B (3/93)	30	2.2	0.08	0.52	0.13	0.04
KNH-B (7/93)	25	1.2	0.07	0.39	0.15	0.06
KNH-B (3/94)	28	1.1	0.12	0.46	0.16	0.13
KNH-B (7/94)	33	2.2	0.11	0.67	0.13	0.05
KNH-B (3/95)	31	2.2	0.09	0.66	0.11	0.04
KNH-B (7/95)	32	2.3	0.28	0.87	0.24	0.12
KNH-B (3/96)	30	2.2	0.11	0.63	0.15	0.05
KNH-B (7/96)	30	2.3	0.13	0.64	0.17	0.06
KNH-B (3/97)	29	1.9	0.09	0.50	0.15	0.05
KNH-B (7/97)	29	1.4	0.08	0.54	0.13	0.06
KNH-B (3/98)	27	1.4	0.08	0.48	0.15	0.06
KNH-B (7/98)	28	1.6	0.07	0.43	0.14	0.05
KNH-B (3/99)	31	1.9	0.09	0.51	0.16	0.06
KNH-B (7/99)	30	1.9	0.16	0.63	0.20	0.08
KNH-B (3/00)	33	2.2	0.13	0.79	0.14	0.06
SHB-B (3/93)	37	4.1	0.19	0.99	0.16	0.05
SHB-B (7/93)	37	3.7	0.19	1.03	0.15	0.05
SHB-B (3/94)	37	2.8	0.17	0.96	0.14	0.06
SHB-B (7/94)	37	3.1	0.11	0.97	0.10	0.04
SHB-B (3/95)	36	3.6	0.15	1.00	0.12	0.04
SHB-B (7/95)	34	2.6	0.21	0.92	0.19	0.08
SHB-B (3/96)	33	3.0	0.13	0.80	0.14	0.05
SHB-B (7/96)	33	2.6	0.19	0.74	0.20	0.07
SHB-B (3/97)	34	2.9	0.18	0.74	0.20	0.07
SHB-B (7/97)	34	2.5	0.12	0.83	0.12	0.05
SHB-B (3/98)	34	2.7	0.25	0.97	0.20	0.10
SHB-B (7/98)	33	2.3	0.09	0.68	0.12	0.04
SHB-B (3/99)	32	1.9	0.16	0.70	0.19	0.11
SHB-B (7/99)	34	3.0	0.18	0.95	0.16	0.06
SHB-B (3/00)	34	2.7	0.16	0.93	0.14	0.06

Table 14. Mean LTEMP Gonadal Index Results by Station and Survey - 1993 through 2000. (Continued)

Station (Survey)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Ratio)	Gonadal Weight/ Shell Volume (Ratio)
SHH-B (7/93)	41	4.2	0.19	1.23	0.13	0.05
SHH-B (3/94)	39	4.0	0.33	1.30	0.20	0.08
SHH-B (7/94)	45	5.4	0.31	1.77	0.15	0.06
SHH-B (3/95)	39	3.6	0.33	1.34	0.19	0.09
SHH-B (7/95)	43	4.8	0.32	1.65	0.16	0.07
SHH-B (3/96)	41	3.7	0.28	1.37	0.17	0.07
SHH-B (7/96)	39	3.7	0.20	1.22	0.14	0.05
SHH-B (3/97)	40	4.0	0.20	1.10	0.15	0.05
SHH-B (7/97)	40	3.9	0.19	1.23	0.15	0.05
SHH-B (3/98)	36	2.5	0.14	0.94	0.12	0.05
SHH-B (7/98)	36	2.7	0.13	0.96	0.12	0.05
SHH-B (3/99)	36	3.4	0.31	1.07	0.22	0.09
SHH-B (7/99)	41	4.0	0.23	1.31	0.15	0.06
SHH-B (3/00)	38	3.6	0.21	1.11	0.16	0.06
SLB-B (3/93)	32	3.0	0.15	0.81	0.15	0.05
SLB-B (7/93)	30	2.0	0.09	0.59	0.13	0.05
SLB-B (3/94)	28	1.4	0.10	0.33	0.24	0.08
SLB-B (7/94)	37	3.2	0.20	1.07	0.16	0.06
SLB-B (3/95)	33	2.8	0.14	0.87	0.13	0.05
SLB-B (7/95)	34	3.0	0.17	0.88	0.15	0.05
SLB-B (3/96)	32	2.3	0.12	0.72	0.14	0.05
SLB-B (7/96)	32	2.5	0.12	0.77	0.14	0.05
SLB-B (3/97)	34	2.6	0.08	0.65	0.10	0.03
SLB-B (7/97)	33	2.2	0.15	0.87	0.15	0.08
SLB-B (3/98)	33	2.7	0.23	0.88	0.21	0.09
SLB-B (7/98)	34	2.3	0.05	0.58	0.07	0.02
SLB-B (3/99)	34	3.0	0.12	0.71	0.15	0.05
SLB-B (7/99)	33	2.4	0.09	0.68	0.11	0.04
SLB-B (3/00)	31	2.0	0.07	0.70	0.08	0.03
WIB-B (3/93)	35	3.8	0.11	0.84	0.10	0.03
WIB-B (7/93)	36	3.4	0.16	0.97	0.14	0.05
WIB-B (3/94)	37	3.2	0.14	0.94	0.13	0.04
WIB-B (7/94)	40	4.1	0.23	1.26	0.15	0.05
WIB-B (3/95)	36	2.8	0.13	0.92	0.12	0.05
WIB-B (7/95)	37	3.4	0.27	1.16	0.18	0.08
WIB-B (3/96)	39	3.7	0.17	1.15	0.13	0.04
WIB-B (7/96)	39	4.2	0.24	1.27	0.15	0.05
WIB-B (3/97)	40	3.3	0.11	1.09	0.08	0.03
WIB-B (7/97)	37	3.7	0.20	1.11	0.15	0.06
WIB-B (3/98)	38	2.9	0.29	1.20	0.20	0.10
WIB-B (7/98)	35	3.2	0.10	0.85	0.10	0.03
WIB-B (3/99)	32	2.3	0.13	0.87	0.12	0.05
WIB-B (7/99)	28	1.4	0.13	0.67	0.16	0.10
WIB-B (3/00)	27	1.8	0.24	0.72	0.25	0.13
ZAB-B (7/99)	37	3.3	0.16	0.94	0.15	0.05
ZAB-B (3/00)	37	3.3	0.18	1.04	0.15	0.05

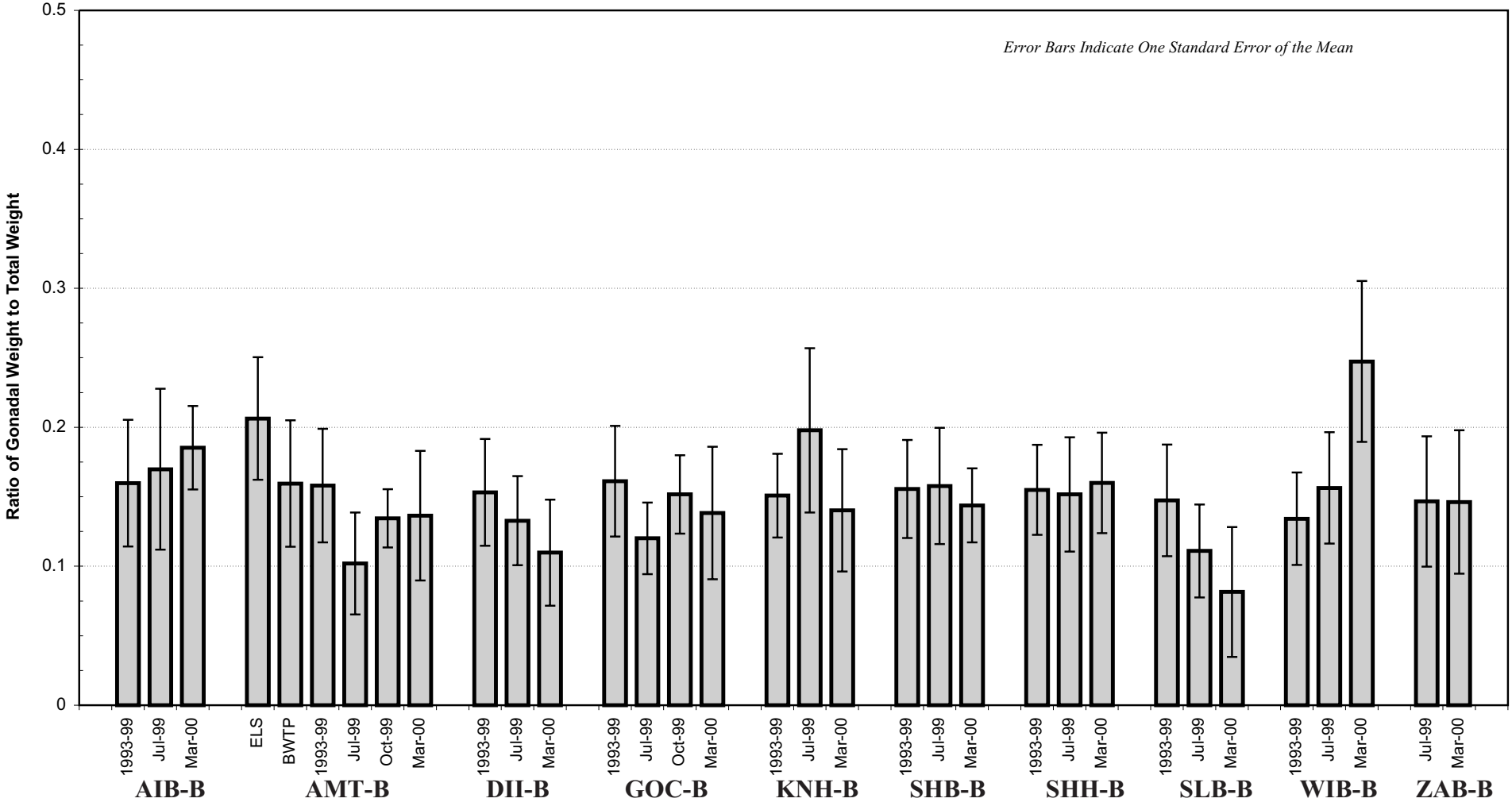

Figure 19. Mean LTEMP Proportional Gonadal Weight by Station and Survey - Historical, July 1999, October 1999, and March 2000.

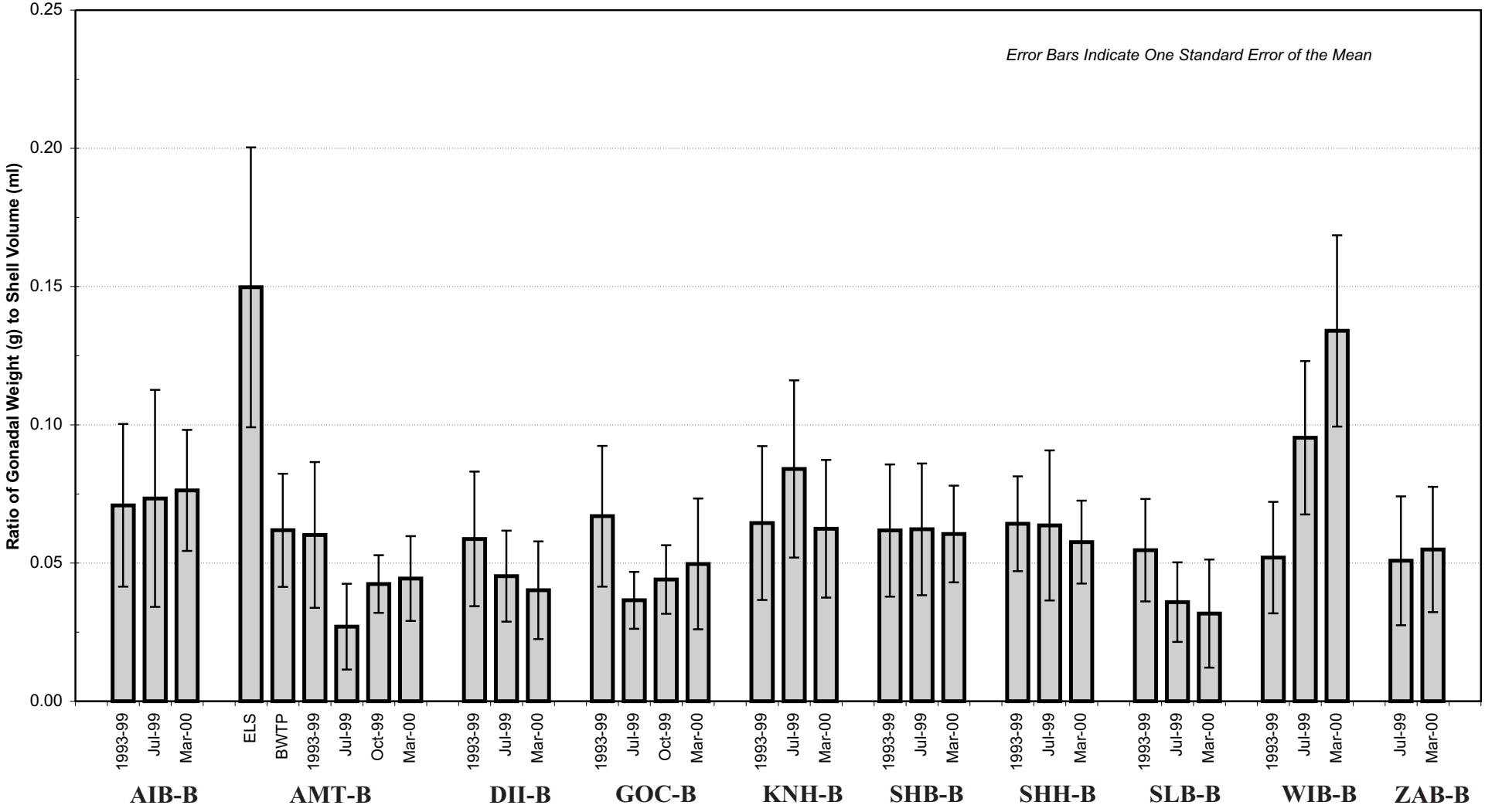

Figure 20. Mean LTEMP Gonadal Weight/Shell Volume by Station and Survey - Historical, July 1999, October 1999, and March 2000.

Table 15. LTEMP Subtidal Sediment Results for March 2000.

Station	TPAH (ng/g or ppb)				FFPI (ratio)				CRUDE Index (ratio)			
	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean
AMT-S	313.2	334.8	411.7	353.2	51.1	61.0	58.2	56.8	291.3	374.5	442.6	369.5
GOC-S	126.4	80.7	125.5	110.9	51.6	67.0	63.9	60.8	70.5	60.9	89.1	73.5
	TAHC (ng/g or ppb)				TRAHC (μg/g or ppm)				UCM (μg/g or ppm)			
	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean
AMT-S	1465	1575	1568	1536	4.1	4.9	5.1	4.7	80.1	110.4	119.4	103.3
GOC-S	590	668	918	725	2.6	2.4	2.8	2.6	5.3	3.3	3.6	4.1
	CPI (ratio)				Silt + Clay (%)				TOC (%)			
	Rep. 1	Rep. 2	Rep. 3	Mean 3	Rep. 1	Rep. 2	Rep. 3	Mean	Rep. 1	Rep. 2	Rep. 3	Mean
AMT-S	5.4	5.1	4.3	4.9	98.4	97.2	98.0	97.9	0.57	0.55	0.55	0.56
GOC-S	287.3	13.9	13.0	104.7	91.4	91.5	91.4	91.4	0.43	0.44	0.54	0.47

Table 16. Mean LTEMP Subtidal Sediment Results at Stations AMT-S and GOC-S - 1993 through 2000. CRUDE Index values are calculated from station and survey means rather than individual replicate data.

STATION (SURVEY)	TPAH (ng/g)	FFPI (ratio)	TAHC (ng/g)	CPI (ratio)	TRAHC (μg/g)	UCM (μg/g)	CRUDE (ratio)	TOC (%)	Silt + Clay (%)
AMT-S (3/93)	242.6	60.8	2091	1.5	NA	122.2	1199.2	0.77	92.6
AMT-S (7/93)	246.0	56.4	2018	1.3	NA	120.6	1453.5	0.67	94.4
AMT-S (3/94)	202.5	53.9	1473	2.3	NA	98.8	486.5	0.58	94.3
AMT-S (7/94)	264.4	57.9	1530	1.9	NA	93.2	670.0	0.65	95.7
AMT-S (3/95)	212.0	45.7	1390	1.6	NA	98.7	738.4	0.63	94.9
AMT-S (7/95)	880.2	62.9	2275	1.2	NA	134.2	2267.5	0.77	95.1
AMT-S (3/96)	201.8	57.9	1262	3.1	NA	101.8	350.0	0.54	97.1
AMT-S (7/96)	302.5	62.3	1883	2.5	NA	108.5	598.3	0.69	95.6
AMT-S (3/97)	417.8	63.0	2370	2.3	NA	1.0	712.3	0.83	92.8
AMT-S (7/97)	303.2	61.2	1498	4.1	NA	89.6	365.8	0.59	96.7
AMT-S (3/98)	238.0	58.7	1251	3.8	NA	61.7	290.2	0.65	97.4
AMT-S (3/00)	353.2	56.8	1536	4.9	4.7	103.3	366.8	0.56	97.9
GOC-S (3/93)	47.3	61.0	946	15.9	NA	6.2	38.7	0.70	79.4
GOC-S (7/93)	37.7	58.5	567	12.1	NA	3.7	29.7	0.63	88.5
GOC-S (3/94)	58.5	59.2	879	14.1	NA	3.3	49.5	0.54	88.8
GOC-S (7/94)	44.4	55.4	500	18.8	NA	2.7	28.7	0.55	75.5
GOC-S (3/95)	40.6	50.9	438	18.5	NA	0.7	22.6	0.55	81.6
GOC-S (7/95)	52.1	53.2	597	13.1	NA	4.2	35.4	0.65	86.4
GOC-S (3/96)	89.1	40.5	527	14.7	NA	14.3	52.9	0.53	88.0
GOC-S (7/96)	51.1	61.8	537	39.5	NA	13.1	45.0	0.55	74.8
GOC-S (3/97)	44.1	63.1	499	7.9	NA	1.7	37.5	0.69	81.7
GOC-S (7/97)	55.7	58.8	618	9.2	NA	18.3	58.4	0.62	87.4
GOC-S (3/98)	42.4	71.7	331	8.9	NA	1.4	36.0	0.55	90.6
GOC-S (3/00)	110.9	60.8	725	104.7	2.6	4.1	71.6	0.47	91.4

NA Not Analyzed

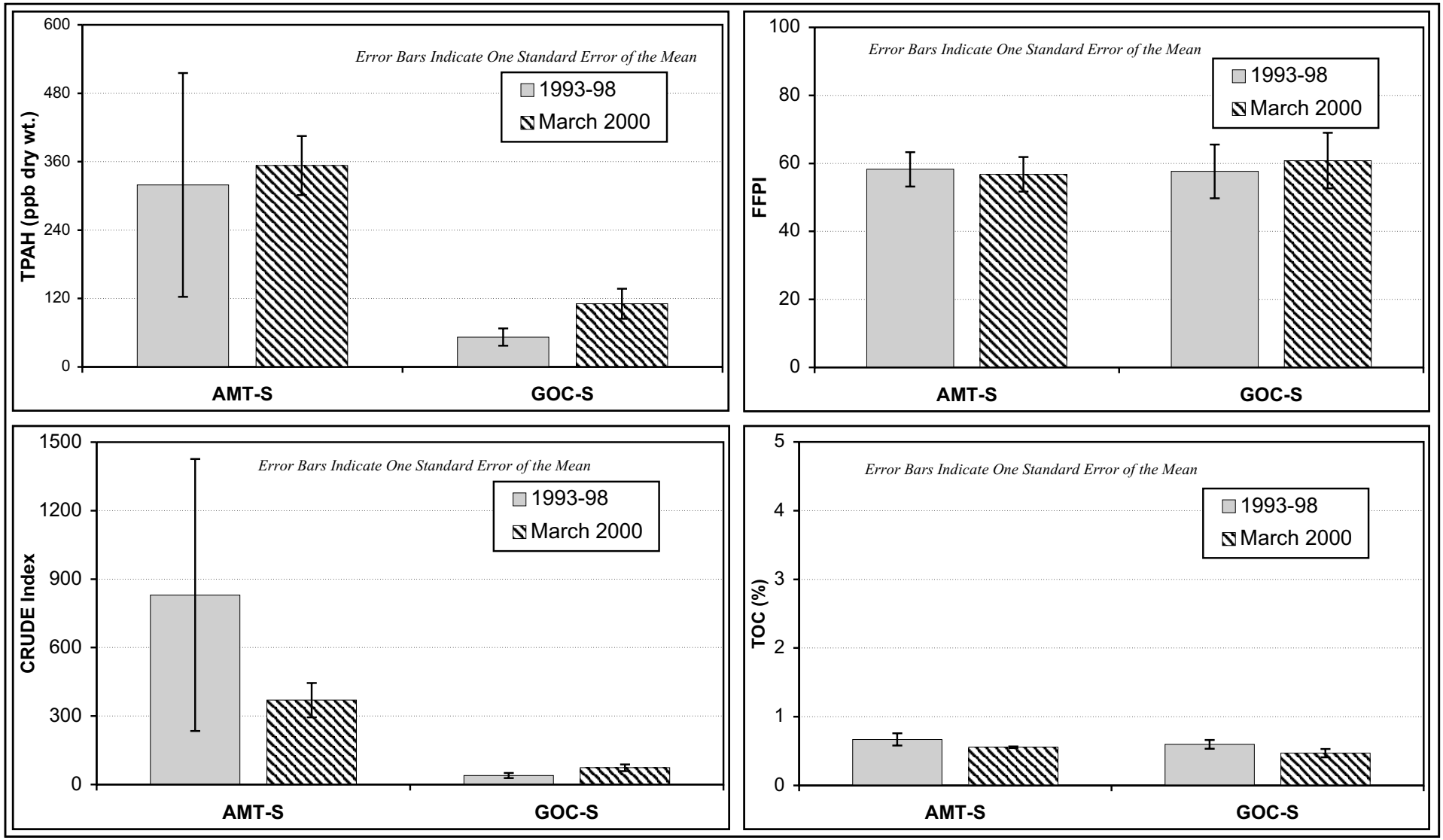

Figure 21. Mean LTEMP Subtidal Sediment TPAH, FFPI, CRUDE Index, and TOC by Station, Historical and March 2000.

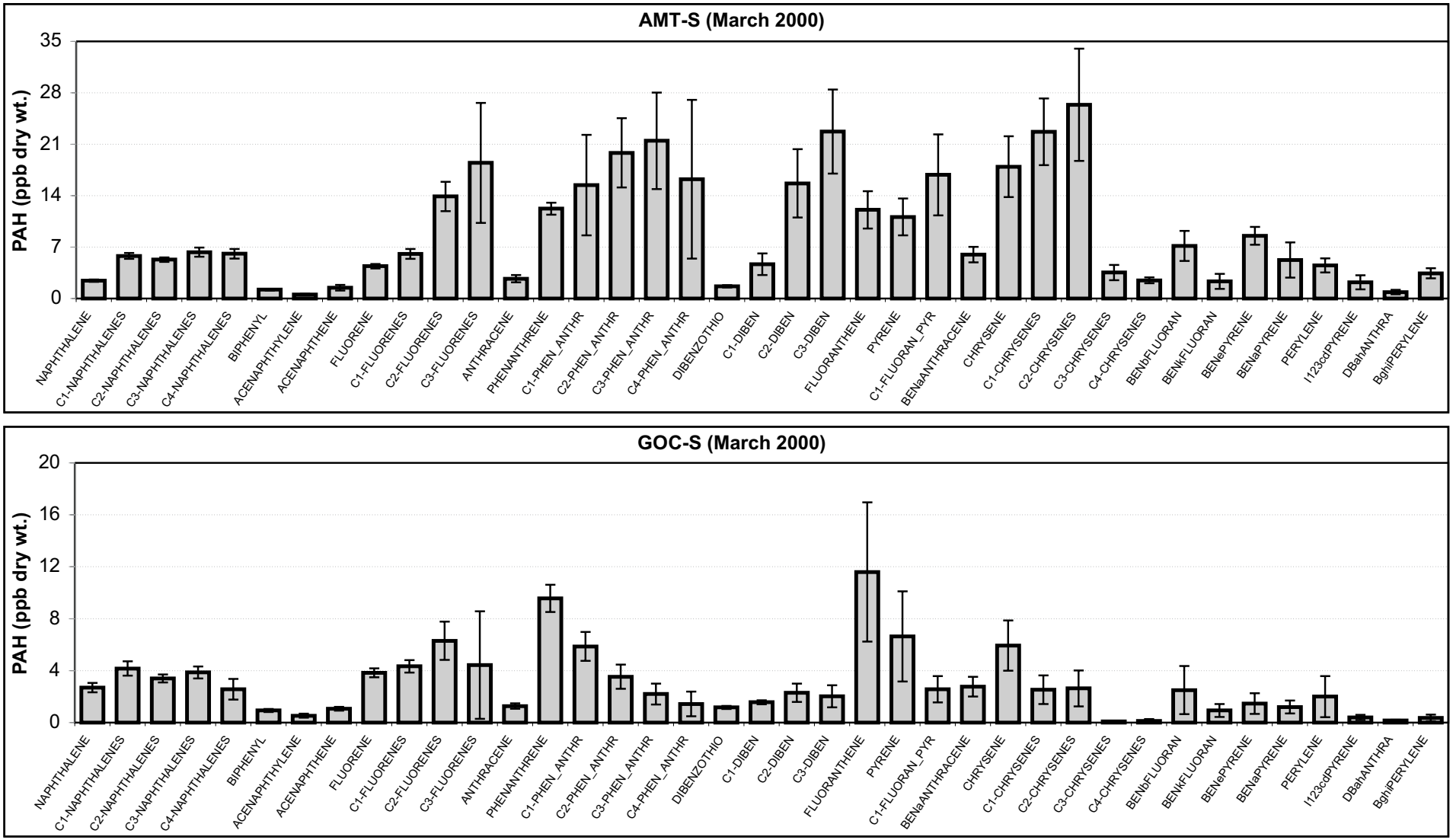

Figure 22. Mean LTEMP Subtidal Sediment PAH Fingerprints - March 2000 Survey, Stations AMT-S and GOC-S.

The average ratio of C_2-chrysene to C_2-phenanthrene can be used as a indication of the degree of weathering. With weathering, this ratio increases since the alkyl phenanthrenes are degraded more quickly than the alkyl chrysenes. This ratio was found to be around 0.2 for EVOS crude oil just after the spill in 1989 and had increased to 0.5 in 1991 (Bence and Burns, 1995). In Station AMT-S sediments, the mean C_2-chrysene/C_2-phenanthrene ratio was 1.32 (Figure 22 and Appendix B). This ratio indicates that if the source was ANS crude, the oil had weathered substantially which is consistent with past LTEMP data from this location. If the source had been diesel fuel, this ratio would have been very small since the high molecular weight chrysenes are not found in diesel fuel.

Station GOC-S also showed both petrogenic and pyrogenic inputs with a predominance of pyrogenic components. The fingerprint shows the pattern of high concentrations of the parent compound compared to their alkyl homologues in both the phenanthrene/anthracene and chrysene series, indicating pyrogenic inputs. Pyrogenic PAH are characterized by both high molecular weight PAH, greater than C_3-dibenzothiophene, and by high concentrations of the parent compounds compared to their alkyl homologues. A typical pattern for pyrogenic PAH is decreasing concentration with molecular weight within a group (i.e., $C_0>C_1>C_2>C_3>C_4$) as seen in the phenanthrene/anthracene and chrysene series at Station GOC-S. However, the ratio of the C_2- and C_3-dibenzothiophenes to phenanthrenes was lower than that seen at Station AMT-S, with most values between 0.6 and 0.8. The ratio of C_2-chrysene/C_2-phenanthrene was also lower, falling between 0.6 and 1.0 for the three replicates.

Values for FFPI in subtidal sediments collected during March 2000 ranged from approximately 51 to 61 at Station AMT-S, with a mean of about 57 (Table 15). These values were well within the historical range seen at this station (46 to 63; Figure 21 and Table 16)). At Station GOC-S, the values were slightly higher, ranging from approximately 52 to 67, with a mean of about 61. These values were also very similar to historical values for this station.

5.3.2 Aliphatic Hydrocarbons

Aliphatic hydrocarbons that were measured for the LTEMP consisted of the series of odd and even chain n-alkanes (n-C_{10} to n-C_{34}) plus pristane and phytane. Concentrations of individual aliphatic hydrocarbons by station and replicate are presented in Appendix B. The TAHC consists of the sum of the individual alkanes, pristane, and phytane (Table 4) and is summarized by station and replicate in Table 15. The concentrations of TAHC ranged from approximately 1465 to 1575 ppb at Station AMT-S, with a mean of approximately 1536 ppb. These values were well within the historical range seen at this station (Table 16 and Figure 23). Total AHC values at Station GOC-S ranged between 590 and 918 ppb with a mean of approximately 725 ppb, also within this station's historical range. Although some of the individual analytes fell below their MDLs, especially at Station GOC-S, most were above MDLs, and all of the TAHC values were above the cumulative MDL of 84 reported for this sample set.

The mean AHC fingerprints for these two stations (Figure 24) indicate weathered sources with relatively low levels of low molecular weight n-alkanes as compared to the higher alkanes. A predominance of odd alkanes, especially n-C_{27}, n-C_{29}, and n-C_{31} at all six replicates collected during this survey was noted. This is indicative of biological material in the samples rather than petroleum, as is the overall odd-carbon dominance in the n-C_{21} to n-C_{33} range of normal alkanes. The CPI ratios at these sites ranged from 4.3 to 5.4 at Station AMT-S, slightly higher than that seen at this station in the past (Table 16 and Figure 23), with good agreement between replicates. However, Station GOC-S showed an extreme degree of variability between replicates, with replicates two and three at 13.9 and 13.0 and replicate one at approximately 287. This high CPI value in replicate one was caused by the extreme lack of n-C_{26}, n-C_{28}, and n-C_{30} in this sample rather than an extreme dominance in the odd alkanes n-C_{27} and n-C_{29} , concentrations of which were similar to the other two replicates. With the exception of replicate one (sample PWS00PAT0001), the CPI values seen at this station were similar to those seen historically at this site. The CPI values seen at Station GOC-S are fairly typical of biogenic inputs, while the CPI at AMT-S was fairly low which may indicate a combination of both petrogenic and biogenic inputs. Pure petrogenic sources are characterized by a CPI that is approximately 1.

The AHC fingerprint at Station AMT-S indicated a much higher predominance of aliphatic hydrocarbons in the range of n-C_{31} to n-C_{34}, with the odd alkanes similar in concentration to the even alkanes which would indicate weathered hydrocarbons as the source. The AHC fingerprint at GOC-S had a predominance of odd alkanes, especially n-C_{27}, n-C_{29}, and n-C_{31}, with much lower concentrations in the higher molecular weight fractions compared to that seen at AMT-S which would point to a biogenic rather than a petrogenic AHC source.

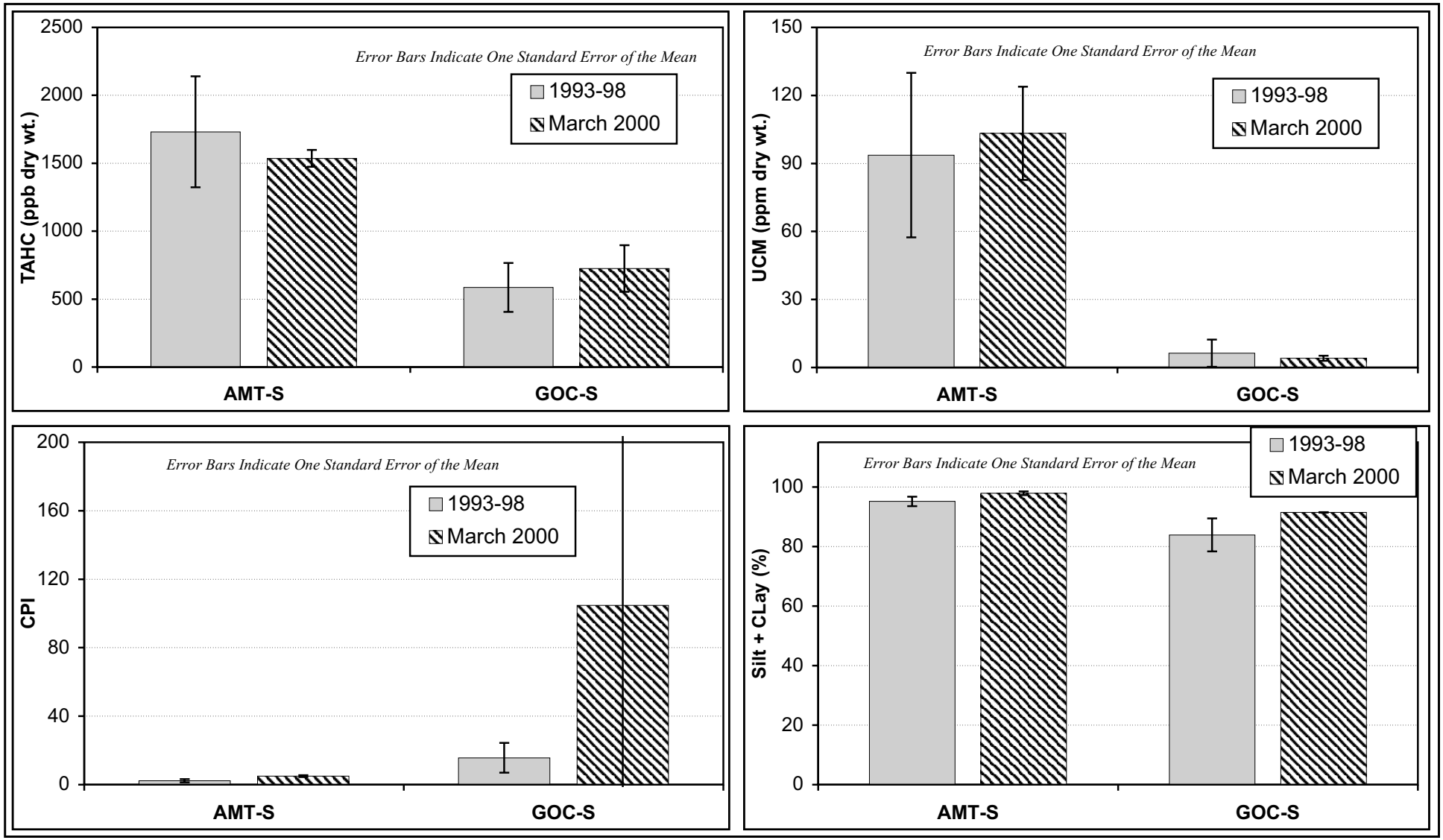

Figure 23. Mean LTEMP Subtidal Sediment TAHC, UCM, CPI, and Silt+Clay by Station, Historical and March 2000.

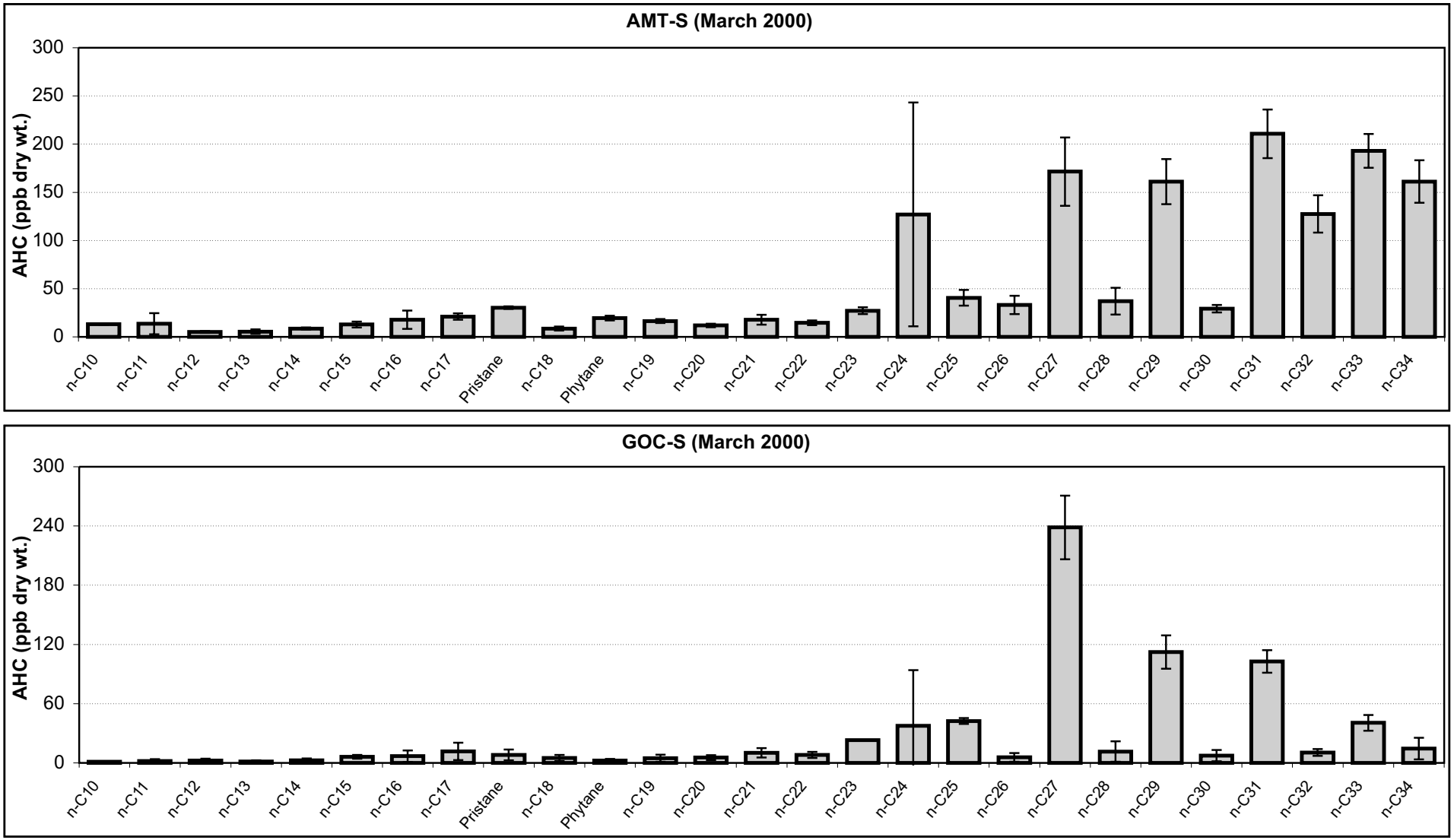

Figure 24. Mean LTEMP Subtidal Sediment AHC Fingerprints - March 2000 Survey, Stations AMT-S and GOC-S.

The UCM at Station AMT-S ranged from approximately 80 to 119 ppm with a mean concentration of approximately 103 ppm, while the UCM at Station GOC-S ranged from 3.3 to 5.3 ppm with a mean of 4.1 (Table 15). Historically, Station AMT-S has always exhibited a high UCM compared to other LTEMP subtidal sediment stations (Table 16 and Figure 23). A large UCM relative to TAHC is generally a feature of weathered petroleum. This petrogenic input at Station AMT-S and the fact that the samples showed a high degree of weathering was confirmed by the PAH analysis discussed earlier.

The TRAHC values for subtidal sediments are provided in Table 15. TRAHC values ranged from 4.1 to 5.1 at Station AMT-S and from 2.4 to 2.8 Station GOC-S, with mean concentrations 4.7 and 2.6, respectively. Very little within-station variability was seen at these two locations. This parameter corresponds fairly well with the mean TAHC levels seen at these stations, with concentrations approximately twice as high at Station AMT-S as those seen at Station GOC-S.

The CRUDE index values calculated for two locations are provided in Table 15. Values ranged from 291 to 443 with a mean value of 370 at Station AMT-S and from 61 to 89 with a mean value of 74 at Station GOC-S. A comparison of historic CRUDE index values to those seen in this survey indicate that the index was within the range seen historically at Station AMT-S (Table 16 and Figure 23). At Station GOC-S, the CRUDE index was slightly higher than those seen historically. The higher CRUDE value at Station GOC-S for this survey can be traced to the TPAH concentration which was approximately twice as high as concentrations seen historically. As expected, the highest mean CRUDE index value was seen at Station AMT-S, which exhibits clear ANS crude petroleum contamination and showed the highest mean TPAH, TAHC, and UCM values. Unlike in the tissue samples, in the sediment results, the CRUDE index does provide a useful tool for comparison. The calculation serves to normalize the concentrations against the sources so that actual petroleum contamination can be identified by magnifying petrogenic inputs relative to biogenic inputs in the AHC fraction, magnifying petrogenic inputs relative to pyrogenic inputs in the PAH fraction, and accounting for weathered petroleum in the UCM fraction. For example in the CRUDE calculation, an initially heavy indication of potential petroleum contamination caused by a relatively high mean TPAH or TAHC value is reduced by a low FFPI (pyrogenic inputs) or high CPI (biogenic inputs).

5.3.3 Total Organic Carbon

Concentrations of TOC in sediments were very similar between Stations AMT-S and GOC-S with little variability between replicates (Table 15 and Appendix B). A comparison of the historical concentrations to those seen in this survey indicated that TOC values at Station AMT-S, while low, were still within the range of those seen historically at that location (Table 16 and Figure 23). The mean at Station AMT-S was 0.56 %. The mean TOC concentration at Station GOC-S was 0.47 %, which was slightly lower than those seen historically at this site, where concentrations ranged from 0.53 to 0.70 %. In general, mean TOC concentrations were slightly low, but within the range expected for offshore subtidal sediments.

5.3.4 Particle Grain Size

A summary of particle grain size results are provided in Table 15. Sediment samples primarily consisted of silt plus clay at both subtidal locations. Appendix B provides individual analyte data by replicate. The silt/clay fractions at Station AMT-S were very consistent between replicates with a mean concentration of 97.9 % (Table 15). The silt/clay fractions at Station GOC-S were also very consistent between replicates and were slightly lower than that seen at the deeper Station AMT-S, with a mean concentration of 91.4 %. Concentrations at both sites were slightly higher than those seen historically at both sites, but differences were not felt to be significant (Table 16 and Figure 23).

5.4 Quality Control Results

Quality control results are provided in Appendix C and briefly summarized in this section. The reader is referred to the appropriate appendix to review individual sample and QC sample results, including all data qualifiers. As described above, any data that did not meet QC criteria were qualified using the codes provided in Table 8. A review of the QC data reported during the 1999 - 2000 LTEMP indicates less than one percent of the data values required a qualifier code to indicate a matrix interference ("M") or other interference ("I"), analytes present in the procedural blank ("B"), and/or results failing the quality acceptance criteria for other reasons ("Q").

As noted in Section 5.2.1, July 1999 tissue PAH results showed relatively high levels of the C_1-phenanthrenes/anthracenes, some of the alkylated fluorenes, and C_2-chrysenes, while tissue AHC results showed elevated levels of the n-C_{21} and n-C_{23} alkanes. Further investigation at GERG of these analytes for the entire sample set provided verification that all but eight values originally reported were accurate following the prescribed procedures for each analysis. These eight values, all for the analyte C_1-phenanthrene/anthracene, were corrected, resubmitted, and have been included in this report. While the peaks for this multi-peak analyte fell within the correct retention time window, upon closer examination it was found that one peak was shifted slightly as compared to an overlaid reference oil (GERG Check Standard) pattern. This peak which had originally been identified as methyl anthracene by the analyst was therefore removed from the determination of the concentration for C_1-phenanthrene/anthracene, which resulted in decreased concentrations of this compound for eight samples. The laboratory's QA management plan outlines the appropriate steps to be taken in the event that data quality has been adversely affected in any way. This includes the identification, cause, and correction actions, as appropriate, that are documented and reported to appropriate levels of the laboratory's management. The QA management plan and its procedures are actively implemented at GERG and this will ensure that the data reported for this program continue to be of high quality.

The remaining results for the July 1999 survey, while apparently elevated for some analytes, have been confirmed. The analytes were accurately identified and quantified using the laboratory's well-documented procedures. The peaks on the ion chromatograms fell within the proper retention times and met all other QC criteria as defined by the laboratory's SOPs. No data qualifier codes (as defined in Section 4.2.1) were used for these analytes, as the data for these points met QC criteria. As discussed in Sections 5.2.1 and 5.2.2, it is probable that these elevations were caused by changes in the feeding of the mussels (i.e., phytoplankton availability) as well as spawning activity.

5.4.1 Surrogate Compounds

Review of surrogate recoveries reported for LTEMP sample analyses indicated that the majority met acceptance criteria of recoveries of 40 to 120 percent. Those that failed to meet acceptance criteria were appropriately qualified. The surrogate perylene-d_{12} fell outside the acceptance criteria (40 - 120 %) for several QC and sediment samples and was appropriately qualified with the "Q". As reported in the past, this is typical for this surrogate, which is now considered an advisory surrogate that is only used to calculate the concentration of perylene. This qualified recovery is not problematic for LTEMP because perylene is a biogenic hydrocarbon that has not been included in TPAH values for this program.

The values for the surrogate deuterated n-C_{12} were qualified on one procedural blank and two tissue samples from March 2000 because they exhibited low non-compliant recoveries. The peak integrations and calculations for these samples were checked. The values for these samples were qualified with an "M" in the tissue samples to denote interference. The blank result was qualified with the "Q" indicating the QC variance, and no further action was required. It was determined that the loss of this surrogate probably occurred in the final stages of the analysis.

5.4.2 Procedural Blanks

With the exception of one sample, the procedural blanks analyzed in conjunction with tissue and sediment analyses for the 1999 - 2000 LTEMP contained negligible concentrations of PAH and AHC analytes and carbon (for TOC) at levels less than the maximum acceptance criteria (i.e., less than three times the MDL). Many of these concentrations were qualified as ND or below the MDL ("J"). One procedural blank (Q18385) associated with the October 1999 tissue samples exhibited interference with naphthalene, which was measured at levels slightly greater than 3 times the MDL. The peak was re-checked and the ion ratios were found not be incorrect. The "I" qualifier was applied to this analyte, denoting unidentified interference with this analyte in the sample. Since the ion ratios for the naphthalene peaks for all the other samples were within QC criteria, no further action was taken. As in the past, some of the procedural blanks also exhibited the laboratory artifact pattern. As described above, this artifact is due to parent analytes with calibration standards having much lower MDLs than their alkylated homologues, so these parent analytes are typically reported while their homologues may not be detected.

5.4.3 Matrix Spike/Spike Duplicates

Analyses of the 1999 - 2000 LTEMP samples included the analysis of matrix spike/spike duplicate pairs for PAH and/or AHC. Use of the laboratory spikes due to insufficient sample material was not required during this sample set. While some individual analytes showed low or high percent recoveries falling outside the 40 to 120 % acceptance criteria, all matrix spike/spike duplicate samples passed the QA criteria for average percent recovery and RPD. Peaks for all individual analytes falling outside the criteria were checked and, since no improvements could be made and the overall QA objectives had been met, these analytes were qualified with a "Q". No further action was required.

5.4.4 Reference Oil

Reference oil samples of EVOS oil were reported for PAH and AHC during the 1999 - 2000 LTEMP. Analysis of these samples was performed in conjunction with each hydrocarbon sample batch regardless of matrix. Most reference oil samples passed the laboratory requirements. Five of the reference oil samples run in conjunction with 1999 - 2000 LTEMP analyses showed elevated levels of one or two individual analytes (acenaphthene, acenaphthylene, dibenzothiophene, n-C_{13}, and the specific isomer 2,6-dimethylnaphthalene). The nine individual analyte results showing values outside the acceptable limits were investigated, with the peak integration being checked and the calibration verified. Since no interferences were found and the overall QA criteria were met, each data point was appropriately qualified with the "Q" qualifier. No further action was required.

5.4.5 Standard Reference Materials

Standard Reference Materials (NIST 2974 [tissue] or 1941a [sediment]) were analyzed with each batch of samples to provide an estimate of accuracy. Results for PAH were compared with certified values to determine percent difference. Reported PAH analytes having noncertified values were compared to laboratory acceptance limits and also appropriately qualified. Although low high recoveries were noted in some instances, no interferences were noted by the analysts. Analytes exhibiting these high recoveries in tissues were all less than 10 times the MDL and were properly qualified as such ("Q"); no further action was required. Two non-certified analytes in the SRM performed in conjunction with the sediment analyses exhibited either low recovery (biphenyl) or high recovery (acenaphthylene) were qualified with the "Q" after being checked for interferences. Since overall QA criteria were met, no further action was required.

The AHC data reported for these samples are incidental as no certified or uncertified values exist for this method. These data are unqualified as no appropriate comparison values are available.

The SRM analysis performed in conjunction with TOC analysis was also performed on NIST 1974a. The two SRMs that were run for TOC were within the laboratory's acceptance limits with recoveries of 83 and 86 % of the certified value.

5.4.6 Duplicate Analyses

Duplicate analyses were performed for both tissue and sediment PAH and AHC for the 1999 - 2000 LTEMP. Duplicate analyses for PAH and AHC were compared with the original sample results to provide an estimate of precision, but specific QC criteria do not exist for these samples. Rather, RPD results are charted at the laboratory for comparison purposes. The RPD for several tissue PAH and AHC analytes fell outside the acceptable range, but additional action was not required for most of these analytes as their concentrations were less than 10 times the MDL. Exceptions to this included n-C_{19}, in the duplicate of sample PWS00TIS0007, and n-C_{26} and n-C_{27}, in the duplicate of sample PWS99TIS0063. These peaks were investigated and it was determined that they were not actually alkanes, but lipids. These QA variances underscore the difficulties inherent in interpreting AHC analyses in tissues, which contain naturally-occurring lipids that are difficult to remove from the samples without removing alkanes and are also difficult to distinguish chromatographically.

One single set of duplicate analyses performed for TOC met the acceptance criteria of RPD between duplicates of $\pm$20 for low carbon content samples (< 1.0 percent).

No strict acceptance criteria exist for PGS duplicates. Instead, duplicate analyses are intended to provide an estimate of the homogeneity of the samples. The duplicate sample pair analysis for PGS was performed on non-LTEMP samples that were analyzed as part of the same laboratory sample batch as the six LTEMP samples. The duplicate analysis performed for these samples showed RPDs of 1.4, 1.9, and 20.4 % for sand, silt, and clay, respectively.

6.0 SUMMARY

The 1999 - 2000 LTEMP has added additional data to the information that has been collected since 1993. During the program year reported here, ten stations were sampled twice for intertidal mussels. Nine of these stations had been sampled before for the program, while sampling at the tenth, in Zaikof Bay, was implemented during this program year to increase the geographical coverage of PWS. This area is also one of the sites likely to be impacted in the event of a oil release in or near Hinchinbrook Entrance. The two existing LTEMP stations in Port Valdez were also sampled for intertidal mussels during a newly-implemented fall sampling event to augment the temporal coverage of this area. In addition, subtidal sediment sampling at these two Port Valdez stations was re-instituted during one survey of the reporting year. Analytical strategy for the 1999 - 2000 program was the same as the last year of the LTEMP.

Hydrocarbons in PWS can have a multitude of origins, including both natural and anthropogenic sources, such as those from the EVOS or Alyeska Marine Terminal-related activity, biological activity, combustion sources, vessel activities, coal residues, natural oil seepage, and atmospheric fallout. Recent data presented by Short et al. (1999) and other researchers indicate that the background signature previously attributed to natural oil seeps in the Katalla and Yakataga regions may actually originate in coal deposits. LTEMP results at some stations clearly exhibit this background fingerprint. Examination of hydrocarbon data for both tissues and sediments indicated that hydrocarbons from a variety of these sources can be identified in the 1999 - 2000 data. For many stations, these sources are similar to those that had been identified in earlier program reports (KLI, 1993b; 1994a; 1995a; 1996a; 1997a, 1998, and 1999) and by other researchers examining LTEMP data (Payne et al., 1998).

The LTEMP data indicate that hydrocarbons in tissues in the study area vary considerably between stations and over time. The PAH levels in tissues were generally low and, for the most part, within the historical range of levels seen at each site. Many individual analytes were reported at below-MDL levels. The increasing trend in tissue TPAH that had been seen prior to March 1998 was not evident in last year's data, which showed decreased tissue TPAH concentrations. Mean TPAH data from July 1999 were elevated compared to last year's data, but still within the historical range of values at all but one site (Station GOC-B). Data from this survey indicate that the alkylated fluorenes were responsible for the relatively high PAH levels seen and this may be due to naturally-occurring lipid material in these mussels. Total PAH data from October 1999 (Port Valdez stations only) and March 2000 showed relatively low levels at all locations as compared to the July 1999 data.

Although tissue PAH concentrations were generally low, PAH fingerprints from many stations exhibited a petrogenic signal which could be attributed to several sources. As in many of the past surveys, PAH in the tissues at both Stations AMT-B and GOC-B during July 1999 and October 1999 were attributed to ANS crude, with the most likely source identified as the Alyeska Marine Terminal and tanker operations. Lesser amounts of pyrogenic hydrocarbons were also seen at both of these stations. In contrast to most past results, a background signature was present in mussels at Station AMT-B during March 2000 (also seen in July 1998). The fact that this signature was visible may be due to the very low levels of PAH seen for these surveys, which may reflect normal ("non-contaminated") levels in these mussels (i.e., with no petroleum inputs from operations at the Alyeska Marine Terminal). The PAH concentrations at Station GOC-B were also very low in March 2000, with a relatively high contribution of pyrogenics.

Mussels at Station DII-B, a site heavily oiled during the EVOS, exhibited very low levels of PAH this year and showed inputs from primarily background and pyrogenic sources, with smaller potential inputs of EVOS/ANS. This was in contrast to results from an opportunistic tissue sample, collected nearby from the still-visibly oiled beach area, which exhibited elevated PAH levels and a clear EVOS/ANS signature.

Mussels collected at the newly-implemented station in Zaikof Bay, ZAB-B, exhibited the lowest PAH concentrations seen at all stations during both July 1999 and March 2000. The fingerprints at this station indicated a clear background signature. It appears that selection of this station was appropriate to help determine potential future impacts of hydrocarbon transportation in PWS as the initial data indicate that hydrocarbon levels are naturally quite low there. Should a petroleum release occur in the area, it is likely that an increase of hydrocarbons could be identified in the resident mussels.

The other mussel tissue stations (AIB-B, KNH-B, SHB-B, SHH-B, SLB-B, and WIB-B) primarily exhibited background petrogenic signatures, with lesser amounts of pyrogenics seen at most stations. Biogenic inputs were also present at most stations, particularly Station WIB-B, which exhibited extremely high perylene levels during the March 2000 survey.

The AHC compounds in tissues were considerably higher than the PAH, as was expected due to the naturally-occurring compounds in mussel tissues that co-elute with the individual aliphatic analytes and interfere with the AHC analysis. Extremely high levels of aliphatics seen at Station GOC-B and to a lesser extent at Stations AMT-B and WIB-B during July 1999 have been attributed to lipid interference with the analysis. Although Station GOC-B also exhibited elevated levels of PAH with an ANS crude signature in July 1999, the majority of the AHC seen there were not attributable to petroleum and are considered to be naturally-occurring materials that probably originated in the planktonic food source of the mussels. As in the 1993 - 1994 and 1998 - 1999 programs, large, apparently seasonal differences in AHC distributions were seen at all stations; these were likely to be related to spawning or seasonal feeding factors, which makes interpretation of these data difficult. As in the 1998 – 1999 report, analysis and reporting of AHC and associated parameters (TRAHC, UCM, CPI, and CRUDE) in mussel tissues did not appear to provide useful additional information regarding hydrocarbon levels or sources. It did confirm that large amounts of natural compounds that are chromatographically similar to the target analytes are present in the tissues. State-of-the-art purification steps are not sufficient in removing these interfering compounds without removing some of the target AHC themselves, thereby further confounding the results.

Subtidal sediments were collected during March 2000 at the pre-existing Port Valdez stations, AMT-S and GOC-S. Individual PAH analytes were seen at levels above MDLs at both of these stations. Total PAH values at Station AMT-S showed a mean of 353 ppb, well within the historical range of values seen at this station. As in the past, Station AMT-S exhibited a PAH signature typical of weathered ANS crude along with low levels of pyrogenic hydrocarbons that may have had a combustion or creosote origin. The mean TAHC level seen at this station (1,536 ppb) was within the historical range seen at this site, as was the UCM concentration of 103 ppm. Hydrocarbons seen at this site are the result of long-term chronic inputs, as shown by the PAH and AHC weathering ratios and the relatively high UCM levels seen at this site. The high degree of petrogenic input is confirmed by relatively high mean CRUDE index value of approximately 370. Some biogenic inputs were also noted as evidenced by the odd-even n-alkane carbon preference, although this input was considerably less than that seen at Station GOC-S.

Total PAH levels at Station GOC-S were higher than that seen historically at this station with a mean of 111 ppb. The PAH signature at Station GOC-S showed both petrogenic and pyrogenic inputs with a predominance of pyrogenic components. As in the past, this signature was not attributed to ANS crude. The mean TAHC seen at this station (725 ppb) was within the historical range of values seen here. The mean UCM level for this station was relatively low as compared to Station AMT-S at about 4 ppm, but this was well within the broad historical range for this parameter. The mean CRUDE index (74) was considerably lower than that seen at Station AMT-S. Relatively high biogenic inputs were also noted at this station as evidenced by the odd-even n-alkane carbon preference.

7.0 ACKNOWLEDGMENTS

Kinnetic Laboratories would like to thank the following for their help on the 1999 - 2000 program: Alyeska Pipeline Service Co., for facilitating sampling at the Alyeska Marine Terminal; Dave Janka, owner and Captain of the M/V *Auklet*; and Annette, Holly, and Brenna Janka, crew of the *Auklet.*

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9.0 WEB SITE ACCESS

The PWS RCAC maintains a web site at which selected LTEMP reports and data can be accessed. The following reports and data are available for download:

- 1999 – 2000 Annual LTEMP Monitoring Report
- 1998 – 1999 Annual LTEMP Monitoring Report
- 1997 – 1998 Annual LTEMP Monitoring Report
- LTEMP Data Analysis of Hydrocarbons in Intertidal Mussels and Marine Sediments
- Monitoring Program Database (1993 –1998) and subsets

To download these documents and data, please visit the site at www.pwsrcac.org.

GLOSSARY AND LIST OF ACRONYMS

A

AIB - Aialik Bay
AHC - aliphatic hydrocarbons
Aliphatic hydrocarbons (AHC) - fully saturated normal alkanes (paraffins) and branched alkanes, n-C_{10} to n-C_{34}; includes the isoprenoid compounds pristane (C_{19}) and phytane (C_{20}) that are often the most abundant isoprenoids in petroleum hydrocarbons
AMT - Alyeska Marine Terminal
ANS - Alaska North Slope (refers to origin of petroleum products)
Anthropogenic - resulting from the influence of human activities - refers to hydrocarbon input

B

Biogenic - synthesized by plants and animals, including microbiota - refers to hydrocarbon input
BWTP - Ballast Water Treatment Plant at Alyeska Marine Terminal

C

Carbon preference index (CPI) - the carbon preference index represents the relative amounts of odd and even chain alkanes within a specific boiling range and is defined as follows:

$$CPI = 2(C_{27} + C_{29})/(C_{26} + 2C_{28} + C_{30})$$

Odd and even numbered n-alkanes are equally abundant in petroleum but have an odd numbered preference in biological material. A CPI close to 1 is an indication of petroleum and higher values indicate biogenic input (Farrington and Tripp, 1977).
COC - chain of custody
CPI - see carbon preference index
CRUDE index - an index formulated by Payne et al. (1998) which serves to normalize the hydrocarbon concentrations against their sources so that actual petroleum contamination can be identified. Used to help determine relative petrogenic inputs and defined as follows:

$$CRUDE = (TPAH \times FFPI/100) + (TAHC/CPI^2) + UCM/1000$$

(where all concentrations are in the same units)

D

DI - de-ionized water
Diagenic - resulting from alteration by microbial or chemical processes - refers to hydrocarbon input
DII - Disk Island

E

ELS - T/V *Eastern Lion* spill (May 1994)
Electron-impacted ionization mode - an ionization method that utilizes electrons to impact the analyte mixture to facilitate ionization
EVOS - *Exxon Valdez* oil spill

F

FFPI - fossil fuel pollution index

Fossil fuel pollution index (FFPI) - the fossil fuel pollution index is the ratio of fossil-derived PAH to total PAH as follows:

FFPI = (N + F + P + D)/TPAH x 100, where:

N (Naphthalene series) = C_0-N + C_1-N + C_2-N + C_3-N + C_4-N
F (Fluorene series) = C_0-F + C_1-F + C_2-F + C_3-F
P (Phenanthrene/Anthracene series) = C_0-A +C_0-P + C_1-P + C_2-P + C_3-P + C_4-P
D (Dibenzothiophene series) = C_0-D + C_1-D + C_2-D + C_3-D

An FFPI is near 100 for petrogenic PAH; FFPI for pyrogenic PAH is near 0 (Boehm and Farrington, 1984).

G

Gas chromatography with flame ionization detection (GC/FID) - the process in which the components of a mixture are separated from one another according to their ionization time when heated
Gas chromatography with mass spectrometry detection (GC/MS) - the process in which the components of a mixture are separated from one another according to their mass
GC/FID - gas chromatography with flame ionization detection
GC/MS - gas chromatography with mass spectrometry detection
GERG - Geochemical and Environmental Research Group of Texas A&M University
GI - gonadal index
GOC - Gold Creek
Gonadal index (GI) - Measure of shell volume, shell length, volume and weight of gonadal and non-gonadal tissue.
GPS - Global Positioning System. Satellite based navigation system.

H

High-performance liquid chromatography (HPLC) - an analytical method based on separation of the components of a mixture in solution by selective adsorption
Homogeneous - uniform in structure or composition
HPLC - high performance liquid chromatography

I

Indigenous - native or naturally occurring.
Intertidal - the area on a marine beach between the high and low tide lines

K

KLI - Kinnetic Laboratories, Inc.
KNH - Knowles Head

L

LTEMP - Long-Term Environmental Monitoring Program
LLD - lower limit of detection
Lower Limit of Detection - a detection limit, generally lower than the MDL, which is considered a typically achievable detection limit based on the sample set being analyzed.

M

MDL - method detection limit
Mean Lower Low Water (MLLW) - the average height of the daily lower low waters occurring over a 19 year period
Method detection limit (MDL) - the lowest concentration of an analyte that a method can reliably detect
MLLW - Mean Lower Low Water
MS - mass spectrometer
Mytilus edulis - blue mussel (believed now to be found only outside of Alaska)

Mytilus trossulus - blue mussel (Alaskan species)

N

ND - not detected
NIST - National Institute of Standards Technology
NOAA - National Oceanic and Atmospheric Administration

P

PAH - polycyclic aromatic hydrocarbons
Particle grain size (PGS) - percent gravel (if applicable), sand, silt, and clay.
PCBs - polychlorinated biphenyls
Percent lipid - concentration of lipid as a fraction of the total tissue weight. Lipid material in mussel tissue is the primary storage area for hydrocarbons; gametes are mostly comprised of lipids.
Petrogenic - resulting from natural geologic processes which originally form petrochemicals - refers to petroleum hydrocarbon input
PGS - particle grain size
Polycyclic aromatic hydrocarbons (PAH) - 2 to 6-ring polycyclic aromatic hydrocarbon compounds; includes homologous series of aromatic hydrocarbons consisting of unsubstituted (parent) compounds, such as naphthalene, and substituted compounds, which are similar structures with alkyl side chains that replace hydrogen ions, such as C_1-naphthalene.
ppb - parts-per-billion or ng/g
ppm - parts-per-million or μg/g
PWS - Prince William Sound
Pyrogenic - resulting from the activity of fire or very high temperature - refers to hydrocarbon input from high temperature, incomplete combustion of fossil fuels, or creosote

Q

QA - quality assurance
QC - quality control
Qualifier code - character used to qualify data based on method detection limits, matrix interference, or other performance parameter

R

RCAC - Prince William Sound Regional Citizens' Advisory Council
RPD - Relative percent difference

S

Selected ion monitoring (SIM) - a gas chromatograph operating mode in which the detection range is limited to include only the masses of the desired analytes
SHB - Sheep Bay
SHH - Shuyak Harbor
SIM - selected ion monitoring
SLB - Sleepy Bay
SOP - standard operating procedure
Soxhlet extractor - a laboratory apparatus consisting of a glass flask and condensing unit used for continuous reflux extraction of alcohol- or ether-soluble components.
SRM - Standard Reference Material
Standard Reference Material (SRM) - a certified known concentration of a compound that is analyzed in conjunction with samples for Quality Assurance/Quality Control (QA/QC) purposes

T

TAHC - total aliphatic hydrocarbons

TOC - total organic carbon

Total organic carbon (TOC) - the percentage by dry weight of organic carbon in a sediment sample.

Total aliphatic hydrocarbons (TAHC) - sum of the target aliphatic hydrocarbons

Total polycyclic aromatic hydrocarbons (TPAH) – sum of the target polycyclic aromatic hydrocarbons (excluding perylene)

Total revolved aliphatic hydrocarbons (TRAHC) - the sum of total resolved aliphatic hydrocarbons which includes the AHC analytes (n-C_{10} through n-C_{34} and pristane and phytane) plus other compounds such as plant waxes and lipids which are not individually identified or reported

Total resolved and unresolved aliphatic hydrocarbons (TRUAHC)- the total area of resolved and unresolved aliphatic hydrocarbons represented by the total area of the GC run, whether or not these compounds have been identified

TPAH - total polycyclic aromatic hydrocarbons

TRAHC - total resolved aliphatic hydrocarbons

TRUAHC - total resolved and unresolved aliphatic hydrocarbons

U

UCM - unresolved complex mixture

Unresolved complex mixture (UCM) - Petroleum compounds represented by the total resolved plus unresolved area minus the total area of all peaks that have been integrated; a characteristic of some fresh oils and most weathered oils

USGS - U.S. Geological Survey

V

Van Veen grab - Device used for collection of subtidal marine sediments

W

WIB - Windy Bay

Z

ZAB - Zaikof Bay

APPENDIX

These appendices provide LTEMP data from the 1999 - 2000 program which includes the surveys conducted in July 1999, October 1999, and March 2000. Information presented for each individual sample includes collection and processing, analytical, and quality control data. Appendix A provides tissue sample data; Appendix B includes sediment sample data; and Appendix C presents quality control data for both the tissue and sediment matrices. These appendices are intended to provide the reader with all 1999 - 2000 program data that could only be summarized or briefly discussed in the text volume. As noted in the text, the appendices provide individual hydrocarbon concentrations, including their associated data qualifiers, for each individual sample and analyte.

LIST OF APPENDICES

APPENDIX A

Tissue Results

1.0 Sample Collection and Processing Information

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	8/3/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:57	**AIB-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	1.5				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0050		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32761		***Batch ID***	T1076

Collection Date	8/3/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	12:06	**AIB-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	0.9				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0051		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32762		***Batch ID***	T1076

Collection Date	8/3/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:58	**AIB-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	1.8				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0052		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32763		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:40	**AMT-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	1.7				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0047		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32758		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:36	**AMT-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	1.5				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0048		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32759		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:35	**AMT-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	1.4				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0049		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32760		***Batch ID***	T1076

Collection Date	7/29/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:20	**DII-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	1.8				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0034		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32745		***Batch ID***	T1075

Collection Date	7/29/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:16	**DII-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	1.6				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0035		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32746		***Batch ID***	T1075

Collection Date	7/29/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:15	**DII-B**	**14**	**3**	***Extraction Date***	9/14/99
Sample Height (m)	1.5				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0036		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32747		***Batch ID***	T1075

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	7/29/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:25	**DII-I**	**14**	**.NULL.**	***Extraction Date***	9/14/99
Sample Height (m)	-9999.0				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0037		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32748		***Batch ID***	T1075

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:42	**GOC-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	1.0				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0044		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32755		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:34	**GOC-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	1.1				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0045		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32756		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:38	**GOC-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	1.2				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0046		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32757		***Batch ID***	T1076

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:24	**KNH-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	2.7				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0031		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32742		***Batch ID***	T1075

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:16	**KNH-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	2.9				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0032		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32743		***Batch ID***	T1075

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:15	**KNH-B**	**14**	**3**	***Extraction Date***	9/14/99
Sample Height (m)	2.3				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0033		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32744		***Batch ID***	T1075

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	7:10	**SHB-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	2.1				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0028		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32739		***Batch ID***	T1075

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	7:07	**SHB-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	1.8				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0029		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32740		***Batch ID***	T1075

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	7:06	**SHB-B**	**14**	**3**	***Extraction Date***	9/14/99
Sample Height (m)	2.0				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0030		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32741		***Batch ID***	T1075

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:52	**SHH-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	2.1				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0053		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32764		***Batch ID***	T1076

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:47	**SHH-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	2.6				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0054		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32765		***Batch ID***	T1076

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:46	**SHH-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	3.3				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0055		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32766		***Batch ID***	T1076

Collection Date	7/31/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:09	**SLB-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	2.6				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0041		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32752		***Batch ID***	T1075

Collection Date	7/31/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:08	**SLB-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	2.3				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0042		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32753		***Batch ID***	T1075

Collection Date	7/31/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:18	**SLB-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	2.6				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0043		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32754		***Batch ID***	T1076

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:55	**WIB-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	2.2				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0056		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32767		***Batch ID***	T1076

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:48	**WIB-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	1.9				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0057		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32768		***Batch ID***	T1076

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:47	**WIB-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	3.3				***Analysis Date***	11/2/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0058		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32769		***Batch ID***	T1076

Collection Date	7/30/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:22	**ZAB-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	2.3				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0038		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32749		***Batch ID***	T1075

Collection Date	7/30/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:25	**ZAB-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	2.1				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0039		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32750		***Batch ID***	T1075

Collection Date	7/30/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:27	**ZAB-B**	**14**	**3**	***Extraction Date***	9/14/99
Sample Height (m)	2.4				***Analysis Date***	10/15/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0040		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C32751		***Batch ID***	T1075

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	10:54	**AMT-B**	**15**	**1**	***Extraction Date***	1/18/00
Sample Height (m)	1.7				***Analysis Date***	2/9/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0062		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C33680		***Batch ID***	T1109

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	10:58	**AMT-B**	**15**	**2**	***Extraction Date***	1/18/00
Sample Height (m)	1.9				***Analysis Date***	2/9/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0063		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C33681		***Batch ID***	T1109

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	10:55	**AMT-B**	**15**	**3**	***Extraction Date***	1/18/00
Sample Height (m)	1.9				***Analysis Date***	2/9/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0064		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C33682		***Batch ID***	T1109

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	9:55	**GOC-B**	**15**	**1**	***Extraction Date***	1/18/00
Sample Height (m)	1.7				***Analysis Date***	2/9/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0059		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C33677		***Batch ID***	T1109

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	9:54	**GOC-B**	**15**	**2**	***Extraction Date***	1/18/00
Sample Height (m)	1.5				***Analysis Date***	2/9/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0060		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C33678		***Batch ID***	T1109

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	9:50	**GOC-B**	**15**	**3**	***Extraction Date***	1/18/00
Sample Height (m)	1.4				***Analysis Date***	2/9/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0061		***Report Date***	4/19/00
Analysis Type	PAH	***GERG Labsamp ID***	C33679		***Batch ID***	T1109

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	8:44	**AIB-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	1.0				***Analysis Date***	6/7/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0001		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34850		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	8:41	**AIB-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	1.3				***Analysis Date***	6/7/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0002		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34851		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	8:40	**AIB-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	1.3				***Analysis Date***	6/7/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0003		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34852		***Batch ID***	T1139

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	19:30	**AMT-B**	**16**	**1**	***Extraction Date***	5/3/00
Sample Height (m)	1.6				***Analysis Date***	6/13/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0025		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34874		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	19:27	**AMT-B**	**16**	**2**	***Extraction Date***	5/3/00
Sample Height (m)	1.8				***Analysis Date***	6/13/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0026		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34875		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	19:26	**AMT-B**	**16**	**3**	***Extraction Date***	5/3/00
Sample Height (m)	1.6				***Analysis Date***	6/13/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0027		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34876		***Batch ID***	T1140

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:50	**DII-B**	**16**	**1**	***Extraction Date***	5/3/00
Sample Height (m)	1.6				***Analysis Date***	6/13/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0022		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34871		***Batch ID***	T1140

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:45	**DII-B**	**16**	**2**	***Extraction Date***	5/3/00
Sample Height (m)	1.4				***Analysis Date***	6/13/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0023		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34872		***Batch ID***	T1140

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:42	**DII-B**	**16**	**3**	***Extraction Date***	5/3/00
Sample Height (m)	1.7				***Analysis Date***	6/13/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0024		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34873		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	20:20	**GOC-B**	**16**	**1**	***Extraction Date***	5/3/00
Sample Height (m)	0.8				***Analysis Date***	6/13/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0028		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34877		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	20:17	**GOC-B**	**16**	**2**	***Extraction Date***	5/3/00
Sample Height (m)	0.8				***Analysis Date***	6/13/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0029		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34878		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	20:16	**GOC-B**	**16**	**3**	***Extraction Date***	5/3/00
Sample Height (m)	1.0				***Analysis Date***	6/13/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0030		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34879		***Batch ID***	T1140

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	7:25	**KNH-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	2.9				***Analysis Date***	6/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0010		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34859		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	7:20	**KNH-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	2.9				***Analysis Date***	6/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0011		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34860		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	7:19	**KNH-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	2.8				***Analysis Date***	6/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0012		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34861		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:59	**SHB-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	2.1				***Analysis Date***	6/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0013		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34862		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:55	**SHB-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	2.6				***Analysis Date***	6/12/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0014		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34863		***Batch ID***	T1139

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:54	**SHB-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	2.2				***Analysis Date***	6/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0015		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34864		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	11:56	**SHH-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	2.4				***Analysis Date***	6/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0007		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34856		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	11:53	**SHH-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	2.1				***Analysis Date***	6/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0008		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34857		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	11:52	**SHH-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	3.4				***Analysis Date***	6/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0009		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34858		***Batch ID***	T1139

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:30	**SLB-B**	**16**	**1**	***Extraction Date***	5/3/00
Sample Height (m)	2.7				***Analysis Date***	6/13/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0019		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34868		***Batch ID***	T1140

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:26	**SLB-B**	**16**	**2**	***Extraction Date***	5/3/00
Sample Height (m)	2.3				***Analysis Date***	6/13/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0020		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34869		***Batch ID***	T1140

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:25	**SLB-B**	**16**	**3**	***Extraction Date***	5/3/00
Sample Height (m)	2.6				***Analysis Date***	6/13/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0021		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34870		***Batch ID***	T1140

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	10:20	**WIB-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	2.0				***Analysis Date***	6/7/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0004		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34853		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	10:21	**WIB-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	1.5				***Analysis Date***	6/7/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0005		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34854		***Batch ID***	T1139

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	10:25	**WIB-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	1.8				***Analysis Date***	6/7/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0006		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34855		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:30	**ZAB-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	1.6				***Analysis Date***	6/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0016		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34865		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:35	**ZAB-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	1.1				***Analysis Date***	6/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0017		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34866		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:29	**ZAB-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	1.2				***Analysis Date***	6/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0018		***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34867		***Batch ID***	T1139

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	8/3/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:57	**AIB-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	1.5				***Analysis Date***	10/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0050		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32761		***Batch ID***	T1076

Collection Date	8/3/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	12:06	**AIB-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	0.9				***Analysis Date***	10/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0051		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32762		***Batch ID***	T1076

Collection Date	8/3/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:58	**AIB-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	1.8				***Analysis Date***	10/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0052		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32763		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:40	**AMT-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	1.7				***Analysis Date***	10/13/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0047		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32758		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:36	**AMT-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	1.5				***Analysis Date***	10/13/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0048		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32759		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:35	**AMT-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	1.4				***Analysis Date***	10/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0049		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32760		***Batch ID***	T1076

Collection Date	7/29/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:20	**DII-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	1.8				***Analysis Date***	10/12/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0034		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32745		***Batch ID***	T1075

Collection Date	7/29/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:16	**DII-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	1.6				***Analysis Date***	10/12/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0035		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32746		***Batch ID***	T1075

Collection Date	7/29/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:15	**DII-B**	**14**	**3**	***Extraction Date***	9/14/99
Sample Height (m)	1.5				***Analysis Date***	10/12/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0036		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32747		***Batch ID***	T1075

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	7/29/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:25	**DII-I**	**14**	**.NULL.**	***Extraction Date***	9/14/99
Sample Height (m)	-9999.0				***Analysis Date***	10/12/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0037		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32748		***Batch ID***	T1075

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:42	**GOC-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	1.0				***Analysis Date***	10/13/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0044		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32755		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:34	**GOC-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	1.1				***Analysis Date***	10/13/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0045		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32756		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:38	**GOC-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	1.2				***Analysis Date***	10/13/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0046		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32757		***Batch ID***	T1076

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:24	**KNH-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	2.7				***Analysis Date***	10/12/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0031		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32742		***Batch ID***	T1075

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:16	**KNH-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	2.9				***Analysis Date***	10/12/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0032		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32743		***Batch ID***	T1075

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:15	**KNH-B**	**14**	**3**	***Extraction Date***	9/14/99
Sample Height (m)	2.3				***Analysis Date***	10/12/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0033		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32744		***Batch ID***	T1075

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	7:10	**SHB-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	2.1				***Analysis Date***	10/11/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0028		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32739		***Batch ID***	T1075

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	7:07	**SHB-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	1.8				***Analysis Date***	10/12/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0029		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32740		***Batch ID***	T1075

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	7:06	**SHB-B**	**14**	**3**	***Extraction Date***	9/14/99
Sample Height (m)	2.0				***Analysis Date***	10/12/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0030		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32741		***Batch ID***	T1075

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:52	**SHH-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	2.1				***Analysis Date***	10/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0053		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32764		***Batch ID***	T1076

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:47	**SHH-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	2.6				***Analysis Date***	10/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0054		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32765		***Batch ID***	T1076

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:46	**SHH-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	3.3				***Analysis Date***	10/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0055		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32766		***Batch ID***	T1076

Collection Date	7/31/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:09	**SLB-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	2.6				***Analysis Date***	10/12/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0041		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32752		***Batch ID***	T1075

Collection Date	7/31/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:08	**SLB-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	2.3				***Analysis Date***	10/12/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0042		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32753		***Batch ID***	T1075

Collection Date	7/31/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:18	**SLB-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	2.6				***Analysis Date***	10/13/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0043		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32754		***Batch ID***	T1076

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:55	**WIB-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	2.2				***Analysis Date***	10/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0056		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32767		***Batch ID***	T1076

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:48	**WIB-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	1.9				***Analysis Date***	10/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0057		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32768		***Batch ID***	T1076

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:47	**WIB-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	3.3				***Analysis Date***	10/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0058		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32769		***Batch ID***	T1076

Collection Date	7/30/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:22	**ZAB-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	2.3				***Analysis Date***	10/12/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0038		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32749		***Batch ID***	T1075

Collection Date	7/30/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:25	**ZAB-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	2.1				***Analysis Date***	10/12/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0039		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32750		***Batch ID***	T1075

Collection Date	7/30/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:27	**ZAB-B**	**14**	**3**	***Extraction Date***	9/14/99
Sample Height (m)	2.4				***Analysis Date***	10/11/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0040		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C32751		***Batch ID***	T1075

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	10:54	**AMT-B**	**15**	**1**	***Extraction Date***	1/18/00
Sample Height (m)	1.7				***Analysis Date***	2/9/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0062		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C33680		***Batch ID***	T1109

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	10:58	**AMT-B**	**15**	**2**	***Extraction Date***	1/18/00
Sample Height (m)	1.9				***Analysis Date***	2/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0063		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C33681		***Batch ID***	T1109

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	10:55	**AMT-B**	**15**	**3**	***Extraction Date***	1/18/00
Sample Height (m)	1.9				***Analysis Date***	2/9/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0064		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C33682		***Batch ID***	T1109

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	9:55	**GOC-B**	**15**	**1**	***Extraction Date***	1/18/00
Sample Height (m)	1.7				***Analysis Date***	2/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0059		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C33677		***Batch ID***	T1109

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	9:54	**GOC-B**	**15**	**2**	***Extraction Date***	1/18/00
Sample Height (m)	1.5				***Analysis Date***	2/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0060		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C33678		***Batch ID***	T1109

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	9:50	**GOC-B**	**15**	**3**	***Extraction Date***	1/18/00
Sample Height (m)	1.4				***Analysis Date***	2/8/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0061		***Report Date***	4/19/00
Analysis Type	AHC	***GERG Labsamp ID***	C33679		***Batch ID***	T1109

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	8:44	**AIB-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	1.0				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0001		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34850		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	8:41	**AIB-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	1.3				***Analysis Date***	6/2/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0002		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34851		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	8:40	**AIB-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	1.3				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0003		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34852		***Batch ID***	T1139

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	19:30	**AMT-B**	**16**	**1**	***Extraction Date***	5/3/00
Sample Height (m)	1.6				***Analysis Date***	6/16/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0025		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34874		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	19:27	**AMT-B**	**16**	**2**	***Extraction Date***	5/3/00
Sample Height (m)	1.8				***Analysis Date***	6/16/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0026		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34875		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	19:26	**AMT-B**	**16**	**3**	***Extraction Date***	5/3/00
Sample Height (m)	1.6				***Analysis Date***	6/16/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0027		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34876		***Batch ID***	T1140

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:50	**DII-B**	**16**	**1**	***Extraction Date***	5/3/00
Sample Height (m)	1.6				***Analysis Date***	6/16/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0022		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34871		***Batch ID***	T1140

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:45	**DII-B**	**16**	**2**	***Extraction Date***	5/3/00
Sample Height (m)	1.4				***Analysis Date***	6/16/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0023		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34872		***Batch ID***	T1140

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:42	**DII-B**	**16**	**3**	***Extraction Date***	5/3/00
Sample Height (m)	1.7				***Analysis Date***	6/16/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0024		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34873		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	20:20	**GOC-B**	**16**	**1**	***Extraction Date***	5/3/00
Sample Height (m)	0.8				***Analysis Date***	6/16/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0028		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34877		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	20:17	**GOC-B**	**16**	**2**	***Extraction Date***	5/3/00
Sample Height (m)	0.8				***Analysis Date***	6/16/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0029		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34878		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	20:16	**GOC-B**	**16**	**3**	***Extraction Date***	5/3/00
Sample Height (m)	1.0				***Analysis Date***	6/16/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0030		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34879		***Batch ID***	T1140

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	7:25	**KNH-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	2.9				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0010		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34859		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	7:20	**KNH-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	2.9				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0011		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34860		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	7:19	**KNH-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	2.8				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0012		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34861		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:59	**SHB-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	2.1				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0013		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34862		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:55	**SHB-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	2.6				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0014		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34863		***Batch ID***	T1139

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:54	**SHB-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	2.2				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0015		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34864		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	11:56	**SHH-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	2.4				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0007		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34856		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	11:53	**SHH-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	2.1				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0008		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34857		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	11:52	**SHH-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	3.4				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0009		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34858		***Batch ID***	T1139

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:30	**SLB-B**	**16**	**1**	***Extraction Date***	5/3/00
Sample Height (m)	2.7				***Analysis Date***	6/16/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0019		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34868		***Batch ID***	T1140

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:26	**SLB-B**	**16**	**2**	***Extraction Date***	5/3/00
Sample Height (m)	2.3				***Analysis Date***	6/17/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0020		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34869		***Batch ID***	T1140

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:25	**SLB-B**	**16**	**3**	***Extraction Date***	5/3/00
Sample Height (m)	2.6				***Analysis Date***	6/16/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0021		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34870		***Batch ID***	T1140

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	10:20	**WIB-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	2.0				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0004		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34853		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	10:21	**WIB-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	1.5				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0005		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34854		***Batch ID***	T1139

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	10:25	**WIB-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	1.8				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0006		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34855		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:30	**ZAB-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	1.6				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0016		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34865		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:35	**ZAB-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	1.1				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0017		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34866		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:29	**ZAB-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	1.2				***Analysis Date***	6/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0018		***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34867		***Batch ID***	T1139

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	8/3/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:57	**AIB-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	1.5				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0050		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32761		***Batch ID***	T1076

Collection Date	8/3/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	12:06	**AIB-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	0.9				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0051		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32762		***Batch ID***	T1076

Collection Date	8/3/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:58	**AIB-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	1.8				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0052		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32763		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:40	**AMT-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	1.7				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0047		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32758		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:36	**AMT-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	1.5				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0048		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32759		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:35	**AMT-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	1.4				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0049		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32760		***Batch ID***	T1076

Collection Date	7/29/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:20	**DII-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	1.8				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0034		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32745		***Batch ID***	T1075

Collection Date	7/29/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:16	**DII-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	1.6				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0035		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32746		***Batch ID***	T1075

Collection Date	7/29/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:15	**DII-B**	**14**	**3**	***Extraction Date***	9/14/99
Sample Height (m)	1.5				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0036		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32747		***Batch ID***	T1075

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	7/29/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:25	**DII-I**	**14**	**.NULL.**	***Extraction Date***	9/14/99
Sample Height (m)	-9999.0				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0037		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32748		***Batch ID***	T1075

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:42	**GOC-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	1.0				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0044		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32755		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:34	**GOC-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	1.1				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0045		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32756		***Batch ID***	T1076

Collection Date	8/1/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:38	**GOC-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	1.2				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0046		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32757		***Batch ID***	T1076

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:24	**KNH-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	2.7				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0031		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32742		***Batch ID***	T1075

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:16	**KNH-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	2.9				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0032		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32743		***Batch ID***	T1075

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	10:15	**KNH-B**	**14**	**3**	***Extraction Date***	9/14/99
Sample Height (m)	2.3				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0033		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32744		***Batch ID***	T1075

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	7:10	**SHB-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	2.1				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0028		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32739		***Batch ID***	T1075

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	7:07	**SHB-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	1.8				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0029		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32740		***Batch ID***	T1075

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	7/28/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	7:06	**SHB-B**	**14**	**3**	***Extraction Date***	9/14/99
Sample Height (m)	2.0				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0030		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32741		***Batch ID***	T1075

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:52	**SHH-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	2.1				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0053		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32764		***Batch ID***	T1076

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:47	**SHH-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	2.6				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0054		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32765		***Batch ID***	T1076

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:46	**SHH-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	3.3				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0055		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32766		***Batch ID***	T1076

Collection Date	7/31/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:09	**SLB-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	2.6				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0041		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32752		***Batch ID***	T1075

Collection Date	7/31/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:08	**SLB-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	2.3				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0042		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32753		***Batch ID***	T1075

Collection Date	7/31/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:18	**SLB-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	2.6				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0043		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32754		***Batch ID***	T1076

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:55	**WIB-B**	**14**	**1**	***Extraction Date***	9/17/99
Sample Height (m)	2.2				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0056		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32767		***Batch ID***	T1076

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:48	**WIB-B**	**14**	**2**	***Extraction Date***	9/17/99
Sample Height (m)	1.9				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0057		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32768		***Batch ID***	T1076

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	8/11/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	9:47	**WIB-B**	**14**	**3**	***Extraction Date***	9/17/99
Sample Height (m)	3.3				***Analysis Date***	9/17/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0058		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32769		***Batch ID***	T1076

Collection Date	7/30/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:22	**ZAB-B**	**14**	**1**	***Extraction Date***	9/14/99
Sample Height (m)	2.3				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0038		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32749		***Batch ID***	T1075

Collection Date	7/30/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:25	**ZAB-B**	**14**	**2**	***Extraction Date***	9/14/99
Sample Height (m)	2.1				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0039		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32750		***Batch ID***	T1075

Collection Date	7/30/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	8/17/99
Collection Time	11:27	**ZAB-B**	**14**	**3**	***Extraction Date***	9/14/99
Sample Height (m)	2.4				***Analysis Date***	9/14/99
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0040		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C32751		***Batch ID***	T1075

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	10:54	**AMT-B**	**15**	**1**	***Extraction Date***	1/18/00
Sample Height (m)	1.7				***Analysis Date***	1/18/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0062		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C33680		***Batch ID***	T1109

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	10:58	**AMT-B**	**15**	**2**	***Extraction Date***	1/18/00
Sample Height (m)	1.9				***Analysis Date***	1/18/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0063		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C33681		***Batch ID***	T1109

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	10:55	**AMT-B**	**15**	**3**	***Extraction Date***	1/18/00
Sample Height (m)	1.9				***Analysis Date***	1/18/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0064		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C33682		***Batch ID***	T1109

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	9:55	**GOC-B**	**15**	**1**	***Extraction Date***	1/18/00
Sample Height (m)	1.7				***Analysis Date***	1/18/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0059		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C33677		***Batch ID***	T1109

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	9:54	**GOC-B**	**15**	**2**	***Extraction Date***	1/18/00
Sample Height (m)	1.5				***Analysis Date***	1/18/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0060		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C33678		***Batch ID***	T1109

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	10/26/99	***Station***	***Survey***	***Replicate***	***Receipt Date***	11/11/99
Collection Time	9:50	**GOC-B**	**15**	**3**	***Extraction Date***	1/18/00
Sample Height (m)	1.4				***Analysis Date***	1/18/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS99TIS0061		***Report Date***	4/19/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C33679		***Batch ID***	T1109

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	8:44	**AIB-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	1.0				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0001		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34850		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	8:41	**AIB-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	1.3				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0002		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34851		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	8:40	**AIB-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	1.3				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0003		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34852		***Batch ID***	T1139

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	19:30	**AMT-B**	**16**	**1**	***Extraction Date***	5/3/00
Sample Height (m)	1.6				***Analysis Date***	5/3/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0025		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34874		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	19:27	**AMT-B**	**16**	**2**	***Extraction Date***	5/3/00
Sample Height (m)	1.8				***Analysis Date***	5/3/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0026		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34875		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	19:26	**AMT-B**	**16**	**3**	***Extraction Date***	5/3/00
Sample Height (m)	1.6				***Analysis Date***	5/3/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0027		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34876		***Batch ID***	T1140

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:50	**DII-B**	**16**	**1**	***Extraction Date***	5/3/00
Sample Height (m)	1.6				***Analysis Date***	5/3/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0022		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34871		***Batch ID***	T1140

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:45	**DII-B**	**16**	**2**	***Extraction Date***	5/3/00
Sample Height (m)	1.4				***Analysis Date***	5/3/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0023		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34872		***Batch ID***	T1140

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:42	**DII-B**	**16**	**3**	***Extraction Date***	5/3/00
Sample Height (m)	1.7				***Analysis Date***	5/3/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0024		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34873		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	20:20	**GOC-B**	**16**	**1**	***Extraction Date***	5/3/00
Sample Height (m)	0.8				***Analysis Date***	5/3/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0028		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34877		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	20:17	**GOC-B**	**16**	**2**	***Extraction Date***	5/3/00
Sample Height (m)	0.8				***Analysis Date***	5/3/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0029		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34878		***Batch ID***	T1140

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	20:16	**GOC-B**	**16**	**3**	***Extraction Date***	5/3/00
Sample Height (m)	1.0				***Analysis Date***	5/3/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0030		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34879		***Batch ID***	T1140

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	7:25	**KNH-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	2.9				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0010		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34859		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	7:20	**KNH-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	2.9				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0011		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34860		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	7:19	**KNH-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	2.8				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0012		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34861		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:59	**SHB-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	2.1				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0013		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34862		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:55	**SHB-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	2.6				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0014		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34863		***Batch ID***	T1139

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:54	**SHB-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	2.2				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0015		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34864		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	11:56	**SHH-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	2.4				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0007		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34856		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	11:53	**SHH-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	2.1				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0008		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34857		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	11:52	**SHH-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	3.4				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0009		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34858		***Batch ID***	T1139

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:30	**SLB-B**	**16**	**1**	***Extraction Date***	5/3/00
Sample Height (m)	2.7				***Analysis Date***	5/3/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0019		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34868		***Batch ID***	T1140

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:26	**SLB-B**	**16**	**2**	***Extraction Date***	5/3/00
Sample Height (m)	2.3				***Analysis Date***	5/3/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0020		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34869		***Batch ID***	T1140

Collection Date	4/4/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	9:25	**SLB-B**	**16**	**3**	***Extraction Date***	5/3/00
Sample Height (m)	2.6				***Analysis Date***	5/3/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0021		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34870		***Batch ID***	T1140

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	10:20	**WIB-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	2.0				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0004		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34853		***Batch ID***	T1139

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	10:21	**WIB-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	1.5				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0005		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34854		***Batch ID***	T1139

Sample Collection and Processing Information for 1999-2000 LTEMP Tissue Samples

Collection Date	3/22/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	10:25	**WIB-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	1.8				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0006		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34855		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:30	**ZAB-B**	**16**	**1**	***Extraction Date***	5/1/00
Sample Height (m)	1.6				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0016		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34865		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:35	**ZAB-B**	**16**	**2**	***Extraction Date***	5/1/00
Sample Height (m)	1.1				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0017		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34866		***Batch ID***	T1139

Collection Date	4/3/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:29	**ZAB-B**	**16**	**3**	***Extraction Date***	5/1/00
Sample Height (m)	1.2				***Analysis Date***	5/1/00
Matrix	TISSUE	***KLI SAMP_ID***	PWS00TIS0018		***Report Date***	6/22/00
Analysis Type	LIPIDS	***GERG Labsamp ID***	C34867		***Batch ID***	T1139

APPENDIX A

Tissue Results

2.0 PAH and Lipid Data

Station	Survey	Replicate
AIB-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0050	C32761

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.04	WET
Dry Weight (g)	0.72	DRY
Solids (%)	7.2	DRY
Lipids (%)	11.8	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	16.6	
C1-Naphthalenes	18.5	J
C2-Naphthalenes	9.0	J
C3-Naphthalenes	15.7	
C4-Naphthalenes	8.1	J
Biphenyl	6.2	
Acenaphthylene	0.7	J
Acenaphthene	11.0	
Fluorene	6.4	J
C1-Fluorenes	39.7	
C2-Fluorenes	38.0	
C3-Fluorenes	66.3	
Anthracene	2.5	J
Phenanthrene	6.5	J
C1-Phen/Anthracenes	16.4	
C2-Phen/Anthracenes	3.9	J
C3-Phen/Anthracenes	5.0	J
C4-Phen/Anthracenes	1.6	J
Dibenzothiophene	0.8	J
C1-Dibenzothiophenes	0.4	J
C2-Dibenzothiophenes	0.6	J
C3-Dibenzothiophenes	0.4	J
Fluoranthene	1.2	J
Pyrene	1.5	J
C1-Fluoranthenes/Pyrenes	1.3	J
Benzo(a)anthracene	0.6	J
Chrysene	1.1	J
C1-Chrysenes	0.3	J
C2-Chrysenes	18.9	J
C3-Chrysenes	1.8	J
C4-Chrysenes	1.2	J
Benzo(b)fluoranthene	0.7	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	2.7	J
Benzo(a)pyrene	3.1	J
Perylene	3.7	J
Indeno(1,2,3-c,d)pyrene	0.8	J
Dibenzo(a,h)anthracene	0.2	J
Benzo(g,h,i)perylene	1.0	J
TOTAL PAH (ng/g) (Excluding Perylene)	310.8	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	6.3	J
2-Methylnaphthalene	12.2	
2,6-Dimethylnaphthalene	4.2	J
1,6,7-Trimethylnaphthalene	1.4	J
1-Methylphenanthrene	1.7	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	69.6	
Acenapthene-D10	60.5	
Phenanthrene-D10	65.8	
Chrysene-D12	71.6	
Perylene-D12	52.9	

Station	Survey	Replicate
AIB-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0051	C32762

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.04	WET
Dry Weight (g)	0.83	DRY
Solids (%)	8.3	DRY
Lipids (%)	11.4	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	14.2	
C1-Naphthalenes	15.1	J
C2-Naphthalenes	10.9	
C3-Naphthalenes	18.1	
C4-Naphthalenes	7.2	J
Biphenyl	4.8	
Acenaphthylene	0.5	J
Acenaphthene	11.1	
Fluorene	6.8	
C1-Fluorenes	36.2	
C2-Fluorenes	40.7	
C3-Fluorenes	74.1	
Anthracene	2.1	J
Phenanthrene	6.2	J
C1-Phen/Anthracenes	21.7	
C2-Phen/Anthracenes	9.8	
C3-Phen/Anthracenes	4.7	J
C4-Phen/Anthracenes	3.9	J
Dibenzothiophene	0.9	J
C1-Dibenzothiophenes	1.1	J
C2-Dibenzothiophenes	1.0	J
C3-Dibenzothiophenes	1.6	J
Fluoranthene	1.0	J
Pyrene	1.4	J
C1-Fluoranthenes/Pyrenes	2.4	J
Benzo(a)anthracene	0.6	J
Chrysene	0.9	J
C1-Chrysenes	0.6	J
C2-Chrysenes	18.3	J
C3-Chrysenes	1.1	J
C4-Chrysenes	0.9	J
Benzo(b)fluoranthene	0.4	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	2.6	J
Benzo(a)pyrene	2.8	J
Perylene	4.9	
Indeno(1,2,3-c,d)pyrene	0.1	J
Dibenzo(a,h)anthracene	0.4	J
Benzo(g,h,i)perylene	0.6	J
TOTAL PAH (ng/g) (Excluding Perylene)	327.0	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	5.4	J
2-Methylnaphthalene	9.7	
2,6-Dimethylnaphthalene	3.3	J
1,6,7-Trimethylnaphthalene	1.0	J
1-Methylphenanthrene	0.9	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	72.6	
Acenapthene-D10	72.8	
Phenanthrene-D10	78.5	
Chrysene-D12	85.1	
Perylene-D12	58.5	

Station	Survey	Replicate
AIB-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0052	C32763

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	3.19	WET
Dry Weight (g)	0.23	DRY
Solids (%)	7.1	DRY
Lipids (%)	8.5	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	54.0	
C1-Naphthalenes	55.0	J
C2-Naphthalenes	33.2	J
C3-Naphthalenes	50.1	
C4-Naphthalenes	13.7	J
Biphenyl	14.8	
Acenaphthylene	2.1	J
Acenaphthene	9.8	
Fluorene	10.4	J
C1-Fluorenes	107.3	
C2-Fluorenes	69.5	
C3-Fluorenes	126.5	
Anthracene	3.5	J
Phenanthrene	15.9	J
C1-Phen/Anthracenes	25.9	J
C2-Phen/Anthracenes	9.0	J
C3-Phen/Anthracenes	3.2	J
C4-Phen/Anthracenes	3.5	J
Dibenzothiophene	4.0	J
C1-Dibenzothiophenes	1.7	J
C2-Dibenzothiophenes	1.2	J
C3-Dibenzothiophenes	1.7	J
Fluoranthene	3.1	J
Pyrene	5.1	J
C1-Fluoranthenes/Pyrenes	1.9	J
Benzo(a)anthracene	1.7	J
Chrysene	2.5	J
C1-Chrysenes	0.4	J
C2-Chrysenes	15.7	J
C3-Chrysenes	4.5	J
C4-Chrysenes	0.3	J
Benzo(b)fluoranthene	0.9	J
Benzo(k)fluoranthene	1.0	J
Benzo(e)pyrene	2.5	J
Benzo(a)pyrene	2.0	J
Perylene	6.6	J
Indeno(1,2,3-c,d)pyrene	0.3	J
Dibenzo(a,h)anthracene	0.5	J
Benzo(g,h,i)perylene	0.2	J
TOTAL PAH (ng/g) (Excluding Perylene)	658.8	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	20.8	J
2-Methylnaphthalene	34.3	J
2,6-Dimethylnaphthalene	10.1	J
1,6,7-Trimethylnaphthalene	5.1	J
1-Methylphenanthrene	4.0	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	58.4	
Acenapthene-D10	58.1	
Phenanthrene-D10	61.5	
Chrysene-D12	67.3	
Perylene-D12	43.4	

Station	Survey	Replicate
AMT-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0047	C32758

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.08	WET
Dry Weight (g)	0.43	DRY
Solids (%)	4.2	DRY
Lipids (%)	8.7	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	27.1	
C1-Naphthalenes	38.7	
C2-Naphthalenes	28.0	
C3-Naphthalenes	43.6	
C4-Naphthalenes	25.2	
Biphenyl	9.5	
Acenaphthylene	2.8	J
Acenaphthene	9.4	
Fluorene	7.5	J
C1-Fluorenes	78.4	
C2-Fluorenes	117.4	
C3-Fluorenes	125.4	
Anthracene	5.7	J
Phenanthrene	16.0	
C1-Phen/Anthracenes	22.4	
C2-Phen/Anthracenes	20.9	
C3-Phen/Anthracenes	4.1	J
C4-Phen/Anthracenes	2.5	J
Dibenzothiophene	2.7	J
C1-Dibenzothiophenes	3.8	J
C2-Dibenzothiophenes	3.9	J
C3-Dibenzothiophenes	2.8	J
Fluoranthene	4.0	J
Pyrene	3.6	J
C1-Fluoranthenes/Pyrenes	2.2	J
Benzo(a)anthracene	2.2	J
Chrysene	2.6	J
C1-Chrysenes	1.2	J
C2-Chrysenes	18.3	J
C3-Chrysenes	3.2	J
C4-Chrysenes	3.4	J
Benzo(b)fluoranthene	1.7	J
Benzo(k)fluoranthene	0.5	J
Benzo(e)pyrene	3.3	J
Benzo(a)pyrene	2.1	J
Perylene	5.4	J
Indeno(1,2,3-c,d)pyrene	0.4	J
Dibenzo(a,h)anthracene	1.1	J
Benzo(g,h,i)perylene	1.2	J
TOTAL PAH (ng/g) (Excluding Perylene)	648.7	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	12.4	J
2-Methylnaphthalene	26.4	
2,6-Dimethylnaphthalene	9.5	
1,6,7-Trimethylnaphthalene	6.8	J
1-Methylphenanthrene	6.9	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	60.1	
Acenapthene-D10	59.8	
Phenanthrene-D10	61.3	
Chrysene-D12	62.1	
Perylene-D12	46.0	

Station	Survey	Replicate
AMT-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0048	C32759

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.25	WET
Dry Weight (g)	0.52	DRY
Solids (%)	5.0	DRY
Lipids (%)	6.0	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	16.3	
C1-Naphthalenes	18.1	J
C2-Naphthalenes	10.2	J
C3-Naphthalenes	22.7	
C4-Naphthalenes	19.1	
Biphenyl	5.8	J
Acenaphthylene	1.4	J
Acenaphthene	4.9	
Fluorene	3.1	J
C1-Fluorenes	67.0	
C2-Fluorenes	75.1	
C3-Fluorenes	115.9	
Anthracene	4.2	J
Phenanthrene	10.1	J
C1-Phen/Anthracenes	12.7	J
C2-Phen/Anthracenes	4.6	J
C3-Phen/Anthracenes	2.5	J
C4-Phen/Anthracenes	1.8	J
Dibenzothiophene	2.3	J
C1-Dibenzothiophenes	4.2	J
C2-Dibenzothiophenes	2.7	J
C3-Dibenzothiophenes	1.7	J
Fluoranthene	2.5	J
Pyrene	1.9	J
C1-Fluoranthenes/Pyrenes	0.5	J
Benzo(a)anthracene	0.6	J
Chrysene	0.9	J
C1-Chrysenes	0.7	J
C2-Chrysenes	10.2	J
C3-Chrysenes	0.8	J
C4-Chrysenes	5.9	J
Benzo(b)fluoranthene	1.3	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	1.5	J
Benzo(a)pyrene	0.7	J
Perylene	3.9	J
Indeno(1,2,3-c,d)pyrene	0.3	J
Dibenzo(a,h)anthracene	0.4	J
Benzo(g,h,i)perylene	0.3	J
TOTAL PAH (ng/g) (Excluding Perylene)	435.1	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	6.3	J
2-Methylnaphthalene	11.8	J
2,6-Dimethylnaphthalene	3.9	J
1,6,7-Trimethylnaphthalene	2.0	J
1-Methylphenanthrene	3.5	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	81.5	
Acenapthene-D10	91.5	
Phenanthrene-D10	72.2	
Chrysene-D12	99.7	
Perylene-D12	54.3	

Station	Survey	Replicate
AMT-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0049	C32760

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.61	WET
Dry Weight (g)	0.6	DRY
Solids (%)	5.7	DRY
Lipids (%)	9.4	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	20.1	
C1-Naphthalenes	25.7	
C2-Naphthalenes	17.2	
C3-Naphthalenes	30.6	
C4-Naphthalenes	21.3	
Biphenyl	7.8	
Acenaphthylene	3.0	
Acenaphthene	10.5	
Fluorene	9.1	
C1-Fluorenes	109.0	
C2-Fluorenes	155.6	
C3-Fluorenes	248.7	
Anthracene	8.9	
Phenanthrene	15.3	
C1-Phen/Anthracenes	14.2	
C2-Phen/Anthracenes	8.7	J
C3-Phen/Anthracenes	11.9	J
C4-Phen/Anthracenes	9.0	J
Dibenzothiophene	3.0	J
C1-Dibenzothiophenes	3.1	J
C2-Dibenzothiophenes	7.2	J
C3-Dibenzothiophenes	4.8	J
Fluoranthene	4.4	J
Pyrene	3.0	J
C1-Fluoranthenes/Pyrenes	7.9	J
Benzo(a)anthracene	1.8	J
Chrysene	1.9	J
C1-Chrysenes	1.1	J
C2-Chrysenes	15.2	J
C3-Chrysenes	2.2	J
C4-Chrysenes	0.5	J
Benzo(b)fluoranthene	1.1	J
Benzo(k)fluoranthene	0.8	J
Benzo(e)pyrene	3.7	J
Benzo(a)pyrene	3.8	J
Perylene	4.2	J
Indeno(1,2,3-c,d)pyrene	2.3	J
Dibenzo(a,h)anthracene	2.3	J
Benzo(g,h,i)perylene	2.3	J
TOTAL PAH (ng/g) (Excluding Perylene)	798.8	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	9.4	J
2-Methylnaphthalene	16.3	
2,6-Dimethylnaphthalene	7.3	
1,6,7-Trimethylnaphthalene	4.8	J
1-Methylphenanthrene	3.0	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	60.1	
Acenapthene-D10	61.3	
Phenanthrene-D10	69.8	
Chrysene-D12	80.4	
Perylene-D12	55.7	

Station	Survey	Replicate
DII-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0034	C32745

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	5.01	WET
Dry Weight (g)	0.74	DRY
Solids (%)	14.7	DRY
Lipids (%)	5.4	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	19.9	
C1-Naphthalenes	20.0	
C2-Naphthalenes	12.6	
C3-Naphthalenes	14.4	
C4-Naphthalenes	8.9	J
Biphenyl	3.9	J
Acenaphthylene	0.8	J
Acenaphthene	5.1	
Fluorene	2.6	J
C1-Fluorenes	17.2	
C2-Fluorenes	18.2	
C3-Fluorenes	37.5	
Anthracene	0.8	J
Phenanthrene	6.1	J
C1-Phen/Anthracenes	9.5	J
C2-Phen/Anthracenes	5.5	J
C3-Phen/Anthracenes	0.6	J
C4-Phen/Anthracenes	0.2	J
Dibenzothiophene	6.1	
C1-Dibenzothiophenes	2.2	J
C2-Dibenzothiophenes	0.9	J
C3-Dibenzothiophenes	0.8	J
Fluoranthene	1.2	J
Pyrene	1.2	J
C1-Fluoranthenes/Pyrenes	0.1	J
Benzo(a)anthracene	0.8	J
Chrysene	1.4	J
C1-Chrysenes	0.4	J
C2-Chrysenes	2.5	J
C3-Chrysenes	1.7	J
C4-Chrysenes	1.8	J
Benzo(b)fluoranthene	0.7	J
Benzo(k)fluoranthene	0.5	J
Benzo(e)pyrene	6.3	J
Benzo(a)pyrene	3.3	J
Perylene	2.9	J
Indeno(1,2,3-c,d)pyrene	2.6	J
Dibenzo(a,h)anthracene	1.8	J
Benzo(g,h,i)perylene	2.1	J
TOTAL PAH (ng/g) (Excluding Perylene)	222.0	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	8.9	
2-Methylnaphthalene	11.1	
2,6-Dimethylnaphthalene	4.0	J
1,6,7-Trimethylnaphthalene	18.1	
1-Methylphenanthrene	1.7	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	74.2	
Acenapthene-D10	78.8	
Phenanthrene-D10	84.9	
Chrysene-D12	58.5	
Perylene-D12	65.8	

Station	Survey	Replicate
DII-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0035	C32746

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	3.27	WET
Dry Weight (g)	0.57	DRY
Solids (%)	17.6	DRY
Lipids (%)	5.3	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	35.1	
C1-Naphthalenes	32.9	
C2-Naphthalenes	20.0	
C3-Naphthalenes	23.8	
C4-Naphthalenes	7.5	J
Biphenyl	6.0	
Acenaphthylene	0.2	J
Acenaphthene	6.2	
Fluorene	4.4	J
C1-Fluorenes	18.5	
C2-Fluorenes	17.8	
C3-Fluorenes	34.9	
Anthracene	1.0	J
Phenanthrene	9.4	
C1-Phen/Anthracenes	16.8	
C2-Phen/Anthracenes	7.1	J
C3-Phen/Anthracenes	4.2	J
C4-Phen/Anthracenes	3.0	J
Dibenzothiophene	1.1	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.6	J
C3-Dibenzothiophenes	0.9	J
Fluoranthene	1.7	J
Pyrene	2.0	J
C1-Fluoranthenes/Pyrenes	0.2	J
Benzo(a)anthracene	1.5	J
Chrysene	3.5	J
C1-Chrysenes	3.3	J
C2-Chrysenes	8.8	J
C3-Chrysenes	0.7	J
C4-Chrysenes	3.3	J
Benzo(b)fluoranthene	1.9	J
Benzo(k)fluoranthene	0.7	J
Benzo(e)pyrene	5.7	J
Benzo(a)pyrene	5.0	J
Perylene	1.7	J
Indeno(1,2,3-c,d)pyrene	1.3	J
Dibenzo(a,h)anthracene	1.4	J
Benzo(g,h,i)perylene	2.1	J
TOTAL PAH (ng/g) (Excluding Perylene)	294.5	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	12.9	
2-Methylnaphthalene	19.9	
2,6-Dimethylnaphthalene	7.7	
1,6,7-Trimethylnaphthalene	24.5	
1-Methylphenanthrene	1.6	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	62.1	
Acenapthene-D10	65.3	
Phenanthrene-D10	72.6	
Chrysene-D12	50.1	
Perylene-D12	61.4	

Station	Survey	Replicate
DII-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0036	C32747

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	3.17	WET
Dry Weight (g)	0.57	DRY
Solids (%)	18.1	DRY
Lipids (%)	4.7	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	42.1	
C1-Naphthalenes	41.5	
C2-Naphthalenes	19.2	
C3-Naphthalenes	16.5	
C4-Naphthalenes	4.8	J
Biphenyl	6.9	
Acenaphthylene	1.3	J
Acenaphthene	6.1	
Fluorene	5.6	J
C1-Fluorenes	28.1	
C2-Fluorenes	6.9	J
C3-Fluorenes	27.7	
Anthracene	2.5	J
Phenanthrene	12.3	
C1-Phen/Anthracenes	18.5	
C2-Phen/Anthracenes	11.2	J
C3-Phen/Anthracenes	1.3	J
C4-Phen/Anthracenes	1.3	J
Dibenzothiophene	0.8	J
C1-Dibenzothiophenes	0.9	J
C2-Dibenzothiophenes	0.5	J
C3-Dibenzothiophenes	0.4	J
Fluoranthene	1.7	J
Pyrene	2.4	J
C1-Fluoranthenes/Pyrenes	0.2	J
Benzo(a)anthracene	1.3	J
Chrysene	2.3	J
C1-Chrysenes	2.8	J
C2-Chrysenes	7.5	J
C3-Chrysenes	2.2	J
C4-Chrysenes	1.9	J
Benzo(b)fluoranthene	1.9	J
Benzo(k)fluoranthene	0.4	J
Benzo(e)pyrene	4.2	J
Benzo(a)pyrene	2.6	J
Perylene	2.4	J
Indeno(1,2,3-c,d)pyrene	1.0	J
Dibenzo(a,h)anthracene	0.8	J
Benzo(g,h,i)perylene	1.3	J
TOTAL PAH (ng/g) (Excluding Perylene)	290.9	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	15.9	
2-Methylnaphthalene	25.6	
2,6-Dimethylnaphthalene	8.2	
1,6,7-Trimethylnaphthalene	3.6	J
1-Methylphenanthrene	2.5	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	90.5	
Acenapthene-D10	82.9	
Phenanthrene-D10	78.7	
Chrysene-D12	54.3	
Perylene-D12	61.6	

Station	Survey	Replicate
DII-I	**14**	**N/A**

KLI Sample ID	Lab Sample ID
PWS99TIS0037	C32748

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	5.02	WET
Dry Weight (g)	0.48	DRY
Solids (%)	9.6	DRY
Lipids (%)	2.8	DRY

ANALYTE	**Value (ng/g)**	**Qual**
Naphthalene	58.9	
C1-Naphthalenes	59.2	
C2-Naphthalenes	13.0	J
C3-Naphthalenes	20.7	
C4-Naphthalenes	10.2	J
Biphenyl	15.1	
Acenaphthylene	3.2	J
Acenaphthene	7.7	
Fluorene	11.0	
C1-Fluorenes	24.6	
C2-Fluorenes	11.0	J
C3-Fluorenes	37.5	
Anthracene	1.5	J
Phenanthrene	14.9	
C1-Phen/Anthracenes	19.8	
C2-Phen/Anthracenes	12.9	J
C3-Phen/Anthracenes	73.7	
C4-Phen/Anthracenes	61.6	
Dibenzothiophene	3.6	J
C1-Dibenzothiophenes	2.3	J
C2-Dibenzothiophenes	90.4	
C3-Dibenzothiophenes	153.1	
Fluoranthene	2.5	J
Pyrene	4.9	J
C1-Fluoranthenes/Pyrenes	10.9	J
Benzo(a)anthracene	4.0	J
Chrysene	30.3	
C1-Chrysenes	54.5	
C2-Chrysenes	62.6	
C3-Chrysenes	11.8	J
C4-Chrysenes	4.4	J
Benzo(b)fluoranthene	7.4	J
Benzo(k)fluoranthene	1.1	J
Benzo(e)pyrene	15.7	
Benzo(a)pyrene	2.6	J
Perylene	7.3	
Indeno(1,2,3-c,d)pyrene	2.5	J
Dibenzo(a,h)anthracene	4.0	J
Benzo(g,h,i)perylene	5.4	J
TOTAL PAH (ng/g)	929.9	
(Excluding Perylene)		

Specific Isomers	**Value (ng/g)**	**Qual**
1-Methylnaphthalene	26.1	
2-Methylnaphthalene	33.1	
2,6-Dimethylnaphthalene	8.4	
1,6,7-Trimethylnaphthalene	30.9	
1-Methylphenanthrene	4.3	J

Surrogate Recoveries	**Percent**	**Qual**
Naphthalene-D8	65.2	
Acenapthene-D10	74.6	
Phenanthrene-D10	59.0	
Chrysene-D12	36.2	Q
Perylene-D12	54.6	

Station	Survey	Replicate
GOC-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0044	C32755

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.13	WET
Dry Weight (g)	0.45	DRY
Solids (%)	4.4	DRY
Lipids (%)	13.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	25.4	
C1-Naphthalenes	32.2	
C2-Naphthalenes	27.5	
C3-Naphthalenes	78.9	
C4-Naphthalenes	74.6	
Biphenyl	8.8	
Acenaphthylene	6.6	
Acenaphthene	14.8	
Fluorene	16.7	
C1-Fluorenes	160.5	
C2-Fluorenes	16.5	J
C3-Fluorenes	292.4	
Anthracene	19.5	
Phenanthrene	22.5	
C1-Phen/Anthracenes	25.6	
C2-Phen/Anthracenes	41.1	
C3-Phen/Anthracenes	40.9	
C4-Phen/Anthracenes	30.0	
Dibenzothiophene	6.3	
C1-Dibenzothiophenes	17.5	
C2-Dibenzothiophenes	39.3	
C3-Dibenzothiophenes	51.2	
Fluoranthene	8.8	J
Pyrene	5.8	J
C1-Fluoranthenes/Pyrenes	13.0	J
Benzo(a)anthracene	2.1	J
Chrysene	3.3	J
C1-Chrysenes	1.1	J
C2-Chrysenes	16.4	J
C3-Chrysenes	2.3	J
C4-Chrysenes	3.2	J
Benzo(b)fluoranthene	1.6	J
Benzo(k)fluoranthene	0.2	J
Benzo(e)pyrene	2.8	J
Benzo(a)pyrene	2.0	J
Perylene	6.6	J
Indeno(1,2,3-c,d)pyrene	0.8	J
Dibenzo(a,h)anthracene	1.6	J
Benzo(g,h,i)perylene	1.9	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	1115.6	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	10.8	J
2-Methylnaphthalene	21.4	
2,6-Dimethylnaphthalene	8.2	J
1,6,7-Trimethylnaphthalene	8.0	
1-Methylphenanthrene	7.1	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	60.5	
Acenapthene-D10	71.0	
Phenanthrene-D10	75.7	
Chrysene-D12	78.2	
Perylene-D12	55.4	

Station	Survey	Replicate
GOC-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0045	C32756

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.08	WET
Dry Weight (g)	0.51	DRY
Solids (%)	5.1	DRY
Lipids (%)	8.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	21.7	
C1-Naphthalenes	29.2	
C2-Naphthalenes	14.8	J
C3-Naphthalenes	29.5	
C4-Naphthalenes	30.1	
Biphenyl	7.2	
Acenaphthylene	3.8	
Acenaphthene	8.8	
Fluorene	6.9	J
C1-Fluorenes	78.5	
C2-Fluorenes	142.2	
C3-Fluorenes	213.7	
Anthracene	9.2	
Phenanthrene	16.0	
C1-Phen/Anthracenes	15.3	
C2-Phen/Anthracenes	22.4	
C3-Phen/Anthracenes	16.0	
C4-Phen/Anthracenes	9.5	J
Dibenzothiophene	3.5	J
C1-Dibenzothiophenes	7.9	J
C2-Dibenzothiophenes	19.0	
C3-Dibenzothiophenes	22.6	
Fluoranthene	5.9	J
Pyrene	3.4	J
C1-Fluoranthenes/Pyrenes	8.7	J
Benzo(a)anthracene	1.6	J
Chrysene	1.9	J
C1-Chrysenes	0.2	J
C2-Chrysenes	10.2	J
C3-Chrysenes	1.3	J
C4-Chrysenes	1.6	J
Benzo(b)fluoranthene	1.2	J
Benzo(k)fluoranthene	0.1	J
Benzo(e)pyrene	2.2	J
Benzo(a)pyrene	1.4	J
Perylene	4.0	J
Indeno(1,2,3-c,d)pyrene	0.5	J
Dibenzo(a,h)anthracene	0.6	J
Benzo(g,h,i)perylene	0.9	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	769.4	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	9.6	J
2-Methylnaphthalene	19.6	
2,6-Dimethylnaphthalene	6.4	J
1,6,7-Trimethylnaphthalene	4.9	J
1-Methylphenanthrene	5.2	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	62.7	
Acenapthene-D10	67.2	
Phenanthrene-D10	70.8	
Chrysene-D12	72.8	
Perylene-D12	52.3	

Station	Survey	Replicate
GOC-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0046	C32757

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.29	WET
Dry Weight (g)	0.59	DRY
Solids (%)	5.8	DRY
Lipids (%)	11.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	17.8	
C1-Naphthalenes	22.0	J
C2-Naphthalenes	17.0	
C3-Naphthalenes	27.1	
C4-Naphthalenes	42.0	
Biphenyl	8.9	
Acenaphthylene	4.2	
Acenaphthene	9.9	
Fluorene	16.1	
C1-Fluorenes	102.4	
C2-Fluorenes	128.1	
C3-Fluorenes	319.6	
Anthracene	14.8	
Phenanthrene	19.7	
C1-Phen/Anthracenes	21.0	
C2-Phen/Anthracenes	30.5	
C3-Phen/Anthracenes	16.2	
C4-Phen/Anthracenes	31.7	
Dibenzothiophene	4.6	J
C1-Dibenzothiophenes	4.9	J
C2-Dibenzothiophenes	14.1	
C3-Dibenzothiophenes	22.5	
Fluoranthene	6.3	J
Pyrene	4.0	J
C1-Fluoranthenes/Pyrenes	21.6	
Benzo(a)anthracene	1.9	J
Chrysene	2.3	J
C1-Chrysenes	1.2	J
C2-Chrysenes	16.7	J
C3-Chrysenes	2.1	J
C4-Chrysenes	2.5	J
Benzo(b)fluoranthene	1.1	J
Benzo(k)fluoranthene	0.8	J
Benzo(e)pyrene	3.2	J
Benzo(a)pyrene	2.1	J
Perylene	4.0	J
Indeno(1,2,3-c,d)pyrene	0.6	J
Dibenzo(a,h)anthracene	0.4	J
Benzo(g,h,i)perylene	1.0	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	962.7	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	7.9	J
2-Methylnaphthalene	14.0	
2,6-Dimethylnaphthalene	6.4	J
1,6,7-Trimethylnaphthalene	5.9	
1-Methylphenanthrene	5.1	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	68.6	
Acenapthene-D10	67.0	
Phenanthrene-D10	79.3	
Chrysene-D12	85.1	
Perylene-D12	55.9	

Station	Survey	Replicate
KNH-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0031	C32742

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	1.13	WET
Dry Weight (g)	0.17	DRY
Solids (%)	15.1	DRY
Lipids (%)	6.8	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	77.5	
C1-Naphthalenes	70.8	J
C2-Naphthalenes	53.2	
C3-Naphthalenes	117.9	
C4-Naphthalenes	48.7	
Biphenyl	17.9	J
Acenaphthylene	1.5	J
Acenaphthene	12.5	
Fluorene	6.3	J
C1-Fluorenes	90.4	
C2-Fluorenes	25.4	J
C3-Fluorenes	183.0	
Anthracene	4.4	J
Phenanthrene	24.2	J
C1-Phen/Anthracenes	72.5	
C2-Phen/Anthracenes	21.5	J
C3-Phen/Anthracenes	17.2	J
C4-Phen/Anthracenes	7.4	J
Dibenzothiophene	1.6	J
C1-Dibenzothiophenes	0.8	J
C2-Dibenzothiophenes	2.0	J
C3-Dibenzothiophenes	3.1	J
Fluoranthene	1.2	J
Pyrene	5.4	J
C1-Fluoranthenes/Pyrenes	6.9	J
Benzo(a)anthracene	2.0	J
Chrysene	2.6	J
C1-Chrysenes	1.8	J
C2-Chrysenes	17.4	J
C3-Chrysenes	3.7	J
C4-Chrysenes	4.0	J
Benzo(b)fluoranthene	3.0	J
Benzo(k)fluoranthene	0.8	J
Benzo(e)pyrene	3.6	J
Benzo(a)pyrene	1.1	J
Perylene	6.3	J
Indeno(1,2,3-c,d)pyrene	2.1	J
Dibenzo(a,h)anthracene	0.6	J
Benzo(g,h,i)perylene	3.1	J
TOTAL PAH (ng/g) (Excluding Perylene)	919.1	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	28.9	J
2-Methylnaphthalene	41.9	J
2,6-Dimethylnaphthalene	18.9	J
1,6,7-Trimethylnaphthalene	7.4	J
1-Methylphenanthrene	4.1	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	76.6	
Acenapthene-D10	74.8	
Phenanthrene-D10	75.4	
Chrysene-D12	50.3	
Perylene-D12	61.1	

Station	Survey	Replicate
KNH-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0032	C32743

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	1.04	WET
Dry Weight (g)	0.15	DRY
Solids (%)	14.4	DRY
Lipids (%)	2.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	129.6	
C1-Naphthalenes	109.5	
C2-Naphthalenes	78.8	
C3-Naphthalenes	61.7	
C4-Naphthalenes	13.0	J
Biphenyl	22.4	
Acenaphthylene	2.1	J
Acenaphthene	12.1	
Fluorene	24.9	J
C1-Fluorenes	98.4	
C2-Fluorenes	24.7	J
C3-Fluorenes	85.9	
Anthracene	5.7	J
Phenanthrene	40.7	
C1-Phen/Anthracenes	42.7	J
C2-Phen/Anthracenes	22.4	J
C3-Phen/Anthracenes	4.8	J
C4-Phen/Anthracenes	1.4	J
Dibenzothiophene	4.7	J
C1-Dibenzothiophenes	0.4	J
C2-Dibenzothiophenes	2.5	J
C3-Dibenzothiophenes	0.9	J
Fluoranthene	0.4	J
Pyrene	10.4	J
C1-Fluoranthenes/Pyrenes	1.8	J
Benzo(a)anthracene	6.8	J
Chrysene	6.9	J
C1-Chrysenes	1.4	J
C2-Chrysenes	2.4	J
C3-Chrysenes	5.6	J
C4-Chrysenes	2.5	J
Benzo(b)fluoranthene	5.9	J
Benzo(k)fluoranthene	2.3	J
Benzo(e)pyrene	7.8	J
Benzo(a)pyrene	6.8	J
Perylene	10.3	J
Indeno(1,2,3-c,d)pyrene	3.4	J
Dibenzo(a,h)anthracene	5.1	J
Benzo(g,h,i)perylene	10.7	J
TOTAL PAH (ng/g) (Excluding Perylene)	869.5	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	39.7	
2-Methylnaphthalene	69.8	
2,6-Dimethylnaphthalene	30.0	
1,6,7-Trimethylnaphthalene	120.4	
1-Methylphenanthrene	10.4	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	64.1	
Acenapthene-D10	63.7	
Phenanthrene-D10	61.5	
Chrysene-D12	37.7	Q
Perylene-D12	48.7	

Station	Survey	Replicate
KNH-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0033	C32744

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	5.06	WET
Dry Weight (g)	0.71	DRY
Solids (%)	14.1	DRY
Lipids (%)	4.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	20.7	
C1-Naphthalenes	21.0	
C2-Naphthalenes	17.6	
C3-Naphthalenes	13.8	
C4-Naphthalenes	11.3	
Biphenyl	5.1	
Acenaphthylene	0.5	J
Acenaphthene	5.5	
Fluorene	4.0	J
C1-Fluorenes	26.9	
C2-Fluorenes	15.9	
C3-Fluorenes	66.9	
Anthracene	1.0	J
Phenanthrene	6.5	J
C1-Phen/Anthracenes	8.4	J
C2-Phen/Anthracenes	5.7	J
C3-Phen/Anthracenes	2.0	J
C4-Phen/Anthracenes	6.2	J
Dibenzothiophene	0.7	J
C1-Dibenzothiophenes	0.4	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.8	J
Fluoranthene	0.4	J
Pyrene	2.0	J
C1-Fluoranthenes/Pyrenes	2.7	J
Benzo(a)anthracene	0.7	J
Chrysene	1.7	J
C1-Chrysenes	0.4	J
C2-Chrysenes	10.7	J
C3-Chrysenes	4.2	J
C4-Chrysenes	1.9	J
Benzo(b)fluoranthene	0.7	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	4.9	J
Benzo(a)pyrene	6.8	J
Perylene	4.0	J
Indeno(1,2,3-c,d)pyrene	0.3	J
Dibenzo(a,h)anthracene	0.4	J
Benzo(g,h,i)perylene	0.7	J
TOTAL PAH (ng/g) (Excluding Perylene)	279.7	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	10.5	
2-Methylnaphthalene	10.4	J
2,6-Dimethylnaphthalene	4.1	J
1,6,7-Trimethylnaphthalene	2.1	J
1-Methylphenanthrene	1.2	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	58.0	
Acenapthene-D10	66.7	
Phenanthrene-D10	71.5	
Chrysene-D12	49.0	
Perylene-D12	68.1	

Station	Survey	Replicate
SHB-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0028	C32739

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	3.01	WET
Dry Weight (g)	0.5	DRY
Solids (%)	16.8	DRY
Lipids (%)	3.8	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	29.4	
C1-Naphthalenes	35.7	
C2-Naphthalenes	19.8	
C3-Naphthalenes	53.0	
C4-Naphthalenes	88.4	
Biphenyl	8.0	
Acenaphthylene	1.9	J
Acenaphthene	7.3	
Fluorene	7.0	J
C1-Fluorenes	59.7	
C2-Fluorenes	26.1	
C3-Fluorenes	88.0	
Anthracene	1.4	J
Phenanthrene	12.3	
C1-Phen/Anthracenes	44.9	
C2-Phen/Anthracenes	12.6	J
C3-Phen/Anthracenes	13.9	J
C4-Phen/Anthracenes	3.0	J
Dibenzothiophene	3.0	J
C1-Dibenzothiophenes	1.0	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.4	J
Fluoranthene	0.2	J
Pyrene	2.4	J
C1-Fluoranthenes/Pyrenes	0.8	J
Benzo(a)anthracene	0.5	J
Chrysene	2.0	J
C1-Chrysenes	0.7	J
C2-Chrysenes	0.3	J
C3-Chrysenes	0.5	J
C4-Chrysenes	2.8	J
Benzo(b)fluoranthene	1.2	J
Benzo(k)fluoranthene	1.9	J
Benzo(e)pyrene	2.3	J
Benzo(a)pyrene	3.1	J
Perylene	1.9	J
Indeno(1,2,3-c,d)pyrene	1.7	J
Dibenzo(a,h)anthracene	1.9	J
Benzo(g,h,i)perylene	3.9	J
TOTAL PAH (ng/g) (Excluding Perylene)	542.7	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	14.8	
2-Methylnaphthalene	20.8	
2,6-Dimethylnaphthalene	8.7	
1,6,7-Trimethylnaphthalene	3.5	J
1-Methylphenanthrene	4.0	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	72.8	
Acenapthene-D10	67.6	
Phenanthrene-D10	72.6	
Chrysene-D12	42.4	
Perylene-D12	56.1	

Station	Survey	Replicate
SHB-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0029	C32740

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	1.68	WET
Dry Weight (g)	0.29	DRY
Solids (%)	17.0	DRY
Lipids (%)	0.1	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	52.4	
C1-Naphthalenes	57.0	
C2-Naphthalenes	32.3	
C3-Naphthalenes	48.1	
C4-Naphthalenes	84.9	
Biphenyl	11.4	
Acenaphthylene	2.9	J
Acenaphthene	10.0	
Fluorene	13.1	J
C1-Fluorenes	63.8	
C2-Fluorenes	19.8	J
C3-Fluorenes	62.2	
Anthracene	2.6	J
Phenanthrene	19.3	
C1-Phen/Anthracenes	38.1	
C2-Phen/Anthracenes	17.4	J
C3-Phen/Anthracenes	13.5	J
C4-Phen/Anthracenes	0.6	J
Dibenzothiophene	1.9	J
C1-Dibenzothiophenes	0.8	J
C2-Dibenzothiophenes	0.6	J
C3-Dibenzothiophenes	3.1	J
Fluoranthene	0.3	J
Pyrene	4.9	J
C1-Fluoranthenes/Pyrenes	0.8	J
Benzo(a)anthracene	1.6	J
Chrysene	3.4	J
C1-Chrysenes	1.0	J
C2-Chrysenes	0.8	J
C3-Chrysenes	1.3	J
C4-Chrysenes	1.8	J
Benzo(b)fluoranthene	2.1	J
Benzo(k)fluoranthene	1.1	J
Benzo(e)pyrene	2.8	J
Benzo(a)pyrene	2.5	J
Perylene	4.2	J
Indeno(1,2,3-c,d)pyrene	0.9	J
Dibenzo(a,h)anthracene	2.0	J
Benzo(g,h,i)perylene	4.0	J
TOTAL PAH (ng/g) (Excluding Perylene)	587.0	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	23.3	
2-Methylnaphthalene	33.6	
2,6-Dimethylnaphthalene	12.8	J
1,6,7-Trimethylnaphthalene	8.2	J
1-Methylphenanthrene	4.1	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	88.0	
Acenapthene-D10	83.5	
Phenanthrene-D10	79.0	
Chrysene-D12	43.9	
Perylene-D12	61.9	

Station	Survey	Replicate
SHB-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0030	C32741

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	3.3	WET
Dry Weight (g)	0.54	DRY
Solids (%)	16.3	DRY
Lipids (%)	3.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	28.9	
C1-Naphthalenes	28.1	
C2-Naphthalenes	18.3	
C3-Naphthalenes	12.9	
C4-Naphthalenes	114.0	
Biphenyl	6.5	
Acenaphthylene	1.2	J
Acenaphthene	6.4	
Fluorene	2.6	J
C1-Fluorenes	32.9	
C2-Fluorenes	5.6	J
C3-Fluorenes	107.3	
Anthracene	2.0	J
Phenanthrene	13.8	
C1-Phen/Anthracenes	26.4	
C2-Phen/Anthracenes	17.2	
C3-Phen/Anthracenes	10.1	J
C4-Phen/Anthracenes	4.0	J
Dibenzothiophene	1.5	J
C1-Dibenzothiophenes	2.3	J
C2-Dibenzothiophenes	6.6	J
C3-Dibenzothiophenes	3.3	J
Fluoranthene	0.4	J
Pyrene	5.1	J
C1-Fluoranthenes/Pyrenes	1.7	J
Benzo(a)anthracene	0.8	J
Chrysene	2.7	J
C1-Chrysenes	0.5	J
C2-Chrysenes	3.7	J
C3-Chrysenes	1.1	J
C4-Chrysenes	1.6	J
Benzo(b)fluoranthene	6.2	J
Benzo(k)fluoranthene	0.7	J
Benzo(e)pyrene	3.1	J
Benzo(a)pyrene	0.5	J
Perylene	3.8	J
Indeno(1,2,3-c,d)pyrene	0.8	J
Dibenzo(a,h)anthracene	0.7	J
Benzo(g,h,i)perylene	6.9	J
TOTAL PAH (ng/g) (Excluding Perylene)	488.4	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	11.3	
2-Methylnaphthalene	16.8	
2,6-Dimethylnaphthalene	7.5	
1,6,7-Trimethylnaphthalene	2.9	J
1-Methylphenanthrene	2.3	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	100.0	
Acenapthene-D10	76.9	
Phenanthrene-D10	65.3	
Chrysene-D12	42.9	
Perylene-D12	69.5	

Station	Survey	Replicate
SHH-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0053	C32764

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	5.42	WET
Dry Weight (g)	0.65	DRY
Solids (%)	11.9	DRY
Lipids (%)	8.3	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	16.0	
C1-Naphthalenes	19.7	J
C2-Naphthalenes	11.4	J
C3-Naphthalenes	16.8	
C4-Naphthalenes	11.2	
Biphenyl	5.3	
Acenaphthylene	0.8	J
Acenaphthene	6.1	
Fluorene	5.5	J
C1-Fluorenes	26.5	
C2-Fluorenes	34.7	
C3-Fluorenes	55.7	
Anthracene	2.3	J
Phenanthrene	5.9	J
C1-Phen/Anthracenes	20.7	
C2-Phen/Anthracenes	4.9	J
C3-Phen/Anthracenes	4.7	J
C4-Phen/Anthracenes	2.7	J
Dibenzothiophene	0.4	J
C1-Dibenzothiophenes	0.6	J
C2-Dibenzothiophenes	0.5	J
C3-Dibenzothiophenes	1.3	J
Fluoranthene	1.2	J
Pyrene	1.2	J
C1-Fluoranthenes/Pyrenes	9.0	J
Benzo(a)anthracene	0.8	J
Chrysene	0.8	J
C1-Chrysenes	0.2	J
C2-Chrysenes	7.6	J
C3-Chrysenes	2.1	J
C4-Chrysenes	1.2	J
Benzo(b)fluoranthene	1.2	J
Benzo(k)fluoranthene	0.6	J
Benzo(e)pyrene	1.3	J
Benzo(a)pyrene	0.8	J
Perylene	2.1	J
Indeno(1,2,3-c,d)pyrene	0.2	J
Dibenzo(a,h)anthracene	0.2	J
Benzo(g,h,i)perylene	0.5	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	282.5	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	7.5	J
2-Methylnaphthalene	12.1	J
2,6-Dimethylnaphthalene	3.5	J
1,6,7-Trimethylnaphthalene	3.9	J
1-Methylphenanthrene	1.6	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	81.5	
Acenapthene-D10	80.1	
Phenanthrene-D10	85.4	
Chrysene-D12	87.0	
Perylene-D12	60.4	

Station	Survey	Replicate
SHH-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0054	C32765

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	5.28	WET
Dry Weight (g)	0.63	DRY
Solids (%)	12.0	DRY
Lipids (%)	8.1	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	16.8	
C1-Naphthalenes	19.1	J
C2-Naphthalenes	15.1	
C3-Naphthalenes	12.8	
C4-Naphthalenes	9.6	J
Biphenyl	6.1	
Acenaphthylene	1.5	J
Acenaphthene	5.9	
Fluorene	6.6	J
C1-Fluorenes	20.0	
C2-Fluorenes	26.9	
C3-Fluorenes	37.0	
Anthracene	1.5	J
Phenanthrene	6.6	J
C1-Phen/Anthracenes	15.6	
C2-Phen/Anthracenes	4.7	J
C3-Phen/Anthracenes	1.3	J
C4-Phen/Anthracenes	1.7	J
Dibenzothiophene	0.7	J
C1-Dibenzothiophenes	0.5	J
C2-Dibenzothiophenes	0.5	J
C3-Dibenzothiophenes	1.1	J
Fluoranthene	1.6	J
Pyrene	1.4	J
C1-Fluoranthenes/Pyrenes	2.1	J
Benzo(a)anthracene	0.6	J
Chrysene	1.1	J
C1-Chrysenes	0.4	J
C2-Chrysenes	10.6	J
C3-Chrysenes	1.0	J
C4-Chrysenes	4.3	J
Benzo(b)fluoranthene	0.5	J
Benzo(k)fluoranthene	0.1	J
Benzo(e)pyrene	1.1	J
Benzo(a)pyrene	0.5	J
Perylene	2.7	J
Indeno(1,2,3-c,d)pyrene	0.3	J
Dibenzo(a,h)anthracene	0.4	J
Benzo(g,h,i)perylene	0.4	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	238.1	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	7.1	J
2-Methylnaphthalene	12.1	J
2,6-Dimethylnaphthalene	3.8	J
1,6,7-Trimethylnaphthalene	1.9	J
1-Methylphenanthrene	1.2	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	55.1	
Acenapthene-D10	56.3	
Phenanthrene-D10	60.4	
Chrysene-D12	60.2	
Perylene-D12	43.2	

Station	Survey	Replicate
SHH-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0055	C32766

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	3.2	WET
Dry Weight (g)	0.38	DRY
Solids (%)	11.8	DRY
Lipids (%)	6.8	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	28.8	
C1-Naphthalenes	47.7	
C2-Naphthalenes	25.4	
C3-Naphthalenes	42.1	
C4-Naphthalenes	22.5	
Biphenyl	10.0	
Acenaphthylene	2.1	J
Acenaphthene	7.3	
Fluorene	11.6	J
C1-Fluorenes	41.9	
C2-Fluorenes	44.5	
C3-Fluorenes	99.0	
Anthracene	2.2	J
Phenanthrene	10.6	J
C1-Phen/Anthracenes	19.8	
C2-Phen/Anthracenes	18.2	J
C3-Phen/Anthracenes	12.4	J
C4-Phen/Anthracenes	4.8	J
Dibenzothiophene	1.1	J
C1-Dibenzothiophenes	0.8	J
C2-Dibenzothiophenes	2.3	J
C3-Dibenzothiophenes	1.8	J
Fluoranthene	2.6	J
Pyrene	2.7	J
C1-Fluoranthenes/Pyrenes	5.1	J
Benzo(a)anthracene	1.2	J
Chrysene	1.6	J
C1-Chrysenes	1.0	J
C2-Chrysenes	9.7	J
C3-Chrysenes	1.3	J
C4-Chrysenes	8.0	J
Benzo(b)fluoranthene	1.3	J
Benzo(k)fluoranthene	1.0	J
Benzo(e)pyrene	1.7	J
Benzo(a)pyrene	0.9	J
Perylene	3.0	J
Indeno(1,2,3-c,d)pyrene	0.2	J
Dibenzo(a,h)anthracene	0.5	J
Benzo(g,h,i)perylene	0.2	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	495.6	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	22.3	
2-Methylnaphthalene	25.4	
2,6-Dimethylnaphthalene	8.2	J
1,6,7-Trimethylnaphthalene	5.9	J
1-Methylphenanthrene	10.3	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	58.9	
Acenapthene-D10	56.8	
Phenanthrene-D10	58.7	
Chrysene-D12	63.7	
Perylene-D12	44.0	

Station	Survey	Replicate
SLB-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0041	C32752

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	1.11	WET
Dry Weight (g)	0.18	DRY
Solids (%)	16.4	DRY
Lipids (%)	2.5	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	66.2	
C1-Naphthalenes	76.8	
C2-Naphthalenes	47.2	
C3-Naphthalenes	65.8	
C4-Naphthalenes	1.2	J
Biphenyl	15.1	J
Acenaphthylene	5.8	J
Acenaphthene	38.5	
Fluorene	14.5	J
C1-Fluorenes	61.6	
C2-Fluorenes	41.1	J
C3-Fluorenes	124.3	
Anthracene	2.2	J
Phenanthrene	17.1	J
C1-Phen/Anthracenes	22.8	J
C2-Phen/Anthracenes	21.5	J
C3-Phen/Anthracenes	4.0	J
C4-Phen/Anthracenes	0.4	J
Dibenzothiophene	2.6	J
C1-Dibenzothiophenes	0.0	ND
C2-Dibenzothiophenes	2.5	J
C3-Dibenzothiophenes	1.9	J
Fluoranthene	4.1	J
Pyrene	3.9	J
C1-Fluoranthenes/Pyrenes	0.2	J
Benzo(a)anthracene	1.1	J
Chrysene	1.6	J
C1-Chrysenes	0.5	J
C2-Chrysenes	0.6	J
C3-Chrysenes	1.3	J
C4-Chrysenes	2.3	J
Benzo(b)fluoranthene	2.2	J
Benzo(k)fluoranthene	1.0	J
Benzo(e)pyrene	2.5	J
Benzo(a)pyrene	2.3	J
Perylene	5.1	J
Indeno(1,2,3-c,d)pyrene	3.0	J
Dibenzo(a,h)anthracene	3.0	J
Benzo(g,h,i)perylene	0.7	J
TOTAL PAH (ng/g) (Excluding Perylene)	663.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	34.6	
2-Methylnaphthalene	42.2	J
2,6-Dimethylnaphthalene	19.7	J
1,6,7-Trimethylnaphthalene	81.6	
1-Methylphenanthrene	3.6	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	70.5	
Acenapthene-D10	70.5	
Phenanthrene-D10	75.6	
Chrysene-D12	44.7	
Perylene-D12	52.0	

Station	Survey	Replicate
SLB-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0042	C32753

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	3.08	WET
Dry Weight (g)	0.45	DRY
Solids (%)	14.5	DRY
Lipids (%)	3.4	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	18.1	
C1-Naphthalenes	28.3	J
C2-Naphthalenes	15.8	J
C3-Naphthalenes	16.2	
C4-Naphthalenes	1.9	J
Biphenyl	5.4	J
Acenaphthylene	1.8	J
Acenaphthene	6.3	
Fluorene	5.5	J
C1-Fluorenes	52.5	
C2-Fluorenes	0.5	J
C3-Fluorenes	2.6	J
Anthracene	1.4	J
Phenanthrene	7.7	J
C1-Phen/Anthracenes	31.1	
C2-Phen/Anthracenes	9.5	J
C3-Phen/Anthracenes	0.5	J
C4-Phen/Anthracenes	5.7	J
Dibenzothiophene	1.1	J
C1-Dibenzothiophenes	0.5	J
C2-Dibenzothiophenes	0.9	J
C3-Dibenzothiophenes	0.8	J
Fluoranthene	1.8	J
Pyrene	2.1	J
C1-Fluoranthenes/Pyrenes	4.0	J
Benzo(a)anthracene	1.5	J
Chrysene	1.5	J
C1-Chrysenes	0.2	J
C2-Chrysenes	1.4	J
C3-Chrysenes	0.6	J
C4-Chrysenes	0.7	J
Benzo(b)fluoranthene	0.9	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	2.1	J
Benzo(a)pyrene	1.0	J
Perylene	1.7	J
Indeno(1,2,3-c,d)pyrene	0.1	J
Dibenzo(a,h)anthracene	1.4	J
Benzo(g,h,i)perylene	0.3	J
TOTAL PAH (ng/g) (Excluding Perylene)	234.1	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	13.0	
2-Methylnaphthalene	15.3	J
2,6-Dimethylnaphthalene	6.9	J
1,6,7-Trimethylnaphthalene	36.6	
1-Methylphenanthrene	1.3	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	75.8	
Acenapthene-D10	78.5	
Phenanthrene-D10	80.2	
Chrysene-D12	55.5	
Perylene-D12	49.7	

Station	Survey	Replicate
SLB-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0043	C32754

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	3.05	WET
Dry Weight (g)	0.23	DRY
Solids (%)	7.7	DRY
Lipids (%)	8.7	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	49.1	
C1-Naphthalenes	59.4	
C2-Naphthalenes	33.0	J
C3-Naphthalenes	45.7	
C4-Naphthalenes	20.4	J
Biphenyl	15.7	
Acenaphthylene	1.9	J
Acenaphthene	9.2	
Fluorene	7.5	J
C1-Fluorenes	114.5	
C2-Fluorenes	46.9	
C3-Fluorenes	139.1	
Anthracene	4.5	J
Phenanthrene	17.6	J
C1-Phen/Anthracenes	34.3	
C2-Phen/Anthracenes	9.7	J
C3-Phen/Anthracenes	2.0	J
C4-Phen/Anthracenes	1.3	J
Dibenzothiophene	2.7	J
C1-Dibenzothiophenes	1.2	J
C2-Dibenzothiophenes	0.5	J
C3-Dibenzothiophenes	0.5	J
Fluoranthene	4.1	J
Pyrene	4.7	J
C1-Fluoranthenes/Pyrenes	6.7	J
Benzo(a)anthracene	2.2	J
Chrysene	3.1	J
C1-Chrysenes	0.9	J
C2-Chrysenes	8.0	J
C3-Chrysenes	2.9	J
C4-Chrysenes	3.7	J
Benzo(b)fluoranthene	1.7	J
Benzo(k)fluoranthene	0.8	J
Benzo(e)pyrene	4.2	J
Benzo(a)pyrene	3.1	J
Perylene	4.5	J
Indeno(1,2,3-c,d)pyrene	3.5	J
Dibenzo(a,h)anthracene	2.6	J
Benzo(g,h,i)perylene	4.8	J
TOTAL PAH (ng/g) (Excluding Perylene)	673.6	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	22.2	J
2-Methylnaphthalene	37.3	
2,6-Dimethylnaphthalene	14.2	J
1,6,7-Trimethylnaphthalene	3.4	J
1-Methylphenanthrene	4.2	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	70.2	
Acenapthene-D10	70.5	
Phenanthrene-D10	76.7	
Chrysene-D12	80.2	
Perylene-D12	54.8	

Station	Survey	Replicate
WIB-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0056	C32767

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	3.05	WET
Dry Weight (g)	0.48	DRY
Solids (%)	15.7	DRY
Lipids (%)	14.9	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	24.1	
C1-Naphthalenes	34.1	
C2-Naphthalenes	19.1	
C3-Naphthalenes	27.3	
C4-Naphthalenes	11.0	J
Biphenyl	9.5	
Acenaphthylene	1.4	J
Acenaphthene	11.9	
Fluorene	7.2	J
C1-Fluorenes	52.7	
C2-Fluorenes	59.2	
C3-Fluorenes	228.7	
Anthracene	6.3	J
Phenanthrene	11.1	J
C1-Phen/Anthracenes	21.6	
C2-Phen/Anthracenes	11.6	J
C3-Phen/Anthracenes	5.4	J
C4-Phen/Anthracenes	12.9	J
Dibenzothiophene	1.0	J
C1-Dibenzothiophenes	1.5	J
C2-Dibenzothiophenes	4.0	J
C3-Dibenzothiophenes	3.8	J
Fluoranthene	2.4	J
Pyrene	1.9	J
C1-Fluoranthenes/Pyrenes	9.9	J
Benzo(a)anthracene	0.9	J
Chrysene	1.9	J
C1-Chrysenes	0.5	J
C2-Chrysenes	13.1	J
C3-Chrysenes	0.5	J
C4-Chrysenes	6.5	J
Benzo(b)fluoranthene	0.5	J
Benzo(k)fluoranthene	0.1	J
Benzo(e)pyrene	2.3	J
Benzo(a)pyrene	0.9	J
Perylene	5.7	J
Indeno(1,2,3-c,d)pyrene	0.1	J
Dibenzo(a,h)anthracene	0.3	J
Benzo(g,h,i)perylene	0.4	J
TOTAL PAH (ng/g) (Excluding Perylene)	607.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	13.2	
2-Methylnaphthalene	20.9	
2,6-Dimethylnaphthalene	6.5	J
1,6,7-Trimethylnaphthalene	4.5	J
1-Methylphenanthrene	5.2	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	68.0	
Acenapthene-D10	66.5	
Phenanthrene-D10	70.7	
Chrysene-D12	76.7	
Perylene-D12	54.5	

Station	Survey	Replicate
WIB-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0057	C32768

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	3.13	WET
Dry Weight (g)	0.51	DRY
Solids (%)	16.4	DRY
Lipids (%)	13.2	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	18.4	
C1-Naphthalenes	19.8	J
C2-Naphthalenes	10.0	J
C3-Naphthalenes	17.9	
C4-Naphthalenes	8.4	J
Biphenyl	5.5	J
Acenaphthylene	1.3	J
Acenaphthene	11.9	
Fluorene	5.7	J
C1-Fluorenes	50.9	
C2-Fluorenes	42.4	
C3-Fluorenes	176.3	
Anthracene	6.3	J
Phenanthrene	7.8	J
C1-Phen/Anthracenes	19.4	
C2-Phen/Anthracenes	10.0	J
C3-Phen/Anthracenes	5.9	J
C4-Phen/Anthracenes	13.6	J
Dibenzothiophene	1.7	J
C1-Dibenzothiophenes	1.4	J
C2-Dibenzothiophenes	2.4	J
C3-Dibenzothiophenes	1.1	J
Fluoranthene	2.0	J
Pyrene	1.9	J
C1-Fluoranthenes/Pyrenes	10.6	J
Benzo(a)anthracene	0.7	J
Chrysene	1.1	J
C1-Chrysenes	0.5	J
C2-Chrysenes	9.0	J
C3-Chrysenes	1.8	J
C4-Chrysenes	4.7	J
Benzo(b)fluoranthene	0.9	J
Benzo(k)fluoranthene	0.2	J
Benzo(e)pyrene	2.3	J
Benzo(a)pyrene	1.3	J
Perylene	7.7	
Indeno(1,2,3-c,d)pyrene	0.5	J
Dibenzo(a,h)anthracene	0.5	J
Benzo(g,h,i)perylene	0.4	J
TOTAL PAH (ng/g) (Excluding Perylene)	476.1	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	8.2	J
2-Methylnaphthalene	11.7	J
2,6-Dimethylnaphthalene	4.7	J
1,6,7-Trimethylnaphthalene	3.8	J
1-Methylphenanthrene	3.7	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	61.3	
Acenapthene-D10	61.0	
Phenanthrene-D10	64.8	
Chrysene-D12	66.6	
Perylene-D12	46.2	

Station	Survey	Replicate
WIB-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0058	C32769

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	2.16	WET
Dry Weight (g)	0.37	DRY
Solids (%)	17.2	DRY
Lipids (%)	8.8	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	22.9	
C1-Naphthalenes	25.1	J
C2-Naphthalenes	19.4	J
C3-Naphthalenes	33.0	
C4-Naphthalenes	2.5	J
Biphenyl	8.8	
Acenaphthylene	1.4	J
Acenaphthene	10.6	
Fluorene	5.6	J
C1-Fluorenes	30.8	
C2-Fluorenes	36.5	
C3-Fluorenes	184.0	
Anthracene	5.1	J
Phenanthrene	6.1	J
C1-Phen/Anthracenes	22.9	
C2-Phen/Anthracenes	7.9	J
C3-Phen/Anthracenes	9.1	J
C4-Phen/Anthracenes	21.8	
Dibenzothiophene	1.6	J
C1-Dibenzothiophenes	1.1	J
C2-Dibenzothiophenes	1.6	J
C3-Dibenzothiophenes	10.6	J
Fluoranthene	2.3	J
Pyrene	2.2	J
C1-Fluoranthenes/Pyrenes	14.2	J
Benzo(a)anthracene	0.9	J
Chrysene	0.9	J
C1-Chrysenes	0.5	J
C2-Chrysenes	13.0	J
C3-Chrysenes	2.3	J
C4-Chrysenes	0.9	J
Benzo(b)fluoranthene	0.4	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	1.5	J
Benzo(a)pyrene	0.9	J
Perylene	6.1	J
Indeno(1,2,3-c,d)pyrene	0.4	J
Dibenzo(a,h)anthracene	0.2	J
Benzo(g,h,i)perylene	0.3	J
TOTAL PAH (ng/g) (Excluding Perylene)	509.5	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	10.9	J
2-Methylnaphthalene	14.2	J
2,6-Dimethylnaphthalene	5.0	J
1,6,7-Trimethylnaphthalene	3.3	J
1-Methylphenanthrene	2.1	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	60.0	
Acenapthene-D10	66.1	
Phenanthrene-D10	71.8	
Chrysene-D12	77.6	
Perylene-D12	58.0	

Station	Survey	Replicate
ZAB-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0038	C32749

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	5.03	WET
Dry Weight (g)	0.62	DRY
Solids (%)	12.3	DRY
Lipids (%)	3.7	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	39.1	
C1-Naphthalenes	38.1	
C2-Naphthalenes	17.6	
C3-Naphthalenes	13.6	
C4-Naphthalenes	6.7	J
Biphenyl	9.4	
Acenaphthylene	0.9	J
Acenaphthene	4.8	
Fluorene	7.5	J
C1-Fluorenes	21.1	
C2-Fluorenes	7.3	J
C3-Fluorenes	31.2	
Anthracene	1.7	J
Phenanthrene	13.7	
C1-Phen/Anthracenes	10.8	J
C2-Phen/Anthracenes	3.6	J
C3-Phen/Anthracenes	0.3	J
C4-Phen/Anthracenes	0.2	J
Dibenzothiophene	0.2	J
C1-Dibenzothiophenes	0.0	ND
C2-Dibenzothiophenes	0.7	J
C3-Dibenzothiophenes	0.1	J
Fluoranthene	1.6	J
Pyrene	2.5	J
C1-Fluoranthenes/Pyrenes	0.9	J
Benzo(a)anthracene	1.5	J
Chrysene	1.6	J
C1-Chrysenes	0.5	J
C2-Chrysenes	0.4	J
C3-Chrysenes	1.0	J
C4-Chrysenes	0.7	J
Benzo(b)fluoranthene	0.5	J
Benzo(k)fluoranthene	0.4	J
Benzo(e)pyrene	0.7	J
Benzo(a)pyrene	1.9	J
Perylene	4.4	J
Indeno(1,2,3-c,d)pyrene	0.3	J
Dibenzo(a,h)anthracene	0.8	J
Benzo(g,h,i)perylene	0.4	J
TOTAL PAH (ng/g) (Excluding Perylene)	244.0	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	14.2	
2-Methylnaphthalene	23.9	
2,6-Dimethylnaphthalene	8.3	
1,6,7-Trimethylnaphthalene	0.7	J
1-Methylphenanthrene	3.4	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	88.3	
Acenapthene-D10	81.1	
Phenanthrene-D10	88.7	
Chrysene-D12	60.3	
Perylene-D12	64.2	

Station	Survey	Replicate
ZAB-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0039	C32750

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	5.05	WET
Dry Weight (g)	0.68	DRY
Solids (%)	13.5	DRY
Lipids (%)	3.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	16.8	
C1-Naphthalenes	13.8	J
C2-Naphthalenes	8.6	J
C3-Naphthalenes	17.0	
C4-Naphthalenes	6.1	J
Biphenyl	6.1	
Acenaphthylene	1.2	J
Acenaphthene	5.2	
Fluorene	4.2	J
C1-Fluorenes	25.8	
C2-Fluorenes	6.5	J
C3-Fluorenes	46.5	
Anthracene	0.3	J
Phenanthrene	5.5	J
C1-Phen/Anthracenes	7.7	J
C2-Phen/Anthracenes	2.3	J
C3-Phen/Anthracenes	0.4	J
C4-Phen/Anthracenes	0.3	J
Dibenzothiophene	0.2	J
C1-Dibenzothiophenes	0.6	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.1	J
Fluoranthene	0.9	J
Pyrene	1.2	J
C1-Fluoranthenes/Pyrenes	0.8	J
Benzo(a)anthracene	0.5	J
Chrysene	0.5	J
C1-Chrysenes	0.1	J
C2-Chrysenes	4.2	J
C3-Chrysenes	2.4	J
C4-Chrysenes	0.8	J
Benzo(b)fluoranthene	0.7	J
Benzo(k)fluoranthene	0.2	J
Benzo(e)pyrene	1.5	J
Benzo(a)pyrene	1.3	J
Perylene	4.2	J
Indeno(1,2,3-c,d)pyrene	0.5	J
Dibenzo(a,h)anthracene	0.4	J
Benzo(g,h,i)perylene	0.1	J
TOTAL PAH (ng/g) (Excluding Perylene)	191.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	6.1	J
2-Methylnaphthalene	7.7	J
2,6-Dimethylnaphthalene	4.4	J
1,6,7-Trimethylnaphthalene	20.2	
1-Methylphenanthrene	1.0	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	91.0	
Acenapthene-D10	88.5	
Phenanthrene-D10	91.1	
Chrysene-D12	66.7	
Perylene-D12	58.3	

Station	Survey	Replicate
ZAB-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0040	C32751

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	5.03	WET
Dry Weight (g)	0.57	DRY
Solids (%)	11.2	DRY
Lipids (%)	2.0	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	13.2	
C1-Naphthalenes	23.1	J
C2-Naphthalenes	17.3	
C3-Naphthalenes	17.8	
C4-Naphthalenes	13.0	
Biphenyl	3.9	J
Acenaphthylene	0.8	J
Acenaphthene	7.3	
Fluorene	4.8	J
C1-Fluorenes	37.8	
C2-Fluorenes	13.1	J
C3-Fluorenes	63.2	
Anthracene	0.7	J
Phenanthrene	6.1	J
C1-Phen/Anthracenes	21.3	
C2-Phen/Anthracenes	9.9	J
C3-Phen/Anthracenes	5.8	J
C4-Phen/Anthracenes	0.3	J
Dibenzothiophene	0.6	J
C1-Dibenzothiophenes	1.4	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.1	J
Fluoranthene	0.1	J
Pyrene	1.0	J
C1-Fluoranthenes/Pyrenes	0.4	J
Benzo(a)anthracene	0.7	J
Chrysene	0.3	J
C1-Chrysenes	0.0	ND
C2-Chrysenes	11.0	J
C3-Chrysenes	1.8	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	0.5	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	0.2	J
Benzo(a)pyrene	0.5	J
Perylene	2.8	J
Indeno(1,2,3-c,d)pyrene	0.4	J
Dibenzo(a,h)anthracene	0.2	J
Benzo(g,h,i)perylene	0.2	J
TOTAL PAH (ng/g) (Excluding Perylene)	279.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	10.5	
2-Methylnaphthalene	12.6	J
2,6-Dimethylnaphthalene	5.5	J
1,6,7-Trimethylnaphthalene	1.8	J
1-Methylphenanthrene	1.3	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	61.5	
Acenapthene-D10	67.6	
Phenanthrene-D10	77.2	
Chrysene-D12	56.7	
Perylene-D12	42.3	

Station	Survey	Replicate
AMT-B	15	1

KLI Sample ID	Lab Sample ID
PWS99TIS0062	C33680

Matrix	TISSUE
Sample Type	SAMP
Batch	T1109

Wet Weight (g)	10.01	WET
Dry Weight (g)	0.79	DRY
Solids (%)	7.9	DRY
Lipids (%)	8.0	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	49.2	
C1-Naphthalenes	13.4	J
C2-Naphthalenes	10.7	
C3-Naphthalenes	13.2	
C4-Naphthalenes	19.2	
Biphenyl	2.2	J
Acenaphthylene	0.8	J
Acenaphthene	4.0	
Fluorene	2.8	J
C1-Fluorenes	6.5	J
C2-Fluorenes	11.6	J
C3-Fluorenes	15.0	
Anthracene	0.9	J
Phenanthrene	5.8	J
C1-Phen/Anthracenes	4.3	J
C2-Phen/Anthracenes	3.7	J
C3-Phen/Anthracenes	2.2	J
C4-Phen/Anthracenes	1.2	J
Dibenzothiophene	0.5	J
C1-Dibenzothiophenes	1.9	J
C2-Dibenzothiophenes	2.0	J
C3-Dibenzothiophenes	2.8	J
Fluoranthene	2.5	J
Pyrene	1.8	J
C1-Fluoranthenes/Pyrenes	1.1	J
Benzo(a)anthracene	1.0	J
Chrysene	1.9	J
C1-Chrysenes	1.3	J
C2-Chrysenes	4.1	J
C3-Chrysenes	0.9	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	0.8	J
Benzo(k)fluoranthene	1.1	J
Benzo(e)pyrene	0.9	J
Benzo(a)pyrene	0.6	J
Perylene	0.5	J
Indeno(1,2,3-c,d)pyrene	0.1	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.7	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	192.8	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	5.8	J
2-Methylnaphthalene	7.6	J
2,6-Dimethylnaphthalene	2.5	J
1,6,7-Trimethylnaphthalene	2.5	J
1-Methylphenanthrene	1.7	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	48.1	
Acenapthene-D10	65.2	
Phenanthrene-D10	74.1	
Chrysene-D12	96.8	
Perylene-D12	53.2	

Station	Survey	Replicate
AMT-B	15	2

KLI Sample ID	Lab Sample ID
PWS99TIS0063	C33681

Matrix	TISSUE
Sample Type	SAMP
Batch	T1109

Wet Weight (g)	10.08	WET
Dry Weight (g)	0.72	DRY
Solids (%)	7.1	DRY
Lipids (%)	6.4	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	39.3	
C1-Naphthalenes	11.8	J
C2-Naphthalenes	7.4	J
C3-Naphthalenes	11.1	
C4-Naphthalenes	19.0	
Biphenyl	1.9	J
Acenaphthylene	0.5	J
Acenaphthene	3.7	
Fluorene	2.3	J
C1-Fluorenes	12.8	J
C2-Fluorenes	8.1	J
C3-Fluorenes	18.8	
Anthracene	0.7	J
Phenanthrene	5.0	J
C1-Phen/Anthracenes	2.8	J
C2-Phen/Anthracenes	4.0	J
C3-Phen/Anthracenes	2.5	J
C4-Phen/Anthracenes	1.5	J
Dibenzothiophene	0.5	J
C1-Dibenzothiophenes	0.9	J
C2-Dibenzothiophenes	2.6	J
C3-Dibenzothiophenes	2.2	J
Fluoranthene	2.1	J
Pyrene	1.3	J
C1-Fluoranthenes/Pyrenes	0.8	J
Benzo(a)anthracene	0.8	J
Chrysene	1.7	J
C1-Chrysenes	1.5	J
C2-Chrysenes	2.7	J
C3-Chrysenes	0.7	J
C4-Chrysenes	2.1	J
Benzo(b)fluoranthene	1.1	J
Benzo(k)fluoranthene	0.2	J
Benzo(e)pyrene	0.9	J
Benzo(a)pyrene	0.7	J
Perylene	0.3	J
Indeno(1,2,3-c,d)pyrene	0.0	ND
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.6	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	176.5	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	4.8	J
2-Methylnaphthalene	7.0	J
2,6-Dimethylnaphthalene	2.7	J
1,6,7-Trimethylnaphthalene	1.9	J
1-Methylphenanthrene	1.3	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	46.1	
Acenapthene-D10	65.5	
Phenanthrene-D10	73.9	
Chrysene-D12	99.1	
Perylene-D12	98.2	

Station	Survey	Replicate
AMT-B	15	3

KLI Sample ID	Lab Sample ID
PWS99TIS0064	C33682

Matrix	TISSUE
Sample Type	SAMP
Batch	T1109

Wet Weight (g)	10.26	WET
Dry Weight (g)	0.79	DRY
Solids (%)	7.7	DRY
Lipids (%)	8.7	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	58.0	
C1-Naphthalenes	19.8	
C2-Naphthalenes	16.9	
C3-Naphthalenes	17.7	
C4-Naphthalenes	16.4	
Biphenyl	3.8	J
Acenaphthylene	0.7	J
Acenaphthene	20.4	
Fluorene	24.5	
C1-Fluorenes	15.9	
C2-Fluorenes	11.2	J
C3-Fluorenes	17.2	
Anthracene	7.7	
Phenanthrene	75.3	
C1-Phen/Anthracenes	17.8	
C2-Phen/Anthracenes	7.9	J
C3-Phen/Anthracenes	3.9	J
C4-Phen/Anthracenes	1.1	J
Dibenzothiophene	5.0	
C1-Dibenzothiophenes	3.3	J
C2-Dibenzothiophenes	3.5	J
C3-Dibenzothiophenes	2.2	J
Fluoranthene	44.3	
Pyrene	32.9	
C1-Fluoranthenes/Pyrenes	9.6	J
Benzo(a)anthracene	8.9	
Chrysene	7.5	J
C1-Chrysenes	3.2	J
C2-Chrysenes	3.2	J
C3-Chrysenes	0.7	J
C4-Chrysenes	0.0	ND
Benzo(b)fluoranthene	5.2	J
Benzo(k)fluoranthene	1.0	J
Benzo(e)pyrene	1.8	J
Benzo(a)pyrene	2.5	J
Perylene	0.5	J
Indeno(1,2,3-c,d)pyrene	0.0	ND
Dibenzo(a,h)anthracene	0.2	J
Benzo(g,h,i)perylene	0.6	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	471.6	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	8.0	
2-Methylnaphthalene	11.8	
2,6-Dimethylnaphthalene	6.2	
1,6,7-Trimethylnaphthalene	4.1	J
1-Methylphenanthrene	4.9	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	44.8	
Acenapthene-D10	59.5	
Phenanthrene-D10	66.0	
Chrysene-D12	90.1	
Perylene-D12	92.2	

Station	Survey	Replicate
GOC-B	15	1

KLI Sample ID	Lab Sample ID
PWS99TIS0059	C33677

Matrix	TISSUE
Sample Type	SAMP
Batch	T1109

Wet Weight (g)	10.16	WET
Dry Weight (g)	0.83	DRY
Solids (%)	8.2	DRY
Lipids (%)	4.1	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	75.1	
C1-Naphthalenes	11.0	J
C2-Naphthalenes	7.3	J
C3-Naphthalenes	10.0	
C4-Naphthalenes	4.7	J
Biphenyl	1.9	J
Acenaphthylene	0.7	J
Acenaphthene	4.2	
Fluorene	1.5	J
C1-Fluorenes	6.3	J
C2-Fluorenes	11.5	J
C3-Fluorenes	16.4	
Anthracene	1.0	J
Phenanthrene	6.9	
C1-Phen/Anthracenes	4.0	J
C2-Phen/Anthracenes	3.7	J
C3-Phen/Anthracenes	2.3	J
C4-Phen/Anthracenes	1.2	J
Dibenzothiophene	0.9	J
C1-Dibenzothiophenes	1.4	J
C2-Dibenzothiophenes	1.8	J
C3-Dibenzothiophenes	2.4	J
Fluoranthene	4.8	J
Pyrene	3.2	J
C1-Fluoranthenes/Pyrenes	1.9	J
Benzo(a)anthracene	1.4	J
Chrysene	2.3	J
C1-Chrysenes	0.6	J
C2-Chrysenes	2.6	J
C3-Chrysenes	0.2	J
C4-Chrysenes	1.1	J
Benzo(b)fluoranthene	0.8	J
Benzo(k)fluoranthene	0.9	J
Benzo(e)pyrene	0.8	J
Benzo(a)pyrene	0.7	J
Perylene	0.4	J
Indeno(1,2,3-c,d)pyrene	0.1	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.6	J
TOTAL PAH (ng/g) (Excluding Perylene)	198.1	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	4.7	J
2-Methylnaphthalene	6.3	J
2,6-Dimethylnaphthalene	2.1	J
1,6,7-Trimethylnaphthalene	1.8	J
1-Methylphenanthrene	1.4	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	47.2	
Acenapthene-D10	61.8	
Phenanthrene-D10	73.7	
Chrysene-D12	42.5	
Perylene-D12	40.1	

Station	Survey	Replicate
GOC-B	15	2

KLI Sample ID	Lab Sample ID
PWS99TIS0060	C33678

Matrix	TISSUE
Sample Type	SAMP
Batch	T1109

Wet Weight (g)	10.08	WET
Dry Weight (g)	0.9	DRY
Solids (%)	8.9	DRY
Lipids (%)	5.2	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	53.1	
C1-Naphthalenes	11.2	J
C2-Naphthalenes	9.3	
C3-Naphthalenes	13.6	
C4-Naphthalenes	10.1	
Biphenyl	2.5	J
Acenaphthylene	0.7	J
Acenaphthene	5.0	
Fluorene	1.3	J
C1-Fluorenes	6.8	J
C2-Fluorenes	12.8	
C3-Fluorenes	19.1	
Anthracene	1.0	J
Phenanthrene	8.9	
C1-Phen/Anthracenes	5.1	J
C2-Phen/Anthracenes	4.9	J
C3-Phen/Anthracenes	1.9	J
C4-Phen/Anthracenes	2.1	J
Dibenzothiophene	1.4	J
C1-Dibenzothiophenes	2.9	J
C2-Dibenzothiophenes	4.5	J
C3-Dibenzothiophenes	4.2	J
Fluoranthene	6.5	
Pyrene	4.1	J
C1-Fluoranthenes/Pyrenes	2.7	J
Benzo(a)anthracene	1.6	J
Chrysene	3.0	J
C1-Chrysenes	0.9	J
C2-Chrysenes	3.1	J
C3-Chrysenes	1.6	J
C4-Chrysenes	2.5	J
Benzo(b)fluoranthene	1.1	J
Benzo(k)fluoranthene	1.0	J
Benzo(e)pyrene	1.3	J
Benzo(a)pyrene	0.9	J
Perylene	0.5	J
Indeno(1,2,3-c,d)pyrene	0.0	ND
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.7	J
TOTAL PAH (ng/g) (Excluding Perylene)	213.0	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	4.3	J
2-Methylnaphthalene	6.9	J
2,6-Dimethylnaphthalene	2.7	J
1,6,7-Trimethylnaphthalene	2.3	J
1-Methylphenanthrene	1.9	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	42.8	
Acenapthene-D10	56.9	
Phenanthrene-D10	62.7	
Chrysene-D12	83.1	
Perylene-D12	97.7	

Station	Survey	Replicate
GOC-B	15	3

KLI Sample ID	Lab Sample ID
PWS99TIS0061	C33679

Matrix	TISSUE
Sample Type	SAMP
Batch	T1109

Wet Weight (g)	10.41	WET
Dry Weight (g)	0.89	DRY
Solids (%)	8.5	DRY
Lipids (%)	7.5	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	32.2	
C1-Naphthalenes	10.6	J
C2-Naphthalenes	9.9	
C3-Naphthalenes	12.2	
C4-Naphthalenes	5.2	J
Biphenyl	1.8	J
Acenaphthylene	0.6	J
Acenaphthene	3.4	
Fluorene	2.9	J
C1-Fluorenes	8.0	J
C2-Fluorenes	9.3	J
C3-Fluorenes	17.7	
Anthracene	1.1	J
Phenanthrene	6.9	
C1-Phen/Anthracenes	4.1	J
C2-Phen/Anthracenes	4.5	J
C3-Phen/Anthracenes	2.0	J
C4-Phen/Anthracenes	1.1	J
Dibenzothiophene	0.6	J
C1-Dibenzothiophenes	1.7	J
C2-Dibenzothiophenes	2.5	J
C3-Dibenzothiophenes	3.6	J
Fluoranthene	3.4	J
Pyrene	1.9	J
C1-Fluoranthenes/Pyrenes	2.4	J
Benzo(a)anthracene	1.1	J
Chrysene	1.9	J
C1-Chrysenes	0.4	J
C2-Chrysenes	3.4	J
C3-Chrysenes	0.2	J
C4-Chrysenes	2.2	J
Benzo(b)fluoranthene	0.8	J
Benzo(k)fluoranthene	0.9	J
Benzo(e)pyrene	1.0	J
Benzo(a)pyrene	0.4	J
Perylene	0.3	J
Indeno(1,2,3-c,d)pyrene	0.1	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.1	J
TOTAL PAH (ng/g) (Excluding Perylene)	162.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	4.4	J
2-Methylnaphthalene	6.2	J
2,6-Dimethylnaphthalene	2.4	J
1,6,7-Trimethylnaphthalene	2.0	J
1-Methylphenanthrene	1.8	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	42.7	
Acenapthene-D10	55.1	
Phenanthrene-D10	64.6	
Chrysene-D12	88.8	
Perylene-D12	89.3	

Station	Survey	Replicate
AIB-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0001	C34850

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	8.04	WET
Dry Weight (g)	1.32	DRY
Solids (%)	16.5	DRY
Lipids (%)	7.1	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	9.6	
C1-Naphthalenes	11.1	
C2-Naphthalenes	8.7	
C3-Naphthalenes	7.6	
C4-Naphthalenes	0.2	J
Biphenyl	2.8	
Acenaphthylene	0.4	J
Acenaphthene	5.6	
Fluorene	2.8	J
C1-Fluorenes	1.0	J
C2-Fluorenes	1.4	J
C3-Fluorenes	3.6	J
Anthracene	0.9	J
Phenanthrene	3.5	J
C1-Phen/Anthracenes	2.0	J
C2-Phen/Anthracenes	0.2	J
C3-Phen/Anthracenes	0.1	J
C4-Phen/Anthracenes	0.1	J
Dibenzothiophene	0.3	J
C1-Dibenzothiophenes	0.1	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.2	J
Fluoranthene	1.2	J
Pyrene	1.1	J
C1-Fluoranthenes/Pyrenes	2.1	J
Benzo(a)anthracene	0.5	J
Chrysene	1.1	J
C1-Chrysenes	0.1	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.2	J
C4-Chrysenes	0.9	J
Benzo(b)fluoranthene	0.9	J
Benzo(k)fluoranthene	0.2	J
Benzo(e)pyrene	0.5	J
Benzo(a)pyrene	2.3	J
Perylene	2.8	
Indeno(1,2,3-c,d)pyrene	0.6	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.4	J
TOTAL PAH (ng/g) (Excluding Perylene)	74.4	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	4.5	
2-Methylnaphthalene	6.6	
2,6-Dimethylnaphthalene	2.1	J
1,6,7-Trimethylnaphthalene	1.1	J
1-Methylphenanthrene	0.8	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	75.1	
Acenapthene-D10	81.3	
Phenanthrene-D10	84.0	
Chrysene-D12	77.6	
Perylene-D12	71.2	

Station	Survey	Replicate
AIB-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0002	C34851

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	10.2	WET
Dry Weight (g)	0.99	DRY
Solids (%)	9.7	DRY
Lipids (%)	5.7	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	8.5	
C1-Naphthalenes	10.0	J
C2-Naphthalenes	6.2	J
C3-Naphthalenes	7.6	
C4-Naphthalenes	0.8	J
Biphenyl	3.0	J
Acenaphthylene	0.6	J
Acenaphthene	5.2	
Fluorene	2.8	J
C1-Fluorenes	0.6	J
C2-Fluorenes	0.9	J
C3-Fluorenes	2.5	J
Anthracene	1.0	J
Phenanthrene	3.6	J
C1-Phen/Anthracenes	7.8	
C2-Phen/Anthracenes	0.1	J
C3-Phen/Anthracenes	0.0	ND
C4-Phen/Anthracenes	0.0	ND
Dibenzothiophene	0.3	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.1	J
Fluoranthene	1.1	J
Pyrene	0.9	J
C1-Fluoranthenes/Pyrenes	1.7	J
Benzo(a)anthracene	0.4	J
Chrysene	0.8	J
C1-Chrysenes	0.1	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.2	J
C4-Chrysenes	0.0	ND
Benzo(b)fluoranthene	0.6	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	0.4	J
Benzo(a)pyrene	1.8	J
Perylene	2.1	J
Indeno(1,2,3-c,d)pyrene	0.4	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.3	J
TOTAL PAH (ng/g) (Excluding Perylene)	71.0	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	4.3	J
2-Methylnaphthalene	5.7	J
2,6-Dimethylnaphthalene	2.2	J
1,6,7-Trimethylnaphthalene	1.3	J
1-Methylphenanthrene	0.7	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	75.7	
Acenapthene-D10	80.3	
Phenanthrene-D10	81.6	
Chrysene-D12	78.3	
Perylene-D12	72.1	

Station	Survey	Replicate
AIB-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0003	C34852

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	7.04	WET
Dry Weight (g)	0.74	DRY
Solids (%)	10.5	DRY
Lipids (%)	4.2	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	14.1	
C1-Naphthalenes	14.7	J
C2-Naphthalenes	7.2	J
C3-Naphthalenes	4.6	J
C4-Naphthalenes	0.9	J
Biphenyl	3.3	J
Acenaphthylene	0.5	J
Acenaphthene	6.1	
Fluorene	3.9	J
C1-Fluorenes	1.4	J
C2-Fluorenes	2.4	J
C3-Fluorenes	0.8	J
Anthracene	0.7	J
Phenanthrene	5.0	J
C1-Phen/Anthracenes	2.6	J
C2-Phen/Anthracenes	0.3	J
C3-Phen/Anthracenes	0.1	J
C4-Phen/Anthracenes	0.1	J
Dibenzothiophene	0.4	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.2	J
Fluoranthene	1.6	J
Pyrene	1.4	J
C1-Fluoranthenes/Pyrenes	1.9	J
Benzo(a)anthracene	0.7	J
Chrysene	1.1	J
C1-Chrysenes	0.0	ND
C2-Chrysenes	0.1	J
C3-Chrysenes	0.1	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	1.0	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	0.7	J
Benzo(a)pyrene	1.8	J
Perylene	2.1	J
Indeno(1,2,3-c,d)pyrene	0.6	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.5	J
TOTAL PAH (ng/g) (Excluding Perylene)	81.4	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	6.7	J
2-Methylnaphthalene	8.1	J
2,6-Dimethylnaphthalene	2.4	J
1,6,7-Trimethylnaphthalene	1.3	J
1-Methylphenanthrene	1.1	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	73.8	
Acenapthene-D10	81.3	
Phenanthrene-D10	82.1	
Chrysene-D12	74.5	
Perylene-D12	73.2	

Station	Survey	Replicate
AMT-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0025	C34874

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.14	WET
Dry Weight (g)	0.99	DRY
Solids (%)	9.8	DRY
Lipids (%)	7.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	13.0	
C1-Naphthalenes	10.9	J
C2-Naphthalenes	10.1	
C3-Naphthalenes	9.0	
C4-Naphthalenes	0.1	J
Biphenyl	0.4	J
Acenaphthylene	1.1	J
Acenaphthene	4.3	
Fluorene	6.4	
C1-Fluorenes	1.6	J
C2-Fluorenes	0.9	J
C3-Fluorenes	9.9	
Anthracene	0.7	J
Phenanthrene	6.4	
C1-Phen/Anthracenes	0.4	J
C2-Phen/Anthracenes	0.4	J
C3-Phen/Anthracenes	0.4	J
C4-Phen/Anthracenes	1.2	J
Dibenzothiophene	0.8	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.2	J
C3-Dibenzothiophenes	0.1	J
Fluoranthene	3.7	J
Pyrene	2.3	J
C1-Fluoranthenes/Pyrenes	3.3	J
Benzo(a)anthracene	1.5	J
Chrysene	2.2	J
C1-Chrysenes	0.2	J
C2-Chrysenes	0.3	J
C3-Chrysenes	0.4	J
C4-Chrysenes	0.4	J
Benzo(b)fluoranthene	0.8	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	1.1	J
Benzo(a)pyrene	0.9	J
Perylene	1.2	J
Indeno(1,2,3-c,d)pyrene	0.6	J
Dibenzo(a,h)anthracene	0.7	J
Benzo(g,h,i)perylene	0.7	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	97.8	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	4.6	J
2-Methylnaphthalene	6.3	J
2,6-Dimethylnaphthalene	2.8	J
1,6,7-Trimethylnaphthalene	2.5	J
1-Methylphenanthrene	1.3	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	70.4	
Acenapthene-D10	82.9	
Phenanthrene-D10	88.9	
Chrysene-D12	88.7	
Perylene-D12	74.5	

Station	Survey	Replicate
AMT-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0026	C34875

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.22	WET
Dry Weight (g)	0.82	DRY
Solids (%)	8.0	DRY
Lipids (%)	7.0	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	10.1	
C1-Naphthalenes	14.0	J
C2-Naphthalenes	15.9	
C3-Naphthalenes	10.1	
C4-Naphthalenes	1.0	J
Biphenyl	2.5	J
Acenaphthylene	1.0	J
Acenaphthene	5.4	
Fluorene	8.2	
C1-Fluorenes	0.7	J
C2-Fluorenes	0.6	J
C3-Fluorenes	2.0	J
Anthracene	0.6	J
Phenanthrene	6.5	J
C1-Phen/Anthracenes	0.6	J
C2-Phen/Anthracenes	0.8	J
C3-Phen/Anthracenes	0.3	J
C4-Phen/Anthracenes	0.1	J
Dibenzothiophene	0.7	J
C1-Dibenzothiophenes	0.1	J
C2-Dibenzothiophenes	0.2	J
C3-Dibenzothiophenes	0.1	J
Fluoranthene	4.0	J
Pyrene	1.8	J
C1-Fluoranthenes/Pyrenes	2.2	J
Benzo(a)anthracene	0.9	J
Chrysene	2.2	J
C1-Chrysenes	0.0	ND
C2-Chrysenes	0.3	J
C3-Chrysenes	0.2	J
C4-Chrysenes	0.5	J
Benzo(b)fluoranthene	0.9	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	0.7	J
Benzo(a)pyrene	0.7	J
Perylene	0.8	J
Indeno(1,2,3-c,d)pyrene	0.5	J
Dibenzo(a,h)anthracene	0.7	J
Benzo(g,h,i)perylene	0.5	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	97.4	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	5.7	J
2-Methylnaphthalene	8.3	J
2,6-Dimethylnaphthalene	3.9	J
1,6,7-Trimethylnaphthalene	3.1	J
1-Methylphenanthrene	2.0	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	72.1	
Acenapthene-D10	86.3	
Phenanthrene-D10	89.0	
Chrysene-D12	88.8	
Perylene-D12	60.2	

Station	Survey	Replicate
AMT-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0027	C34876

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	7.48	WET
Dry Weight (g)	0.56	DRY
Solids (%)	7.5	DRY
Lipids (%)	6.5	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	13.6	
C1-Naphthalenes	18.8	J
C2-Naphthalenes	19.9	
C3-Naphthalenes	28.6	
C4-Naphthalenes	22.7	
Biphenyl	18.6	
Acenaphthylene	1.4	J
Acenaphthene	7.0	
Fluorene	6.3	J
C1-Fluorenes	0.5	J
C2-Fluorenes	1.2	J
C3-Fluorenes	1.6	J
Anthracene	0.7	J
Phenanthrene	8.3	J
C1-Phen/Anthracenes	1.1	J
C2-Phen/Anthracenes	2.6	J
C3-Phen/Anthracenes	0.8	J
C4-Phen/Anthracenes	2.0	J
Dibenzothiophene	0.9	J
C1-Dibenzothiophenes	0.1	J
C2-Dibenzothiophenes	0.7	J
C3-Dibenzothiophenes	0.3	J
Fluoranthene	5.2	J
Pyrene	3.8	J
C1-Fluoranthenes/Pyrenes	7.1	J
Benzo(a)anthracene	1.3	J
Chrysene	3.1	J
C1-Chrysenes	0.2	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.7	J
C4-Chrysenes	0.3	J
Benzo(b)fluoranthene	2.2	J
Benzo(k)fluoranthene	0.8	J
Benzo(e)pyrene	1.5	J
Benzo(a)pyrene	0.8	J
Perylene	1.5	J
Indeno(1,2,3-c,d)pyrene	0.8	J
Dibenzo(a,h)anthracene	0.2	J
Benzo(g,h,i)perylene	0.9	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	186.6	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	7.7	J
2-Methylnaphthalene	11.1	J
2,6-Dimethylnaphthalene	5.9	J
1,6,7-Trimethylnaphthalene	5.8	J
1-Methylphenanthrene	2.9	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	76.6	
Acenapthene-D10	87.1	
Phenanthrene-D10	92.1	
Chrysene-D12	91.6	
Perylene-D12	52.3	

Station	Survey	Replicate
DII-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0022	C34871

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.19	WET
Dry Weight (g)	0.95	DRY
Solids (%)	9.3	DRY
Lipids (%)	5.9	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	14.0	
C1-Naphthalenes	6.8	J
C2-Naphthalenes	5.8	J
C3-Naphthalenes	9.3	
C4-Naphthalenes	0.1	J
Biphenyl	2.0	J
Acenaphthylene	0.6	J
Acenaphthene	4.6	
Fluorene	4.7	J
C1-Fluorenes	0.1	J
C2-Fluorenes	0.6	J
C3-Fluorenes	1.5	J
Anthracene	0.4	J
Phenanthrene	3.0	J
C1-Phen/Anthracenes	0.3	J
C2-Phen/Anthracenes	0.2	J
C3-Phen/Anthracenes	0.5	J
C4-Phen/Anthracenes	1.1	J
Dibenzothiophene	0.5	J
C1-Dibenzothiophenes	0.1	J
C2-Dibenzothiophenes	0.0	ND
C3-Dibenzothiophenes	0.1	J
Fluoranthene	2.0	J
Pyrene	1.2	J
C1-Fluoranthenes/Pyrenes	1.3	J
Benzo(a)anthracene	0.6	J
Chrysene	1.9	J
C1-Chrysenes	0.1	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.1	J
C4-Chrysenes	0.5	J
Benzo(b)fluoranthene	1.3	J
Benzo(k)fluoranthene	0.6	J
Benzo(e)pyrene	0.9	J
Benzo(a)pyrene	0.9	J
Perylene	1.1	J
Indeno(1,2,3-c,d)pyrene	0.5	J
Dibenzo(a,h)anthracene	0.3	J
Benzo(g,h,i)perylene	0.5	J
TOTAL PAH (ng/g) (Excluding Perylene)	69.0	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	3.3	J
2-Methylnaphthalene	3.5	J
2,6-Dimethylnaphthalene	1.9	J
1,6,7-Trimethylnaphthalene	1.2	J
1-Methylphenanthrene	0.8	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	81.4	
Acenapthene-D10	89.3	
Phenanthrene-D10	88.5	
Chrysene-D12	86.4	
Perylene-D12	67.0	

Station	Survey	Replicate
DII-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0023	C34872

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	8.06	WET
Dry Weight (g)	0.82	DRY
Solids (%)	10.1	DRY
Lipids (%)	6.7	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	10.6	
C1-Naphthalenes	11.5	J
C2-Naphthalenes	6.5	J
C3-Naphthalenes	4.9	J
C4-Naphthalenes	0.9	J
Biphenyl	2.4	J
Acenaphthylene	0.8	J
Acenaphthene	1.7	J
Fluorene	5.5	J
C1-Fluorenes	0.2	J
C2-Fluorenes	1.3	J
C3-Fluorenes	1.1	J
Anthracene	0.8	J
Phenanthrene	4.3	J
C1-Phen/Anthracenes	0.2	J
C2-Phen/Anthracenes	0.4	J
C3-Phen/Anthracenes	0.1	J
C4-Phen/Anthracenes	1.4	J
Dibenzothiophene	0.8	J
C1-Dibenzothiophenes	0.5	J
C2-Dibenzothiophenes	0.0	ND
C3-Dibenzothiophenes	0.2	J
Fluoranthene	2.4	J
Pyrene	1.6	J
C1-Fluoranthenes/Pyrenes	0.3	J
Benzo(a)anthracene	1.3	J
Chrysene	2.2	J
C1-Chrysenes	0.1	J
C2-Chrysenes	0.2	J
C3-Chrysenes	0.3	J
C4-Chrysenes	0.2	J
Benzo(b)fluoranthene	1.2	J
Benzo(k)fluoranthene	0.7	J
Benzo(e)pyrene	1.0	J
Benzo(a)pyrene	1.2	J
Perylene	1.1	J
Indeno(1,2,3-c,d)pyrene	0.7	J
Dibenzo(a,h)anthracene	0.3	J
Benzo(g,h,i)perylene	0.6	J
TOTAL PAH (ng/g) (Excluding Perylene)	69.9	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	4.6	J
2-Methylnaphthalene	6.9	J
2,6-Dimethylnaphthalene	2.0	J
1,6,7-Trimethylnaphthalene	1.8	J
1-Methylphenanthrene	1.2	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	62.9	
Acenapthene-D10	82.2	
Phenanthrene-D10	87.5	
Chrysene-D12	89.9	
Perylene-D12	78.0	

Station	Survey	Replicate
DII-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0024	C34873

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.25	WET
Dry Weight (g)	0.92	DRY
Solids (%)	9.0	DRY
Lipids (%)	6.1	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	8.3	
C1-Naphthalenes	10.0	J
C2-Naphthalenes	7.4	J
C3-Naphthalenes	5.2	J
C4-Naphthalenes	0.1	J
Biphenyl	2.3	J
Acenaphthylene	0.4	J
Acenaphthene	1.5	J
Fluorene	5.9	
C1-Fluorenes	0.8	J
C2-Fluorenes	0.6	J
C3-Fluorenes	2.3	J
Anthracene	0.6	J
Phenanthrene	3.3	J
C1-Phen/Anthracenes	0.3	J
C2-Phen/Anthracenes	0.2	J
C3-Phen/Anthracenes	0.1	J
C4-Phen/Anthracenes	0.3	J
Dibenzothiophene	0.4	J
C1-Dibenzothiophenes	0.1	J
C2-Dibenzothiophenes	0.0	ND
C3-Dibenzothiophenes	0.1	J
Fluoranthene	2.1	J
Pyrene	1.4	J
C1-Fluoranthenes/Pyrenes	1.0	J
Benzo(a)anthracene	0.7	J
Chrysene	1.6	J
C1-Chrysenes	0.2	J
C2-Chrysenes	0.2	J
C3-Chrysenes	0.2	J
C4-Chrysenes	0.3	J
Benzo(b)fluoranthene	1.1	J
Benzo(k)fluoranthene	0.4	J
Benzo(e)pyrene	0.8	J
Benzo(a)pyrene	0.8	J
Perylene	0.3	J
Indeno(1,2,3-c,d)pyrene	0.6	J
Dibenzo(a,h)anthracene	0.2	J
Benzo(g,h,i)perylene	0.5	J
TOTAL PAH (ng/g) (Excluding Perylene)	61.7	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	3.7	J
2-Methylnaphthalene	6.2	J
2,6-Dimethylnaphthalene	1.7	J
1,6,7-Trimethylnaphthalene	1.4	J
1-Methylphenanthrene	0.7	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	64.0	
Acenapthene-D10	81.4	
Phenanthrene-D10	86.8	
Chrysene-D12	88.4	
Perylene-D12	70.0	

Station	Survey	Replicate
GOC-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0028	C34877

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.23	WET
Dry Weight (g)	0.98	DRY
Solids (%)	9.6	DRY
Lipids (%)	6.5	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	7.5	
C1-Naphthalenes	11.4	J
C2-Naphthalenes	17.1	
C3-Naphthalenes	12.5	
C4-Naphthalenes	20.7	
Biphenyl	2.2	J
Acenaphthylene	1.0	J
Acenaphthene	6.6	
Fluorene	8.8	
C1-Fluorenes	0.2	J
C2-Fluorenes	0.8	J
C3-Fluorenes	4.9	J
Anthracene	1.0	J
Phenanthrene	11.6	
C1-Phen/Anthracenes	0.4	J
C2-Phen/Anthracenes	0.3	J
C3-Phen/Anthracenes	0.1	J
C4-Phen/Anthracenes	11.0	
Dibenzothiophene	1.1	J
C1-Dibenzothiophenes	4.3	J
C2-Dibenzothiophenes	0.3	J
C3-Dibenzothiophenes	0.4	J
Fluoranthene	1.6	J
Pyrene	4.7	J
C1-Fluoranthenes/Pyrenes	6.3	J
Benzo(a)anthracene	1.8	J
Chrysene	4.1	J
C1-Chrysenes	0.2	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.7	J
C4-Chrysenes	0.4	J
Benzo(b)fluoranthene	1.8	J
Benzo(k)fluoranthene	1.2	J
Benzo(e)pyrene	1.3	J
Benzo(a)pyrene	1.0	J
Perylene	1.2	J
Indeno(1,2,3-c,d)pyrene	0.8	J
Dibenzo(a,h)anthracene	0.6	J
Benzo(g,h,i)perylene	0.4	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	151.0	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	4.6	J
2-Methylnaphthalene	6.8	J
2,6-Dimethylnaphthalene	3.8	J
1,6,7-Trimethylnaphthalene	3.6	
1-Methylphenanthrene	2.7	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	73.7	
Acenapthene-D10	84.1	
Phenanthrene-D10	89.4	
Chrysene-D12	89.1	
Perylene-D12	54.7	

Station	Survey	Replicate
GOC-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0029	C34878

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.05	WET
Dry Weight (g)	0.93	DRY
Solids (%)	9.2	DRY
Lipids (%)	7.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	9.2	
C1-Naphthalenes	11.7	J
C2-Naphthalenes	12.6	
C3-Naphthalenes	8.6	
C4-Naphthalenes	0.9	J
Biphenyl	2.2	J
Acenaphthylene	1.0	J
Acenaphthene	5.0	
Fluorene	7.6	
C1-Fluorenes	0.5	J
C2-Fluorenes	0.6	J
C3-Fluorenes	3.0	J
Anthracene	0.8	J
Phenanthrene	10.6	
C1-Phen/Anthracenes	0.7	J
C2-Phen/Anthracenes	0.4	J
C3-Phen/Anthracenes	0.3	J
C4-Phen/Anthracenes	16.0	
Dibenzothiophene	1.0	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.2	J
C3-Dibenzothiophenes	0.3	J
Fluoranthene	1.6	J
Pyrene	5.7	J
C1-Fluoranthenes/Pyrenes	5.8	J
Benzo(a)anthracene	2.9	J
Chrysene	4.2	J
C1-Chrysenes	0.1	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.2	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	2.1	J
Benzo(k)fluoranthene	1.1	J
Benzo(e)pyrene	1.8	J
Benzo(a)pyrene	1.4	J
Perylene	1.2	J
Indeno(1,2,3-c,d)pyrene	1.0	J
Dibenzo(a,h)anthracene	0.2	J
Benzo(g,h,i)perylene	0.7	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	122.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	5.0	J
2-Methylnaphthalene	6.7	J
2,6-Dimethylnaphthalene	2.9	J
1,6,7-Trimethylnaphthalene	2.7	J
1-Methylphenanthrene	2.5	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	74.5	
Acenapthene-D10	88.1	
Phenanthrene-D10	88.6	
Chrysene-D12	90.5	
Perylene-D12	70.1	

Station	Survey	Replicate
GOC-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0030	C34879

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.71	WET
Dry Weight (g)	1.24	DRY
Solids (%)	11.6	DRY
Lipids (%)	9.3	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	9.6	
C1-Naphthalenes	13.0	
C2-Naphthalenes	12.7	
C3-Naphthalenes	9.4	
C4-Naphthalenes	7.3	
Biphenyl	2.6	
Acenaphthylene	1.4	
Acenaphthene	5.4	
Fluorene	9.1	
C1-Fluorenes	0.1	J
C2-Fluorenes	0.6	J
C3-Fluorenes	1.8	J
Anthracene	1.4	J
Phenanthrene	12.4	
C1-Phen/Anthracenes	0.6	J
C2-Phen/Anthracenes	0.5	J
C3-Phen/Anthracenes	0.4	J
C4-Phen/Anthracenes	15.5	
Dibenzothiophene	1.1	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.3	J
Fluoranthene	1.8	J
Pyrene	5.8	
C1-Fluoranthenes/Pyrenes	5.2	J
Benzo(a)anthracene	3.1	J
Chrysene	4.9	J
C1-Chrysenes	0.2	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.2	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	2.7	J
Benzo(k)fluoranthene	1.1	J
Benzo(e)pyrene	1.7	J
Benzo(a)pyrene	1.1	J
Perylene	0.9	J
Indeno(1,2,3-c,d)pyrene	0.8	J
Dibenzo(a,h)anthracene	1.1	J
Benzo(g,h,i)perylene	0.5	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	135.6	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	5.8	
2-Methylnaphthalene	7.2	
2,6-Dimethylnaphthalene	2.5	J
1,6,7-Trimethylnaphthalene	2.6	J
1-Methylphenanthrene	2.5	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	72.2	
Acenapthene-D10	83.3	
Phenanthrene-D10	84.9	
Chrysene-D12	85.7	
Perylene-D12	63.5	

Station	Survey	Replicate
KNH-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0010	C34859

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.19	WET
Dry Weight (g)	0.54	DRY
Solids (%)	10.4	DRY
Lipids (%)	6.8	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	22.3	
C1-Naphthalenes	21.7	J
C2-Naphthalenes	11.2	J
C3-Naphthalenes	9.2	J
C4-Naphthalenes	0.6	J
Biphenyl	4.2	J
Acenaphthylene	1.2	J
Acenaphthene	5.5	
Fluorene	3.2	J
C1-Fluorenes	1.3	J
C2-Fluorenes	1.0	J
C3-Fluorenes	0.8	J
Anthracene	0.9	J
Phenanthrene	6.2	J
C1-Phen/Anthracenes	9.0	J
C2-Phen/Anthracenes	0.6	J
C3-Phen/Anthracenes	0.5	J
C4-Phen/Anthracenes	0.1	J
Dibenzothiophene	0.5	J
C1-Dibenzothiophenes	0.4	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	1.5	J
Fluoranthene	2.7	J
Pyrene	2.4	J
C1-Fluoranthenes/Pyrenes	1.6	J
Benzo(a)anthracene	0.9	J
Chrysene	1.5	J
C1-Chrysenes	0.1	J
C2-Chrysenes	0.3	J
C3-Chrysenes	0.1	J
C4-Chrysenes	0.5	J
Benzo(b)fluoranthene	0.9	J
Benzo(k)fluoranthene	0.5	J
Benzo(e)pyrene	0.6	J
Benzo(a)pyrene	1.0	J
Perylene	0.9	J
Indeno(1,2,3-c,d)pyrene	0.2	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.6	J
TOTAL PAH (ng/g) (Excluding Perylene)	116.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	8.6	J
2-Methylnaphthalene	13.2	J
2,6-Dimethylnaphthalene	3.6	J
1,6,7-Trimethylnaphthalene	2.1	J
1-Methylphenanthrene	1.5	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	63.2	
Acenapthene-D10	69.3	
Phenanthrene-D10	72.9	
Chrysene-D12	66.7	
Perylene-D12	48.8	

Station	Survey	Replicate
KNH-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0011	C34860

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.02	WET
Dry Weight (g)	0.47	DRY
Solids (%)	9.5	DRY
Lipids (%)	5.3	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	29.3	
C1-Naphthalenes	32.3	
C2-Naphthalenes	16.9	
C3-Naphthalenes	13.9	J
C4-Naphthalenes	0.3	J
Biphenyl	5.2	J
Acenaphthylene	1.1	J
Acenaphthene	5.5	
Fluorene	4.1	J
C1-Fluorenes	3.0	J
C2-Fluorenes	0.5	J
C3-Fluorenes	1.4	J
Anthracene	1.2	J
Phenanthrene	8.2	J
C1-Phen/Anthracenes	0.7	J
C2-Phen/Anthracenes	0.7	J
C3-Phen/Anthracenes	1.8	J
C4-Phen/Anthracenes	0.3	J
Dibenzothiophene	0.5	J
C1-Dibenzothiophenes	0.1	J
C2-Dibenzothiophenes	0.6	J
C3-Dibenzothiophenes	0.8	J
Fluoranthene	2.5	J
Pyrene	2.5	J
C1-Fluoranthenes/Pyrenes	3.7	J
Benzo(a)anthracene	0.9	J
Chrysene	1.4	J
C1-Chrysenes	0.3	J
C2-Chrysenes	0.2	J
C3-Chrysenes	0.1	J
C4-Chrysenes	0.3	J
Benzo(b)fluoranthene	0.9	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	0.8	J
Benzo(a)pyrene	0.8	J
Perylene	0.8	J
Indeno(1,2,3-c,d)pyrene	0.3	J
Dibenzo(a,h)anthracene	0.2	J
Benzo(g,h,i)perylene	0.5	J
TOTAL PAH (ng/g) (Excluding Perylene)	143.8	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	13.0	
2-Methylnaphthalene	19.3	
2,6-Dimethylnaphthalene	5.3	J
1,6,7-Trimethylnaphthalene	2.7	J
1-Methylphenanthrene	1.6	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	71.1	
Acenapthene-D10	79.0	
Phenanthrene-D10	80.9	
Chrysene-D12	75.6	
Perylene-D12	59.6	

Station	Survey	Replicate
KNH-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0012	C34861

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.13	WET
Dry Weight (g)	0.66	DRY
Solids (%)	12.9	DRY
Lipids (%)	7.8	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	11.9	
C1-Naphthalenes	12.6	J
C2-Naphthalenes	4.7	J
C3-Naphthalenes	4.3	J
C4-Naphthalenes	0.5	J
Biphenyl	2.9	J
Acenaphthylene	0.8	J
Acenaphthene	4.3	
Fluorene	3.6	J
C1-Fluorenes	2.3	J
C2-Fluorenes	3.2	J
C3-Fluorenes	0.8	J
Anthracene	0.4	J
Phenanthrene	4.9	J
C1-Phen/Anthracenes	0.1	J
C2-Phen/Anthracenes	0.2	J
C3-Phen/Anthracenes	0.8	J
C4-Phen/Anthracenes	3.1	J
Dibenzothiophene	0.4	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.0	ND
Fluoranthene	1.9	J
Pyrene	1.2	J
C1-Fluoranthenes/Pyrenes	1.4	J
Benzo(a)anthracene	0.5	J
Chrysene	1.0	J
C1-Chrysenes	0.2	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.1	J
C4-Chrysenes	0.2	J
Benzo(b)fluoranthene	0.7	J
Benzo(k)fluoranthene	0.2	J
Benzo(e)pyrene	0.6	J
Benzo(a)pyrene	0.4	J
Perylene	0.8	J
Indeno(1,2,3-c,d)pyrene	0.2	J
Dibenzo(a,h)anthracene	0.0	ND
Benzo(g,h,i)perylene	0.1	J
TOTAL PAH (ng/g) (Excluding Perylene)	70.8	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	5.2	J
2-Methylnaphthalene	7.4	J
2,6-Dimethylnaphthalene	2.0	J
1,6,7-Trimethylnaphthalene	1.6	J
1-Methylphenanthrene	0.7	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	75.0	
Acenapthene-D10	82.8	
Phenanthrene-D10	87.5	
Chrysene-D12	83.4	
Perylene-D12	74.0	

Station	Survey	Replicate
SHB-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0013	C34862

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.18	WET
Dry Weight (g)	0.53	DRY
Solids (%)	10.2	DRY
Lipids (%)	5.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	15.9	
C1-Naphthalenes	16.3	J
C2-Naphthalenes	10.5	J
C3-Naphthalenes	9.6	J
C4-Naphthalenes	0.2	J
Biphenyl	2.9	J
Acenaphthylene	0.8	J
Acenaphthene	5.6	
Fluorene	2.8	J
C1-Fluorenes	0.2	J
C2-Fluorenes	1.3	J
C3-Fluorenes	3.5	J
Anthracene	0.6	J
Phenanthrene	4.9	J
C1-Phen/Anthracenes	0.4	J
C2-Phen/Anthracenes	1.0	J
C3-Phen/Anthracenes	0.6	J
C4-Phen/Anthracenes	0.1	J
Dibenzothiophene	0.3	J
C1-Dibenzothiophenes	1.1	J
C2-Dibenzothiophenes	0.5	J
C3-Dibenzothiophenes	1.6	J
Fluoranthene	1.8	J
Pyrene	1.5	J
C1-Fluoranthenes/Pyrenes	1.9	J
Benzo(a)anthracene	0.4	J
Chrysene	1.1	J
C1-Chrysenes	0.4	J
C2-Chrysenes	0.2	J
C3-Chrysenes	0.2	J
C4-Chrysenes	0.3	J
Benzo(b)fluoranthene	0.7	J
Benzo(k)fluoranthene	0.2	J
Benzo(e)pyrene	0.3	J
Benzo(a)pyrene	0.4	J
Perylene	0.2	J
Indeno(1,2,3-c,d)pyrene	0.3	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.0	ND
TOTAL PAH (ng/g) **(Excluding Perylene)**	90.4	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	6.6	J
2-Methylnaphthalene	9.7	J
2,6-Dimethylnaphthalene	2.7	J
1,6,7-Trimethylnaphthalene	2.1	J
1-Methylphenanthrene	0.9	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	69.4	
Acenapthene-D10	77.5	
Phenanthrene-D10	79.6	
Chrysene-D12	74.9	
Perylene-D12	58.7	

Station	Survey	Replicate
SHB-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0014	C34863

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	8.08	WET
Dry Weight (g)	0.75	DRY
Solids (%)	9.3	DRY
Lipids (%)	5.2	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	10.9	
C1-Naphthalenes	9.9	J
C2-Naphthalenes	7.3	J
C3-Naphthalenes	5.6	J
C4-Naphthalenes	0.4	J
Biphenyl	2.9	J
Acenaphthylene	2.2	
Acenaphthene	4.8	
Fluorene	1.7	J
C1-Fluorenes	1.2	J
C2-Fluorenes	1.2	J
C3-Fluorenes	0.9	J
Anthracene	1.6	J
Phenanthrene	5.3	J
C1-Phen/Anthracenes	5.6	J
C2-Phen/Anthracenes	0.1	J
C3-Phen/Anthracenes	0.2	J
C4-Phen/Anthracenes	0.0	ND
Dibenzothiophene	0.5	J
C1-Dibenzothiophenes	0.1	J
C2-Dibenzothiophenes	0.2	J
C3-Dibenzothiophenes	0.1	J
Fluoranthene	8.2	
Pyrene	7.6	J
C1-Fluoranthenes/Pyrenes	5.8	J
Benzo(a)anthracene	3.4	J
Chrysene	7.1	J
C1-Chrysenes	0.3	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.2	J
C4-Chrysenes	0.2	J
Benzo(b)fluoranthene	8.5	J
Benzo(k)fluoranthene	4.9	J
Benzo(e)pyrene	6.3	J
Benzo(a)pyrene	5.4	J
Perylene	0.8	J
Indeno(1,2,3-c,d)pyrene	6.1	J
Dibenzo(a,h)anthracene	1.1	J
Benzo(g,h,i)perylene	3.6	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	131.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	4.1	J
2-Methylnaphthalene	5.8	J
2,6-Dimethylnaphthalene	2.3	J
1,6,7-Trimethylnaphthalene	1.8	J
1-Methylphenanthrene	1.1	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	61.3	
Acenapthene-D10	71.9	
Phenanthrene-D10	72.7	
Chrysene-D12	70.2	
Perylene-D12	68.9	

Station	Survey	Replicate
SHB-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0015	C34864

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	7.08	WET
Dry Weight (g)	0.82	DRY
Solids (%)	11.5	DRY
Lipids (%)	6.0	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	11.2	
C1-Naphthalenes	11.1	J
C2-Naphthalenes	6.1	J
C3-Naphthalenes	2.6	J
C4-Naphthalenes	0.2	J
Biphenyl	2.1	J
Acenaphthylene	0.4	J
Acenaphthene	4.2	
Fluorene	3.0	J
C1-Fluorenes	0.0	ND
C2-Fluorenes	0.4	J
C3-Fluorenes	2.3	J
Anthracene	0.5	J
Phenanthrene	3.8	J
C1-Phen/Anthracenes	0.4	J
C2-Phen/Anthracenes	0.1	J
C3-Phen/Anthracenes	0.3	J
C4-Phen/Anthracenes	0.1	J
Dibenzothiophene	0.3	J
C1-Dibenzothiophenes	0.1	J
C2-Dibenzothiophenes	0.0	ND
C3-Dibenzothiophenes	0.4	J
Fluoranthene	1.4	J
Pyrene	0.8	J
C1-Fluoranthenes/Pyrenes	0.1	J
Benzo(a)anthracene	0.5	J
Chrysene	0.9	J
C1-Chrysenes	0.3	J
C2-Chrysenes	0.0	ND
C3-Chrysenes	0.1	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	0.5	J
Benzo(k)fluoranthene	0.2	J
Benzo(e)pyrene	0.4	J
Benzo(a)pyrene	0.3	J
Perylene	0.4	J
Indeno(1,2,3-c,d)pyrene	0.2	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.2	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	55.6	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	4.3	J
2-Methylnaphthalene	6.8	J
2,6-Dimethylnaphthalene	1.4	J
1,6,7-Trimethylnaphthalene	1.3	J
1-Methylphenanthrene	0.6	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	73.0	
Acenapthene-D10	82.9	
Phenanthrene-D10	83.3	
Chrysene-D12	77.0	
Perylene-D12	68.0	

Station	Survey	Replicate
SHH-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0007	C34856

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	7.03	WET
Dry Weight (g)	0.68	DRY
Solids (%)	9.6	DRY
Lipids (%)	3.7	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	13.8	
C1-Naphthalenes	18.4	J
C2-Naphthalenes	13.2	
C3-Naphthalenes	10.2	
C4-Naphthalenes	0.3	J
Biphenyl	3.8	J
Acenaphthylene	0.8	J
Acenaphthene	6.2	
Fluorene	1.9	J
C1-Fluorenes	2.8	J
C2-Fluorenes	2.6	J
C3-Fluorenes	2.5	J
Anthracene	1.5	J
Phenanthrene	6.4	J
C1-Phen/Anthracenes	5.8	J
C2-Phen/Anthracenes	0.2	J
C3-Phen/Anthracenes	1.2	J
C4-Phen/Anthracenes	0.2	J
Dibenzothiophene	0.6	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.2	J
Fluoranthene	2.6	J
Pyrene	1.9	J
C1-Fluoranthenes/Pyrenes	2.3	J
Benzo(a)anthracene	1.1	J
Chrysene	2.1	J
C1-Chrysenes	0.2	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.7	J
C4-Chrysenes	0.3	J
Benzo(b)fluoranthene	1.3	J
Benzo(k)fluoranthene	0.9	J
Benzo(e)pyrene	1.3	J
Benzo(a)pyrene	1.4	J
Perylene	1.1	J
Indeno(1,2,3-c,d)pyrene	1.0	J
Dibenzo(a,h)anthracene	0.6	J
Benzo(g,h,i)perylene	0.8	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	111.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	7.6	J
2-Methylnaphthalene	10.9	J
2,6-Dimethylnaphthalene	3.4	J
1,6,7-Trimethylnaphthalene	1.9	J
1-Methylphenanthrene	1.4	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	70.4	
Acenapthene-D10	81.7	
Phenanthrene-D10	84.2	
Chrysene-D12	76.2	
Perylene-D12	69.9	

Station	Survey	Replicate
SHH-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0008	C34857

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	10.37	WET
Dry Weight (g)	0.92	DRY
Solids (%)	8.8	DRY
Lipids (%)	6.4	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	12.3	
C1-Naphthalenes	19.5	
C2-Naphthalenes	22.3	
C3-Naphthalenes	25.8	
C4-Naphthalenes	26.0	
Biphenyl	3.5	
Acenaphthylene	0.7	J
Acenaphthene	10.8	
Fluorene	4.8	J
C1-Fluorenes	1.4	J
C2-Fluorenes	0.7	J
C3-Fluorenes	1.9	J
Anthracene	1.1	J
Phenanthrene	6.2	
C1-Phen/Anthracenes	7.2	J
C2-Phen/Anthracenes	4.0	J
C3-Phen/Anthracenes	0.4	J
C4-Phen/Anthracenes	0.1	J
Dibenzothiophene	0.4	J
C1-Dibenzothiophenes	0.3	J
C2-Dibenzothiophenes	0.6	J
C3-Dibenzothiophenes	0.9	J
Fluoranthene	2.0	J
Pyrene	1.5	J
C1-Fluoranthenes/Pyrenes	2.2	J
Benzo(a)anthracene	0.9	J
Chrysene	2.0	J
C1-Chrysenes	0.1	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.1	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	1.1	J
Benzo(k)fluoranthene	0.5	J
Benzo(e)pyrene	0.8	J
Benzo(a)pyrene	0.9	J
Perylene	0.8	J
Indeno(1,2,3-c,d)pyrene	0.4	J
Dibenzo(a,h)anthracene	0.2	J
Benzo(g,h,i)perylene	0.4	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	163.8	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	8.2	
2-Methylnaphthalene	11.3	
2,6-Dimethylnaphthalene	7.4	
1,6,7-Trimethylnaphthalene	4.9	
1-Methylphenanthrene	1.7	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	65.3	
Acenapthene-D10	76.2	
Phenanthrene-D10	76.9	
Chrysene-D12	71.7	
Perylene-D12	66.3	

Station	Survey	Replicate
SHH-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0009	C34858

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	10.01	WET
Dry Weight (g)	0.98	DRY
Solids (%)	9.8	DRY
Lipids (%)	6.7	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	12.9	
C1-Naphthalenes	15.1	
C2-Naphthalenes	9.7	
C3-Naphthalenes	10.2	
C4-Naphthalenes	0.2	J
Biphenyl	3.2	
Acenaphthylene	0.8	J
Acenaphthene	6.4	
Fluorene	1.8	J
C1-Fluorenes	0.5	J
C2-Fluorenes	0.5	J
C3-Fluorenes	0.4	J
Anthracene	1.1	J
Phenanthrene	5.4	J
C1-Phen/Anthracenes	8.7	
C2-Phen/Anthracenes	0.6	J
C3-Phen/Anthracenes	0.3	J
C4-Phen/Anthracenes	0.1	J
Dibenzothiophene	0.3	J
C1-Dibenzothiophenes	0.1	J
C2-Dibenzothiophenes	0.3	J
C3-Dibenzothiophenes	0.3	J
Fluoranthene	1.6	J
Pyrene	1.4	J
C1-Fluoranthenes/Pyrenes	2.1	J
Benzo(a)anthracene	1.1	J
Chrysene	2.0	J
C1-Chrysenes	0.1	J
C2-Chrysenes	0.2	J
C3-Chrysenes	0.2	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	1.3	J
Benzo(k)fluoranthene	0.5	J
Benzo(e)pyrene	0.7	J
Benzo(a)pyrene	1.7	J
Perylene	2.9	J
Indeno(1,2,3-c,d)pyrene	0.4	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.4	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	92.6	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	6.6	
2-Methylnaphthalene	8.5	
2,6-Dimethylnaphthalene	2.9	J
1,6,7-Trimethylnaphthalene	1.8	J
1-Methylphenanthrene	1.1	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	60.1	
Acenapthene-D10	70.1	
Phenanthrene-D10	69.6	
Chrysene-D12	60.1	
Perylene-D12	53.5	

Station	Survey	Replicate
SLB-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0019	C34868

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	7.11	WET
Dry Weight (g)	0.57	DRY
Solids (%)	8.0	DRY
Lipids (%)	5.1	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	12.5	
C1-Naphthalenes	14.3	J
C2-Naphthalenes	11.2	J
C3-Naphthalenes	13.1	
C4-Naphthalenes	0.8	J
Biphenyl	3.6	J
Acenaphthylene	1.0	J
Acenaphthene	6.1	
Fluorene	5.0	J
C1-Fluorenes	1.4	J
C2-Fluorenes	2.4	J
C3-Fluorenes	5.5	J
Anthracene	1.0	J
Phenanthrene	5.6	J
C1-Phen/Anthracenes	0.0	ND
C2-Phen/Anthracenes	0.6	J
C3-Phen/Anthracenes	2.0	J
C4-Phen/Anthracenes	0.2	J
Dibenzothiophene	0.5	J
C1-Dibenzothiophenes	0.1	J
C2-Dibenzothiophenes	0.3	J
C3-Dibenzothiophenes	0.6	J
Fluoranthene	3.3	J
Pyrene	2.7	J
C1-Fluoranthenes/Pyrenes	0.2	J
Benzo(a)anthracene	1.6	J
Chrysene	3.0	J
C1-Chrysenes	0.1	J
C2-Chrysenes	0.2	J
C3-Chrysenes	0.2	J
C4-Chrysenes	0.3	J
Benzo(b)fluoranthene	2.2	J
Benzo(k)fluoranthene	0.5	J
Benzo(e)pyrene	1.6	J
Benzo(a)pyrene	1.7	J
Perylene	4.1	J
Indeno(1,2,3-c,d)pyrene	0.9	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.9	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	106.9	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	5.0	J
2-Methylnaphthalene	9.3	J
2,6-Dimethylnaphthalene	2.6	J
1,6,7-Trimethylnaphthalene	2.4	J
1-Methylphenanthrene	1.2	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	78.7	
Acenapthene-D10	88.5	
Phenanthrene-D10	91.1	
Chrysene-D12	90.2	
Perylene-D12	78.5	

Station	Survey	Replicate
SLB-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0020	C34869

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	7.05	WET
Dry Weight (g)	0.51	DRY
Solids (%)	7.3	DRY
Lipids (%)	4.5	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	13.4	
C1-Naphthalenes	16.2	J
C2-Naphthalenes	9.4	J
C3-Naphthalenes	10.8	J
C4-Naphthalenes	0.3	J
Biphenyl	3.3	J
Acenaphthylene	0.3	J
Acenaphthene	2.0	J
Fluorene	6.5	J
C1-Fluorenes	1.9	J
C2-Fluorenes	4.9	J
C3-Fluorenes	5.5	J
Anthracene	0.7	J
Phenanthrene	6.2	J
C1-Phen/Anthracenes	12.9	J
C2-Phen/Anthracenes	2.6	J
C3-Phen/Anthracenes	3.7	J
C4-Phen/Anthracenes	0.2	J
Dibenzothiophene	0.8	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.3	J
C3-Dibenzothiophenes	1.3	J
Fluoranthene	4.5	J
Pyrene	4.1	J
C1-Fluoranthenes/Pyrenes	0.0	ND
Benzo(a)anthracene	2.4	J
Chrysene	3.3	J
C1-Chrysenes	0.2	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.2	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	1.6	J
Benzo(k)fluoranthene	2.8	J
Benzo(e)pyrene	1.8	J
Benzo(a)pyrene	1.7	J
Perylene	3.1	J
Indeno(1,2,3-c,d)pyrene	1.2	J
Dibenzo(a,h)anthracene	0.4	J
Benzo(g,h,i)perylene	0.9	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	128.4	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	5.9	J
2-Methylnaphthalene	10.4	J
2,6-Dimethylnaphthalene	2.6	J
1,6,7-Trimethylnaphthalene	1.8	J
1-Methylphenanthrene	1.4	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	81.0	
Acenapthene-D10	91.2	
Phenanthrene-D10	94.6	
Chrysene-D12	97.5	
Perylene-D12	82.3	

Station	Survey	Replicate
SLB-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0021	C34870

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	5.02	WET
Dry Weight (g)	0.43	DRY
Solids (%)	8.6	DRY
Lipids (%)	5.4	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	16.4	
C1-Naphthalenes	21.9	J
C2-Naphthalenes	16.5	J
C3-Naphthalenes	20.1	
C4-Naphthalenes	1.5	J
Biphenyl	3.7	J
Acenaphthylene	1.5	J
Acenaphthene	8.8	
Fluorene	7.2	J
C1-Fluorenes	2.1	J
C2-Fluorenes	4.0	J
C3-Fluorenes	2.4	J
Anthracene	1.7	J
Phenanthrene	7.2	J
C1-Phen/Anthracenes	0.3	J
C2-Phen/Anthracenes	2.3	J
C3-Phen/Anthracenes	3.1	J
C4-Phen/Anthracenes	1.5	J
Dibenzothiophene	0.5	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.5	J
C3-Dibenzothiophenes	0.6	J
Fluoranthene	4.3	J
Pyrene	3.6	J
C1-Fluoranthenes/Pyrenes	0.4	J
Benzo(a)anthracene	3.5	J
Chrysene	3.3	J
C1-Chrysenes	0.3	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.3	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	2.7	J
Benzo(k)fluoranthene	1.0	J
Benzo(e)pyrene	2.2	J
Benzo(a)pyrene	1.9	J
Perylene	2.5	J
Indeno(1,2,3-c,d)pyrene	1.3	J
Dibenzo(a,h)anthracene	0.2	J
Benzo(g,h,i)perylene	1.1	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	150.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	8.4	J
2-Methylnaphthalene	13.5	J
2,6-Dimethylnaphthalene	4.0	J
1,6,7-Trimethylnaphthalene	4.5	J
1-Methylphenanthrene	2.2	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	72.6	
Acenapthene-D10	90.0	
Phenanthrene-D10	94.6	
Chrysene-D12	97.6	
Perylene-D12	87.1	

Station	Survey	Replicate
WIB-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0004	C34853

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.02	WET
Dry Weight (g)	0.73	DRY
Solids (%)	14.6	DRY
Lipids (%)	6.1	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	14.5	
C1-Naphthalenes	16.6	J
C2-Naphthalenes	8.8	J
C3-Naphthalenes	5.1	J
C4-Naphthalenes	1.4	J
Biphenyl	3.8	J
Acenaphthylene	1.1	J
Acenaphthene	6.9	
Fluorene	4.2	J
C1-Fluorenes	0.4	J
C2-Fluorenes	0.8	J
C3-Fluorenes	0.9	J
Anthracene	1.2	J
Phenanthrene	9.8	
C1-Phen/Anthracenes	12.1	
C2-Phen/Anthracenes	3.7	J
C3-Phen/Anthracenes	1.7	J
C4-Phen/Anthracenes	0.1	J
Dibenzothiophene	0.5	J
C1-Dibenzothiophenes	0.1	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.2	J
Fluoranthene	4.4	J
Pyrene	3.3	J
C1-Fluoranthenes/Pyrenes	3.5	J
Benzo(a)anthracene	1.2	J
Chrysene	2.3	J
C1-Chrysenes	0.6	J
C2-Chrysenes	0.3	J
C3-Chrysenes	0.6	J
C4-Chrysenes	0.2	J
Benzo(b)fluoranthene	1.3	J
Benzo(k)fluoranthene	0.4	J
Benzo(e)pyrene	1.0	J
Benzo(a)pyrene	1.3	J
Perylene	3.8	J
Indeno(1,2,3-c,d)pyrene	0.5	J
Dibenzo(a,h)anthracene	0.0	ND
Benzo(g,h,i)perylene	0.4	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	115.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	6.5	J
2-Methylnaphthalene	10.1	J
2,6-Dimethylnaphthalene	3.2	J
1,6,7-Trimethylnaphthalene	2.1	J
1-Methylphenanthrene	1.4	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	78.5	
Acenapthene-D10	83.9	
Phenanthrene-D10	84.8	
Chrysene-D12	78.8	
Perylene-D12	74.3	

Station	Survey	Replicate
WIB-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0005	C34854

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.45	WET
Dry Weight (g)	0.59	DRY
Solids (%)	10.8	DRY
Lipids (%)	7.2	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	15.3	
C1-Naphthalenes	19.9	J
C2-Naphthalenes	18.0	
C3-Naphthalenes	19.3	
C4-Naphthalenes	1.7	J
Biphenyl	4.2	J
Acenaphthylene	0.5	J
Acenaphthene	9.8	
Fluorene	5.4	J
C1-Fluorenes	0.7	J
C2-Fluorenes	0.9	J
C3-Fluorenes	2.8	J
Anthracene	1.0	J
Phenanthrene	10.6	
C1-Phen/Anthracenes	12.6	
C2-Phen/Anthracenes	3.7	J
C3-Phen/Anthracenes	0.3	J
C4-Phen/Anthracenes	0.3	J
Dibenzothiophene	0.5	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.2	J
C3-Dibenzothiophenes	0.1	J
Fluoranthene	3.6	J
Pyrene	2.6	J
C1-Fluoranthenes/Pyrenes	3.3	J
Benzo(a)anthracene	1.2	J
Chrysene	2.4	J
C1-Chrysenes	0.3	J
C2-Chrysenes	0.2	J
C3-Chrysenes	0.6	J
C4-Chrysenes	0.3	J
Benzo(b)fluoranthene	1.4	J
Benzo(k)fluoranthene	0.4	J
Benzo(e)pyrene	0.9	J
Benzo(a)pyrene	0.6	J
Perylene	3.0	J
Indeno(1,2,3-c,d)pyrene	0.6	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.8	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	147.3	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	8.9	J
2-Methylnaphthalene	11.0	J
2,6-Dimethylnaphthalene	5.9	J
1,6,7-Trimethylnaphthalene	4.3	J
1-Methylphenanthrene	1.8	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	71.8	
Acenapthene-D10	81.4	
Phenanthrene-D10	84.9	
Chrysene-D12	78.2	
Perylene-D12	73.3	

Station	Survey	Replicate
WIB-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0006	C34855

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.05	WET
Dry Weight (g)	0.69	DRY
Solids (%)	13.6	DRY
Lipids (%)	6.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	16.6	
C1-Naphthalenes	16.0	J
C2-Naphthalenes	9.7	J
C3-Naphthalenes	8.8	J
C4-Naphthalenes	1.7	J
Biphenyl	4.3	J
Acenaphthylene	0.9	J
Acenaphthene	7.5	
Fluorene	4.5	J
C1-Fluorenes	0.5	J
C2-Fluorenes	0.6	J
C3-Fluorenes	1.7	J
Anthracene	1.2	J
Phenanthrene	7.8	J
C1-Phen/Anthracenes	1.7	J
C2-Phen/Anthracenes	2.4	J
C3-Phen/Anthracenes	6.0	J
C4-Phen/Anthracenes	0.1	J
Dibenzothiophene	0.4	J
C1-Dibenzothiophenes	0.5	J
C2-Dibenzothiophenes	0.2	J
C3-Dibenzothiophenes	0.1	J
Fluoranthene	3.4	J
Pyrene	2.2	J
C1-Fluoranthenes/Pyrenes	2.5	J
Benzo(a)anthracene	1.3	J
Chrysene	1.7	J
C1-Chrysenes	0.2	J
C2-Chrysenes	0.2	J
C3-Chrysenes	0.8	J
C4-Chrysenes	0.2	J
Benzo(b)fluoranthene	1.2	J
Benzo(k)fluoranthene	0.4	J
Benzo(e)pyrene	0.8	J
Benzo(a)pyrene	0.9	J
Perylene	2.7	J
Indeno(1,2,3-c,d)pyrene	0.4	J
Dibenzo(a,h)anthracene	0.0	ND
Benzo(g,h,i)perylene	0.4	J
TOTAL PAH (ng/g) **(Excluding Perylene)**	109.7	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	7.1	J
2-Methylnaphthalene	8.9	J
2,6-Dimethylnaphthalene	3.1	J
1,6,7-Trimethylnaphthalene	1.8	J
1-Methylphenanthrene	1.0	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	68.2	
Acenapthene-D10	77.1	
Phenanthrene-D10	81.0	
Chrysene-D12	76.9	
Perylene-D12	72.4	

Station	Survey	Replicate
ZAB-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0016	C34865

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	10.29	WET
Dry Weight (g)	0.95	DRY
Solids (%)	9.2	DRY
Lipids (%)	5.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	13.2	
C1-Naphthalenes	8.9	J
C2-Naphthalenes	6.7	J
C3-Naphthalenes	6.6	J
C4-Naphthalenes	0.2	J
Biphenyl	2.0	J
Acenaphthylene	0.4	J
Acenaphthene	4.0	
Fluorene	2.1	J
C1-Fluorenes	0.7	J
C2-Fluorenes	0.6	J
C3-Fluorenes	0.2	J
Anthracene	0.3	J
Phenanthrene	2.7	J
C1-Phen/Anthracenes	1.5	J
C2-Phen/Anthracenes	0.1	J
C3-Phen/Anthracenes	0.2	J
C4-Phen/Anthracenes	0.0	ND
Dibenzothiophene	0.2	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.0	ND
C3-Dibenzothiophenes	0.4	J
Fluoranthene	1.2	J
Pyrene	1.1	J
C1-Fluoranthenes/Pyrenes	0.2	J
Benzo(a)anthracene	0.5	J
Chrysene	1.1	J
C1-Chrysenes	0.2	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.1	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	1.1	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	0.7	J
Benzo(a)pyrene	0.4	J
Perylene	1.0	J
Indeno(1,2,3-c,d)pyrene	0.6	J
Dibenzo(a,h)anthracene	0.0	ND
Benzo(g,h,i)perylene	0.4	J
TOTAL PAH (ng/g) (Excluding Perylene)	59.1	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	3.6	J
2-Methylnaphthalene	5.3	J
2,6-Dimethylnaphthalene	2.8	J
1,6,7-Trimethylnaphthalene	1.8	J
1-Methylphenanthrene	0.6	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	85.2	
Acenapthene-D10	96.2	
Phenanthrene-D10	97.3	
Chrysene-D12	95.8	
Perylene-D12	72.9	

Station	Survey	Replicate
ZAB-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0017	C34866

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	7.04	WET
Dry Weight (g)	0.72	DRY
Solids (%)	10.2	DRY
Lipids (%)	4.8	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	9.8	
C1-Naphthalenes	10.6	J
C2-Naphthalenes	4.4	J
C3-Naphthalenes	3.1	J
C4-Naphthalenes	0.2	J
Biphenyl	2.2	J
Acenaphthylene	0.4	J
Acenaphthene	4.0	
Fluorene	2.8	J
C1-Fluorenes	0.3	J
C2-Fluorenes	1.2	J
C3-Fluorenes	4.9	J
Anthracene	0.5	J
Phenanthrene	3.6	J
C1-Phen/Anthracenes	0.1	J
C2-Phen/Anthracenes	0.2	J
C3-Phen/Anthracenes	0.3	J
C4-Phen/Anthracenes	0.2	J
Dibenzothiophene	0.2	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.1	J
Fluoranthene	1.1	J
Pyrene	0.9	J
C1-Fluoranthenes/Pyrenes	0.1	J
Benzo(a)anthracene	0.4	J
Chrysene	1.3	J
C1-Chrysenes	0.1	J
C2-Chrysenes	0.0	ND
C3-Chrysenes	0.3	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	0.8	J
Benzo(k)fluoranthene	0.2	J
Benzo(e)pyrene	0.6	J
Benzo(a)pyrene	0.5	J
Perylene	0.5	J
Indeno(1,2,3-c,d)pyrene	0.3	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.3	J
TOTAL PAH (ng/g) (Excluding Perylene)	56.3	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	4.8	J
2-Methylnaphthalene	5.8	J
2,6-Dimethylnaphthalene	1.8	J
1,6,7-Trimethylnaphthalene	1.4	J
1-Methylphenanthrene	0.6	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	74.9	
Acenapthene-D10	84.1	
Phenanthrene-D10	86.4	
Chrysene-D12	80.7	
Perylene-D12	75.8	

Station	Survey	Replicate
ZAB-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0018	C34867

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	7.12	WET
Dry Weight (g)	0.62	DRY
Solids (%)	8.6	DRY
Lipids (%)	6.2	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	10.0	
C1-Naphthalenes	11.8	J
C2-Naphthalenes	8.1	J
C3-Naphthalenes	4.4	J
C4-Naphthalenes	0.5	J
Biphenyl	2.5	J
Acenaphthylene	0.4	J
Acenaphthene	4.9	
Fluorene	2.2	J
C1-Fluorenes	1.0	J
C2-Fluorenes	0.3	J
C3-Fluorenes	0.6	J
Anthracene	0.4	J
Phenanthrene	4.0	J
C1-Phen/Anthracenes	0.3	J
C2-Phen/Anthracenes	0.2	J
C3-Phen/Anthracenes	0.1	J
C4-Phen/Anthracenes	0.0	ND
Dibenzothiophene	0.3	J
C1-Dibenzothiophenes	0.5	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.1	J
Fluoranthene	1.3	J
Pyrene	1.0	J
C1-Fluoranthenes/Pyrenes	0.1	J
Benzo(a)anthracene	0.5	J
Chrysene	1.1	J
C1-Chrysenes	0.1	J
C2-Chrysenes	0.0	ND
C3-Chrysenes	0.3	J
C4-Chrysenes	0.2	J
Benzo(b)fluoranthene	0.5	J
Benzo(k)fluoranthene	0.3	J
Benzo(e)pyrene	0.5	J
Benzo(a)pyrene	0.2	J
Perylene	0.9	J
Indeno(1,2,3-c,d)pyrene	0.1	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.4	J
TOTAL PAH (ng/g) (Excluding Perylene)	59.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	5.0	J
2-Methylnaphthalene	6.9	J
2,6-Dimethylnaphthalene	2.6	J
1,6,7-Trimethylnaphthalene	1.7	J
1-Methylphenanthrene	0.9	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	72.8	
Acenapthene-D10	80.0	
Phenanthrene-D10	82.5	
Chrysene-D12	77.7	
Perylene-D12	72.0	

APPENDIX A

Tissue Results

3.0 AHC Data

Station	Survey	Replicate
AIB-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0050	C32761

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.04	WET
Dry Weight (g)	0.72	DRY
Solids (%)	7.2	DRY
Lipids (%)	11.8	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1250.8	
n-C11	40.6	J
n-C12	193.0	J
n-C13	111.2	J
n-C14	470.9	J
n-C15	118.4	J
n-C16	691.1	
n-C17	650.5	J
Pristane	984.5	
n-C18	104.0	J
Phytane	1432.0	
n-C19	741.6	
n-C20	1214.7	
n-C21	3993.5	
n-C22	140.6	J
n-C23	1519.4	
n-C24	227.9	J
n-C25	87.5	J
n-C26	673.7	
n-C27	1371.3	
n-C28	633.9	
n-C29	709.7	
n-C30	512.1	
n-C31	317.4	
n-C32	19.5	J
n-C33	117.0	J
n-C34	8.9	J

TOTAL AHC (ng/g)	18335.5
TRUAHC (ug/g)	1596.8
TOTAL RAHC (ug/g)	344.7
UCM (ug/g)	1252.1

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	53.0	
C20 (Deuterated)	51.8	
C24 (Deuterated)	41.8	
C30 (Deuterated)	71.6	

Station	Survey	Replicate
AIB-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0051	C32762

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.04	WET
Dry Weight (g)	0.83	DRY
Solids (%)	8.3	DRY
Lipids (%)	11.4	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	2213.5	
n-C11	58.7	J
n-C12	129.0	J
n-C13	97.9	J
n-C14	346.6	J
n-C15	143.5	J
n-C16	631.8	
n-C17	840.4	
Pristane	550.2	
n-C18	114.5	J
Phytane	1203.1	
n-C19	846.3	
n-C20	1728.5	
n-C21	6485.9	
n-C22	142.7	J
n-C23	1644.2	
n-C24	225.4	
n-C25	197.9	J
n-C26	691.6	
n-C27	815.0	
n-C28	530.7	
n-C29	756.9	
n-C30	1415.1	
n-C31	747.6	
n-C32	132.2	J
n-C33	149.3	J
n-C34	88.5	J

TOTAL AHC (ng/g)	22927.0
TRUAHC (ug/g)	823.7
TOTAL RAHC (ug/g)	450.2
UCM (ug/g)	373.4

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	61.7	
C20 (Deuterated)	66.1	
C24 (Deuterated)	64.9	
C30 (Deuterated)	77.4	

Station	Survey	Replicate
AIB-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0052	C32763

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	3.19	WET
Dry Weight (g)	0.23	DRY
Solids (%)	7.1	DRY
Lipids (%)	8.5	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1525.7	J
n-C11	19.9	J
n-C12	174.9	J
n-C13	74.9	J
n-C14	389.8	J
n-C15	127.9	J
n-C16	858.9	J
n-C17	861.4	J
Pristane	1525.0	
n-C18	228.1	J
Phytane	761.7	
n-C19	1978.1	
n-C20	1529.9	
n-C21	10692.0	
n-C22	236.1	J
n-C23	10389.6	
n-C24	218.4	J
n-C25	476.2	J
n-C26	413.2	J
n-C27	728.7	J
n-C28	633.9	J
n-C29	2967.2	
n-C30	3069.2	
n-C31	1089.8	
n-C32	3332.6	
n-C33	236.8	J
n-C34	81.0	J

TOTAL AHC (ng/g)	44620.5
TRUAHC (ug/g)	509.3
TOTAL RAHC (ug/g)	379.8
UCM (ug/g)	129.6 J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	64.0	
C20 (Deuterated)	66.8	
C24 (Deuterated)	63.4	
C30 (Deuterated)	70.1	

Station	Survey	Replicate
AMT-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0047	C32758

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.08	WET
Dry Weight (g)	0.43	DRY
Solids (%)	4.2	DRY
Lipids (%)	8.7	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	55.5	J
n-C11	40.8	J
n-C12	143.3	J
n-C13	78.1	J
n-C14	400.4	J
n-C15	299.6	J
n-C16	1164.8	
n-C17	1229.5	
Pristane	693.4	J
n-C18	277.8	J
Phytane	1418.8	
n-C19	1901.6	
n-C20	3866.7	
n-C21	8991.1	
n-C22	1079.4	
n-C23	733.5	
n-C24	611.1	
n-C25	124.4	J
n-C26	2073.3	
n-C27	2883.1	
n-C28	2447.4	
n-C29	2004.2	
n-C30	3646.8	
n-C31	1666.9	
n-C32	949.2	
n-C33	508.8	
n-C34	293.0	J

TOTAL AHC (ng/g) 39582.3

TRUAHC (ug/g)	688.0	
TOTAL RAHC (ug/g)	478.0	
UCM (ug/g)	210.0	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	75.1	
C20 (Deuterated)	78.6	
C24 (Deuterated)	75.2	
C30 (Deuterated)	93.0	

Station	Survey	Replicate
AMT-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0048	C32759

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.25	WET
Dry Weight (g)	0.52	DRY
Solids (%)	5.0	DRY
Lipids (%)	6.0	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1374.2	
n-C11	693.9	
n-C12	86.2	J
n-C13	55.1	J
n-C14	289.6	J
n-C15	1109.8	J
n-C16	390.8	J
n-C17	899.5	J
Pristane	519.6	J
n-C18	122.5	J
Phytane	1080.8	
n-C19	1482.3	
n-C20	3032.3	
n-C21	17581.8	
n-C22	427.7	
n-C23	17254.9	
n-C24	528.9	
n-C25	114.0	J
n-C26	1404.7	
n-C27	1557.5	
n-C28	1508.0	
n-C29	1191.0	
n-C30	1940.3	
n-C31	604.4	
n-C32	298.2	
n-C33	368.0	
n-C34	121.5	J

TOTAL AHC (ng/g) 56037.4

TRUAHC (ug/g)	763.8	
TOTAL RAHC (ug/g)	556.1	
UCM (ug/g)	207.7	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	79.8	
C20 (Deuterated)	88.0	
C24 (Deuterated)	78.0	
C30 (Deuterated)	104.1	

Station	Survey	Replicate
AMT-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0049	C32760

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.61	WET
Dry Weight (g)	0.6	DRY
Solids (%)	5.7	DRY
Lipids (%)	9.4	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	650.9	
n-C11	44.3	J
n-C12	136.7	J
n-C13	139.9	J
n-C14	403.8	J
n-C15	185.4	J
n-C16	531.8	J
n-C17	664.4	J
Pristane	602.5	
n-C18	157.5	J
Phytane	1476.8	
n-C19	2341.9	
n-C20	1822.1	
n-C21	32598.3	
n-C22	962.0	
n-C23	28471.6	
n-C24	655.6	
n-C25	223.3	J
n-C26	1816.5	
n-C27	2199.4	
n-C28	1569.1	
n-C29	1864.0	
n-C30	1985.1	
n-C31	1215.0	
n-C32	532.6	
n-C33	763.6	
n-C34	4498.0	

TOTAL AHC (ng/g) 88512.1

TRUAHC (ug/g)	1087.4	
TOTAL RAHC (ug/g)	906.3	
UCM (ug/g)	181.1	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	63.5	
C20 (Deuterated)	68.4	
C24 (Deuterated)	58.2	
C30 (Deuterated)	89.0	

Station	Survey	Replicate
DII-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0034	C32745

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	5.01	WET
Dry Weight (g)	0.74	DRY
Solids (%)	14.7	DRY
Lipids (%)	5.4	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	16.7	J
n-C11	38.7	J
n-C12	71.7	J
n-C13	64.8	J
n-C14	0.7	J
n-C15	191.2	J
n-C16	296.0	J
n-C17	229.9	J
Pristane	32.0	J
n-C18	67.1	J
Phytane	32.1	J
n-C19	137.7	J
n-C20	293.5	
n-C21	733.5	
n-C22	55.0	J
n-C23	1421.9	
n-C24	111.8	J
n-C25	526.3	
n-C26	5.3	J
n-C27	527.1	
n-C28	1.3	J
n-C29	771.9	
n-C30	20.8	J
n-C31	214.0	J
n-C32	149.6	J
n-C33	159.0	J
n-C34	21.0	J

TOTAL AHC (ng/g) 6190.3

TRUAHC (ug/g)	136.0	
TOTAL RAHC (ug/g)	91.3	
UCM (ug/g)	44.6	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	66.6	
C20 (Deuterated)	71.3	
C24 (Deuterated)	78.7	
C30 (Deuterated)	82.2	

Station	Survey	Replicate
DII-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0035	C32746

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	3.27	WET
Dry Weight (g)	0.57	DRY
Solids (%)	17.6	DRY
Lipids (%)	5.3	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	124.9	J
n-C11	54.5	J
n-C12	101.4	J
n-C13	24.8	J
n-C14	1.3	J
n-C15	187.9	J
n-C16	141.9	J
n-C17	150.7	J
Pristane	32.9	J
n-C18	77.9	J
Phytane	26.1	J
n-C19	231.4	J
n-C20	418.9	
n-C21	2113.5	
n-C22	395.7	
n-C23	2585.0	
n-C24	224.1	J
n-C25	1262.1	
n-C26	33.5	J
n-C27	652.6	
n-C28	58.0	J
n-C29	1151.3	
n-C30	103.1	J
n-C31	567.9	
n-C32	5.8	J
n-C33	347.0	
n-C34	12.4	J

TOTAL AHC (ng/g) 11086.3

TRUAHC (ug/g)	153.8	
TOTAL RAHC (ug/g)	101.1	
UCM (ug/g)	52.8	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	63.9	
C20 (Deuterated)	68.5	
C24 (Deuterated)	76.0	
C30 (Deuterated)	77.4	

Station	Survey	Replicate
DII-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0036	C32747

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	3.17	WET
Dry Weight (g)	0.57	DRY
Solids (%)	18.1	DRY
Lipids (%)	4.7	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	187.8	J
n-C11	30.9	J
n-C12	84.5	J
n-C13	35.5	J
n-C14	5.8	J
n-C15	137.9	J
n-C16	237.4	J
n-C17	63.0	J
Pristane	192.2	J
n-C18	67.9	J
Phytane	39.2	J
n-C19	514.2	
n-C20	411.0	
n-C21	922.2	
n-C22	199.7	J
n-C23	2273.0	
n-C24	171.1	J
n-C25	914.8	
n-C26	17.7	J
n-C27	757.6	
n-C28	53.1	J
n-C29	947.6	
n-C30	22.3	J
n-C31	473.1	
n-C32	3.8	J
n-C33	190.3	J
n-C34	3.2	J

TOTAL AHC (ng/g) 8956.7

TRUAHC (ug/g)	368.1	
TOTAL RAHC (ug/g)	105.6	
UCM (ug/g)	262.5	

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	67.8	
C20 (Deuterated)	72.0	
C24 (Deuterated)	80.0	
C30 (Deuterated)	79.5	

Station	Survey	Replicate
DII-I	**14**	**N/A**

KLI Sample ID	Lab Sample ID
PWS99TIS0037	C32748

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	5.02	WET
Dry Weight (g)	0.48	DRY
Solids (%)	9.6	DRY
Lipids (%)	2.8	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	60.2	J
n-C11	28.3	J
n-C12	80.3	J
n-C13	60.1	J
n-C14	3.6	J
n-C15	173.6	J
n-C16	125.8	J
n-C17	85.4	J
Pristane	25.1	J
n-C18	77.5	J
Phytane	89.4	J
n-C19	157.3	J
n-C20	178.6	J
n-C21	961.5	
n-C22	231.5	J
n-C23	3795.7	
n-C24	430.9	
n-C25	1423.8	
n-C26	6.4	J
n-C27	1804.3	
n-C28	86.4	J
n-C29	2396.3	
n-C30	30.6	J
n-C31	1115.4	
n-C32	452.7	
n-C33	172.1	J
n-C34	37.4	J

TOTAL AHC (ng/g)	14090.4

TRUAHC (ug/g)	486.8
TOTAL RAHC (ug/g)	74.7
UCM (ug/g)	412.1

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	94.2	
C20 (Deuterated)	103.9	
C24 (Deuterated)	100.9	
C30 (Deuterated)	102.2	

Station	Survey	Replicate
GOC-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0044	C32755

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.13	WET
Dry Weight (g)	0.45	DRY
Solids (%)	4.4	DRY
Lipids (%)	13.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	2758.0	
n-C11	376.0	J
n-C12	616.4	J
n-C13	243.6	J
n-C14	818.0	
n-C15	310.2	J
n-C16	1223.1	
n-C17	2903.6	
Pristane	4309.4	
n-C18	403.8	
Phytane	3535.1	
n-C19	4817.0	
n-C20	10492.4	
n-C21	141150.7	
n-C22	1990.2	
n-C23	142882.4	
n-C24	3841.9	
n-C25	442.2	
n-C26	7007.3	
n-C27	8981.9	
n-C28	8190.2	
n-C29	6895.3	
n-C30	8516.7	
n-C31	4528.4	
n-C32	2625.9	
n-C33	1428.0	
n-C34	535.9	

TOTAL AHC (ng/g) 371823.4

TRUAHC (ug/g)	3906.0	
TOTAL RAHC (ug/g)	3793.1	
UCM (ug/g)	112.9	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	49.7	
C20 (Deuterated)	84.5	
C24 (Deuterated)	77.5	
C30 (Deuterated)	42.8	

Station	Survey	Replicate
GOC-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0045	C32756

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.08	WET
Dry Weight (g)	0.51	DRY
Solids (%)	5.1	DRY
Lipids (%)	8.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	70.3	J
n-C11	104.5	J
n-C12	177.5	J
n-C13	57.5	J
n-C14	307.1	J
n-C15	109.4	J
n-C16	548.0	J
n-C17	749.2	J
Pristane	1432.6	
n-C18	188.7	J
Phytane	1252.2	
n-C19	1696.4	
n-C20	4190.4	
n-C21	32311.2	
n-C22	749.2	
n-C23	27429.6	
n-C24	781.1	
n-C25	383.4	
n-C26	276.2	J
n-C27	518.6	
n-C28	461.1	
n-C29	7050.5	
n-C30	1515.7	
n-C31	873.8	
n-C32	116.5	J
n-C33	174.1	J
n-C34	4441.1	

TOTAL AHC (ng/g) 87965.8

TRUAHC (ug/g)	1144.7	
TOTAL RAHC (ug/g)	926.4	
UCM (ug/g)	218.3	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	55.3	
C20 (Deuterated)	70.2	
C24 (Deuterated)	71.1	
C30 (Deuterated)	66.4	

Station	Survey	Replicate
GOC-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0046	C32757

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	10.29	WET
Dry Weight (g)	0.59	DRY
Solids (%)	5.8	DRY
Lipids (%)	11.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	111.6	J
n-C11	146.3	J
n-C12	222.3	J
n-C13	107.5	J
n-C14	437.2	J
n-C15	136.7	J
n-C16	789.2	
n-C17	865.7	
Pristane	1252.2	
n-C18	102.4	J
Phytane	1844.0	
n-C19	5224.3	
n-C20	7101.1	
n-C21	122494.7	
n-C22	727.9	
n-C23	134765.8	
n-C24	2182.3	
n-C25	736.7	
n-C26	1712.9	
n-C27	2175.4	
n-C28	1929.3	
n-C29	2223.0	
n-C30	2617.8	
n-C31	1302.0	
n-C32	729.8	
n-C33	340.2	
n-C34	6378.3	

TOTAL AHC (ng/g) 298656.4

TRUAHC (ug/g)	3163.0	
TOTAL RAHC (ug/g)	2919.9	
UCM (ug/g)	243.1	

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	77.6	
C20 (Deuterated)	114.5	
C24 (Deuterated)	80.0	
C30 (Deuterated)	76.1	

Station	Survey	Replicate
KNH-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0031	C32742

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	1.13	WET
Dry Weight (g)	0.17	DRY
Solids (%)	15.1	DRY
Lipids (%)	6.8	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	175.9	J
n-C11	0.0	ND
n-C12	189.7	J
n-C13	130.7	J
n-C14	0.0	ND
n-C15	274.2	J
n-C16	315.6	J
n-C17	230.9	J
Pristane	4.0	J
n-C18	187.8	J
Phytane	5.9	J
n-C19	932.8	
n-C20	876.7	
n-C21	8336.0	
n-C22	217.9	J
n-C23	12326.0	
n-C24	699.1	J
n-C25	2216.9	
n-C26	13.3	J
n-C27	2692.3	
n-C28	1384.7	
n-C29	16988.6	
n-C30	3803.2	
n-C31	2477.0	
n-C32	870.6	
n-C33	453.7	J
n-C34	32.4	J

TOTAL AHC (ng/g) 55835.6

TRUAHC (ug/g)	342.1	
TOTAL RAHC (ug/g)	292.1	
UCM (ug/g)	50.0	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	84.5	
C20 (Deuterated)	87.9	
C24 (Deuterated)	95.3	
C30 (Deuterated)	95.4	

Station	Survey	Replicate
KNH-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0032	C32743

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	1.04	WET
Dry Weight (g)	0.15	DRY
Solids (%)	14.4	DRY
Lipids (%)	2.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	63.4	J
n-C11	55.4	J
n-C12	223.3	J
n-C13	123.7	J
n-C14	20.2	J
n-C15	259.8	J
n-C16	742.2	J
n-C17	233.6	J
Pristane	91.9	J
n-C18	253.9	J
Phytane	79.0	J
n-C19	2152.4	
n-C20	718.6	J
n-C21	4643.7	
n-C22	102.8	J
n-C23	3782.3	
n-C24	400.9	J
n-C25	1021.8	J
n-C26	8.8	J
n-C27	1589.9	
n-C28	781.8	J
n-C29	3656.9	
n-C30	637.4	J
n-C31	420.4	J
n-C32	235.9	J
n-C33	407.4	J
n-C34	0.0	ND

TOTAL AHC (ng/g) 22707.3

TRUAHC (ug/g)	151.3	
TOTAL RAHC (ug/g)	116.9	
UCM (ug/g)	34.4	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	81.7	
C20 (Deuterated)	82.1	
C24 (Deuterated)	96.8	
C30 (Deuterated)	85.0	

Station	Survey	Replicate
KNH-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0033	C32744

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	5.06	WET
Dry Weight (g)	0.71	DRY
Solids (%)	14.1	DRY
Lipids (%)	4.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	312.1	J
n-C11	23.4	J
n-C12	62.7	J
n-C13	86.4	J
n-C14	44.9	J
n-C15	114.9	J
n-C16	240.2	J
n-C17	165.2	J
Pristane	46.3	J
n-C18	58.9	J
Phytane	18.3	J
n-C19	359.9	
n-C20	1088.1	
n-C21	5834.5	
n-C22	607.8	
n-C23	10025.2	
n-C24	385.3	
n-C25	715.8	
n-C26	16.2	J
n-C27	1169.4	
n-C28	1130.6	
n-C29	7075.1	
n-C30	28.0	J
n-C31	1059.1	
n-C32	5.1	J
n-C33	272.4	
n-C34	3.7	J

TOTAL AHC (ng/g) 30949.4

TRUAHC (ug/g)	320.9	
TOTAL RAHC (ug/g)	246.7	
UCM (ug/g)	74.3	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	54.3	
C20 (Deuterated)	74.8	
C24 (Deuterated)	88.0	
C30 (Deuterated)	80.8	

Station	Survey	Replicate
SHB-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0028	C32739

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	3.01	WET
Dry Weight (g)	0.5	DRY
Solids (%)	16.8	DRY
Lipids (%)	3.8	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	6.1	J
n-C11	9.0	J
n-C12	110.3	J
n-C13	53.3	J
n-C14	3.1	J
n-C15	78.8	J
n-C16	224.1	J
n-C17	115.0	J
Pristane	188.9	J
n-C18	101.2	J
Phytane	134.2	J
n-C19	599.8	
n-C20	204.5	J
n-C21	5147.5	
n-C22	124.6	J
n-C23	6599.3	
n-C24	218.7	J
n-C25	702.0	
n-C26	5.7	J
n-C27	240.4	J
n-C28	74.7	J
n-C29	1809.8	
n-C30	55.4	J
n-C31	186.1	J
n-C32	50.6	J
n-C33	342.2	
n-C34	2.6	J

TOTAL AHC (ng/g) 17387.6

TRUAHC (ug/g)	220.9	
TOTAL RAHC (ug/g)	163.8	
UCM (ug/g)	57.1	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	77.2	
C20 (Deuterated)	87.4	
C24 (Deuterated)	93.3	
C30 (Deuterated)	92.4	

Station	Survey	Replicate
SHB-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0029	C32740

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	1.68	WET
Dry Weight (g)	0.29	DRY
Solids (%)	17.0	DRY
Lipids (%)	0.1	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	18.8	J
n-C11	49.2	J
n-C12	118.3	J
n-C13	123.6	J
n-C14	8.0	J
n-C15	176.1	J
n-C16	512.5	J
n-C17	150.9	J
Pristane	30.0	J
n-C18	209.8	J
Phytane	13.4	J
n-C19	655.9	
n-C20	692.6	
n-C21	4231.9	
n-C22	153.6	J
n-C23	2242.7	
n-C24	185.9	J
n-C25	752.3	
n-C26	142.9	J
n-C27	301.0	J
n-C28	139.7	J
n-C29	3544.8	
n-C30	678.4	
n-C31	3493.6	
n-C32	333.6	J
n-C33	555.1	
n-C34	55.1	J

TOTAL AHC (ng/g) 19569.8

TRUAHC (ug/g)	219.1	
TOTAL RAHC (ug/g)	121.6	
UCM (ug/g)	97.5	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	82.3	
C20 (Deuterated)	81.3	
C24 (Deuterated)	81.1	
C30 (Deuterated)	83.6	

Station	Survey	Replicate
SHB-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0030	C32741

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	3.3	WET
Dry Weight (g)	0.54	DRY
Solids (%)	16.3	DRY
Lipids (%)	3.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	44.1	J
n-C11	3.8	J
n-C12	106.3	J
n-C13	71.6	J
n-C14	5.2	J
n-C15	201.5	J
n-C16	351.1	J
n-C17	345.9	J
Pristane	79.2	J
n-C18	81.0	J
Phytane	36.1	J
n-C19	489.5	
n-C20	504.7	
n-C21	3884.5	
n-C22	219.7	J
n-C23	3518.9	
n-C24	237.9	J
n-C25	1491.1	
n-C26	11.4	J
n-C27	584.4	
n-C28	341.6	J
n-C29	3554.0	
n-C30	970.6	
n-C31	640.0	
n-C32	181.0	J
n-C33	462.3	
n-C34	7.4	J

TOTAL AHC (ng/g) 18424.5

TRUAHC (ug/g)	241.3	
TOTAL RAHC (ug/g)	158.7	
UCM (ug/g)	82.6	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	75.1	
C20 (Deuterated)	79.3	
C24 (Deuterated)	92.4	
C30 (Deuterated)	71.6	

Station	Survey	Replicate
SHH-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0053	C32764

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	5.42	WET
Dry Weight (g)	0.65	DRY
Solids (%)	11.9	DRY
Lipids (%)	8.3	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1184.2	
n-C11	26.0	J
n-C12	64.3	J
n-C13	33.7	J
n-C14	4.5	J
n-C15	60.7	J
n-C16	337.7	J
n-C17	155.2	J
Pristane	75.9	J
n-C18	64.7	J
Phytane	645.1	
n-C19	491.1	
n-C20	1198.4	
n-C21	4996.7	
n-C22	87.8	J
n-C23	4634.8	
n-C24	156.7	J
n-C25	189.9	J
n-C26	13.8	J
n-C27	788.1	
n-C28	707.4	
n-C29	941.7	
n-C30	1052.4	
n-C31	606.2	
n-C32	177.4	J
n-C33	129.8	J
n-C34	27.6	J

TOTAL AHC (ng/g) 18851.5

TRUAHC (ug/g)	514.2
TOTAL RAHC (ug/g)	275.9
UCM (ug/g)	238.4

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	81.6	
C20 (Deuterated)	83.1	
C24 (Deuterated)	95.9	
C30 (Deuterated)	116.3	

Station	Survey	Replicate
SHH-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0054	C32765

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	5.28	WET
Dry Weight (g)	0.63	DRY
Solids (%)	12.0	DRY
Lipids (%)	8.1	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	47.4	J
n-C11	30.4	J
n-C12	72.5	J
n-C13	15.1	J
n-C14	160.0	J
n-C15	20.4	J
n-C16	369.8	J
n-C17	231.2	J
Pristane	475.3	J
n-C18	75.2	J
Phytane	447.4	
n-C19	360.4	
n-C20	1027.3	
n-C21	1980.7	
n-C22	55.8	J
n-C23	675.8	
n-C24	101.3	J
n-C25	203.3	J
n-C26	461.4	
n-C27	679.2	
n-C28	339.4	
n-C29	639.6	
n-C30	1135.7	
n-C31	501.2	
n-C32	71.1	J
n-C33	162.9	J
n-C34	11.8	J

TOTAL AHC (ng/g) 10351.3

TRUAHC (ug/g)	580.6
TOTAL RAHC (ug/g)	217.9
UCM (ug/g)	362.7

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	63.5	
C20 (Deuterated)	68.1	
C24 (Deuterated)	67.6	
C30 (Deuterated)	89.4	

Station	Survey	Replicate
SHH-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0055	C32766

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	3.2	WET
Dry Weight (g)	0.38	DRY
Solids (%)	11.8	DRY
Lipids (%)	6.8	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	29.7	J
n-C11	11.9	J
n-C12	72.6	J
n-C13	28.9	J
n-C14	1.7	J
n-C15	17.8	J
n-C16	273.5	J
n-C17	139.3	J
Pristane	43.8	J
n-C18	75.5	J
Phytane	215.4	J
n-C19	536.8	
n-C20	864.2	
n-C21	3240.2	
n-C22	76.8	J
n-C23	354.0	J
n-C24	230.6	J
n-C25	34.1	J
n-C26	704.8	
n-C27	772.0	
n-C28	612.5	
n-C29	733.5	J
n-C30	971.8	
n-C31	570.8	
n-C32	207.4	J
n-C33	192.8	J
n-C34	0.0	ND

TOTAL AHC (ng/g) 11012.4

TRUAHC (ug/g)	433.1
TOTAL RAHC (ug/g)	93.6
UCM (ug/g)	339.5

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	64.3	
C20 (Deuterated)	70.4	
C24 (Deuterated)	75.3	
C30 (Deuterated)	78.7	

Station	Survey	Replicate
SLB-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0041	C32752

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	1.11	WET
Dry Weight (g)	0.18	DRY
Solids (%)	16.4	DRY
Lipids (%)	2.5	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	54.5	J
n-C11	30.9	J
n-C12	179.2	J
n-C13	93.4	J
n-C14	9.2	J
n-C15	211.0	J
n-C16	128.2	J
n-C17	118.4	J
Pristane	143.5	J
n-C18	237.3	J
Phytane	53.8	J
n-C19	431.7	J
n-C20	417.3	J
n-C21	995.1	
n-C22	184.9	J
n-C23	1042.8	
n-C24	195.6	J
n-C25	786.4	J
n-C26	28.6	J
n-C27	622.8	J
n-C28	380.4	J
n-C29	3547.8	
n-C30	384.5	J
n-C31	4198.2	
n-C32	291.9	J
n-C33	187.0	J
n-C34	139.0	J

TOTAL AHC (ng/g) 15093.2

TRUAHC (ug/g)	399.9	
TOTAL RAHC (ug/g)	54.6	
UCM (ug/g)	345.4	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	71.6	
C20 (Deuterated)	73.9	
C24 (Deuterated)	65.8	
C30 (Deuterated)	74.5	

Station	Survey	Replicate
SLB-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0042	C32753

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	3.08	WET
Dry Weight (g)	0.45	DRY
Solids (%)	14.5	DRY
Lipids (%)	3.4	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	72.2	J
n-C11	0.0	ND
n-C12	78.6	J
n-C13	38.7	J
n-C14	0.0	ND
n-C15	72.9	J
n-C16	231.6	J
n-C17	526.4	J
Pristane	286.1	J
n-C18	77.4	J
Phytane	164.8	J
n-C19	3692.7	
n-C20	486.5	
n-C21	5628.3	
n-C22	416.6	
n-C23	7915.9	
n-C24	390.7	J
n-C25	1566.3	
n-C26	64.9	J
n-C27	2028.8	
n-C28	9.8	J
n-C29	1172.4	
n-C30	233.4	J
n-C31	3544.5	
n-C32	246.1	J
n-C33	316.1	J
n-C34	16.6	J

TOTAL AHC (ng/g) 29278.2

TRUAHC (ug/g)	479.2	
TOTAL RAHC (ug/g)	191.7	
UCM (ug/g)	287.4	

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	62.0	
C20 (Deuterated)	76.2	
C24 (Deuterated)	74.1	
C30 (Deuterated)	78.5	

Station	Survey	Replicate
SLB-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0043	C32754

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	3.05	WET
Dry Weight (g)	0.23	DRY
Solids (%)	7.7	DRY
Lipids (%)	8.7	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	119.4	J
n-C11	77.2	J
n-C12	134.3	J
n-C13	61.2	J
n-C14	357.3	J
n-C15	56.9	J
n-C16	11.7	J
n-C17	820.5	J
Pristane	1515.1	
n-C18	123.4	J
Phytane	676.6	
n-C19	1894.8	
n-C20	1081.9	
n-C21	4754.0	
n-C22	364.3	J
n-C23	4672.5	
n-C24	1020.9	
n-C25	2946.5	
n-C26	3515.9	
n-C27	4183.1	
n-C28	3191.9	
n-C29	3353.0	
n-C30	2559.4	
n-C31	2336.4	
n-C32	727.5	
n-C33	661.4	
n-C34	187.7	J

TOTAL AHC (ng/g) 41404.5

TRUAHC (ug/g)	173.1	
TOTAL RAHC (ug/g)	66.4	
UCM (ug/g)	106.7	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	69.7	
C20 (Deuterated)	74.4	
C24 (Deuterated)	74.3	
C30 (Deuterated)	84.3	

Station	Survey	Replicate
WIB-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0056	C32767

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	3.05	WET
Dry Weight (g)	0.48	DRY
Solids (%)	15.7	DRY
Lipids (%)	14.9	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	227.7	J
n-C11	67.7	J
n-C12	87.6	J
n-C13	39.8	J
n-C14	6.1	J
n-C15	19.1	J
n-C16	413.0	J
n-C17	756.9	J
Pristane	209.2	J
n-C18	157.3	J
Phytane	463.5	
n-C19	2028.9	
n-C20	3157.1	
n-C21	34349.7	
n-C22	316.0	J
n-C23	5136.1	
n-C24	360.0	J
n-C25	362.0	J
n-C26	303.8	J
n-C27	712.3	
n-C28	543.1	
n-C29	544.8	J
n-C30	2113.0	
n-C31	253.3	J
n-C32	211.3	J
n-C33	520.5	
n-C34	7.7	J

TOTAL AHC (ng/g) 53367.5

TRUAHC (ug/g)	1083.4
TOTAL RAHC (ug/g)	805.1
UCM (ug/g)	278.3

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	68.4	
C20 (Deuterated)	79.3	
C24 (Deuterated)	69.1	
C30 (Deuterated)	75.4	

Station	Survey	Replicate
WIB-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0057	C32768

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	3.13	WET
Dry Weight (g)	0.51	DRY
Solids (%)	16.4	DRY
Lipids (%)	13.2	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	0.0	ND
n-C11	0.0	ND
n-C12	71.7	J
n-C13	41.1	J
n-C14	187.2	J
n-C15	55.5	J
n-C16	410.3	J
n-C17	1126.1	
Pristane	271.9	J
n-C18	120.6	J
Phytane	560.7	
n-C19	2460.6	
n-C20	1745.5	
n-C21	37411.7	
n-C22	15535.1	
n-C23	5607.1	
n-C24	390.8	
n-C25	601.4	
n-C26	622.4	
n-C27	917.2	
n-C28	777.6	
n-C29	1604.2	
n-C30	2017.2	
n-C31	878.6	
n-C32	202.8	J
n-C33	485.7	
n-C34	0.0	ND

TOTAL AHC (ng/g) 74103.0

TRUAHC (ug/g)	1226.9
TOTAL RAHC (ug/g)	875.7
UCM (ug/g)	351.1

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	54.2	
C20 (Deuterated)	71.6	
C24 (Deuterated)	66.7	
C30 (Deuterated)	67.1	

Station	Survey	Replicate
WIB-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0058	C32769

Matrix	TISSUE
Sample Type	SAMP
Batch	T1076

Wet Weight (g)	2.16	WET
Dry Weight (g)	0.37	DRY
Solids (%)	17.2	DRY
Lipids (%)	8.8	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	0.0	ND
n-C11	0.0	ND
n-C12	79.0	J
n-C13	45.5	J
n-C14	193.8	J
n-C15	44.8	J
n-C16	282.7	J
n-C17	725.4	J
Pristane	455.6	J
n-C18	92.5	J
Phytane	682.0	
n-C19	1905.2	
n-C20	2167.9	
n-C21	47705.2	
n-C22	203.7	J
n-C23	8826.3	
n-C24	41.6	J
n-C25	69.1	J
n-C26	719.2	
n-C27	897.0	
n-C28	703.2	
n-C29	1381.2	
n-C30	2091.1	
n-C31	190.6	J
n-C32	0.0	ND
n-C33	319.7	J
n-C34	0.0	ND

TOTAL AHC (ng/g) 69822.4

TRUAHC (ug/g)	1375.4	
TOTAL RAHC (ug/g)	1175.6	
UCM (ug/g)	199.8	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	61.7	
C20 (Deuterated)	72.0	
C24 (Deuterated)	66.1	
C30 (Deuterated)	74.1	

Station	Survey	Replicate
ZAB-B	14	1

KLI Sample ID	Lab Sample ID
PWS99TIS0038	C32749

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	5.03	WET
Dry Weight (g)	0.62	DRY
Solids (%)	12.3	DRY
Lipids (%)	3.7	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	112.8	J
n-C11	39.7	J
n-C12	40.2	J
n-C13	38.6	J
n-C14	10.9	J
n-C15	72.6	J
n-C16	331.2	J
n-C17	80.1	J
Pristane	18.1	J
n-C18	50.8	J
Phytane	100.2	J
n-C19	205.4	J
n-C20	647.4	
n-C21	1377.9	
n-C22	22.8	J
n-C23	107.0	J
n-C24	22.1	J
n-C25	450.9	
n-C26	5.9	J
n-C27	1336.6	
n-C28	780.1	
n-C29	1588.3	
n-C30	316.3	
n-C31	1106.3	
n-C32	315.8	
n-C33	342.9	
n-C34	26.1	J

TOTAL AHC (ng/g) 9547.1

TRUAHC (ug/g)	417.3
TOTAL RAHC (ug/g)	82.1
UCM (ug/g)	335.2

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	72.5	
C20 (Deuterated)	78.5	
C24 (Deuterated)	77.9	
C30 (Deuterated)	79.0	

Station	Survey	Replicate
ZAB-B	14	2

KLI Sample ID	Lab Sample ID
PWS99TIS0039	C32750

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	5.05	WET
Dry Weight (g)	0.68	DRY
Solids (%)	13.5	DRY
Lipids (%)	3.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	37.6	J
n-C11	16.1	J
n-C12	40.6	J
n-C13	35.2	J
n-C14	2.9	J
n-C15	6.9	J
n-C16	252.6	J
n-C17	119.0	J
Pristane	2.1	J
n-C18	112.2	J
Phytane	150.6	J
n-C19	3270.1	
n-C20	537.7	
n-C21	2170.8	
n-C22	66.1	J
n-C23	3250.5	
n-C24	154.5	J
n-C25	376.8	
n-C26	265.4	
n-C27	6785.0	
n-C28	379.2	
n-C29	1224.1	
n-C30	214.3	J
n-C31	608.6	
n-C32	159.9	J
n-C33	102.3	J
n-C34	23.3	J

TOTAL AHC (ng/g) 20364.3

TRUAHC (ug/g)	486.6
TOTAL RAHC (ug/g)	176.3
UCM (ug/g)	310.3

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	60.7	
C20 (Deuterated)	82.4	
C24 (Deuterated)	90.9	
C30 (Deuterated)	91.6	

Station	Survey	Replicate
ZAB-B	14	3

KLI Sample ID	Lab Sample ID
PWS99TIS0040	C32751

Matrix	TISSUE
Sample Type	SAMP
Batch	T1075

Wet Weight (g)	5.03	WET
Dry Weight (g)	0.57	DRY
Solids (%)	11.2	DRY
Lipids (%)	2.0	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	39.1	J
n-C11	2.2	J
n-C12	85.0	J
n-C13	74.3	J
n-C14	6.2	J
n-C15	157.1	J
n-C16	337.8	J
n-C17	119.0	J
Pristane	206.8	J
n-C18	181.0	J
Phytane	101.6	J
n-C19	723.0	
n-C20	775.5	
n-C21	1547.8	
n-C22	77.1	J
n-C23	2845.4	
n-C24	247.3	J
n-C25	664.7	
n-C26	11.4	J
n-C27	904.4	
n-C28	387.4	
n-C29	8524.5	
n-C30	1452.5	
n-C31	1186.1	
n-C32	247.4	J
n-C33	475.1	
n-C34	25.3	J

TOTAL AHC (ng/g) 21404.9

TRUAHC (ug/g)	419.9
TOTAL RAHC (ug/g)	135.2
UCM (ug/g)	284.7

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	54.7	
C20 (Deuterated)	68.3	
C24 (Deuterated)	81.0	
C30 (Deuterated)	70.8	

Station	Survey	Replicate
AMT-B	15	1

KLI Sample ID	Lab Sample ID
PWS99TIS0062	C33680

Matrix	TISSUE
Sample Type	SAMP
Batch	T1109

Wet Weight (g)	10.01	WET
Dry Weight (g)	0.79	DRY
Solids (%)	7.9	DRY
Lipids (%)	8.0	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	155.2	J
n-C11	30.5	J
n-C12	54.8	J
n-C13	49.2	J
n-C14	73.7	J
n-C15	176.7	J
n-C16	161.6	J
n-C17	210.8	J
Pristane	3248.4	
n-C18	31.8	J
Phytane	29.3	J
n-C19	19.8	J
n-C20	160.3	
n-C21	352.7	
n-C22	127.1	J
n-C23	151.7	J
n-C24	232.4	
n-C25	370.0	
n-C26	2780.9	
n-C27	2505.7	
n-C28	638.3	
n-C29	495.9	
n-C30	476.0	
n-C31	573.0	
n-C32	359.7	
n-C33	312.9	
n-C34	23.1	J

TOTAL AHC (ng/g) 13801.5

TRUAHC (ug/g)	366.3
TOTAL RAHC (ug/g)	69.5
UCM (ug/g)	296.8

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	64.9	
C20 (Deuterated)	68.9	
C24 (Deuterated)	91.5	
C30 (Deuterated)	81.0	

Station	Survey	Replicate
AMT-B	15	2

KLI Sample ID	Lab Sample ID
PWS99TIS0063	C33681

Matrix	TISSUE
Sample Type	SAMP
Batch	T1109

Wet Weight (g)	10.08	WET
Dry Weight (g)	0.72	DRY
Solids (%)	7.1	DRY
Lipids (%)	6.4	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	249.2	J
n-C11	0.0	ND
n-C12	49.6	J
n-C13	0.0	ND
n-C14	0.0	ND
n-C15	168.0	J
n-C16	176.9	J
n-C17	390.0	J
Pristane	3140.2	
n-C18	94.0	J
Phytane	86.0	J
n-C19	291.8	
n-C20	289.6	
n-C21	332.9	
n-C22	121.5	J
n-C23	184.9	J
n-C24	284.6	
n-C25	266.9	
n-C26	3682.3	
n-C27	3026.5	
n-C28	776.1	
n-C29	453.3	
n-C30	1111.7	
n-C31	597.2	
n-C32	564.9	
n-C33	227.2	
n-C34	214.2	

TOTAL AHC (ng/g) 16779.2

TRUAHC (ug/g)	379.7
TOTAL RAHC (ug/g)	108.3
UCM (ug/g)	271.5

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	43.4	
C20 (Deuterated)	53.2	
C24 (Deuterated)	66.6	
C30 (Deuterated)	71.6	

Station	Survey	Replicate
AMT-B	15	3

KLI Sample ID	Lab Sample ID
PWS99TIS0064	C33682

Matrix	TISSUE
Sample Type	SAMP
Batch	T1109

Wet Weight (g)	10.26	WET
Dry Weight (g)	0.79	DRY
Solids (%)	7.7	DRY
Lipids (%)	8.7	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	8.5	J
n-C11	0.0	ND
n-C12	0.0	ND
n-C13	36.2	J
n-C14	0.0	ND
n-C15	127.7	J
n-C16	158.5	J
n-C17	226.0	J
Pristane	1288.8	
n-C18	58.1	J
Phytane	30.0	J
n-C19	16.1	J
n-C20	137.6	J
n-C21	58.6	J
n-C22	99.2	J
n-C23	82.4	J
n-C24	158.1	J
n-C25	171.0	J
n-C26	1656.6	
n-C27	1469.8	
n-C28	400.1	
n-C29	458.7	
n-C30	636.2	
n-C31	886.9	
n-C32	1287.3	
n-C33	1012.0	
n-C34	1580.3	

TOTAL AHC (ng/g) 12044.4

TRUAHC (ug/g)	230.1
TOTAL RAHC (ug/g)	38.2
UCM (ug/g)	191.9

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	55.2	
C20 (Deuterated)	63.0	
C24 (Deuterated)	73.3	
C30 (Deuterated)	77.6	

Station	Survey	Replicate
GOC-B	15	1

KLI Sample ID	Lab Sample ID
PWS99TIS0059	C33677

Matrix	TISSUE
Sample Type	SAMP
Batch	T1109

Wet Weight (g)	10.16	WET
Dry Weight (g)	0.83	DRY
Solids (%)	8.2	DRY
Lipids (%)	4.1	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	173.8	J
n-C11	4.8	J
n-C12	33.9	J
n-C13	62.9	J
n-C14	73.7	J
n-C15	213.7	J
n-C16	136.4	J
n-C17	129.2	J
Pristane	141.9	J
n-C18	52.0	J
Phytane	18.4	J
n-C19	80.0	J
n-C20	267.1	
n-C21	172.7	J
n-C22	84.1	J
n-C23	62.8	J
n-C24	126.1	J
n-C25	218.9	
n-C26	2191.3	
n-C27	2553.2	
n-C28	419.1	
n-C29	481.9	
n-C30	602.5	
n-C31	143.7	J
n-C32	217.5	
n-C33	260.4	
n-C34	48.5	J

TOTAL AHC (ng/g) 8970.5

TRUAHC (ug/g)	301.1
TOTAL RAHC (ug/g)	47.3
UCM (ug/g)	253.8

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	56.7	
C20 (Deuterated)	53.6	
C24 (Deuterated)	59.3	
C30 (Deuterated)	63.1	

Station	Survey	Replicate
GOC-B	15	2

KLI Sample ID	Lab Sample ID
PWS99TIS0060	C33678

Matrix	TISSUE
Sample Type	SAMP
Batch	T1109

Wet Weight (g)	10.08	WET
Dry Weight (g)	0.9	DRY
Solids (%)	8.9	DRY
Lipids (%)	5.2	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	79.8	J
n-C11	8.3	J
n-C12	51.2	J
n-C13	29.9	J
n-C14	74.0	J
n-C15	349.9	J
n-C16	111.3	J
n-C17	114.9	J
Pristane	450.2	
n-C18	36.7	J
Phytane	14.4	J
n-C19	30.8	J
n-C20	180.0	
n-C21	443.2	
n-C22	167.8	J
n-C23	165.8	J
n-C24	94.8	J
n-C25	195.8	J
n-C26	2299.2	
n-C27	2881.1	
n-C28	349.6	
n-C29	369.0	
n-C30	422.0	
n-C31	450.8	
n-C32	265.6	
n-C33	345.6	
n-C34	240.2	

TOTAL AHC (ng/g) 10221.7

TRUAHC (ug/g)	344.1
TOTAL RAHC (ug/g)	64.0
UCM (ug/g)	280.1

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	49.7	
C20 (Deuterated)	64.3	
C24 (Deuterated)	69.9	
C30 (Deuterated)	66.5	

Station	Survey	Replicate
GOC-B	15	3

KLI Sample ID	Lab Sample ID
PWS99TIS0061	C33679

Matrix	TISSUE
Sample Type	SAMP
Batch	T1109

Wet Weight (g)	10.41	WET
Dry Weight (g)	0.89	DRY
Solids (%)	8.5	DRY
Lipids (%)	7.5	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	203.8	J
n-C11	25.4	J
n-C12	42.5	J
n-C13	29.4	J
n-C14	57.6	J
n-C15	236.4	J
n-C16	158.1	J
n-C17	29.3	J
Pristane	2.4	J
n-C18	29.3	J
Phytane	27.0	J
n-C19	29.4	J
n-C20	193.1	
n-C21	171.8	J
n-C22	65.1	J
n-C23	53.3	J
n-C24	134.1	J
n-C25	158.9	J
n-C26	2207.5	
n-C27	2076.3	
n-C28	430.0	
n-C29	514.2	
n-C30	914.4	
n-C31	99.6	J
n-C32	476.8	
n-C33	1435.2	
n-C34	2618.3	

TOTAL AHC (ng/g) 12418.9

TRUAHC (ug/g)	269.6
TOTAL RAHC (ug/g)	44.8
UCM (ug/g)	224.8

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	58.8	
C20 (Deuterated)	58.3	
C24 (Deuterated)	76.8	
C30 (Deuterated)	67.7	

Station	Survey	Replicate
AIB-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0001	C34850

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	8.04	WET
Dry Weight (g)	1.32	DRY
Solids (%)	16.5	DRY
Lipids (%)	7.1	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	69.6	J
n-C11	27.5	J
n-C12	57.1	J
n-C13	574.3	
n-C14	170.7	J
n-C15	528.2	J
n-C16	570.6	
n-C17	303.5	J
Pristane	162.1	J
n-C18	18.9	J
Phytane	9.6	J
n-C19	235.0	
n-C20	103.7	
n-C21	79.9	J
n-C22	117.4	J
n-C23	94.5	J
n-C24	66.2	J
n-C25	39.4	J
n-C26	54.9	J
n-C27	58.8	J
n-C28	21.8	J
n-C29	181.0	J
n-C30	27.9	J
n-C31	50.4	J
n-C32	9.1	J
n-C33	8.7	J
n-C34	32.3	J

TOTAL AHC (ng/g) 3672.9

TRUAHC (ug/g)	162.1	
TOTAL RAHC (ug/g)	78.9	
UCM (ug/g)	83.2	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	81.0	
C20 (Deuterated)	76.0	
C24 (Deuterated)	67.0	
C30 (Deuterated)	69.0	

Station	Survey	Replicate
AIB-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0002	C34851

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	10.2	WET
Dry Weight (g)	0.99	DRY
Solids (%)	9.7	DRY
Lipids (%)	5.7	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	116.3	J
n-C11	65.9	J
n-C12	121.8	J
n-C13	318.6	J
n-C14	106.5	J
n-C15	633.0	J
n-C16	427.4	
n-C17	238.1	J
Pristane	205.8	J
n-C18	77.2	J
Phytane	15.2	J
n-C19	438.0	
n-C20	316.3	
n-C21	212.3	
n-C22	92.0	J
n-C23	97.6	J
n-C24	43.1	J
n-C25	35.1	J
n-C26	58.4	J
n-C27	90.2	J
n-C28	86.4	J
n-C29	146.8	J
n-C30	183.8	
n-C31	53.9	J
n-C32	25.5	J
n-C33	8.6	J
n-C34	4.1	J

TOTAL AHC (ng/g) 4217.7

TRUAHC (ug/g)	146.7	
TOTAL RAHC (ug/g)	78.1	
UCM (ug/g)	68.6	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	67.1	
C20 (Deuterated)	77.6	
C24 (Deuterated)	69.4	
C30 (Deuterated)	70.0	

Station	Survey	Replicate
AIB-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0003	C34852

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	7.04	WET
Dry Weight (g)	0.74	DRY
Solids (%)	10.5	DRY
Lipids (%)	4.2	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	124.2	J
n-C11	49.1	J
n-C12	102.0	J
n-C13	1025.5	
n-C14	304.9	J
n-C15	943.1	J
n-C16	1019.0	
n-C17	541.9	J
Pristane	289.4	J
n-C18	33.8	J
Phytane	17.2	J
n-C19	419.6	
n-C20	185.1	
n-C21	142.7	J
n-C22	209.6	J
n-C23	168.7	J
n-C24	118.2	J
n-C25	70.3	J
n-C26	98.0	J
n-C27	104.9	J
n-C28	38.9	J
n-C29	323.3	J
n-C30	49.8	J
n-C31	90.0	J
n-C32	16.3	J
n-C33	15.5	J
n-C34	57.6	J

TOTAL AHC (ng/g) 6558.6

TRUAHC (ug/g)	399.6	
TOTAL RAHC (ug/g)	112.6	
UCM (ug/g)	287.0	

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	82.5	
C20 (Deuterated)	81.8	
C24 (Deuterated)	72.0	
C30 (Deuterated)	64.1	

Station	Survey	Replicate
AMT-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0025	C34874

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.14	WET
Dry Weight (g)	0.99	DRY
Solids (%)	9.8	DRY
Lipids (%)	7.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	840.4	
n-C11	43.6	J
n-C12	34.7	J
n-C13	97.9	J
n-C14	444.4	
n-C15	332.0	J
n-C16	311.2	J
n-C17	109.9	J
Pristane	833.2	
n-C18	82.5	J
Phytane	18.1	J
n-C19	303.5	
n-C20	508.5	
n-C21	135.2	J
n-C22	283.5	
n-C23	60.2	J
n-C24	208.8	
n-C25	349.1	
n-C26	274.7	
n-C27	329.0	
n-C28	375.1	
n-C29	338.4	
n-C30	172.0	J
n-C31	244.2	
n-C32	151.1	
n-C33	108.8	J
n-C34	50.4	J

TOTAL AHC (ng/g)	7040.4
TRUAHC (ug/g)	535.4
TOTAL RAHC (ug/g)	328.8
UCM (ug/g)	206.5

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	60.0	
C20 (Deuterated)	97.0	
C24 (Deuterated)	62.0	
C30 (Deuterated)	65.0	

Station	Survey	Replicate
AMT-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0026	C34875

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.22	WET
Dry Weight (g)	0.82	DRY
Solids (%)	8.0	DRY
Lipids (%)	7.0	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1896.0	
n-C11	41.1	J
n-C12	213.1	J
n-C13	126.6	J
n-C14	373.2	J
n-C15	336.3	J
n-C16	402.0	J
n-C17	96.1	J
Pristane	1835.5	
n-C18	113.7	J
Phytane	1299.8	
n-C19	314.6	
n-C20	385.2	
n-C21	48.3	J
n-C22	1406.1	
n-C23	18.9	J
n-C24	116.8	J
n-C25	179.9	J
n-C26	139.3	J
n-C27	146.5	J
n-C28	236.3	
n-C29	291.0	J
n-C30	83.7	J
n-C31	131.5	J
n-C32	33.6	J
n-C33	71.2	J
n-C34	47.1	J

TOTAL AHC (ng/g)	10383.5
TRUAHC (ug/g)	520.3
TOTAL RAHC (ug/g)	341.6
UCM (ug/g)	178.7

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	71.0	
C20 (Deuterated)	93.0	
C24 (Deuterated)	75.0	
C30 (Deuterated)	66.0	

Station	Survey	Replicate
AMT-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0027	C34876

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	7.48	WET
Dry Weight (g)	0.56	DRY
Solids (%)	7.5	DRY
Lipids (%)	6.5	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	2298.4	
n-C11	2073.0	
n-C12	79.3	J
n-C13	216.0	J
n-C14	376.5	J
n-C15	665.1	J
n-C16	714.9	J
n-C17	194.4	J
Pristane	976.9	
n-C18	385.8	
Phytane	1584.6	
n-C19	473.8	
n-C20	532.7	
n-C21	60.3	J
n-C22	1635.8	
n-C23	75.1	J
n-C24	154.2	J
n-C25	282.6	J
n-C26	237.5	J
n-C27	256.4	J
n-C28	396.6	
n-C29	476.0	J
n-C30	232.0	J
n-C31	221.6	J
n-C32	156.1	J
n-C33	109.9	J
n-C34	27.6	J

TOTAL AHC (ng/g)	14893.0
TRUAHC (ug/g)	671.9
TOTAL RAHC (ug/g)	400.0
UCM (ug/g)	271.9

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	74.0	
C20 (Deuterated)	90.0	
C24 (Deuterated)	80.0	
C30 (Deuterated)	71.0	

Station	Survey	Replicate
DII-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0022	C34871

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.19	WET
Dry Weight (g)	0.95	DRY
Solids (%)	9.3	DRY
Lipids (%)	5.9	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	979.2	
n-C11	160.0	J
n-C12	91.8	J
n-C13	70.6	J
n-C14	24.1	J
n-C15	349.7	J
n-C16	367.2	J
n-C17	146.2	J
Pristane	907.0	
n-C18	39.5	J
Phytane	1190.0	
n-C19	370.0	
n-C20	378.6	
n-C21	45.6	J
n-C22	264.3	
n-C23	30.9	J
n-C24	70.1	J
n-C25	187.5	
n-C26	155.7	J
n-C27	152.5	J
n-C28	166.2	J
n-C29	211.7	J
n-C30	111.9	J
n-C31	115.3	J
n-C32	46.2	J
n-C33	41.3	J
n-C34	16.5	J

TOTAL AHC (ng/g) 6689.7

TRUAHC (ug/g)	480.1
TOTAL RAHC (ug/g)	298.9
UCM (ug/g)	181.3

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	70.0	
C20 (Deuterated)	110.0	
C24 (Deuterated)	68.0	
C30 (Deuterated)	70.0	

Station	Survey	Replicate
DII-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0023	C34872

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	8.06	WET
Dry Weight (g)	0.82	DRY
Solids (%)	10.1	DRY
Lipids (%)	6.7	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1186.9	
n-C11	76.3	J
n-C12	25.9	J
n-C13	133.5	J
n-C14	61.4	J
n-C15	348.4	J
n-C16	343.6	J
n-C17	279.3	J
Pristane	820.8	
n-C18	76.7	J
Phytane	27.9	J
n-C19	325.0	
n-C20	334.2	
n-C21	37.0	J
n-C22	2112.6	
n-C23	101.3	J
n-C24	131.1	J
n-C25	263.3	
n-C26	175.2	J
n-C27	290.3	
n-C28	262.6	
n-C29	229.6	J
n-C30	146.6	J
n-C31	179.0	J
n-C32	98.2	J
n-C33	70.9	J
n-C34	32.1	J

TOTAL AHC (ng/g) 8169.6

TRUAHC (ug/g)	602.0
TOTAL RAHC (ug/g)	37.6
UCM (ug/g)	564.3

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	15.0	M
C20 (Deuterated)	102.0	
C24 (Deuterated)	76.0	
C30 (Deuterated)	69.0	

Station	Survey	Replicate
DII-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0024	C34873

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.25	WET
Dry Weight (g)	0.92	DRY
Solids (%)	9.0	DRY
Lipids (%)	6.1	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	602.5	
n-C11	3.1	J
n-C12	33.9	J
n-C13	29.2	J
n-C14	237.7	J
n-C15	301.8	J
n-C16	378.8	J
n-C17	156.9	J
Pristane	788.5	
n-C18	67.2	J
Phytane	1167.9	
n-C19	398.6	
n-C20	362.1	
n-C21	46.1	J
n-C22	942.1	
n-C23	273.7	
n-C24	19.2	J
n-C25	61.1	J
n-C26	55.1	J
n-C27	36.7	J
n-C28	40.8	J
n-C29	16.9	J
n-C30	56.3	J
n-C31	40.9	J
n-C32	11.1	J
n-C33	77.7	J
n-C34	0.0	ND

TOTAL AHC (ng/g) 6205.7

TRUAHC (ug/g)	602.9
TOTAL RAHC (ug/g)	290.8
UCM (ug/g)	312.1

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	62.0	
C20 (Deuterated)	107.0	
C24 (Deuterated)	71.0	
C30 (Deuterated)	70.0	

Station	Survey	Replicate
GOC-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0028	C34877

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.23	WET
Dry Weight (g)	0.98	DRY
Solids (%)	9.6	DRY
Lipids (%)	6.5	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1449.9	
n-C11	2040.3	
n-C12	170.8	J
n-C13	133.7	J
n-C14	215.3	J
n-C15	433.9	J
n-C16	597.8	
n-C17	155.4	J
Pristane	551.5	
n-C18	275.4	
Phytane	1290.8	
n-C19	765.0	
n-C20	609.8	
n-C21	87.3	J
n-C22	37.8	J
n-C23	61.6	J
n-C24	196.9	
n-C25	328.4	
n-C26	280.4	
n-C27	328.9	
n-C28	366.0	
n-C29	395.3	
n-C30	148.8	J
n-C31	235.5	
n-C32	141.5	J
n-C33	125.3	J
n-C34	42.0	J

TOTAL AHC (ng/g) 11465.1

TRUAHC (ug/g)	539.7
TOTAL RAHC (ug/g)	373.3
UCM (ug/g)	166.4

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	72.0	
C20 (Deuterated)	89.0	
C24 (Deuterated)	68.0	
C30 (Deuterated)	58.0	

Station	Survey	Replicate
GOC-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0029	C34878

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.05	WET
Dry Weight (g)	0.93	DRY
Solids (%)	9.2	DRY
Lipids (%)	7.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1255.8	
n-C11	29.7	J
n-C12	140.3	J
n-C13	142.4	J
n-C14	495.3	
n-C15	453.3	J
n-C16	507.7	
n-C17	144.1	J
Pristane	344.6	J
n-C18	62.4	J
Phytane	1097.8	
n-C19	203.4	
n-C20	481.7	
n-C21	311.6	
n-C22	74.3	J
n-C23	111.8	J
n-C24	276.9	
n-C25	403.8	
n-C26	372.0	
n-C27	430.7	
n-C28	430.3	
n-C29	443.4	
n-C30	260.0	
n-C31	280.7	
n-C32	168.0	
n-C33	156.0	
n-C34	62.6	J

TOTAL AHC (ng/g) 9140.5

TRUAHC (ug/g)	562.3
TOTAL RAHC (ug/g)	379.2
UCM (ug/g)	183.1

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	75.0	
C20 (Deuterated)	86.0	
C24 (Deuterated)	74.0	
C30 (Deuterated)	57.0	

Station	Survey	Replicate
GOC-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0030	C34879

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	10.71	WET
Dry Weight (g)	1.24	DRY
Solids (%)	11.6	DRY
Lipids (%)	9.3	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1372.7	
n-C11	1170.7	
n-C12	91.9	J
n-C13	49.1	J
n-C14	399.7	
n-C15	294.8	J
n-C16	334.3	J
n-C17	130.5	J
Pristane	367.3	
n-C18	131.5	
Phytane	1351.4	
n-C19	292.6	
n-C20	662.9	
n-C21	320.0	
n-C22	2005.4	
n-C23	69.8	J
n-C24	95.5	J
n-C25	201.8	
n-C26	158.1	
n-C27	195.8	
n-C28	205.3	
n-C29	269.1	
n-C30	50.2	J
n-C31	123.8	J
n-C32	83.7	J
n-C33	111.1	J
n-C34	33.5	J

TOTAL AHC (ng/g) 10572.1

TRUAHC (ug/g)	567.3
TOTAL RAHC (ug/g)	402.7
UCM (ug/g)	164.6

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	71.0	
C20 (Deuterated)	97.0	
C24 (Deuterated)	60.0	
C30 (Deuterated)	55.0	

Station	Survey	Replicate
KNH-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0010	C34859

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.19	WET
Dry Weight (g)	0.54	DRY
Solids (%)	10.4	DRY
Lipids (%)	6.8	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	299.8	J
n-C11	69.8	J
n-C12	157.9	J
n-C13	178.1	J
n-C14	107.4	J
n-C15	597.4	J
n-C16	629.0	J
n-C17	170.4	J
Pristane	313.5	J
n-C18	253.8	
Phytane	172.0	J
n-C19	182.9	J
n-C20	281.3	
n-C21	21.8	J
n-C22	387.4	
n-C23	175.2	J
n-C24	355.4	
n-C25	436.6	
n-C26	420.4	
n-C27	504.7	
n-C28	558.6	
n-C29	506.7	J
n-C30	377.9	
n-C31	306.5	J
n-C32	109.1	J
n-C33	93.5	J
n-C34	123.5	J

TOTAL AHC (ng/g) 7790.4

TRUAHC (ug/g)	320.0	
TOTAL RAHC (ug/g)	174.6	
UCM (ug/g)	145.4	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	61.2	
C20 (Deuterated)	66.5	
C24 (Deuterated)	62.8	
C30 (Deuterated)	60.7	

Station	Survey	Replicate
KNH-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0011	C34860

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.02	WET
Dry Weight (g)	0.47	DRY
Solids (%)	9.5	DRY
Lipids (%)	5.3	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1447.5	
n-C11	106.5	J
n-C12	97.8	J
n-C13	348.7	J
n-C14	59.9	J
n-C15	628.2	J
n-C16	704.2	J
n-C17	171.6	J
Pristane	51.1	J
n-C18	283.0	
Phytane	482.5	
n-C19	384.4	
n-C20	286.4	
n-C21	382.2	
n-C22	855.5	
n-C23	131.8	J
n-C24	226.2	J
n-C25	382.6	
n-C26	356.8	J
n-C27	479.9	
n-C28	486.0	
n-C29	477.4	J
n-C30	312.3	J
n-C31	288.0	J
n-C32	112.2	J
n-C33	35.2	J
n-C34	87.6	J

TOTAL AHC (ng/g) 9665.2

TRUAHC (ug/g)	477.6	
TOTAL RAHC (ug/g)	260.9	
UCM (ug/g)	216.7	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	73.1	
C20 (Deuterated)	77.8	
C24 (Deuterated)	75.8	
C30 (Deuterated)	73.1	

Station	Survey	Replicate
KNH-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0012	C34861

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.13	WET
Dry Weight (g)	0.66	DRY
Solids (%)	12.9	DRY
Lipids (%)	7.8	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	16.8	J
n-C11	32.0	J
n-C12	39.5	J
n-C13	151.0	J
n-C14	43.5	J
n-C15	549.7	J
n-C16	368.6	J
n-C17	135.7	J
Pristane	120.4	J
n-C18	48.4	J
Phytane	506.8	
n-C19	421.1	
n-C20	317.3	
n-C21	290.1	
n-C22	1159.5	
n-C23	226.4	J
n-C24	355.0	
n-C25	610.1	
n-C26	512.3	
n-C27	691.2	
n-C28	606.5	
n-C29	610.3	
n-C30	443.0	
n-C31	398.1	
n-C32	244.2	
n-C33	16.6	J
n-C34	49.6	J

TOTAL AHC (ng/g) 8963.6

TRUAHC (ug/g)	448.1	
TOTAL RAHC (ug/g)	256.0	
UCM (ug/g)	192.1	

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	70.5	
C20 (Deuterated)	77.7	
C24 (Deuterated)	74.8	
C30 (Deuterated)	72.8	

Station	Survey	Replicate
SHB-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0013	C34862

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.18	WET
Dry Weight (g)	0.53	DRY
Solids (%)	10.2	DRY
Lipids (%)	5.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	112.6	J
n-C11	76.1	J
n-C12	169.4	J
n-C13	245.4	J
n-C14	128.1	J
n-C15	681.1	J
n-C16	721.2	J
n-C17	142.6	J
Pristane	155.2	J
n-C18	294.3	
Phytane	614.4	
n-C19	463.1	
n-C20	378.3	
n-C21	267.8	J
n-C22	1058.2	
n-C23	165.7	J
n-C24	247.6	J
n-C25	418.0	
n-C26	429.5	
n-C27	601.9	
n-C28	527.1	
n-C29	649.7	
n-C30	326.6	J
n-C31	343.6	
n-C32	313.9	
n-C33	10.9	J
n-C34	86.3	J

TOTAL AHC (ng/g)	9628.3

TRUAHC (ug/g)	455.4	
TOTAL RAHC (ug/g)	234.0	
UCM (ug/g)	221.4	

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	71.8	
C20 (Deuterated)	84.2	
C24 (Deuterated)	79.6	
C30 (Deuterated)	78.2	

Station	Survey	Replicate
SHB-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0014	C34863

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	8.08	WET
Dry Weight (g)	0.75	DRY
Solids (%)	9.3	DRY
Lipids (%)	5.2	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	30.7	J
n-C11	20.2	J
n-C12	64.4	J
n-C13	240.2	J
n-C14	129.2	J
n-C15	561.7	J
n-C16	523.2	J
n-C17	265.7	J
Pristane	351.4	J
n-C18	230.9	
Phytane	153.1	
n-C19	281.9	
n-C20	63.0	J
n-C21	1027.7	
n-C22	166.9	J
n-C23	24.3	J
n-C24	10.3	J
n-C25	15.8	J
n-C26	28.4	J
n-C27	47.2	J
n-C28	89.2	J
n-C29	203.0	J
n-C30	9.1	J
n-C31	68.1	J
n-C32	239.7	
n-C33	114.9	J
n-C34	12.8	J

TOTAL AHC (ng/g)	4972.9

TRUAHC (ug/g)	185.8	
TOTAL RAHC (ug/g)	75.2	
UCM (ug/g)	110.6	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	73.4	
C20 (Deuterated)	81.4	
C24 (Deuterated)	74.9	
C30 (Deuterated)	76.6	

Station	Survey	Replicate
SHB-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0015	C34864

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	7.08	WET
Dry Weight (g)	0.82	DRY
Solids (%)	11.5	DRY
Lipids (%)	6.0	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	209.6	J
n-C11	227.9	J
n-C12	200.8	J
n-C13	248.1	J
n-C14	64.3	J
n-C15	633.5	J
n-C16	505.1	J
n-C17	109.3	J
Pristane	665.3	
n-C18	138.8	J
Phytane	233.1	
n-C19	227.2	
n-C20	170.6	
n-C21	330.3	
n-C22	39.7	J
n-C23	229.3	
n-C24	121.5	J
n-C25	194.2	J
n-C26	208.0	J
n-C27	224.9	
n-C28	308.9	
n-C29	635.9	
n-C30	175.0	J
n-C31	225.6	
n-C32	200.0	
n-C33	47.7	J
n-C34	15.5	J

TOTAL AHC (ng/g)	6589.8

TRUAHC (ug/g)	284.1	
TOTAL RAHC (ug/g)	136.5	
UCM (ug/g)	147.6	

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	80.9	
C20 (Deuterated)	79.9	
C24 (Deuterated)	79.8	
C30 (Deuterated)	71.6	

Station	Survey	Replicate
SHH-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0007	C34856

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	7.03	WET
Dry Weight (g)	0.68	DRY
Solids (%)	9.6	DRY
Lipids (%)	3.7	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	174.1	J
n-C11	75.8	J
n-C12	120.4	J
n-C13	299.1	J
n-C14	244.9	J
n-C15	621.7	J
n-C16	468.9	J
n-C17	289.8	J
Pristane	263.7	J
n-C18	107.9	J
Phytane	116.5	J
n-C19	1129.3	
n-C20	116.3	J
n-C21	399.1	
n-C22	275.2	
n-C23	180.7	J
n-C24	329.8	
n-C25	506.4	
n-C26	573.5	
n-C27	601.7	
n-C28	688.9	
n-C29	735.9	
n-C30	456.3	
n-C31	348.3	
n-C32	207.4	J
n-C33	629.2	
n-C34	77.4	J

TOTAL AHC (ng/g) 10038.0

TRUAHC (ug/g)	180.6	
TOTAL RAHC (ug/g)	85.0	
UCM (ug/g)	95.6	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	58.6	
C20 (Deuterated)	71.6	
C24 (Deuterated)	72.7	
C30 (Deuterated)	72.1	

Station	Survey	Replicate
SHH-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0008	C34857

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	10.37	WET
Dry Weight (g)	0.92	DRY
Solids (%)	8.8	DRY
Lipids (%)	6.4	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	82.0	J
n-C11	58.4	J
n-C12	105.2	J
n-C13	659.9	
n-C14	353.8	J
n-C15	998.6	
n-C16	1539.4	
n-C17	728.5	
Pristane	188.7	J
n-C18	370.5	
Phytane	33.0	J
n-C19	1600.9	
n-C20	227.6	
n-C21	384.0	
n-C22	351.4	
n-C23	37.1	J
n-C24	6.1	J
n-C25	56.6	J
n-C26	29.6	J
n-C27	28.1	J
n-C28	102.8	J
n-C29	224.9	J
n-C30	32.2	J
n-C31	86.6	J
n-C32	18.2	J
n-C33	37.2	J
n-C34	37.8	J

TOTAL AHC (ng/g) 8379.1

TRUAHC (ug/g)	220.9	
TOTAL RAHC (ug/g)	107.2	
UCM (ug/g)	113.7	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	52.5	
C20 (Deuterated)	73.4	
C24 (Deuterated)	76.3	
C30 (Deuterated)	67.9	

Station	Survey	Replicate
SHH-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0009	C34858

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	10.01	WET
Dry Weight (g)	0.98	DRY
Solids (%)	9.8	DRY
Lipids (%)	6.7	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	445.8	
n-C11	39.1	J
n-C12	117.0	J
n-C13	464.0	
n-C14	323.1	J
n-C15	795.3	
n-C16	771.3	
n-C17	353.9	J
Pristane	180.6	J
n-C18	157.8	
Phytane	203.3	
n-C19	520.6	
n-C20	692.3	
n-C21	180.7	J
n-C22	235.1	
n-C23	153.5	J
n-C24	111.6	J
n-C25	226.4	
n-C26	215.5	
n-C27	178.7	J
n-C28	334.8	
n-C29	309.1	
n-C30	141.1	J
n-C31	147.7	J
n-C32	84.9	J
n-C33	207.3	
n-C34	76.7	J

TOTAL AHC (ng/g) 7667.2

TRUAHC (ug/g)	224.9	
TOTAL RAHC (ug/g)	129.8	
UCM (ug/g)	95.1	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	4.9	M
C20 (Deuterated)	61.3	
C24 (Deuterated)	57.2	
C30 (Deuterated)	56.6	

Station	Survey	Replicate
SLB-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0019	C34868

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	7.11	WET
Dry Weight (g)	0.57	DRY
Solids (%)	8.0	DRY
Lipids (%)	5.1	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1680.2	
n-C11	399.7	J
n-C12	241.1	J
n-C13	192.6	J
n-C14	71.6	J
n-C15	873.3	J
n-C16	407.5	J
n-C17	304.7	J
Pristane	1583.8	
n-C18	159.3	J
Phytane	1413.9	
n-C19	604.1	
n-C20	871.2	
n-C21	248.9	J
n-C22	100.1	J
n-C23	191.3	J
n-C24	539.0	
n-C25	1443.0	
n-C26	2005.8	
n-C27	2429.3	
n-C28	2372.1	
n-C29	2049.4	
n-C30	1382.1	
n-C31	1069.5	
n-C32	517.2	
n-C33	279.1	
n-C34	44.0	J

TOTAL AHC (ng/g) 23473.6

TRUAHC (ug/g)	991.6
TOTAL RAHC (ug/g)	378.7
UCM (ug/g)	612.9

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	77.0	
C20 (Deuterated)	93.0	
C24 (Deuterated)	77.0	
C30 (Deuterated)	68.0	

Station	Survey	Replicate
SLB-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0020	C34869

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	7.05	WET
Dry Weight (g)	0.51	DRY
Solids (%)	7.3	DRY
Lipids (%)	4.5	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1223.2	
n-C11	391.7	J
n-C12	352.5	J
n-C13	314.2	J
n-C14	111.4	J
n-C15	1003.3	J
n-C16	435.5	J
n-C17	314.1	J
Pristane	1626.3	
n-C18	104.0	J
Phytane	922.1	
n-C19	354.5	
n-C20	583.1	
n-C21	111.2	J
n-C22	169.7	J
n-C23	404.4	
n-C24	457.4	
n-C25	1063.6	
n-C26	1440.8	
n-C27	1775.8	
n-C28	1844.1	
n-C29	1483.4	
n-C30	1074.7	
n-C31	853.4	
n-C32	596.0	
n-C33	199.1	J
n-C34	25.2	J

TOTAL AHC (ng/g) 19234.8

TRUAHC (ug/g)	891.5
TOTAL RAHC (ug/g)	370.7
UCM (ug/g)	520.8

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	109.0	
C20 (Deuterated)	97.0	
C24 (Deuterated)	79.0	
C30 (Deuterated)	69.0	

Station	Survey	Replicate
SLB-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0021	C34870

Matrix	TISSUE
Sample Type	SAMP
Batch	T1140

Wet Weight (g)	5.02	WET
Dry Weight (g)	0.43	DRY
Solids (%)	8.6	DRY
Lipids (%)	5.4	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1755.5	
n-C11	252.2	J
n-C12	59.9	J
n-C13	250.4	J
n-C14	78.2	J
n-C15	791.5	J
n-C16	914.4	J
n-C17	511.5	J
Pristane	2458.4	
n-C18	470.0	
Phytane	1492.6	
n-C19	949.4	
n-C20	236.5	J
n-C21	434.9	
n-C22	1272.9	
n-C23	648.5	
n-C24	301.2	J
n-C25	933.5	
n-C26	1148.4	
n-C27	1427.0	
n-C28	1428.2	
n-C29	1282.8	
n-C30	894.2	
n-C31	603.0	
n-C32	292.1	J
n-C33	144.7	J
n-C34	44.9	J

TOTAL AHC (ng/g) 21076.7

TRUAHC (ug/g)	660.3
TOTAL RAHC (ug/g)	388.8
UCM (ug/g)	271.6

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	41.0	
C20 (Deuterated)	88.0	
C24 (Deuterated)	76.0	
C30 (Deuterated)	72.0	

Station	Survey	Replicate
WIB-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0004	C34853

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.02	WET
Dry Weight (g)	0.73	DRY
Solids (%)	14.6	DRY
Lipids (%)	6.1	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	133.9	J
n-C11	76.3	J
n-C12	82.1	J
n-C13	310.0	J
n-C14	124.1	J
n-C15	492.2	J
n-C16	489.9	J
n-C17	244.7	J
Pristane	90.7	J
n-C18	72.9	J
Phytane	1836.7	
n-C19	222.9	
n-C20	518.0	
n-C21	224.7	J
n-C22	128.8	J
n-C23	72.4	J
n-C24	68.8	J
n-C25	30.8	J
n-C26	31.4	J
n-C27	185.6	J
n-C28	97.6	J
n-C29	365.8	J
n-C30	87.6	J
n-C31	232.5	J
n-C32	81.9	J
n-C33	111.8	J
n-C34	6.5	J

TOTAL AHC (ng/g) 6420.4

TRUAHC (ug/g)	145.3	
TOTAL RAHC (ug/g)	91.4	
UCM (ug/g)	53.9	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	80.9	
C20 (Deuterated)	79.1	
C24 (Deuterated)	72.0	
C30 (Deuterated)	69.3	

Station	Survey	Replicate
WIB-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0005	C34854

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.45	WET
Dry Weight (g)	0.59	DRY
Solids (%)	10.8	DRY
Lipids (%)	7.2	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1157.3	
n-C11	85.0	J
n-C12	136.1	J
n-C13	589.5	J
n-C14	341.5	J
n-C15	945.9	J
n-C16	1038.6	
n-C17	730.7	J
Pristane	184.3	J
n-C18	440.0	
Phytane	37.5	J
n-C19	808.4	
n-C20	353.5	
n-C21	175.4	J
n-C22	188.0	J
n-C23	68.5	J
n-C24	7.7	J
n-C25	116.2	J
n-C26	39.1	J
n-C27	79.8	J
n-C28	159.3	J
n-C29	565.7	
n-C30	15.4	J
n-C31	325.6	
n-C32	652.3	
n-C33	19.1	J
n-C34	22.3	J

TOTAL AHC (ng/g) 9282.5

TRUAHC (ug/g)	219.8	
TOTAL RAHC (ug/g)	129.0	
UCM (ug/g)	90.7	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	77.8	
C20 (Deuterated)	72.6	
C24 (Deuterated)	68.5	
C30 (Deuterated)	66.6	

Station	Survey	Replicate
WIB-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0006	C34855

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	5.05	WET
Dry Weight (g)	0.69	DRY
Solids (%)	13.6	DRY
Lipids (%)	6.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	203.0	J
n-C11	31.5	J
n-C12	72.5	J
n-C13	296.0	J
n-C14	198.0	J
n-C15	675.9	J
n-C16	489.3	J
n-C17	281.6	J
Pristane	100.9	J
n-C18	159.6	J
Phytane	131.4	J
n-C19	432.5	
n-C20	171.2	
n-C21	399.4	
n-C22	72.1	J
n-C23	231.2	J
n-C24	22.1	J
n-C25	63.4	J
n-C26	29.6	J
n-C27	113.1	J
n-C28	215.3	J
n-C29	568.3	
n-C30	17.6	J
n-C31	472.0	
n-C32	789.9	
n-C33	10.6	J
n-C34	4.6	J

TOTAL AHC (ng/g) 6252.6

TRUAHC (ug/g)	252.3	
TOTAL RAHC (ug/g)	94.0	
UCM (ug/g)	158.3	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	58.7	
C20 (Deuterated)	72.3	
C24 (Deuterated)	68.2	
C30 (Deuterated)	63.6	

Station	Survey	Replicate
ZAB-B	16	1

KLI Sample ID	Lab Sample ID
PWS00TIS0016	C34865

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	10.29	WET
Dry Weight (g)	0.95	DRY
Solids (%)	9.2	DRY
Lipids (%)	5.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	27.4	J
n-C11	19.6	J
n-C12	98.7	J
n-C13	124.8	J
n-C14	86.5	J
n-C15	533.3	J
n-C16	369.1	J
n-C17	234.2	J
Pristane	821.5	
n-C18	185.8	
Phytane	144.2	
n-C19	132.1	J
n-C20	384.4	
n-C21	46.2	J
n-C22	21.1	J
n-C23	104.9	J
n-C24	5.0	J
n-C25	28.1	J
n-C26	32.1	J
n-C27	81.9	J
n-C28	110.3	J
n-C29	370.5	
n-C30	42.9	J
n-C31	389.9	
n-C32	399.2	
n-C33	91.9	J
n-C34	15.7	J

TOTAL AHC (ng/g)	4901.1
TRUAHC (ug/g)	309.3
TOTAL RAHC (ug/g)	140.7
UCM (ug/g)	168.7

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	71.0	
C20 (Deuterated)	75.4	
C24 (Deuterated)	67.2	
C30 (Deuterated)	65.9	

Station	Survey	Replicate
ZAB-B	16	2

KLI Sample ID	Lab Sample ID
PWS00TIS0017	C34866

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	7.04	WET
Dry Weight (g)	0.72	DRY
Solids (%)	10.2	DRY
Lipids (%)	4.8	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	84.9	J
n-C11	53.8	J
n-C12	99.6	J
n-C13	113.9	J
n-C14	90.7	J
n-C15	520.6	J
n-C16	366.8	J
n-C17	217.4	J
Pristane	582.7	
n-C18	46.8	J
Phytane	152.4	
n-C19	510.6	
n-C20	404.5	
n-C21	68.9	J
n-C22	107.3	J
n-C23	41.8	J
n-C24	129.1	J
n-C25	245.0	J
n-C26	203.0	J
n-C27	413.2	
n-C28	408.5	
n-C29	568.4	
n-C30	182.5	J
n-C31	222.0	J
n-C32	192.5	J
n-C33	141.4	J
n-C34	56.2	J

TOTAL AHC (ng/g)	6224.2
TRUAHC (ug/g)	381.0
TOTAL RAHC (ug/g)	152.0
UCM (ug/g)	228.9

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	76.8	
C20 (Deuterated)	77.1	
C24 (Deuterated)	72.2	
C30 (Deuterated)	69.0	

Station	Survey	Replicate
ZAB-B	16	3

KLI Sample ID	Lab Sample ID
PWS00TIS0018	C34867

Matrix	TISSUE
Sample Type	SAMP
Batch	T1139

Wet Weight (g)	7.12	WET
Dry Weight (g)	0.62	DRY
Solids (%)	8.6	DRY
Lipids (%)	6.2	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	115.2	J
n-C11	19.6	J
n-C12	147.3	J
n-C13	181.4	J
n-C14	59.9	J
n-C15	646.6	J
n-C16	372.7	J
n-C17	257.8	J
Pristane	549.3	
n-C18	124.5	J
Phytane	186.8	
n-C19	142.3	J
n-C20	519.6	
n-C21	113.4	J
n-C22	388.7	
n-C23	30.6	J
n-C24	185.1	J
n-C25	196.1	J
n-C26	177.0	J
n-C27	271.8	J
n-C28	427.4	
n-C29	281.7	J
n-C30	184.3	J
n-C31	179.3	J
n-C32	52.8	J
n-C33	19.4	J
n-C34	18.2	J

TOTAL AHC (ng/g)	5848.6
TRUAHC (ug/g)	461.4
TOTAL RAHC (ug/g)	175.1
UCM (ug/g)	286.3

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	69.7	
C20 (Deuterated)	76.9	
C24 (Deuterated)	73.4	
C30 (Deuterated)	69.1	

APPENDIX A

Tissue Results

4.0 Gonadal Index Data

STN_ID	AIB-B

	SURVEY_NO	Analyte										
	14						16					
MUSSEL_NO	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)
1	0.27	0.09	1.44	0.16	39.0	3.0	0.40	0.12	1.31	0.23	39.0	3.4
2	0.24	0.06	1.16	0.17	36.0	4.3	0.15	0.05	0.82	0.15	35.0	3.0
3	0.25	0.06	1.14	0.18	38.0	4.2	0.16	0.06	0.98	0.14	36.0	2.8
4	0.24	0.06	1.15	0.17	39.0	4.2	0.27	0.08	0.96	0.22	39.0	3.3
5	0.50	0.14	1.22	0.29	39.0	3.6	0.28	0.11	0.99	0.22	35.0	2.6
6	0.21	0.04	1.59	0.12	41.0	5.3	0.31	0.10	1.12	0.22	36.0	3.0
7	0.29	0.10	1.72	0.14	36.0	3.0	0.20	0.07	1.02	0.16	35.0	2.9
8	0.17	0.07	0.91	0.16	35.0	2.6	0.16	0.05	0.96	0.14	38.0	3.5
9	0.16	0.06	0.64	0.20	36.0	2.8	0.27	0.08	1.17	0.19	38.0	3.3
10	0.10	0.03	0.85	0.11	35.0	3.4	0.25	0.08	1.05	0.19	38.0	3.2
11	0.20	0.05	1.06	0.16	37.0	3.8	0.23	0.06	1.04	0.18	33.0	3.8
12	0.56	0.18	1.29	0.30	36.0	3.1	0.22	0.07	1.08	0.17	36.0	3.0
13	0.35	0.13	1.04	0.25	35.0	2.8	0.17	0.05	0.94	0.15	36.0	3.6
14	0.08	0.03	0.95	0.08	34.0	2.9	0.16	0.05	0.89	0.15	35.0	3.0
15	0.14	0.06	0.98	0.13	33.0	2.4	0.28	0.11	1.08	0.21	36.0	2.5
16	0.14	0.05	0.88	0.14	35.0	3.0	0.23	0.08	1.16	0.17	35.0	3.0
17	0.22	0.10	0.94	0.19	34.0	2.3	0.21	0.07	0.98	0.18	35.0	3.0
18	0.11	0.04	0.83	0.12	35.0	3.0	0.24	0.10	0.78	0.24	33.0	2.5
19	0.25	0.09	1.07	0.19	33.0	2.7	0.18	0.06	0.71	0.20	31.0	2.9
20	0.16	0.06	0.90	0.15	31.0	2.6	0.18	0.08	0.75	0.19	32.0	2.2
Mean	0.23	0.07	1.09	0.17	35.9	3.3	0.23	0.08	0.99	0.19	35.6	3.0

STN_ID	AMT-B

	SURVEY_NO	Analyte															
	14						15						16					
MUSSEL_NO	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)
1	0.03	0.01	0.91	0.03	42.0	5.7	0.17	0.03	1.33	0.11	41.0	5.0	0.06	0.02	1.30	0.04	35.0	3.2
2	0.07	0.02	0.97	0.07	40.0	4.2	0.22	0.03	1.40	0.14	43.0	7.0	0.06	0.02	0.63	0.09	38.0	3
3	0.12	0.03	1.15	0.09	42.0	4.6	0.26	0.06	1.38	0.16	41.0	4.6	0.19	0.05	0.88	0.18	39.0	3.6
4	0.28	0.04	1.52	0.16	48.0	6.8	0.16	0.03	1.13	0.12	43.0	5.2	0.21	0.06	0.99	0.18	38.0	3.4
5	0.13	0.02	1.12	0.10	42.0	5.4	0.15	0.04	1.00	0.13	38.0	4.2	0.19	0.04	1.40	0.12	42.0	4.3
6	0.15	0.03	1.21	0.11	47.0	5.7	0.14	0.04	0.93	0.13	39.0	3.6	0.22	0.06	1.02	0.18	36.0	3.8
7	0.15	0.03	1.09	0.12	43.0	5.0	0.10	0.03	0.92	0.10	39.0	3.2	0.13	0.04	1.03	0.11	38.0	3.3
8	0.10	0.02	0.99	0.09	40.0	5.0	0.14	0.04	0.94	0.13	40.0	3.8	0.05	0.02	0.71	0.07	32.0	2.6
9	0.12	0.02	1.04	0.10	41.0	5.3	0.17	0.05	1.14	0.13	40.0	3.6	0.11	0.04	0.67	0.14	34.0	2.6
10	0.09	0.01	1.25	0.07	45.0	7.2	0.23	0.04	1.38	0.14	46.0	5.4	0.19	0.05	0.97	0.16	36.0	3.7
11	0.08	0.01	1.04	0.07	46.0	6.6	0.20	0.05	1.09	0.16	40.0	4.2	0.23	0.05	0.95	0.19	38.0	4.6
12	0.08	0.02	1.02	0.07	40.0	5.2	0.28	0.06	1.28	0.18	42.0	4.4	0.22	0.06	0.98	0.18	35.0	3.7
13	0.08	0.02	0.85	0.09	41.0	4.1	0.20	0.03	1.55	0.11	47.0	6.6	0.09	0.03	0.89	0.09	36.0	3
14	0.09	0.02	0.94	0.09	39.0	4.4	0.16	0.04	1.18	0.12	48.0	4.2	0.11	0.04	0.80	0.12	33.0	2.8
15	0.16	0.04	1.00	0.14	39.0	3.6	0.20	0.04	1.17	0.15	41.0	4.9	0.09	0.03	0.52	0.15	31.0	2.9
16	0.11	0.03	0.91	0.11	41.0	3.9	0.09	0.03	0.71	0.11	35.0	2.6	0.27	0.08	0.88	0.23	37.0	3.5
17	0.06	0.01	0.90	0.06	43.0	4.9	0.22	0.06	1.08	0.17	41.0	3.8	0.09	0.04	0.73	0.11	36.0	2.4
18	0.25	0.07	1.16	0.18	39.0	3.8	0.10	0.06	0.81	0.11	38.0	1.8	0.15	0.05	0.91	0.14	36.0	2.8
19	0.20	0.06	1.09	0.16	40.0	3.6	0.19	0.06	1.12	0.15	39.0	3.4	0.16	0.05	1.13	0.12	33.0	3.1
20	0.14	0.04	0.90	0.13	39.0	3.4	0.13	0.04	0.77	0.14	36.0	3.4	0.13	0.05	0.99	0.12	35.0	2.6
Mean	0.12	0.03	1.05	0.10	41.9	4.9	0.18	0.04	1.12	0.13	40.9	4.2	0.15	0.04	0.92	0.14	35.9	3.2

STN_ID	DII-B

	SURVEY_NO	Analyte										
	14						16					
MUSSEL_NO	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)
1	0.08	0.03	0.36	0.18	32.0	2.7	0.10	0.03	0.86	0.10	35.0	2.9
2	0.08	0.04	0.82	0.09	31.0	1.8	0.10	0.03	1.01	0.09	37.0	3.3
3	0.16	0.04	0.99	0.14	38.0	3.8	0.29	0.09	1.17	0.20	35.0	3.1
4	0.23	0.08	1.03	0.18	34.0	3.0	0.24	0.08	0.91	0.21	34.0	3.1
5	0.09	0.03	0.73	0.11	32.0	2.9	0.12	0.03	1.13	0.10	34.0	3.9
6	0.09	0.04	0.69	0.12	31.0	2.3	0.06	0.02	0.79	0.07	32.0	2.6
7	0.20	0.06	1.01	0.17	37.0	3.4	0.13	0.05	1.00	0.12	33.0	2.6
8	0.08	0.03	0.80	0.09	31.0	2.4	0.18	0.05	1.06	0.15	34.0	3.4
9	0.15	0.05	0.90	0.14	35.0	3.2	0.16	0.05	1.10	0.13	35.0	3.1
10	0.19	0.05	1.11	0.15	36.0	3.6	0.12	0.04	0.89	0.12	34.0	3.0
11	0.15	0.03	1.04	0.13	39.0	4.4	0.09	0.03	0.90	0.09	33.0	3.0
12	0.26	0.08	1.23	0.17	38.0	3.4	0.14	0.04	0.98	0.13	36.0	3.7
13	0.12	0.04	0.71	0.14	34.0	2.8	0.08	0.04	0.59	0.12	29.0	2.2
14	0.20	0.06	1.17	0.15	35.0	3.4	0.15	0.03	1.51	0.09	38.0	4.9
15	0.17	0.05	0.95	0.15	35.0	3.1	0.09	0.03	0.94	0.09	32.0	2.8
16	0.05	0.02	0.45	0.10	34.0	2.8	0.10	0.04	0.91	0.10	32.0	2.8
17	0.15	0.06	0.89	0.14	33.0	2.4	0.09	0.03	1.13	0.07	35.0	3.0
18	0.08	0.02	0.88	0.08	35.0	3.8	0.09	0.03	1.03	0.08	34.0	3.2
19	0.15	0.05	0.92	0.14	35.0	2.9	0.07	0.03	1.00	0.07	32.0	2.6
20	0.07	0.03	0.78	0.08	32.0	2.3	0.10	0.03	1.01	0.09	34.0	3.2
Mean	0.14	0.05	0.87	0.13	34.4	3.0	0.13	0.04	1.00	0.11	33.9	3.1

STN_ID	GOC-B

	SURVEY_NO	Analyte																
	14						15						16					
MUSSEL_NO	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)
1	0.15	0.03	1.62	0.08	40.0	4.9	0.27	0.06	1.24	0.18	44.0	4.4	0.14	0.04	0.99	0.12	40.0	3.5
2	0.17	0.04	1.13	0.13	39.0	4.0	0.13	0.02	1.19	0.10	44.0	7.4	0.19	0.05	0.88	0.18	38.0	3.6
3	0.25	0.03	1.63	0.13	47.0	8.4	0.24	0.04	1.20	0.17	42.0	5.6	0.39	0.11	1.44	0.21	40.0	3.6
4	0.25	0.06	1.26	0.17	39.0	4.0	0.17	0.04	1.09	0.13	39.0	3.8	0.25	0.07	1.23	0.17	40.0	3.4
5	0.20	0.05	1.11	0.15	37.0	4.2	0.19	0.03	1.12	0.15	41.0	6.4	0.15	0.04	1.00	0.13	36.0	3.7
6	0.24	0.05	1.41	0.15	40.0	5.3	0.25	0.05	1.08	0.19	36.0	4.6	0.10	0.05	0.69	0.13	33.0	2.2
7	0.20	0.04	1.40	0.13	40.0	4.6	0.14	0.04	0.79	0.15	34.0	3.8	0.23	0.05	1.38	0.14	43.0	4.5
8	0.19	0.03	1.39	0.12	40.0	5.6	0.14	0.04	0.83	0.14	38.0	3.6	0.12	0.04	0.68	0.15	38.0	3.1
9	0.21	0.04	1.24	0.14	41.0	5.2	0.20	0.05	1.10	0.15	38.0	4.2	0.15	0.04	0.80	0.16	38.0	3.4
10	0.14	0.03	1.16	0.11	40.0	4.6	0.26	0.04	1.28	0.17	44.0	6.4	0.18	0.05	0.89	0.17	38.0	3.6
11	0.19	0.04	1.14	0.14	39.0	5.0	0.31	0.05	1.38	0.18	41.0	6.6	0.16	0.05	0.95	0.14	35.0	3.5
12	0.13	0.02	1.33	0.09	41.0	5.5	0.11	0.02	1.15	0.09	40.0	4.6	0.16	0.07	0.64	0.20	33.0	2.4
13	0.11	0.02	1.29	0.08	43.0	6.0	0.18	0.05	1.03	0.15	38.0	3.6	0.18	0.05	1.04	0.15	40.0	3.8
14	0.21	0.04	1.56	0.12	41.0	5.0	0.15	0.04	0.79	0.16	33.0	3.4	0.05	0.01	1.11	0.04	38.0	4
15	0.13	0.03	1.62	0.07	41.0	5.0	0.20	0.07	0.91	0.18	34.0	3.0	0.06	0.02	0.63	0.09	36.0	3.6
16	0.14	0.03	1.17	0.11	38.0	5.0	0.12	0.03	0.81	0.13	36.0	4.0	0.02	0.01	0.89	0.02	38.0	3.8
17	0.11	0.03	1.03	0.10	39.0	4.0	0.15	0.04	0.74	0.17	35.0	3.4	0.16	0.07	0.75	0.18	33.0	2.4
18	0.13	0.03	1.00	0.12	38.0	4.0	0.18	0.06	0.97	0.16	33.0	3.0	0.08	0.04	0.76	0.10	34.0	1.8
19	0.23	0.05	1.47	0.14	41.0	5.1	0.15	0.05	0.68	0.18	33.0	2.8	0.18	0.08	0.91	0.17	35.0	2.2
20	0.18	0.04	1.15	0.14	38.0	4.2	0.12	0.05	0.96	0.11	33.0	2.6	0.13	0.06	0.89	0.13	33.0	2.1
Mean	0.18	0.04	1.31	0.12	40.1	5.0	0.18	0.04	1.02	0.15	37.8	4.4	0.15	0.05	0.93	0.14	37.0	3.2

STN_ID	KNH-B

	SURVEY_NO	Analyte										
	14						16					
MUSSEL_NO	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)
1	0.24	0.12	0.64	0.28	28.0	2.0	0.08	0.03	0.85	0.09	32.0	2.3
2	0.19	0.08	0.70	0.21	31.0	2.4	0.10	0.04	0.98	0.09	36.0	2.5
3	0.04	0.02	0.68	0.06	31.0	1.8	0.10	0.05	0.65	0.13	34.0	2.1
4	0.11	0.06	0.45	0.20	29.0	1.8	0.10	0.04	1.20	0.08	36.0	2.6
5	0.17	0.06	0.71	0.19	33.0	2.8	0.14	0.08	0.85	0.14	32.0	1.8
6	0.21	0.12	0.63	0.25	28.0	1.7	0.08	0.05	0.57	0.12	30.0	1.6
7	0.18	0.13	0.58	0.24	26.0	1.4	0.12	0.09	0.58	0.17	30.0	1.3
8	0.11	0.07	0.53	0.17	28.0	1.6	0.03	0.01	0.75	0.04	35.0	2.4
9	0.22	0.12	0.60	0.27	30.0	1.8	0.20	0.11	0.75	0.21	31.0	1.9
10	0.16	0.07	0.76	0.17	33.0	2.4	0.16	0.07	0.79	0.17	34.0	2.4
11	0.16	0.08	0.56	0.22	32.0	2.1	0.24	0.09	0.90	0.21	36.0	2.7
12	0.22	0.11	0.68	0.24	31.0	2.0	0.15	0.09	0.78	0.16	31.0	1.6
13	0.09	0.05	0.67	0.12	29.0	1.7	0.11	0.08	0.62	0.15	30.0	1.3
14	0.26	0.09	0.89	0.23	35.0	2.9	0.12	0.08	0.59	0.17	28.0	1.5
15	0.19	0.11	0.70	0.21	28.0	1.8	0.15	0.07	0.68	0.18	32.0	2.1
16	0.07	0.04	0.59	0.11	30.0	1.7	0.13	0.08	0.64	0.17	30.0	1.6
17	0.07	0.05	0.50	0.12	29.0	1.4	0.13	0.04	0.89	0.13	36.0	3.0
18	0.17	0.12	0.49	0.26	27.0	1.4	0.10	0.05	0.67	0.13	31.0	2.0
19	0.14	0.07	0.65	0.18	29.0	2.1	0.11	0.04	0.89	0.11	35.0	2.7
20	0.18	0.11	0.59	0.23	29.0	1.6	0.23	0.05	1.25	0.16	40.0	4.7
Mean	0.16	0.08	0.63	0.20	29.8	1.9	0.13	0.06	0.79	0.14	33.0	2.2

STN_ID	SHB-B

	SURVEY_NO	Analyte										
	14						16					
MUSSEL_NO	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)
1	0.21	0.11	0.98	0.18	32.0	2.0	0.17	0.07	1.01	0.14	32.0	2.5
2	0.09	0.05	0.77	0.10	31.0	2.0	0.17	0.05	1.04	0.14	36.0	3.3
3	0.11	0.05	0.75	0.13	32.0	2.1	0.23	0.08	0.98	0.19	36.0	2.8
4	0.18	0.07	0.96	0.16	32.0	2.5	0.19	0.05	1.10	0.15	37.0	3.6
5	0.21	0.12	0.70	0.23	29.0	1.8	0.18	0.06	0.97	0.16	34.0	2.8
6	0.24	0.07	1.20	0.17	36.0	3.5	0.15	0.07	0.80	0.16	34.0	2.3
7	0.27	0.08	1.00	0.21	37.0	3.2	0.07	0.02	0.75	0.09	36.0	2.9
8	0.31	0.07	1.34	0.19	41.0	4.6	0.04	0.03	0.44	0.08	28.0	1.6
9	0.13	0.05	0.88	0.13	33.0	2.8	0.09	0.04	0.71	0.11	32.0	2.3
10	0.14	0.05	0.75	0.16	32.0	2.6	0.17	0.05	1.21	0.12	38.0	3.4
11	0.21	0.06	1.11	0.16	36.0	3.8	0.16	0.07	1.01	0.14	32.0	2.3
12	0.11	0.03	0.97	0.10	36.0	4.3	0.24	0.09	1.17	0.17	35.0	2.6
13	0.20	0.05	1.14	0.15	37.0	3.7	0.18	0.07	1.04	0.15	35.0	2.7
14	0.20	0.04	1.19	0.14	38.0	4.5	0.18	0.08	0.97	0.16	32.0	2.2
15	0.19	0.08	0.82	0.19	32.0	2.4	0.12	0.06	0.68	0.15	30.0	1.9
16	0.11	0.04	0.76	0.13	35.0	3.1	0.14	0.05	0.78	0.15	36.0	3.0
17	0.15	0.04	1.07	0.12	38.0	3.7	0.23	0.07	1.11	0.17	37.0	3.4
18	0.05	0.04	0.54	0.08	28.0	1.4	0.18	0.07	0.89	0.17	35.0	2.7
19	0.34	0.08	1.42	0.19	41.0	4.3	0.15	0.06	0.87	0.15	32.0	2.4
20	0.19	0.08	0.62	0.23	31.0	2.3	0.17	0.07	1.09	0.13	32.0	2.4
Mean	0.18	0.06	0.95	0.16	34.4	3.0	0.16	0.06	0.93	0.14	34.0	2.7

STN_ID	SHH-B

	SURVEY_NO	Analyte										
	14						16					
MUSSEL_NO	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)
1	0.24	0.03	1.67	0.13	50.0	7.0	0.34	0.06	1.73	0.16	45.0	5.3
2	0.33	0.04	2.46	0.12	50.0	8.6	0.28	0.09	0.93	0.23	35.0	3.0
3	0.17	0.05	1.22	0.12	40.0	3.6	0.27	0.06	1.27	0.18	42.0	4.6
4	0.19	0.04	1.42	0.12	45.0	5.1	0.24	0.05	1.44	0.14	44.0	5.0
5	0.28	0.10	1.16	0.19	41.0	2.8	0.35	0.09	1.15	0.23	39.0	3.8
6	0.20	0.05	1.34	0.13	42.0	3.8	0.14	0.04	0.79	0.15	38.0	3.5
7	0.17	0.06	1.00	0.15	36.0	2.8	0.14	0.04	1.75	0.07	37.0	3.7
8	0.38	0.11	1.25	0.23	41.0	3.5	0.13	0.04	1.25	0.09	38.0	3.2
9	0.18	0.06	1.28	0.12	37.0	3.1	0.24	0.06	1.21	0.17	42.0	4.2
10	0.24	0.08	1.55	0.13	43.0	3.2	0.17	0.05	0.97	0.15	35.0	3.2
11	0.17	0.04	1.42	0.11	40.0	4.1	0.21	0.06	1.09	0.16	39.0	3.8
12	0.33	0.07	1.53	0.18	44.0	4.7	0.24	0.07	1.01	0.19	35.0	3.3
13	0.19	0.04	1.46	0.12	43.0	4.6	0.19	0.07	0.92	0.17	35.0	2.9
14	0.11	0.03	0.93	0.11	40.0	3.8	0.18	0.06	0.93	0.16	34.0	2.9
15	0.30	0.10	1.19	0.20	36.0	3.1	0.20	0.05	1.06	0.16	39.0	3.7
16	0.29	0.07	1.31	0.18	40.0	4.0	0.19	0.06	0.90	0.17	34.0	3.2
17	0.32	0.13	0.99	0.24	35.0	2.5	0.19	0.05	1.07	0.15	38.0	3.8
18	0.16	0.05	0.96	0.14	35.0	3.5	0.15	0.05	0.90	0.14	34.0	3.1
19	0.24	0.07	1.24	0.16	38.0	3.5	0.18	0.05	0.96	0.16	35.0	3.3
20	0.16	0.07	0.89	0.15	34.0	2.4	0.15	0.04	0.87	0.15	34.0	3.4
Mean	0.23	0.06	1.31	0.15	40.5	4.0	0.21	0.06	1.11	0.16	37.6	3.6

STN_ID	SLB-B

	SURVEY_NO	Analyte										
	14						16					
MUSSEL_NO	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)
1	0.12	0.05	0.76	0.14	35.0	2.2	0.28	0.08	1.47	0.16	38.0	3.4
2	0.04	0.02	0.48	0.08	30.0	2.0	0.02	0.01	0.66	0.03	35.0	2.2
3	0.11	0.03	1.16	0.09	39.0	3.6	0.08	0.03	0.85	0.09	36.0	2.8
4	0.12	0.05	0.82	0.13	38.0	2.6	0.12	0.05	0.81	0.13	33.0	2.5
5	0.07	0.03	0.74	0.09	36.0	2.6	0.16	0.05	1.24	0.11	40.0	3.2
6	0.06	0.02	0.77	0.07	39.0	3.6	0.02	0.01	0.81	0.02	35.0	2.3
7	0.08	0.03	0.58	0.12	32.0	3.0	0.05	0.03	0.85	0.06	32.0	1.8
8	0.08	0.03	0.84	0.09	36.0	2.9	0.04	0.02	0.85	0.04	31.0	2.0
9	0.07	0.03	0.66	0.10	34.0	2.2	0.02	0.01	0.57	0.03	30.0	1.7
10	0.07	0.04	0.75	0.09	32.0	2.0	0.07	0.03	0.79	0.08	32.0	2.4
11	0.09	0.03	0.77	0.10	33.0	3.0	0.10	0.05	0.65	0.13	30.0	1.9
12	0.11	0.06	0.68	0.14	32.0	2.0	0.09	0.05	0.55	0.14	29.0	1.8
13	0.17	0.07	0.80	0.18	34.0	2.6	0.04	0.03	0.50	0.07	28.0	1.5
14	0.06	0.03	0.51	0.11	30.0	2.2	0.05	0.04	0.61	0.08	28.0	1.3
15	0.09	0.05	0.71	0.11	32.0	2.0	0.02	0.01	0.44	0.04	27.0	1.4
16	0.15	0.06	0.73	0.17	34.0	2.6	0.11	0.06	0.49	0.18	27.0	1.9
17	0.08	0.04	0.43	0.16	30.0	2.0	0.02	0.01	0.47	0.04	28.0	1.4
18	0.07	0.04	0.48	0.13	30.0	1.8	0.04	0.03	0.50	0.07	26.0	1.5
19	0.02	0.01	0.40	0.05	29.0	1.8	0.02	0.02	0.45	0.04	24.0	1.3
20	0.06	0.03	0.51	0.11	29.0	2.0	0.03	0.02	0.44	0.06	25.0	1.3
Mean	0.09	0.04	0.68	0.11	33.2	2.4	0.07	0.03	0.70	0.08	30.7	2.0

STN_ID	WIB-B

	SURVEY_NO	Analyte										
	14						16					
MUSSEL_NO	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)
1	0.25	0.10	0.97	0.20	32.0	2.6	0.34	0.11	1.17	0.23	34.0	3.0
2	0.08	0.07	0.59	0.12	28.0	1.2	0.43	0.17	1.00	0.30	32.0	2.5
3	0.19	0.13	0.73	0.21	29.0	1.5	0.16	0.08	0.90	0.15	31.0	2.0
4	0.11	0.11	0.63	0.15	28.0	1.0	0.32	0.13	0.98	0.25	31.0	2.4
5	0.08	0.09	0.57	0.12	28.0	0.9	0.15	0.09	0.78	0.16	29.0	1.7
6	0.13	0.07	0.80	0.14	31.0	1.9	0.33	0.17	0.87	0.28	30.0	2.0
7	0.15	0.08	0.85	0.15	30.0	2.0	0.05	0.03	0.60	0.08	28.0	1.8
8	0.10	0.06	0.71	0.12	30.0	1.8	0.27	0.16	0.83	0.25	28.0	1.7
9	0.10	0.08	0.65	0.13	28.0	1.3	0.25	0.15	0.79	0.24	28.0	1.7
10	0.12	0.12	0.68	0.15	28.0	1.0	0.26	0.14	0.80	0.25	26.0	1.8
11	0.17	0.15	0.55	0.24	25.0	1.1	0.27	0.15	0.77	0.26	27.0	1.8
12	0.10	0.09	0.75	0.12	26.0	1.1	0.22	0.13	0.70	0.24	27.0	1.7
13	0.08	0.07	0.61	0.12	27.0	1.2	0.19	0.12	0.58	0.25	25.0	1.6
14	0.11	0.11	0.79	0.12	27.0	1.0	0.24	0.16	0.59	0.29	26.0	1.5
15	0.16	0.11	0.55	0.23	25.0	1.5	0.25	0.16	0.59	0.30	27.0	1.6
16	0.15	0.13	0.66	0.19	25.0	1.2	0.22	0.16	0.51	0.30	26.0	1.4
17	0.11	0.11	0.59	0.16	29.0	1.0	0.20	0.14	0.50	0.29	23.0	1.4
18	0.20	0.13	0.76	0.21	28.0	1.6	0.17	0.14	0.41	0.29	20.0	1.2
19	0.06	0.05	0.49	0.11	25.0	1.2	0.21	0.14	0.55	0.28	23.0	1.5
20	0.10	0.08	0.56	0.15	26.0	1.2	0.23	0.15	0.56	0.29	25.0	1.5
Mean	0.13	0.10	0.67	0.16	27.8	1.4	0.24	0.13	0.72	0.25	27.3	1.8

STN_ID	ZAB-B

	SURVEY_NO	Analyte										
	14						16					
MUSSEL_NO	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)	Gonadal Weight (g)	Gonadal Weight/Shell Volume	Non-Gonadal Weight (g)	Proportional Gonadal Weight (Gonadal:Total Weight)	Shell Length (mm)	Shell Volume (mL)
1	0.27	0.08	1.03	0.21	38.0	3.3	0.13	0.05	0.70	0.16	34.0	2.7
2	0.11	0.04	0.92	0.11	33.0	2.6	0.19	0.05	0.78	0.20	35.0	3.6
3	0.27	0.11	0.82	0.25	33.0	2.4	0.23	0.08	0.79	0.23	36.0	2.8
4	0.19	0.07	0.72	0.21	37.0	2.9	0.32	0.08	1.26	0.20	38.0	3.8
5	0.15	0.06	0.73	0.17	35.0	2.6	0.27	0.08	1.04	0.21	37.0	3.3
6	0.20	0.05	1.14	0.15	38.0	4.2	0.20	0.08	0.88	0.19	33.0	2.5
7	0.26	0.08	1.20	0.18	38.0	3.4	0.07	0.03	1.00	0.07	35.0	2.4
8	0.29	0.09	1.00	0.22	36.0	3.4	0.08	0.02	1.14	0.07	39.0	3.4
9	0.11	0.03	0.93	0.11	38.0	3.9	0.31	0.10	1.06	0.23	37.0	3.0
10	0.18	0.04	1.30	0.12	44.0	4.8	0.15	0.05	0.91	0.14	34.0	2.8
11	0.07	0.02	0.71	0.09	34.0	3.2	0.14	0.06	0.95	0.13	33.0	2.4
12	0.14	0.04	0.91	0.13	37.0	3.4	0.19	0.05	1.16	0.14	38.0	3.6
13	0.24	0.06	1.10	0.18	37.0	3.9	0.17	0.03	1.43	0.11	41.0	4.9
14	0.10	0.03	0.86	0.10	34.0	3.0	0.20	0.06	1.09	0.16	36.0	3.4
15	0.12	0.04	0.99	0.11	38.0	3.2	0.16	0.06	0.77	0.17	34.0	2.6
16	0.16	0.03	1.30	0.11	44.0	5.5	0.25	0.06	1.22	0.17	41.0	3.9
17	0.11	0.04	0.77	0.13	36.0	3.0	0.12	0.03	1.25	0.09	38.0	3.8
18	0.09	0.03	0.68	0.12	33.0	2.8	0.09	0.03	0.95	0.09	36.0	3.4
19	0.12	0.05	0.73	0.14	32.0	2.6	0.11	0.04	0.90	0.11	36.0	2.7
20	0.10	0.04	0.86	0.10	36.0	2.4	0.16	0.03	1.46	0.10	44.0	5.4
Mean	0.16	0.05	0.94	0.15	36.6	3.3	0.18	0.05	1.04	0.15	36.8	3.3

APPENDIX B

Sediment Results

1.0 Sample Collection and Processing Information

Sample Collection and Processing Information for 1999-2000 Sediment Samples

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***		***Receipt Date***	4/20/00
Collection Time	17:54	**AMT-S**	**16**	**1**		***Extraction Date***	5/3/00
Sample Depth (m)	-70.2					***Analysis Date***	5/23/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0004			***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34883			***Batch ID***	M2879

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***		***Receipt Date***	4/20/00
Collection Time	18:12	**AMT-S**	**16**	**2**		***Extraction Date***	5/3/00
Sample Depth (m)	-67.5					***Analysis Date***	5/23/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0005			***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34884			***Batch ID***	M2879

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***		***Receipt Date***	4/20/00
Collection Time	18:32	**AMT-S**	**16**	**3**		***Extraction Date***	5/3/00
Sample Depth (m)	-66.7					***Analysis Date***	5/23/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0006			***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34885			***Batch ID***	M2879

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***		***Receipt Date***	4/20/00
Collection Time	16:25	**GOC-S**	**16**	**1**		***Extraction Date***	5/3/00
Sample Depth (m)	-28.9					***Analysis Date***	5/23/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0001			***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34880			***Batch ID***	M2879

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***		***Receipt Date***	4/20/00
Collection Time	16:59	**GOC-S**	**16**	**2**		***Extraction Date***	5/3/00
Sample Depth (m)	-28.3					***Analysis Date***	5/23/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0002			***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34881			***Batch ID***	M2879

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***		***Receipt Date***	4/20/00
Collection Time	17:15	**GOC-S**	**16**	**3**		***Extraction Date***	5/3/00
Sample Depth (m)	-28.5					***Analysis Date***	5/23/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0003			***Report Date***	6/22/00
Analysis Type	PAH	***GERG Labsamp ID***	C34882			***Batch ID***	M2879

Sample Collection and Processing Information for 1999-2000 Sediment Samples

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***		***Receipt Date***	4/20/00
Collection Time	17:54	**AMT-S**	**16**	**1**		***Extraction Date***	5/3/00
Sample Depth (m)	-70.2					***Analysis Date***	5/18/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0004			***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34883			***Batch ID***	M2879

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***		***Receipt Date***	4/20/00
Collection Time	18:12	**AMT-S**	**16**	**2**		***Extraction Date***	5/3/00
Sample Depth (m)	-67.5					***Analysis Date***	5/18/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0005			***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34884			***Batch ID***	M2879

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***		***Receipt Date***	4/20/00
Collection Time	18:32	**AMT-S**	**16**	**3**		***Extraction Date***	5/3/00
Sample Depth (m)	-66.7					***Analysis Date***	5/18/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0006			***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34885			***Batch ID***	M2879

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***		***Receipt Date***	4/20/00
Collection Time	16:25	**GOC-S**	**16**	**1**		***Extraction Date***	5/3/00
Sample Depth (m)	-28.9					***Analysis Date***	5/18/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0001			***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34880			***Batch ID***	M2879

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***		***Receipt Date***	4/20/00
Collection Time	16:59	**GOC-S**	**16**	**2**		***Extraction Date***	5/3/00
Sample Depth (m)	-28.3					***Analysis Date***	5/18/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0002			***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34881			***Batch ID***	M2879

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***		***Receipt Date***	4/20/00
Collection Time	17:15	**GOC-S**	**16**	**3**		***Extraction Date***	5/3/00
Sample Depth (m)	-28.5					***Analysis Date***	5/18/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0003			***Report Date***	6/22/00
Analysis Type	AHC	***GERG Labsamp ID***	C34882			***Batch ID***	M2879

Sample Collection and Processing Information for 1999-2000 LTEMP Sediment Samples

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	17:54	**AMT-S**	**16**	**1**	***Extraction Date***	Not Applicable
Sample Depth (m)	-70.2				***Analysis Date***	5/18/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0004		***Report Date***	6/22/00
Analysis Type	TOC	***GERG Labsamp ID***	C34883		***Batch ID***	5/18/00

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:12	**AMT-S**	**16**	**2**	***Extraction Date***	Not Applicable
Sample Depth (m)	-67.5				***Analysis Date***	5/18/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0005		***Report Date***	6/22/00
Analysis Type	TOC	***GERG Labsamp ID***	C34884		***Batch ID***	5/18/00

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:32	**AMT-S**	**16**	**3**	***Extraction Date***	Not Applicable
Sample Depth (m)	-66.7				***Analysis Date***	5/18/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0006		***Report Date***	6/22/00
Analysis Type	TOC	***GERG Labsamp ID***	C34885		***Batch ID***	5/18/00

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	16:25	**GOC-S**	**16**	**1**	***Extraction Date***	Not Applicable
Sample Depth (m)	-28.9				***Analysis Date***	5/18/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0001		***Report Date***	6/22/00
Analysis Type	TOC	***GERG Labsamp ID***	C34880		***Batch ID***	5/18/00

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	16:59	**GOC-S**	**16**	**2**	***Extraction Date***	Not Applicable
Sample Depth (m)	-28.3				***Analysis Date***	5/18/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0002		***Report Date***	6/22/00
Analysis Type	TOC	***GERG Labsamp ID***	C34881		***Batch ID***	5/18/00

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	17:15	**GOC-S**	**16**	**3**	***Extraction Date***	Not Applicable
Sample Depth (m)	-28.5				***Analysis Date***	5/18/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PAT0003		***Report Date***	6/22/00
Analysis Type	TOC	***GERG Labsamp ID***	C34882		***Batch ID***	5/18/00

Sample Collection and Processing Information for 1999-2000 LTEMP Sediment Samples

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	17:54	**AMT-S**	**16**	**1**	***Extraction Date***	Not Applicable
Sample Depth (m)	-70.2				***Analysis Date***	4/30/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PGS0004		***Report Date***	6/22/00
Analysis Type	PGS	***GERG Labsamp ID***	C34889		***Batch ID***	4/30/00

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:12	**AMT-S**	**16**	**2**	***Extraction Date***	Not Applicable
Sample Depth (m)	-67.5				***Analysis Date***	4/30/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PGS0005		***Report Date***	6/22/00
Analysis Type	PGS	***GERG Labsamp ID***	C34890		***Batch ID***	4/30/00

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	18:32	**AMT-S**	**16**	**3**	***Extraction Date***	Not Applicable
Sample Depth (m)	-66.7				***Analysis Date***	4/30/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PGS0006		***Report Date***	6/22/00
Analysis Type	PGS	***GERG Labsamp ID***	C34891		***Batch ID***	4/30/00

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	16:25	**GOC-S**	**16**	**1**	***Extraction Date***	Not Applicable
Sample Depth (m)	-28.9				***Analysis Date***	4/30/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PGS0001		***Report Date***	6/22/00
Analysis Type	PGS	***GERG Labsamp ID***	C34886		***Batch ID***	4/30/00

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	16:59	**GOC-S**	**16**	**2**	***Extraction Date***	Not Applicable
Sample Depth (m)	-28.3				***Analysis Date***	4/30/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PGS0002		***Report Date***	6/22/00
Analysis Type	PGS	***GERG Labsamp ID***	C34887		***Batch ID***	4/30/00

Collection Date	4/5/00	***Station***	***Survey***	***Replicate***	***Receipt Date***	4/20/00
Collection Time	17:15	**GOC-S**	**16**	**3**	***Extraction Date***	Not Applicable
Sample Depth (m)	-28.5				***Analysis Date***	4/30/00
Matrix	SEDIMENT	***KLI SAMP_ID***	PWS00PGS0003		***Report Date***	6/22/00
Analysis Type	PGS	***GERG Labsamp ID***	C34888		***Batch ID***	4/30/00

APPENDIX B

Sediment Results

2.0 PAH and TOC Data

Station	Survey	Replicate
AMT-S	16	1

KLI Sample ID	Lab Sample ID
PWS00PAT0004	C34883

Matrix	SEDIMENT
Sample Type	SAMP
Batch	M2879

Wet Weight (g)	20.62	WET
Dry Weight (g)	9.53	DRY
Solids (%)	46.2	DRY
TOC (%)	0.57	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	2.6	
C1-Naphthalenes	5.8	
C2-Naphthalenes	5.0	
C3-Naphthalenes	7.0	
C4-Naphthalenes	6.2	
Biphenyl	1.3	
Acenaphthylene	0.6	
Acenaphthene	1.9	
Fluorene	4.4	
C1-Fluorenes	6.3	
C2-Fluorenes	12.2	
C3-Fluorenes	9.5	
Anthracene	2.7	
Phenanthrene	12.8	
C1-Phen/Anthracenes	12.1	
C2-Phen/Anthracenes	16.0	
C3-Phen/Anthracenes	16.1	
C4-Phen/Anthracenes	8.6	
Dibenzothiophene	1.7	
C1-Dibenzothiophenes	3.3	
C2-Dibenzothiophenes	10.3	
C3-Dibenzothiophenes	17.6	
Fluoranthene	15.0	
Pyrene	14.0	
C1-Fluoranthenes/Pyrenes	13.3	
Benzo(a)anthracene	7.1	
Chrysene	16.5	
C1-Chrysenes	19.1	
C2-Chrysenes	20.2	
C3-Chrysenes	4.6	
C4-Chrysenes	2.1	
Benzo(b)fluoranthene	9.2	
Benzo(k)fluoranthene	3.5	
Benzo(e)pyrene	8.6	
Benzo(a)pyrene	8.0	
Perylene	3.8	
Indeno(1,2,3-c,d)pyrene	3.3	
Dibenzo(a,h)anthracene	0.6	J
Benzo(g,h,i)perylene	4.2	
TOTAL PAH (ng/g) **(Excluding Perylene)**	313.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	2.1	
2-Methylnaphthalene	3.7	
2,6-Dimethylnaphthalene	2.6	
1,6,7-Trimethylnaphthalene	2.3	
1-Methylphenanthrene	2.7	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	55.2	
Acenapthene-D10	76.7	
Phenanthrene-D10	102.3	
Chrysene-D12	96.0	
Perylene-D12	70.3	

Station	Survey	Replicate
AMT-S	16	2

KLI Sample ID	Lab Sample ID
PWS00PAT0005	C34884

Matrix	SEDIMENT
Sample Type	SAMP
Batch	M2879

Wet Weight (g)	20.81	WET
Dry Weight (g)	10.33	DRY
Solids (%)	49.6	DRY
TOC (%)	0.55	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	2.3	
C1-Naphthalenes	5.4	
C2-Naphthalenes	5.3	
C3-Naphthalenes	5.8	
C4-Naphthalenes	6.7	
Biphenyl	1.1	
Acenaphthylene	0.6	
Acenaphthene	1.2	
Fluorene	4.1	
C1-Fluorenes	6.6	
C2-Fluorenes	13.4	
C3-Fluorenes	20.4	
Anthracene	2.2	
Phenanthrene	11.3	
C1-Phen/Anthracenes	23.3	
C2-Phen/Anthracenes	18.4	
C3-Phen/Anthracenes	19.5	
C4-Phen/Anthracenes	11.5	
Dibenzothiophene	1.8	
C1-Dibenzothiophenes	6.2	
C2-Dibenzothiophenes	18.4	
C3-Dibenzothiophenes	21.7	
Fluoranthene	10.4	
Pyrene	9.8	
C1-Fluoranthenes/Pyrenes	14.0	
Benzo(a)anthracene	5.0	
Chrysene	14.7	
C1-Chrysenes	21.2	
C2-Chrysenes	24.0	
C3-Chrysenes	2.5	
C4-Chrysenes	2.4	
Benzo(b)fluoranthene	5.1	
Benzo(k)fluoranthene	1.9	
Benzo(e)pyrene	7.3	
Benzo(a)pyrene	3.7	
Perylene	4.1	
Indeno(1,2,3-c,d)pyrene	1.8	
Dibenzo(a,h)anthracene	0.8	
Benzo(g,h,i)perylene	2.9	
TOTAL PAH (ng/g) **(Excluding Perylene)**	334.8	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	2.0	
2-Methylnaphthalene	3.4	
2,6-Dimethylnaphthalene	2.7	
1,6,7-Trimethylnaphthalene	2.3	
1-Methylphenanthrene	3.3	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	53.3	
Acenapthene-D10	75.5	
Phenanthrene-D10	91.3	
Chrysene-D12	83.7	
Perylene-D12	62.9	

Station	Survey	Replicate
AMT-S	16	3

KLI Sample ID	Lab Sample ID
PWS00PAT0006	C34885

Matrix	SEDIMENT
Sample Type	SAMP
Batch	M2879

Wet Weight (g)	20.36	WET
Dry Weight (g)	10.54	DRY
Solids (%)	51.8	DRY
TOC (%)	0.55	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	2.4	
C1-Naphthalenes	6.2	
C2-Naphthalenes	5.6	
C3-Naphthalenes	6.1	
C4-Naphthalenes	5.4	
Biphenyl	1.2	
Acenaphthylene	0.4	
Acenaphthene	1.3	
Fluorene	4.7	
C1-Fluorenes	5.3	
C2-Fluorenes	16.1	
C3-Fluorenes	25.5	
Anthracene	3.2	
Phenanthrene	12.6	
C1-Phen/Anthracenes	10.9	
C2-Phen/Anthracenes	25.1	
C3-Phen/Anthracenes	28.8	
C4-Phen/Anthracenes	28.6	
Dibenzothiophene	1.5	
C1-Dibenzothiophenes	4.5	
C2-Dibenzothiophenes	18.3	
C3-Dibenzothiophenes	28.9	
Fluoranthene	10.8	
Pyrene	9.5	
C1-Fluoranthenes/Pyrenes	23.2	
Benzo(a)anthracene	5.8	
Chrysene	22.6	
C1-Chrysenes	27.8	
C2-Chrysenes	34.9	
C3-Chrysenes	3.5	
C4-Chrysenes	2.9	
Benzo(b)fluoranthene	7.2	
Benzo(k)fluoranthene	1.6	
Benzo(e)pyrene	9.7	
Benzo(a)pyrene	4.0	
Perylene	5.6	
Indeno(1,2,3-c,d)pyrene	1.5	
Dibenzo(a,h)anthracene	1.2	
Benzo(g,h,i)perylene	3.2	
TOTAL PAH (ng/g) **(Excluding Perylene)**	411.7	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	2.3	
2-Methylnaphthalene	3.9	
2,6-Dimethylnaphthalene	2.7	
1,6,7-Trimethylnaphthalene	2.4	
1-Methylphenanthrene	3.0	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	51.9	
Acenapthene-D10	76.5	
Phenanthrene-D10	102.5	
Chrysene-D12	85.4	
Perylene-D12	54.9	

Station	Survey	Replicate
GOC-S	16	1

KLI Sample ID	Lab Sample ID
PWS00PAT0001	C34880

Matrix	SEDIMENT
Sample Type	SAMP
Batch	M2879

Wet Weight (g)	20.44	WET
Dry Weight (g)	11.54	DRY
Solids (%)	56.4	DRY
TOC (%)	0.43	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	3.1	
C1-Naphthalenes	4.7	
C2-Naphthalenes	3.4	
C3-Naphthalenes	3.6	
C4-Naphthalenes	1.8	
Biphenyl	1.0	
Acenaphthylene	0.7	
Acenaphthene	1.2	
Fluorene	4.2	
C1-Fluorenes	4.5	
C2-Fluorenes	5.3	
C3-Fluorenes	2.3	
Anthracene	1.5	
Phenanthrene	10.4	
C1-Phen/Anthracenes	6.7	
C2-Phen/Anthracenes	3.8	
C3-Phen/Anthracenes	2.2	
C4-Phen/Anthracenes	1.1	
Dibenzothiophene	1.1	
C1-Dibenzothiophenes	1.6	
C2-Dibenzothiophenes	2.3	
C3-Dibenzothiophenes	1.7	
Fluoranthene	17.1	
Pyrene	10.3	
C1-Fluoranthenes/Pyrenes	3.2	
Benzo(a)anthracene	3.5	
Chrysene	8.1	
C1-Chrysenes	2.6	
C2-Chrysenes	2.1	
C3-Chrysenes	0.1	J
C4-Chrysenes	0.0	ND
Benzo(b)fluoranthene	4.6	
Benzo(k)fluoranthene	1.4	
Benzo(e)pyrene	2.3	
Benzo(a)pyrene	1.7	
Perylene	2.6	J
Indeno(1,2,3-c,d)pyrene	0.6	J
Dibenzo(a,h)anthracene	0.2	J
Benzo(g,h,i)perylene	0.6	
TOTAL PAH (ng/g) (Excluding Perylene)	126.4	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	1.5	
2-Methylnaphthalene	3.2	
2,6-Dimethylnaphthalene	1.9	
1,6,7-Trimethylnaphthalene	1.6	
1-Methylphenanthrene	1.8	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	57.0	
Acenapthene-D10	74.6	
Phenanthrene-D10	94.0	
Chrysene-D12	41.7	
Perylene-D12	13.9	Q

Station	Survey	Replicate
GOC-S	16	2

KLI Sample ID	Lab Sample ID
PWS00PAT0002	C34881

Matrix	SEDIMENT
Sample Type	SAMP
Batch	M2879

Wet Weight (g)	20.8	WET
Dry Weight (g)	12.97	DRY
Solids (%)	62.4	DRY
TOC (%)	0.44	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	2.4	
C1-Naphthalenes	3.6	
C2-Naphthalenes	3.1	
C3-Naphthalenes	3.6	
C4-Naphthalenes	2.5	
Biphenyl	0.8	
Acenaphthylene	0.4	
Acenaphthene	1.1	
Fluorene	3.5	
C1-Fluorenes	3.8	
C2-Fluorenes	5.6	
C3-Fluorenes	1.8	
Anthracene	1.1	
Phenanthrene	8.4	
C1-Phen/Anthracenes	4.6	
C2-Phen/Anthracenes	2.5	
C3-Phen/Anthracenes	1.4	
C4-Phen/Anthracenes	0.7	J
Dibenzothiophene	1.1	
C1-Dibenzothiophenes	1.4	
C2-Dibenzothiophenes	1.6	
C3-Dibenzothiophenes	1.4	
Fluoranthene	6.4	
Pyrene	3.4	
C1-Fluoranthenes/Pyrenes	1.4	
Benzo(a)anthracene	2.0	
Chrysene	4.4	
C1-Chrysenes	1.4	
C2-Chrysenes	1.6	
C3-Chrysenes	0.1	J
C4-Chrysenes	0.3	J
Benzo(b)fluoranthene	1.1	
Benzo(k)fluoranthene	0.4	
Benzo(e)pyrene	0.7	
Benzo(a)pyrene	0.7	J
Perylene	0.2	J
Indeno(1,2,3-c,d)pyrene	0.2	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.1	J
TOTAL PAH (ng/g) (Excluding Perylene)	80.7	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	1.2	
2-Methylnaphthalene	2.5	
2,6-Dimethylnaphthalene	1.5	
1,6,7-Trimethylnaphthalene	1.2	
1-Methylphenanthrene	1.2	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	60.5	
Acenapthene-D10	76.6	
Phenanthrene-D10	88.2	
Chrysene-D12	80.6	
Perylene-D12	92.5	

Station	Survey	Replicate
GOC-S	16	3

KLI Sample ID	Lab Sample ID
PWS00PAT0003	C34882

Matrix	SEDIMENT
Sample Type	SAMP
Batch	M2879

Wet Weight (g)	20.18	WET
Dry Weight (g)	11.71	DRY
Solids (%)	58.0	DRY
TOC (%)	0.54	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	2.6	
C1-Naphthalenes	4.2	
C2-Naphthalenes	3.7	
C3-Naphthalenes	4.4	
C4-Naphthalenes	3.4	
Biphenyl	1.0	
Acenaphthylene	0.5	
Acenaphthene	0.9	
Fluorene	3.8	
C1-Fluorenes	4.7	
C2-Fluorenes	8.0	
C3-Fluorenes	9.2	
Anthracene	1.2	
Phenanthrene	9.9	
C1-Phen/Anthracenes	6.3	
C2-Phen/Anthracenes	4.3	
C3-Phen/Anthracenes	3.0	
C4-Phen/Anthracenes	2.5	
Dibenzothiophene	1.3	
C1-Dibenzothiophenes	1.7	
C2-Dibenzothiophenes	3.0	
C3-Dibenzothiophenes	3.0	
Fluoranthene	11.3	
Pyrene	6.2	
C1-Fluoranthenes/Pyrenes	3.1	
Benzo(a)anthracene	2.8	
Chrysene	5.3	
C1-Chrysenes	3.6	
C2-Chrysenes	4.2	
C3-Chrysenes	0.0	ND
C4-Chrysenes	0.0	ND
Benzo(b)fluoranthene	1.8	
Benzo(k)fluoranthene	1.0	
Benzo(e)pyrene	1.4	
Benzo(a)pyrene	1.2	J
Perylene	3.2	
Indeno(1,2,3-c,d)pyrene	0.4	J
Dibenzo(a,h)anthracene	0.2	J
Benzo(g,h,i)perylene	0.4	J
TOTAL PAH (ng/g) (Excluding Perylene)	125.5	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	1.4	
2-Methylnaphthalene	2.9	
2,6-Dimethylnaphthalene	1.8	
1,6,7-Trimethylnaphthalene	1.5	
1-Methylphenanthrene	1.7	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	58.1	
Acenapthene-D10	75.7	
Phenanthrene-D10	92.5	
Chrysene-D12	75.6	
Perylene-D12	9.9	Q

APPENDIX B

Sediment Results

3.0 AHC Data

Station	Survey	Replicate
AMT-S	16	1

KLI Sample ID	Lab Sample ID
PWS00PAT0004	C34883

Matrix	SEDIMENT
Sample Type	SAMP
Batch	M2879

Wet Weight (g)	20.62	WET
Dry Weight (g)	9.53	DRY
Solids (%)	46.2	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	12.8	
n-C11	13.5	
n-C12	4.3	
n-C13	3.1	J
n-C14	7.8	
n-C15	11.0	
n-C16	28.9	
n-C17	20.3	
Pristane	29.0	
n-C18	6.5	J
Phytane	16.8	
n-C19	14.3	
n-C20	10.1	
n-C21	12.1	
n-C22	12.1	
n-C23	23.6	
n-C24	261.0	
n-C25	31.2	
n-C26	23.9	
n-C27	132.5	
n-C28	21.7	
n-C29	134.3	
n-C30	32.3	
n-C31	181.9	
n-C32	105.8	
n-C33	174.9	
n-C34	139.7	

TOTAL AHC (ng/g) 1465.4

TRUAHC (ug/g)	84.1
TOTAL RAHC (ug/g)	4.1
UCM (ug/g)	80.1

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	80.0	
C20 (Deuterated)	88.0	
C24 (Deuterated)	100.0	
C30 (Deuterated)	63.0	

Station	Survey	Replicate
AMT-S	16	2

KLI Sample ID	Lab Sample ID
PWS00PAT0005	C34884

Matrix	SEDIMENT
Sample Type	SAMP
Batch	M2879

Wet Weight (g)	20.81	WET
Dry Weight (g)	10.33	DRY
Solids (%)	49.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	14.4	
n-C11	2.9	
n-C12	4.7	
n-C13	5.3	
n-C14	8.2	
n-C15	11.2	
n-C16	12.3	
n-C17	18.2	
Pristane	31.8	
n-C18	8.9	J
Phytane	19.9	
n-C19	16.4	
n-C20	11.8	
n-C21	19.0	
n-C22	16.9	
n-C23	27.1	
n-C24	55.6	
n-C25	46.2	
n-C26	32.9	
n-C27	201.7	
n-C28	41.0	
n-C29	172.0	
n-C30	30.7	
n-C31	229.0	
n-C32	143.1	
n-C33	210.0	
n-C34	183.8	

TOTAL AHC (ng/g) 1575.0

TRUAHC (ug/g)	115.2
TOTAL RAHC (ug/g)	4.9
UCM (ug/g)	110.4

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	75.0	
C20 (Deuterated)	75.0	
C24 (Deuterated)	97.0	
C30 (Deuterated)	57.0	

Station	Survey	Replicate
AMT-S	16	3

KLI Sample ID	Lab Sample ID
PWS00PAT0006	C34885

Matrix	SEDIMENT
Sample Type	SAMP
Batch	M2879

Wet Weight (g)	20.36	WET
Dry Weight (g)	10.54	DRY
Solids (%)	51.8	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	12.6	
n-C11	24.8	
n-C12	6.1	
n-C13	7.8	
n-C14	9.9	
n-C15	16.2	
n-C16	12.2	
n-C17	24.7	
Pristane	30.1	
n-C18	10.5	
Phytane	21.6	
n-C19	18.5	
n-C20	13.6	
n-C21	22.3	
n-C22	14.9	
n-C23	30.8	
n-C24	64.6	
n-C25	44.2	
n-C26	42.9	
n-C27	180.3	
n-C28	48.7	
n-C29	177.1	
n-C30	24.8	
n-C31	221.2	
n-C32	133.6	
n-C33	194.1	
n-C34	159.9	

TOTAL AHC (ng/g) 1568.0

TRUAHC (ug/g)	124.5
TOTAL RAHC (ug/g)	5.1
UCM (ug/g)	119.4

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	80.0	
C20 (Deuterated)	75.0	
C24 (Deuterated)	97.0	
C30 (Deuterated)	59.0	

Station	Survey	Replicate
GOC-S	16	1

KLI Sample ID	Lab Sample ID
PWS00PAT0001	C34880

Matrix	SEDIMENT
Sample Type	SAMP
Batch	M2879

Wet Weight (g)	20.44	WET
Dry Weight (g)	11.54	DRY
Solids (%)	56.4	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	0.7	J
n-C11	4.1	
n-C12	0.3	J
n-C13	0.0	ND
n-C14	0.4	J
n-C15	4.1	J
n-C16	0.4	J
n-C17	1.7	
Pristane	1.9	
n-C18	1.4	J
Phytane	0.3	J
n-C19	0.7	
n-C20	2.5	
n-C21	4.7	
n-C22	4.5	
n-C23	23.2	
n-C24	1.6	
n-C25	42.5	
n-C26	0.5	J
n-C27	236.6	
n-C28	0.4	J
n-C29	108.1	
n-C30	1.1	J
n-C31	97.6	
n-C32	14.5	
n-C33	33.1	
n-C34	2.8	J

TOTAL AHC (ng/g)	589.6

TRUAHC (ug/g)	7.9	
TOTAL RAHC (ug/g)	2.6	
UCM (ug/g)	5.3	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	83.0	
C20 (Deuterated)	81.0	
C24 (Deuterated)	80.0	
C30 (Deuterated)	74.0	

Station	Survey	Replicate
GOC-S	16	2

KLI Sample ID	Lab Sample ID
PWS00PAT0002	C34881

Matrix	SEDIMENT
Sample Type	SAMP
Batch	M2879

Wet Weight (g)	20.8	WET
Dry Weight (g)	12.97	DRY
Solids (%)	62.4	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1.5	J
n-C11	0.8	J
n-C12	2.8	
n-C13	2.5	J
n-C14	3.8	
n-C15	7.5	
n-C16	11.9	
n-C17	15.5	
Pristane	12.0	
n-C18	6.5	J
Phytane	3.2	
n-C19	5.8	
n-C20	6.4	
n-C21	12.2	
n-C22	9.6	
n-C23	23.0	
n-C24	8.4	
n-C25	39.4	
n-C26	8.2	
n-C27	207.4	
n-C28	13.4	
n-C29	97.9	
n-C30	9.0	
n-C31	94.8	
n-C32	8.3	
n-C33	39.5	
n-C34	16.4	

TOTAL AHC (ng/g)	667.7

TRUAHC (ug/g)	5.7	
TOTAL RAHC (ug/g)	2.4	
UCM (ug/g)	3.3	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	78.0	
C20 (Deuterated)	76.0	
C24 (Deuterated)	70.0	
C30 (Deuterated)	77.0	

Station	Survey	Replicate
GOC-S	16	3

KLI Sample ID	Lab Sample ID
PWS00PAT0003	C34882

Matrix	SEDIMENT
Sample Type	SAMP
Batch	M2879

Wet Weight (g)	20.18	WET
Dry Weight (g)	11.71	DRY
Solids (%)	58.0	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1.4	J
n-C11	1.1	J
n-C12	4.0	
n-C13	1.4	J
n-C14	3.6	J
n-C15	7.0	
n-C16	8.2	
n-C17	18.0	
Pristane	10.6	
n-C18	6.9	J
Phytane	3.5	
n-C19	7.8	
n-C20	7.3	
n-C21	13.6	
n-C22	10.3	
n-C23	23.3	
n-C24	102.7	
n-C25	45.4	
n-C26	8.1	
n-C27	271.7	
n-C28	20.8	
n-C29	130.9	
n-C30	12.1	
n-C31	115.8	
n-C32	8.9	
n-C33	49.1	
n-C34	24.5	

TOTAL AHC (ng/g)	918.0

TRUAHC (ug/g)	6.4	
TOTAL RAHC (ug/g)	2.8	
UCM (ug/g)	3.6	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	79.0	
C20 (Deuterated)	79.0	
C24 (Deuterated)	75.0	
C30 (Deuterated)	61.0	

APPENDIX B

Sediment Results

4.0 PGS Data

Particle Grain Size Results

SURVEY	STN_ID	REP	SAMPLE ID	LABSAMP ID	BATCH ID	ANALYTE	ANAL_TY	VALUE	UNIT
16	AMT-S	1	PWS00PGS0004	C34889	4/30/00	GRAVEL	PGS	0.0	%
					4/30/00	SAND	PGS	1.6	%
					4/30/00	SILT	PGS	50.2	%
					4/30/00	CLAY	PGS	48.2	%
		2	PWS00PGS0005	C34890	4/30/00	GRAVEL	PGS	0.0	%
					4/30/00	SAND	PGS	2.9	%
					4/30/00	SILT	PGS	48.3	%
					4/30/00	CLAY	PGS	48.9	%
		3	PWS00PGS0006	C34891	4/30/00	GRAVEL	PGS	0.0	%
					4/30/00	SAND	PGS	2.0	%
					4/30/00	SILT	PGS	50.5	%
					4/30/00	CLAY	PGS	47.5	%
	GOC-S	1	PWS00PGS0001	C34886	4/30/00	GRAVEL	PGS	0.0	%
					4/30/00	SAND	PGS	8.6	%
					4/30/00	SILT	PGS	54.0	%
					4/30/00	CLAY	PGS	37.4	%
		2	PWS00PGS0002	C34887	4/30/00	GRAVEL	PGS	0.0	%
					4/30/00	SAND	PGS	8.6	%
					4/30/00	SILT	PGS	54.4	%
					4/30/00	CLAY	PGS	37.1	%
		3	PWS00PGS0003	C34888	4/30/00	GRAVEL	PGS	0.0	%
					4/30/00	SAND	PGS	8.6	%
					4/30/00	SILT	PGS	54.3	%
					4/30/00	CLAY	PGS	37.1	%

APPENDIX C

Quality Control Results

1.0 Procedural Blanks

QC Sample Type	Lab Sample ID
PROC BLANK	Q18100

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	14		Use Batch Info

Matrix	TISSUE
Batch	T1075
Dry Weight (g)	1.0 DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	6.1	<3xMDL
C1-Naphthalenes	7.0	J
C2-Naphthalenes	7.4	J
C3-Naphthalenes	1.7	J
C4-Naphthalenes	8.2	<3xMDL
Biphenyl	2.0	J
Acenaphthylene	0.2	J
Acenaphthene	1.0	J
Fluorene	1.5	J
C1-Fluorenes	11.8	<3xMDL
C2-Fluorenes	2.3	J
C3-Fluorenes	2.8	J
Anthracene	0.7	J
Phenanthrene	3.0	J
C1-Phen/Anthracenes	0.5	J
C2-Phen/Anthracenes	0.5	J
C3-Phen/Anthracenes	0.2	J
C4-Phen/Anthracenes	0.4	J
Dibenzothiophene	0.7	J
C1-Dibenzothiophenes	0.1	J
C2-Dibenzothiophenes	0.0	ND
C3-Dibenzothiophenes	0.1	J
Fluoranthene	0.8	J
Pyrene	1.5	J
C1-Fluoranthenes/Pyrenes	0.3	J
Benzo(a)anthracene	0.1	J
Chrysene	0.5	J
C1-Chrysenes	0.2	J
C2-Chrysenes	0.7	J
C3-Chrysenes	0.4	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	0.5	J
Benzo(k)fluoranthene	0.8	J
Benzo(e)pyrene	0.3	J
Benzo(a)pyrene	0.8	J
Perylene	1.3	J
Indeno(1,2,3-c,d)pyrene	0.6	J
Dibenzo(a,h)anthracene	0.8	J
Benzo(g,h,i)perylene	0.3	J
TOTAL PAH (ng/g) (Excluding Perylene)	66.5	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	2.9	J
2-Methylnaphthalene	4.1	J
2,6-Dimethylnaphthalene	3.3	J
1,6,7-Trimethylnaphthalene	0.7	J
1-Methylphenanthrene	0.9	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	98.1	
Acenapthene-D10	89.6	
Phenanthrene-D10	88.8	
Chrysene-D12	58.5	
Perylene-D12	76.8	

QC Sample Type	Lab Sample ID
PROC BLANK	Q18109

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	14		Use Batch Info

Matrix	TISSUE
Batch	T1076
Dry Weight (g)	1.0 DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	4.9	J
C1-Naphthalenes	4.9	J
C2-Naphthalenes	2.4	J
C3-Naphthalenes	0.1	J
C4-Naphthalenes	0.1	J
Biphenyl	2.0	J
Acenaphthylene	0.1	J
Acenaphthene	0.3	J
Fluorene	0.2	J
C1-Fluorenes	0.7	J
C2-Fluorenes	0.4	J
C3-Fluorenes	0.2	J
Anthracene	0.3	J
Phenanthrene	1.6	J
C1-Phen/Anthracenes	0.0	ND
C2-Phen/Anthracenes	0.2	J
C3-Phen/Anthracenes	1.1	J
C4-Phen/Anthracenes	0.4	J
Dibenzothiophene	0.4	J
C1-Dibenzothiophenes	0.0	ND
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.0	ND
Fluoranthene	0.4	J
Pyrene	0.3	J
C1-Fluoranthenes/Pyrenes	0.0	ND
Benzo(a)anthracene	0.1	J
Chrysene	0.1	J
C1-Chrysenes	0.0	ND
C2-Chrysenes	0.0	ND
C3-Chrysenes	0.1	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	0.1	J
Benzo(k)fluoranthene	0.1	J
Benzo(e)pyrene	0.2	J
Benzo(a)pyrene	0.4	J
Perylene	0.1	J
Indeno(1,2,3-c,d)pyrene	0.2	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.1	J
TOTAL PAH (ng/g) (Excluding Perylene)	22.8	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	1.7	J
2-Methylnaphthalene	3.2	J
2,6-Dimethylnaphthalene	1.1	J
1,6,7-Trimethylnaphthalene	0.6	J
1-Methylphenanthrene	0.4	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	86.1	
Acenapthene-D10	73.8	
Phenanthrene-D10	74.0	
Chrysene-D12	86.1	
Perylene-D12	57.6	

QC Sample Type	Lab Sample ID
PROC BLANK	Q18385

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	15		Use Batch Info

Matrix	TISSUE
Batch	T1109
Dry Weight (g)	1.0 DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	19.0	I
C1-Naphthalenes	10.6	J
C2-Naphthalenes	0.0	ND
C3-Naphthalenes	0.0	ND
C4-Naphthalenes	2.8	J
Biphenyl	1.6	J
Acenaphthylene	0.1	J
Acenaphthene	0.7	J
Fluorene	1.6	J
C1-Fluorenes	2.0	J
C2-Fluorenes	3.1	J
C3-Fluorenes	15.4	<3xMDL
Anthracene	0.3	J
Phenanthrene	3.1	J
C1-Phen/Anthracenes	1.4	J
C2-Phen/Anthracenes	2.1	J
C3-Phen/Anthracenes	1.1	J
C4-Phen/Anthracenes	1.0	J
Dibenzothiophene	0.4	J
C1-Dibenzothiophenes	0.5	J
C2-Dibenzothiophenes	1.3	J
C3-Dibenzothiophenes	1.2	J
Fluoranthene	0.6	J
Pyrene	0.7	J
C1-Fluoranthenes/Pyrenes	0.0	ND
Benzo(a)anthracene	0.3	J
Chrysene	0.6	J
C1-Chrysenes	0.8	J
C2-Chrysenes	2.3	J
C3-Chrysenes	0.0	ND
C4-Chrysenes	0.3	J
Benzo(b)fluoranthene	0.9	J
Benzo(k)fluoranthene	1.0	J
Benzo(e)pyrene	0.7	J
Benzo(a)pyrene	0.4	J
Perylene	0.3	J
Indeno(1,2,3-c,d)pyrene	0.1	J
Dibenzo(a,h)anthracene	0.0	ND
Benzo(g,h,i)perylene	0.1	J

TOTAL PAH (ng/g) 78.2

(Excluding Perylene)

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	4.4	J
2-Methylnaphthalene	6.3	J
2,6-Dimethylnaphthalene	2.5	J
1,6,7-Trimethylnaphthalene	1.8	J
1-Methylphenanthrene	0.9	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	43.6	
Acenapthene-D10	58.8	
Phenanthrene-D10	64.4	
Chrysene-D12	92.6	
Perylene-D12	46.5	

QC Sample Type	Lab Sample ID
PROC BLANK	Q18587

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	TISSUE
Batch	T1139
Dry Weight (g)	1.0 DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	5.9	J
C1-Naphthalenes	8.1	J
C2-Naphthalenes	5.1	J
C3-Naphthalenes	2.5	J
C4-Naphthalenes	0.3	J
Biphenyl	2.1	J
Acenaphthylene	0.3	J
Acenaphthene	1.6	<3xMDL
Fluorene	1.2	J
C1-Fluorenes	2.6	J
C2-Fluorenes	0.6	J
C3-Fluorenes	0.2	J
Anthracene	0.3	J
Phenanthrene	2.3	J
C1-Phen/Anthracenes	2.7	J
C2-Phen/Anthracenes	0.9	J
C3-Phen/Anthracenes	0.1	J
C4-Phen/Anthracenes	0.0	ND
Dibenzothiophene	0.4	J
C1-Dibenzothiophenes	0.0	ND
C2-Dibenzothiophenes	0.0	ND
C3-Dibenzothiophenes	0.0	ND
Fluoranthene	1.0	J
Pyrene	1.1	J
C1-Fluoranthenes/Pyrenes	1.1	J
Benzo(a)anthracene	0.5	J
Chrysene	0.7	J
C1-Chrysenes	0.1	J
C2-Chrysenes	0.1	J
C3-Chrysenes	0.1	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	0.8	J
Benzo(k)fluoranthene	0.4	J
Benzo(e)pyrene	0.7	J
Benzo(a)pyrene	0.5	J
Perylene	0.6	J
Indeno(1,2,3-c,d)pyrene	0.7	J
Dibenzo(a,h)anthracene	0.3	J
Benzo(g,h,i)perylene	0.7	J
TOTAL PAH (ng/g) (Excluding Perylene)	46.1	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	3.2	J
2-Methylnaphthalene	4.9	J
2,6-Dimethylnaphthalene	2.2	J
1,6,7-Trimethylnaphthalene	0.8	J
1-Methylphenanthrene	0.7	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	72.6	
Acenapthene-D10	79.4	
Phenanthrene-D10	81.0	
Chrysene-D12	83.4	
Perylene-D12	54.2	

QC Sample Type	Lab Sample ID
PROC BLANK	Q18598

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	TISSUE
Batch	T1140
Dry Weight (g)	1.0 DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	5.1	J
C1-Naphthalenes	5.1	J
C2-Naphthalenes	4.1	J
C3-Naphthalenes	1.3	J
C4-Naphthalenes	0.3	J
Biphenyl	1.3	J
Acenaphthylene	1.0	J
Acenaphthene	1.4	J
Fluorene	1.1	J
C1-Fluorenes	0.2	J
C2-Fluorenes	0.6	J
C3-Fluorenes	0.6	J
Anthracene	1.3	J
Phenanthrene	2.7	J
C1-Phen/Anthracenes	2.9	J
C2-Phen/Anthracenes	2.6	J
C3-Phen/Anthracenes	1.6	J
C4-Phen/Anthracenes	0.0	ND
Dibenzothiophene	0.3	J
C1-Dibenzothiophenes	0.2	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	0.1	J
Fluoranthene	5.9	<3xMDL
Pyrene	5.7	J
C1-Fluoranthenes/Pyrenes	5.5	J
Benzo(a)anthracene	5.3	J
Chrysene	6.7	J
C1-Chrysenes	1.9	J
C2-Chrysenes	1.5	J
C3-Chrysenes	0.0	ND
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	5.5	J
Benzo(k)fluoranthene	4.0	J
Benzo(e)pyrene	4.4	J
Benzo(a)pyrene	5.8	J
Perylene	1.1	J
Indeno(1,2,3-c,d)pyrene	3.8	J
Dibenzo(a,h)anthracene	0.5	J
Benzo(g,h,i)perylene	2.4	J
TOTAL PAH (ng/g) (Excluding Perylene)	92.8	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	2.2	J
2-Methylnaphthalene	3.0	J
2,6-Dimethylnaphthalene	1.5	J
1,6,7-Trimethylnaphthalene	1.1	J
1-Methylphenanthrene	0.8	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	72.5	
Acenapthene-D10	76.8	
Phenanthrene-D10	77.9	
Chrysene-D12	78.8	
Perylene-D12	66.0	

QC Sample Type	Lab Sample ID
PROC BLANK	Q18609

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	SEDIMENT
Batch	M2879
Dry Weight (g)	10.0 DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	0.1	J
C1-Naphthalenes	0.1	J
C2-Naphthalenes	0.0	ND
C3-Naphthalenes	0.0	ND
C4-Naphthalenes	0.0	ND
Biphenyl	0.1	J
Acenaphthylene	0.0	ND
Acenaphthene	0.0	ND
Fluorene	0.0	ND
C1-Fluorenes	0.0	ND
C2-Fluorenes	0.0	ND
C3-Fluorenes	0.0	ND
Anthracene	0.0	ND
Phenanthrene	0.1	J
C1-Phen/Anthracenes	0.0	ND
C2-Phen/Anthracenes	0.0	ND
C3-Phen/Anthracenes	0.0	ND
C4-Phen/Anthracenes	0.0	ND
Dibenzothiophene	0.0	ND
C1-Dibenzothiophenes	0.0	ND
C2-Dibenzothiophenes	0.0	ND
C3-Dibenzothiophenes	0.0	ND
Fluoranthene	0.0	ND
Pyrene	0.0	ND
C1-Fluoranthenes/Pyrenes	0.0	ND
Benzo(a)anthracene	0.0	ND
Chrysene	0.0	ND
C1-Chrysenes	0.0	ND
C2-Chrysenes	0.0	ND
C3-Chrysenes	0.0	ND
C4-Chrysenes	0.0	ND
Benzo(b)fluoranthene	0.0	ND
Benzo(k)fluoranthene	0.0	ND
Benzo(e)pyrene	0.0	ND
Benzo(a)pyrene	0.0	ND
Perylene	0.0	ND
Indeno(1,2,3-c,d)pyrene	0.0	ND
Dibenzo(a,h)anthracene	0.0	ND
Benzo(g,h,i)perylene	0.0	ND
TOTAL PAH (ng/g) (Excluding Perylene)	0.5	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	0.0	ND
2-Methylnaphthalene	0.1	J
2,6-Dimethylnaphthalene	0.0	ND
1,6,7-Trimethylnaphthalene	0.0	ND
1-Methylphenanthrene	0.0	ND

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	66.4	
Acenapthene-D10	84.2	
Phenanthrene-D10	99.6	
Chrysene-D12	94.3	
Perylene-D12	76.7	

QC Sample Type	Lab Sample ID
PROC BLANK	Q18100

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	14		Use Batch Info

Matrix	TISSUE
Batch	T1075
Dry Weight (g)	1.0 DRY

ANALYTE	Value (ng/g)	Qual
n-C10	0.3	J
n-C11	0.0	ND
n-C12	0.0	ND
n-C13	0.0	ND
n-C14	0.5	J
n-C15	3.2	J
n-C16	2.7	J
n-C17	0.2	J
Pristane	0.2	J
n-C18	0.3	J
Phytane	1.1	J
n-C19	0.0	ND
n-C20	1.7	J
n-C21	0.0	ND
n-C22	0.0	ND
n-C23	0.4	J
n-C24	0.3	J
n-C25	0.2	J
n-C26	0.3	J
n-C27	1.7	J
n-C28	0.2	J
n-C29	0.0	ND
n-C30	0.4	J
n-C31	1.1	J
n-C32	0.0	ND
n-C33	0.0	ND
n-C34	0.7	J
TOTAL AHC (ng/g)	15.2	

TRUAHC (ug/g)	9.9
TOTAL RAHC (ug/g)	3.0
UCM (ug/g)	6.9 J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	87.4	
C20 (Deuterated)	69.7	
C24 (Deuterated)	59.0	
C30 (Deuterated)	80.0	

QC Sample Type	Lab Sample ID
PROC BLANK	Q18109

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	14		Use Batch Info

Matrix	TISSUE
Batch	T1076
Dry Weight (g)	1.0 DRY

ANALYTE	Value (ng/g)	Qual
n-C10	0.0	ND
n-C11	0.1	J
n-C12	0.0	ND
n-C13	0.0	ND
n-C14	0.0	ND
n-C15	0.0	ND
n-C16	0.2	J
n-C17	0.1	J
Pristane	0.2	J
n-C18	0.2	J
Phytane	0.2	J
n-C19	0.0	ND
n-C20	0.5	J
n-C21	0.0	ND
n-C22	0.0	ND
n-C23	0.2	J
n-C24	0.7	J
n-C25	0.2	J
n-C26	0.3	J
n-C27	0.1	J
n-C28	0.1	J
n-C29	0.1	J
n-C30	0.3	J
n-C31	0.0	ND
n-C32	0.2	J
n-C33	0.0	ND
n-C34	0.0	ND
TOTAL AHC (ng/g)	3.8	

TRUAHC (ug/g)	1.5
TOTAL RAHC (ug/g)	0.1
UCM (ug/g)	1.4 J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	106.0	
C20 (Deuterated)	105.0	
C24 (Deuterated)	100.2	
C30 (Deuterated)	103.8	

QC Sample Type	Lab Sample ID
PROC BLANK	Q18385

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	15		Use Batch Info

Matrix	TISSUE
Batch	T1109
Dry Weight (g)	1.0 DRY

ANALYTE	Value (ng/g)	Qual
n-C10	12.2	J
n-C11	0.0	ND
n-C12	0.0	ND
n-C13	0.0	ND
n-C14	0.0	ND
n-C15	16.3	J
n-C16	0.0	ND
n-C17	0.0	ND
Pristane	0.0	ND
n-C18	0.0	ND
Phytane	9.0	J
n-C19	0.0	ND
n-C20	0.0	ND
n-C21	0.0	ND
n-C22	0.0	ND
n-C23	0.0	ND
n-C24	10.2	J
n-C25	0.0	ND
n-C26	0.0	ND
n-C27	11.6	J
n-C28	0.0	ND
n-C29	0.0	ND
n-C30	12.8	J
n-C31	24.0	J
n-C32	14.7	J
n-C33	0.0	ND
n-C34	0.0	ND

TOTAL AHC (ng/g)	110.8

TRUAHC (ug/g)	1.2
TOTAL RAHC (ug/g)	1.2
UCM (ug/g)	0.0 ND

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	99.5	
C20 (Deuterated)	68.9	
C24 (Deuterated)	60.4	
C30 (Deuterated)	67.4	

QC Sample Type	Lab Sample ID
PROC BLANK	Q18587

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	TISSUE
Batch	T1139
Dry Weight (g)	1.0 DRY

ANALYTE	Value (ng/g)	Qual
n-C10	0.0	ND
n-C11	1.8	J
n-C12	0.0	ND
n-C13	1.6	J
n-C14	8.9	J
n-C15	26.0	J
n-C16	2.0	J
n-C17	2.0	J
Pristane	2.2	J
n-C18	1.5	J
Phytane	1.5	J
n-C19	1.4	J
n-C20	0.0	ND
n-C21	0.0	ND
n-C22	1.9	J
n-C23	1.7	J
n-C24	2.2	J
n-C25	1.4	J
n-C26	2.6	J
n-C27	0.0	ND
n-C28	1.4	J
n-C29	1.3	J
n-C30	0.0	ND
n-C31	0.0	ND
n-C32	0.0	ND
n-C33	0.0	ND
n-C34	0.0	ND
TOTAL AHC (ng/g)	61.4	

TRUAHC (ug/g)	3.5
TOTAL RAHC (ug/g)	3.5
UCM (ug/g)	0.0 ND

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	5.5	Q
C20 (Deuterated)	81.5	
C24 (Deuterated)	82.8	
C30 (Deuterated)	80.7	

QC Sample Type	Lab Sample ID
PROC BLANK	Q18598

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	TISSUE
Batch	T1140
Dry Weight (g)	1.0 DRY

ANALYTE	Value (ng/g)	Qual
n-C10	0.0	ND
n-C11	12.6	J
n-C12	24.6	J
n-C13	40.1	J
n-C14	89.6	J
n-C15	146.0	J
n-C16	161.4	J
n-C17	132.7	J
Pristane	14.7	J
n-C18	116.9	J
Phytane	22.6	J
n-C19	91.0	J
n-C20	65.5	J
n-C21	28.2	J
n-C22	24.9	J
n-C23	42.8	J
n-C24	11.4	J
n-C25	23.2	J
n-C26	28.4	J
n-C27	34.1	J
n-C28	18.7	J
n-C29	11.5	J
n-C30	6.7	J
n-C31	6.2	J
n-C32	13.8	J
n-C33	7.4	J
n-C34	9.5	J
TOTAL AHC (ng/g)	1184.5	

TRUAHC (ug/g)	10.3
TOTAL RAHC (ug/g)	10.3
UCM (ug/g)	0.0 ND

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	74.0	
C20 (Deuterated)	73.0	
C24 (Deuterated)	69.0	
C30 (Deuterated)	61.0	

QC Sample Type	Lab Sample ID
PROC BLANK	Q18609

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	SEDIMENT
Batch	M2879

Dry Weight (g)	10.0	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	0.4	J
n-C11	0.1	J
n-C12	0.0	ND
n-C13	0.0	ND
n-C14	0.0	ND
n-C15	3.2	J
n-C16	0.2	J
n-C17	0.1	J
Pristane	0.5	J
n-C18	0.1	J
Phytane	0.1	J
n-C19	0.0	ND
n-C20	0.3	J
n-C21	0.0	ND
n-C22	0.0	ND
n-C23	0.5	J
n-C24	0.5	J
n-C25	0.4	J
n-C26	0.5	J
n-C27	0.3	J
n-C28	0.6	J
n-C29	0.4	J
n-C30	0.1	J
n-C31	0.1	J
n-C32	0.0	ND
n-C33	0.0	ND
n-C34	0.1	J

TOTAL AHC (ng/g)	8.3

TRUAHC (ug/g)	0.0	ND
TOTAL RAHC (ug/g)	0.0	ND
UCM (ug/g)	0.0	ND

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	113.0	
C20 (Deuterated)	86.0	
C24 (Deuterated)	85.0	
C30 (Deuterated)	73.5	

Laboratory QC - TOC Procedural Blanks

SURVEY	LABSAMP_TY	LABSAMP_DE	LABSAMP_ID	BATCH_ID	ANALYTE	VALUE	VALUE_QU	VALUE_UN	EXP_VAL
16	BLANK	PROC BLANK	PB051800A	5/18/00	TOC	0.02	J	%	
	BLANK	PROC BLANK	PB051800B	5/18/00	TOC	0.02	J	%	

APPENDIX C

Quality Control Results

2.0 Matrix Spike/Spike Duplicates

QC Sample Type	Lab Sample ID
MATRIX SPIKE	Q18103

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
ZAB-B	14	3	PWS99TIS0040

Matrix	TISSUE
Batch	T1075

Wet Weight (g)	5.20	WET
Dry Weight (g)	0.58	DRY
Solids (%)	11.2	DRY
Lipids (%)	4.5	DRY

ANALYTE	Value (%)	Qual
Naphthalene	118.2	
Biphenyl	109.4	
Acenaphthylene	104.0	
Acenaphthene	100.4	
Fluorene	95.9	
Anthracene	88.0	
Phenanthrene	117.3	
Dibenzothiophene	118.4	
Fluoranthene	114.8	
Pyrene	113.3	
Benzo(a)anthracene	104.0	
Chrysene	114.5	
Benzo(b)fluoranthene	110.1	
Benzo(k)fluoranthene	108.7	
Benzo(e)pyrene	106.0	
Benzo(a)pyrene	101.2	
Perylene	101.0	
Indeno(1,2,3-c,d)pyrene	100.8	
Dibenzo(a,h)anthracene	113.5	
Benzo(g,h,i)perylene	97.9	
TOTAL PAH (%)	108.7	
(Avg % Recovery)		

Specific Isomers	Value (%)	Qual
1-Methylnaphthalene	119.7	
2-Methylnaphthalene	116.9	
2,6-Dimethylnaphthalene	112.6	
1,6,7-Trimethylnaphthalene	114.7	
1-Methylphenanthrene	117.4	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	73.7	
Acenapthene-D10	79.0	
Phenanthrene-D10	80.8	
Chrysene-D12	63.1	
Perylene-D12	67.7	

QC Sample Type	Lab Sample ID
MATRIX SPIKE DUP	Q18104

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
ZAB-B	14	3	PWS99TIS0040

Matrix	TISSUE
Batch	T1075

Wet Weight (g)	5.03	WET
Dry Weight (g)	0.60	DRY
Solids (%)	11.9	DRY
Lipids (%)	3.2	DRY

ANALYTE	Value (%)	Qual
Naphthalene	119.2	
Biphenyl	116.5	
Acenaphthylene	114.0	
Acenaphthene	100.0	
Fluorene	104.7	
Anthracene	86.1	
Phenanthrene	114.5	
Dibenzothiophene	112.9	
Fluoranthene	101.7	
Pyrene	99.9	
Benzo(a)anthracene	110.9	
Chrysene	118.3	
Benzo(b)fluoranthene	96.5	
Benzo(k)fluoranthene	105.1	
Benzo(e)pyrene	96.5	
Benzo(a)pyrene	98.3	
Perylene	94.9	
Indeno(1,2,3-c,d)pyrene	82.7	
Dibenzo(a,h)anthracene	65.8	
Benzo(g,h,i)perylene	82.2	
TOTAL PAH (%)	103.2	
(Avg % Recovery)		

Specific Isomers	Value (%)	Qual
1-Methylnaphthalene	112.3	
2-Methylnaphthalene	111.0	
2,6-Dimethylnaphthalene	115.4	
1,6,7-Trimethylnaphthalene	112.8	
1-Methylphenanthrene	107.6	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	87.8	
Acenapthene-D10	78.0	
Phenanthrene-D10	89.3	
Chrysene-D12	64.2	
Perylene-D12	59.7	

QC Sample Type	Lab Sample ID
MATRIX SPIKE	Q18112

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	14	2	PWS99TIS0048

Matrix	TISSUE
Batch	T1076

Wet Weight (g)	10.14	WET
Dry Weight (g)	0.60	DRY
Solids (%)	5.9	DRY
Lipids (%)	4.9	DRY

ANALYTE	Value (%)	Qual
Naphthalene	99.8	
Biphenyl	98.0	
Acenaphthylene	97.8	
Acenaphthene	85.7	
Fluorene	90.0	
Anthracene	89.3	
Phenanthrene	95.2	
Dibenzothiophene	111.8	
Fluoranthene	106.9	
Pyrene	107.4	
Benzo(a)anthracene	100.0	
Chrysene	100.6	
Benzo(b)fluoranthene	93.9	
Benzo(k)fluoranthene	107.6	
Benzo(e)pyrene	97.9	
Benzo(a)pyrene	108.2	
Perylene	97.4	
Indeno(1,2,3-c,d)pyrene	89.7	
Dibenzo(a,h)anthracene	96.1	
Benzo(g,h,i)perylene	95.1	
TOTAL PAH (%)	99.0	
(Avg % Recovery)		

Specific Isomers	Value (%)	Qual
1-Methylnaphthalene	103.6	
2-Methylnaphthalene	94.0	
2,6-Dimethylnaphthalene	100.6	
1,6,7-Trimethylnaphthalene	101.9	
1-Methylphenanthrene	106.0	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	65.8	
Acenapthene-D10	69.1	
Phenanthrene-D10	77.4	
Chrysene-D12	86.9	
Perylene-D12	58.9	

QC Sample Type	Lab Sample ID
MATRIX SPIKE DUP	Q18113

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	14	2	PWS99TIS0048

Matrix	TISSUE
Batch	T1076

Wet Weight (g)	10.21	WET
Dry Weight (g)	0.53	DRY
Solids (%)	5.2	DRY
Lipids (%)	7.0	DRY

ANALYTE	Value (%)	Qual
Naphthalene	109.2	
Biphenyl	103.9	
Acenaphthylene	103.1	
Acenaphthene	87.7	
Fluorene	93.0	
Anthracene	93.7	
Phenanthrene	100.8	
Dibenzothiophene	115.8	
Fluoranthene	110.8	
Pyrene	112.3	
Benzo(a)anthracene	109.9	
Chrysene	110.8	
Benzo(b)fluoranthene	103.0	
Benzo(k)fluoranthene	115.5	
Benzo(e)pyrene	108.7	
Benzo(a)pyrene	114.6	
Perylene	110.6	
Indeno(1,2,3-c,d)pyrene	96.5	
Dibenzo(a,h)anthracene	102.2	
Benzo(g,h,i)perylene	103.4	
TOTAL PAH (%)	105.4	
(Avg % Recovery)		

Specific Isomers	Value (%)	Qual
1-Methylnaphthalene	109.3	
2-Methylnaphthalene	104.2	
2,6-Dimethylnaphthalene	104.0	
1,6,7-Trimethylnaphthalene	102.1	
1-Methylphenanthrene	109.5	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	65.9	
Acenapthene-D10	69.3	
Phenanthrene-D10	73.2	
Chrysene-D12	76.6	
Perylene-D12	51.2	

QC Sample Type	Lab Sample ID
MATRIX SPIKE	Q18388

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	15	2	PWS99TIS0063

Matrix	TISSUE
Batch	T1109

Wet Weight (g)	10.14	WET
Dry Weight (g)	0.68	DRY
Solids (%)	6.7	DRY

ANALYTE	Value (%)	Qual
Naphthalene	107.4	
Biphenyl	104.9	
Acenaphthylene	107.0	
Acenaphthene	116.8	
Fluorene	136.4	Q
Anthracene	103.5	
Phenanthrene	119.7	
Dibenzothiophene	119.7	
Fluoranthene	102.2	
Pyrene	101.1	
Benzo(a)anthracene	107.0	
Chrysene	118.9	
Benzo(b)fluoranthene	95.1	
Benzo(k)fluoranthene	99.9	
Benzo(e)pyrene	97.5	
Benzo(a)pyrene	88.9	
Perylene	99.0	
Indeno(1,2,3-c,d)pyrene	111.6	
Dibenzo(a,h)anthracene	92.3	
Benzo(g,h,i)perylene	114.9	
TOTAL PAH (%)	108.7	
(Avg % Recovery)		

Specific Isomers	Value (%)	Qual
1-Methylnaphthalene	125.2	Q
2-Methylnaphthalene	116.5	
2,6-Dimethylnaphthalene	105.4	
1,6,7-Trimethylnaphthalene	119.5	
1-Methylphenanthrene	108.1	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	48.7	
Acenapthene-D10	63.5	
Phenanthrene-D10	69.2	
Chrysene-D12	94.3	
Perylene-D12	78.2	

QC Sample Type	Lab Sample ID
MATRIX SPIKE DUP	Q18389

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	15	2	PWS99TIS0063

Matrix	TISSUE
Batch	T1109

Wet Weight (g)	10.05	WET
Dry Weight (g)	0.68	DRY
Solids (%)	6.8	DRY

ANALYTE	Value (%)	Qual
Naphthalene	116.1	
Biphenyl	103.0	
Acenaphthylene	106.7	
Acenaphthene	119.5	
Fluorene	141.4	Q
Anthracene	104.9	
Phenanthrene	119.5	
Dibenzothiophene	119.5	
Fluoranthene	108.3	
Pyrene	107.3	
Benzo(a)anthracene	107.4	
Chrysene	116.9	
Benzo(b)fluoranthene	77.4	
Benzo(k)fluoranthene	89.0	
Benzo(e)pyrene	96.1	
Benzo(a)pyrene	89.0	
Perylene	87.2	
Indeno(1,2,3-c,d)pyrene	100.1	
Dibenzo(a,h)anthracene	109.1	
Benzo(g,h,i)perylene	113.4	
TOTAL PAH (%)	108.2	
(Avg % Recovery)		

Specific Isomers	Value (%)	Qual
1-Methylnaphthalene	122.9	Q
2-Methylnaphthalene	111.9	
2,6-Dimethylnaphthalene	103.4	
1,6,7-Trimethylnaphthalene	122.6	Q
1-Methylphenanthrene	112.2	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	48.1	
Acenapthene-D10	62.6	
Phenanthrene-D10	73.1	
Chrysene-D12	86.9	
Perylene-D12	85.1	

QC Sample Type	Lab Sample ID
MATRIX SPIKE	Q18590

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
SHH-B	16	1	PWS00TIS0007

Matrix	TISSUE
Batch	T1139

Wet Weight (g)	7.08	WET
Dry Weight (g)	0.68	DRY
Solids (%)	9.6	DRY
Lipids (%)	4.8	DRY

ANALYTE	Value (%)	Qual
Naphthalene	105.5	
Biphenyl	90.5	
Acenaphthylene	116.3	
Acenaphthene	105.1	
Fluorene	94.2	
Anthracene	119.1	
Phenanthrene	93.5	
Dibenzothiophene	77.4	
Fluoranthene	103.4	
Pyrene	105.5	
Benzo(a)anthracene	109.5	
Chrysene	90.7	
Benzo(b)fluoranthene	116.5	
Benzo(k)fluoranthene	83.9	
Benzo(e)pyrene	102.1	
Benzo(a)pyrene	118.1	
Perylene	74.8	
Indeno(1,2,3-c,d)pyrene	113.7	
Dibenzo(a,h)anthracene	100.1	
Benzo(g,h,i)perylene	92.1	
TOTAL PAH (%)	100.2	
(Avg % Recovery)		

Specific Isomers	Value (%)	Qual
1-Methylnaphthalene	104.4	
2-Methylnaphthalene	96.1	
2,6-Dimethylnaphthalene	93.7	
1,6,7-Trimethylnaphthalene	95.4	
1-Methylphenanthrene	103.6	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	76.8	
Acenapthene-D10	83.6	
Phenanthrene-D10	85.3	
Chrysene-D12	86.5	
Perylene-D12	94.1	

QC Sample Type	Lab Sample ID
MATRIX SPIKE DUP	Q18591

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
SHH-B	16	1	PWS00TIS0007

Matrix	TISSUE
Batch	T1139

Wet Weight (g)	7.14	WET
Dry Weight (g)	0.66	DRY
Solids (%)	9.2	DRY
Lipids (%)	5.2	DRY

ANALYTE	Value (%)	Qual
Naphthalene	112.9	
Biphenyl	96.2	
Acenaphthylene	118.2	
Acenaphthene	105.8	
Fluorene	97.6	
Anthracene	118.5	
Phenanthrene	93.5	
Dibenzothiophene	79.4	
Fluoranthene	104.5	
Pyrene	106.1	
Benzo(a)anthracene	116.5	
Chrysene	96.9	
Benzo(b)fluoranthene	117.0	
Benzo(k)fluoranthene	91.1	
Benzo(e)pyrene	104.7	
Benzo(a)pyrene	110.2	
Perylene	75.9	
Indeno(1,2,3-c,d)pyrene	117.9	
Dibenzo(a,h)anthracene	105.6	
Benzo(g,h,i)perylene	97.1	
TOTAL PAH (%)	103.0	
(Avg % Recovery)		

Specific Isomers	Value (%)	Qual
1-Methylnaphthalene	109.7	
2-Methylnaphthalene	101.8	
2,6-Dimethylnaphthalene	97.4	
1,6,7-Trimethylnaphthalene	98.0	
1-Methylphenanthrene	102.9	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	73.3	
Acenapthene-D10	80.6	
Phenanthrene-D10	84.9	
Chrysene-D12	81.9	
Perylene-D12	94.1	

QC Sample Type	Lab Sample ID
MATRIX SPIKE	Q18601

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	16	3	PWS00TIS0027

Matrix	TISSUE
Batch	T1140

Wet Weight (g)	7.03	WET
Dry Weight (g)	0.52	DRY
Solids (%)	7.4	DRY
Lipids (%)	5.2	DRY

ANALYTE	Value (%)	Qual
Naphthalene	104.2	
Biphenyl	84.8	
Acenaphthylene	117.3	
Acenaphthene	62.2	
Fluorene	103.3	
Anthracene	18.3	Q
Phenanthrene	91.9	
Dibenzothiophene	74.8	
Fluoranthene	101.8	
Pyrene	102.0	
Benzo(a)anthracene	89.2	
Chrysene	90.8	
Benzo(b)fluoranthene	115.5	
Benzo(k)fluoranthene	83.6	
Benzo(e)pyrene	99.7	
Benzo(a)pyrene	104.5	
Perylene	106.2	
Indeno(1,2,3-c,d)pyrene	109.0	
Dibenzo(a,h)anthracene	107.8	
Benzo(g,h,i)perylene	96.1	
TOTAL PAH (%)	94.4	
(Avg % Recovery)		

Specific Isomers	Value (%)	Qual
1-Methylnaphthalene	108.1	
2-Methylnaphthalene	101.9	
2,6-Dimethylnaphthalene	90.7	
1,6,7-Trimethylnaphthalene	93.2	
1-Methylphenanthrene	102.0	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	77.4	
Acenapthene-D10	90.2	
Phenanthrene-D10	93.7	
Chrysene-D12	95.9	
Perylene-D12	62.6	

QC Sample Type	Lab Sample ID
MATRIX SPIKE DUP	Q18602

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	16	3	PWS00TIS0027

Matrix	TISSUE
Batch	T1140

Wet Weight (g)	7.26	WET
Dry Weight (g)	0.54	DRY
Solids (%)	7.4	DRY
Lipids (%)	5.1	DRY

ANALYTE	Value (%)	Qual
Naphthalene	100.0	
Biphenyl	83.1	
Acenaphthylene	117.7	
Acenaphthene	102.8	
Fluorene	100.4	
Anthracene	83.9	
Phenanthrene	92.3	
Dibenzothiophene	73.8	
Fluoranthene	101.9	
Pyrene	99.8	
Benzo(a)anthracene	109.4	
Chrysene	93.3	
Benzo(b)fluoranthene	112.4	
Benzo(k)fluoranthene	90.1	
Benzo(e)pyrene	102.5	
Benzo(a)pyrene	102.2	
Perylene	100.2	
Indeno(1,2,3-c,d)pyrene	113.0	
Dibenzo(a,h)anthracene	110.7	
Benzo(g,h,i)perylene	97.8	
TOTAL PAH (%)	98.9	
(Avg % Recovery)		

Specific Isomers	Value (%)	Qual
1-Methylnaphthalene	103.4	
2-Methylnaphthalene	96.6	
2,6-Dimethylnaphthalene	95.2	
1,6,7-Trimethylnaphthalene	91.2	
1-Methylphenanthrene	99.8	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	79.1	
Acenapthene-D10	89.1	
Phenanthrene-D10	92.7	
Chrysene-D12	92.4	
Perylene-D12	75.6	

QC Sample Type	Lab Sample ID
MATRIX SPIKE	Q18611

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
GOC-S	16	2	PWS00PAT0002

Matrix	SEDIMENT
Batch	M2879

Wet Weight (g)	20.28	WET
Dry Weight (g)	12.62	DRY
Solids (%)	62.2	DRY

ANALYTE	Value (%)	Qual
Naphthalene	90.6	
Biphenyl	84.5	
Acenaphthylene	117.6	
Acenaphthene	100.8	
Fluorene	100.7	
Anthracene	76.8	
Phenanthrene	81.0	
Dibenzothiophene	75.5	
Fluoranthene	85.5	
Pyrene	91.0	
Benzo(a)anthracene	106.0	
Chrysene	62.9	
Benzo(b)fluoranthene	68.6	
Benzo(k)fluoranthene	43.1	
Benzo(e)pyrene	71.1	
Benzo(a)pyrene	62.0	
Perylene	119.1	
Indeno(1,2,3-c,d)pyrene	37.7	Q
Dibenzo(a,h)anthracene	25.9	Q
Benzo(g,h,i)perylene	25.8	Q
TOTAL PAH (%)	81.0	
(Avg % Recovery)		

Specific Isomers	Value (%)	Qual
1-Methylnaphthalene	103.5	
2-Methylnaphthalene	96.8	
2,6-Dimethylnaphthalene	88.2	
1,6,7-Trimethylnaphthalene	97.0	
1-Methylphenanthrene	113.5	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	66.9	
Acenapthene-D10	82.3	
Phenanthrene-D10	100.7	
Chrysene-D12	64.8	
Perylene-D12	33.6	Q

QC Sample Type	Lab Sample ID
MATRIX SPIKE DUP	Q18612

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
GOC-S	16	2	PWS00PAT0002

Matrix	SEDIMENT
Batch	M2879

Wet Weight (g)	20.42	WET
Dry Weight (g)	12.76	DRY
Solids (%)	62.5	DRY

ANALYTE	Value (%)	Qual
Naphthalene	98.5	
Biphenyl	85.7	
Acenaphthylene	116.7	
Acenaphthene	119.7	
Fluorene	106.8	Q
Anthracene	75.1	
Phenanthrene	88.8	
Dibenzothiophene	79.6	
Fluoranthene	95.4	
Pyrene	99.2	
Benzo(a)anthracene	104.2	
Chrysene	78.0	
Benzo(b)fluoranthene	82.6	
Benzo(k)fluoranthene	58.2	
Benzo(e)pyrene	61.0	
Benzo(a)pyrene	49.0	
Perylene	110.4	
Indeno(1,2,3-c,d)pyrene	39.7	Q
Dibenzo(a,h)anthracene	29.7	Q
Benzo(g,h,i)perylene	25.7	Q
TOTAL PAH (%)	85.1	
(Avg % Recovery)		

Specific Isomers	Value (%)	Qual
1-Methylnaphthalene	106.6	
2-Methylnaphthalene	100.2	
2,6-Dimethylnaphthalene	91.4	
1,6,7-Trimethylnaphthalene	108.7	
1-Methylphenanthrene	117.6	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	61.2	
Acenapthene-D10	78.3	
Phenanthrene-D10	98.2	
Chrysene-D12	54.7	
Perylene-D12	22.2	Q

QC Sample Type	Lab Sample ID
MATRIX SPIKE	Q18103

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
ZAB-B	14	3	PWS99TIS0040

Matrix	TISSUE
Batch	T1075

Wet Weight (g)	5.20	WET
Dry Weight (g)	0.58	DRY
Solids (%)	11.2	DRY
Lipids (%)	4.5	DRY

ANALYTE	Value (%)	Qual
n-C12	73.2	
n-C15	94.5	
n-C17	83.7	
Pristane	90.4	
n-C18	86.7	
n-C20	85.4	
n-C21	85.0	
n-C24	83.3	
n-C28	80.1	
n-C30	74.8	
n-C32	76.2	
n-C34	72.0	
TOTAL AHC (%)	82.1	

(Avg % Recovery)

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	71.8	
C20 (Deuterated)	74.4	
C24 (Deuterated)	84.8	
C30 (Deuterated)	83.6	

QC Sample Type	Lab Sample ID
MATRIX SPIKE DUP	Q18104

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
ZAB-B	14	3	PWS99TIS0040

Matrix	TISSUE
Batch	T1075

Wet Weight (g)	5.03	WET
Dry Weight (g)	0.60	DRY
Solids (%)	11.9	DRY
Lipids (%)	3.2	DRY

ANALYTE	Value (%)	Qual
n-C12	86.9	
n-C15	113.4	
n-C17	95.0	
Pristane	103.7	
n-C18	97.7	
n-C20	98.8	
n-C21	97.8	
n-C24	95.5	
n-C28	27.7	M
n-C30	87.1	
n-C32	85.9	
n-C34	86.1	
TOTAL AHC (%)	89.6	

(Avg % Recovery)

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	77.5	
C20 (Deuterated)	79.2	
C24 (Deuterated)	99.8	
C30 (Deuterated)	80.3	

QC Sample Type	Lab Sample ID
MATRIX SPIKE	Q18112

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	14	2	PWS99TIS0048

Matrix	TISSUE
Batch	T1076

Wet Weight (g)	10.14	WET
Dry Weight (g)	0.60	DRY
Solids (%)	5.9	DRY
Lipids (%)	4.9	DRY

ANALYTE	Value (%)	Qual
n-C12	74.5	
n-C15	79.9	
n-C17	89.0	
Pristane	89.6	
n-C18	83.4	
n-C20	89.7	
n-C21	69.2	
n-C24	80.3	
n-C28	77.3	
n-C30	82.3	
n-C32	76.9	
n-C34	88.8	
TOTAL AHC (%)	81.7	
	(Avg % Recovery)	

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	71.9	
C20 (Deuterated)	79.4	
C24 (Deuterated)	89.5	
C30 (Deuterated)	88.4	

QC Sample Type	Lab Sample ID
MATRIX SPIKE DUP	Q18113

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	14	2	PWS99TIS0048

Matrix	TISSUE
Batch	T1076

Wet Weight (g)	10.21	WET
Dry Weight (g)	0.53	DRY
Solids (%)	5.2	DRY
Lipids (%)	7.0	DRY

ANALYTE	Value (%)	Qual
n-C12	71.5	
n-C15	79.8	
n-C17	88.0	
Pristane	89.2	
n-C18	83.9	
n-C20	87.8	
n-C21	39.6	Q
n-C24	79.8	
n-C28	77.0	
n-C30	76.9	
n-C32	75.1	
n-C34	87.0	
TOTAL AHC (%)	78.0	
	(Avg % Recovery)	

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	67.9	
C20 (Deuterated)	82.2	
C24 (Deuterated)	79.4	
C30 (Deuterated)	105.7	

QC Sample Type	Lab Sample ID
MATRIX SPIKE	Q18388

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	15	2	PWS99TIS0063

Matrix	TISSUE
Batch	T1109

Wet Weight (g)	10.14	WET
Dry Weight (g)	0.68	DRY
Solids (%)	6.7	DRY

ANALYTE	Value (%)	Qual
n-C12	88.8	
n-C15	92.4	
n-C17	84.8	
Pristane	106.6	
n-C18	90.0	
n-C20	91.9	
n-C21	94.2	
n-C24	101.9	
n-C28	125.2	Q
n-C30	120.2	Q
n-C32	128	Q
n-C34	127.1	Q
TOTAL AHC (%)	104.3	

(Avg % Recovery)

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	63.6	
C20 (Deuterated)	61.3	
C24 (Deuterated)	81.1	
C30 (Deuterated)	71.8	

QC Sample Type	Lab Sample ID
MATRIX SPIKE DUP	Q18389

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	15	2	PWS99TIS0063

Matrix	TISSUE
Batch	T1109

Wet Weight (g)	10.05	WET
Dry Weight (g)	0.68	DRY
Solids (%)	6.8	DRY

ANALYTE	Value (%)	Qual
n-C12	78.9	
n-C15	83.4	
n-C17	79.3	
Pristane	100.2	
n-C18	83.3	
n-C20	86.4	
n-C21	85.4	
n-C24	92.3	
n-C28	114.4	
n-C30	111.3	
n-C32	116.1	
n-C34	118.6	
TOTAL AHC (%)	95.8	

(Avg % Recovery)

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	63.9	
C20 (Deuterated)	58.7	
C24 (Deuterated)	79.9	
C30 (Deuterated)	74.5	

QC Sample Type	Lab Sample ID
MATRIX SPIKE	Q18590

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
SHH-B	16	1	PWS00TIS0007

Matrix	TISSUE
Batch	T1139

Wet Weight (g)	7.08	WET
Dry Weight (g)	0.68	DRY
Solids (%)	9.6	DRY
Lipids (%)	4.8	DRY

ANALYTE	Value (%)	Qual
n-C12	103.3	
n-C15	103.1	
n-C17	85.2	
Pristane	102.2	
n-C18	99.7	
n-C20	93.1	
n-C21	98.6	
n-C24	109.7	
n-C28	114.7	
n-C30	117.0	
n-C32	99.8	
n-C34	98.4	
TOTAL AHC (%)	102.1	

(Avg % Recovery)

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	74.9	
C20 (Deuterated)	71.8	
C24 (Deuterated)	69.0	
C30 (Deuterated)	68.2	

QC Sample Type	Lab Sample ID
MATRIX SPIKE DUP	Q18591

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
SHH-B	16	1	PWS00TIS0007

Matrix	TISSUE
Batch	T1139

Wet Weight (g)	7.14	WET
Dry Weight (g)	0.66	DRY
Solids (%)	9.2	DRY
Lipids (%)	5.2	DRY

ANALYTE	Value (%)	Qual
n-C12	116.6	
n-C15	105.1	
n-C17	84.1	
Pristane	101.2	
n-C18	99.3	
n-C20	98.9	
n-C21	98.0	
n-C24	107.6	
n-C28	111.9	
n-C30	114.2	
n-C32	96.6	
n-C34	93.0	
TOTAL AHC (%)	102.2	

(Avg % Recovery)

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	88.5	
C20 (Deuterated)	72.1	
C24 (Deuterated)	63.2	
C30 (Deuterated)	63.6	

QC Sample Type	Lab Sample ID
MATRIX SPIKE	Q18601

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	16	3	PWS00TIS0027

Matrix	TISSUE
Batch	T1140

Wet Weight (g)	7.03	WET
Dry Weight (g)	0.52	DRY
Solids (%)	7.4	DRY
Lipids (%)	5.2	DRY

ANALYTE	Value (%)	Qual
n-C12	79.6	
n-C15	86.5	
n-C17	63.4	
Pristane	86.1	
n-C18	83.7	
n-C20	85.6	
n-C21	82.2	
n-C24	91.0	
n-C28	92.8	
n-C30	92.9	
n-C32	97.7	
n-C34	105.9	
TOTAL AHC (%)	87.3	

(Avg % Recovery)

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	75.0	
C20 (Deuterated)	92.0	
C24 (Deuterated)	69.0	
C30 (Deuterated)	75.0	

QC Sample Type	Lab Sample ID
MATRIX SPIKE DUP	Q18602

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	16	3	PWS00TIS0027

Matrix	TISSUE
Batch	T1140

Wet Weight (g)	7.26	WET
Dry Weight (g)	0.54	DRY
Solids (%)	7.4	DRY
Lipids (%)	5.1	DRY

ANALYTE	Value (%)	Qual
n-C12	80.0	
n-C15	84.5	
n-C17	59.9	
Pristane	84.5	
n-C18	80.8	
n-C20	86.4	
n-C21	81.2	
n-C24	90.2	
n-C28	92.2	
n-C30	91.4	
n-C32	96.1	
n-C34	101.5	
TOTAL AHC (%)	85.7	

(Avg % Recovery)

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	76.0	
C20 (Deuterated)	90.0	
C24 (Deuterated)	79.0	
C30 (Deuterated)	69.0	

QC Sample Type	Lab Sample ID
MATRIX SPIKE	Q18611

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
GOC-S	16	2	PWS00PAT0002

Matrix	SEDIMENT
Batch	M2879

Wet Weight (g)	20.28	WET
Dry Weight (g)	12.62	DRY
Solids (%)	62.2	DRY

ANALYTE	Value (%)	Qual
n-C12	92.0	
n-C15	95.4	
n-C17	86.8	
Pristane	93.1	
n-C18	89.6	
n-C20	90.0	
n-C21	91.1	
n-C24	101.8	
n-C28	104.3	
n-C30	102.1	
n-C32	98.7	
n-C34	95.3	
TOTAL AHC (%)	95.0	
	(Avg % Recovery)	

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	93.0	
C20 (Deuterated)	85.0	
C24 (Deuterated)	80.0	
C30 (Deuterated)	69.0	

QC Sample Type	Lab Sample ID
MATRIX SPIKE DUP	Q18612

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
GOC-S	16	2	PWS00PAT0002

Matrix	SEDIMENT
Batch	M2879

Wet Weight (g)	20.42	WET
Dry Weight (g)	12.76	DRY
Solids (%)	62.5	DRY

ANALYTE	Value (%)	Qual
n-C12	93.4	
n-C15	97.9	
n-C17	89.6	
Pristane	97.3	
n-C18	93.6	
n-C20	94.0	
n-C21	94.9	
n-C24	121.3	Q
n-C28	109.8	
n-C30	107.0	
n-C32	103.6	
n-C34	100.7	
TOTAL AHC (%)	100.3	
	(Avg % Recovery)	

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	78.0	
C20 (Deuterated)	82.0	
C24 (Deuterated)	78.0	
C30 (Deuterated)	67.0	

APPENDIX C

Quality Control Results

3.0 Reference Oil

QC Sample Type	Lab Sample ID
GERG STD CHK	W40589

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	14		Use Batch Info

Matrix	OIL
Batch	T1075
Volume (mL)	1.0 .NULL.

ANALYTE	Value (ng/mL)	Qual
Naphthalene	734.2	
C1-Naphthalenes	3224.9	
C2-Naphthalenes	2737.3	
C3-Naphthalenes	2304.8	
C4-Naphthalenes	1255.6	
Biphenyl	208.4	
Acenaphthylene	24.3	Q
Acenaphthene	48.2	Q
Fluorene	121.7	
C1-Fluorenes	261.9	
C2-Fluorenes	421.5	
C3-Fluorenes	408.8	
Anthracene	13.2	J
Phenanthrene	365.0	
C1-Phen/Anthracenes	852.7	
C2-Phen/Anthracenes	969.1	
C3-Phen/Anthracenes	581.6	
C4-Phen/Anthracenes	234.5	
Dibenzothiophene	312.2	
C1-Dibenzothiophenes	662.6	
C2-Dibenzothiophenes	922.2	
C3-Dibenzothiophenes	904.8	
Fluoranthene	13.8	J
Pyrene	15.7	J
C1-Fluoranthenes/Pyrenes	91.8	
Benzo(a)anthracene	18.7	J
Chrysene	61.1	
C1-Chrysenes	134.7	
C2-Chrysenes	153.1	
C3-Chrysenes	13.1	J
C4-Chrysenes	4.7	J
Benzo(b)fluoranthene	13.3	J
Benzo(k)fluoranthene	3.2	J
Benzo(e)pyrene	19.4	J
Benzo(a)pyrene	6.0	J
Perylene	4.5	J
Indeno(1,2,3-c,d)pyrene	12.5	J
Dibenzo(a,h)anthracene	15.1	J
Benzo(g,h,i)perylene	13.3	J
TOTAL PAH (ng/mL) (Excluding Perylene)	18158.9	

Specific Isomers	Value (ng/mL)	Qual
1-Methylnaphthalene	1453.8	
2-Methylnaphthalene	1771.1	
2,6-Dimethylnaphthalene	851.8	
1,6,7-Trimethylnaphthalene	447.1	
1-Methylphenanthrene	216.6	

QC Sample Type	Lab Sample ID
GERG STD CHK	W40619

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	14		Use Batch Info

Matrix	OIL
Batch	T1076
Volume (mL)	1.0 .NULL.

ANALYTE	Value (ng/mL)	Qual
Naphthalene	715.4	
C1-Naphthalenes	2910.8	
C2-Naphthalenes	1647.1	
C3-Naphthalenes	1439.0	
C4-Naphthalenes	814.8	
Biphenyl	197.2	
Acenaphthylene	19.7	J
Acenaphthene	51.5	Q
Fluorene	121.2	
C1-Fluorenes	234.6	
C2-Fluorenes	338.6	
C3-Fluorenes	346.6	
Anthracene	18.6	J
Phenanthrene	392.5	
C1-Phen/Anthracenes	812.7	
C2-Phen/Anthracenes	849.8	
C3-Phen/Anthracenes	499.5	
C4-Phen/Anthracenes	224.8	
Dibenzothiophene	128.4	
C1-Dibenzothiophenes	616.3	
C2-Dibenzothiophenes	723.7	
C3-Dibenzothiophenes	730.2	
Fluoranthene	6.4	J
Pyrene	19.9	J
C1-Fluoranthenes/Pyrenes	114.1	
Benzo(a)anthracene	7.5	J
Chrysene	50.6	
C1-Chrysenes	93.6	
C2-Chrysenes	155.5	
C3-Chrysenes	12.3	J
C4-Chrysenes	3.8	J
Benzo(b)fluoranthene	11.1	J
Benzo(k)fluoranthene	1.8	J
Benzo(e)pyrene	19.3	J
Benzo(a)pyrene	3.0	J
Perylene	5.7	J
Indeno(1,2,3-c,d)pyrene	2.7	J
Dibenzo(a,h)anthracene	4.3	J
Benzo(g,h,i)perylene	7.7	J
TOTAL PAH (ng/mL) (Excluding Perylene)	14346.4	

Specific Isomers	Value (ng/mL)	Qual
1-Methylnaphthalene	1300.6	
2-Methylnaphthalene	1610.2	
2,6-Dimethylnaphthalene	783.7	
1,6,7-Trimethylnaphthalene	412.9	
1-Methylphenanthrene	259.1	

QC Sample Type	Lab Sample ID
GERG STD CHK	W40890

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	15		Use Batch Info

Matrix	OIL
Batch	T1109
Volume (mL)	1.0 .NULL.

ANALYTE	Value (ng/mL)	Qual
Naphthalene	691.5	
C1-Naphthalenes	3168.6	
C2-Naphthalenes	2112.3	
C3-Naphthalenes	1576.2	
C4-Naphthalenes	720.9	
Biphenyl	232.3	
Acenaphthylene	25.0	Q
Acenaphthene	42.6	Q
Fluorene	135.1	
C1-Fluorenes	230.0	
C2-Fluorenes	335.2	
C3-Fluorenes	279.9	
Anthracene	3.9	J
Phenanthrene	398.8	
C1-Phen/Anthracenes	731.2	
C2-Phen/Anthracenes	691.9	
C3-Phen/Anthracenes	401.4	
C4-Phen/Anthracenes	123.2	
Dibenzothiophene	347.8	Q
C1-Dibenzothiophenes	554.0	
C2-Dibenzothiophenes	667.6	
C3-Dibenzothiophenes	461.9	
Fluoranthene	16.2	J
Pyrene	20.1	
C1-Fluoranthenes/Pyrenes	83.1	
Benzo(a)anthracene	7.3	J
Chrysene	70.7	
C1-Chrysenes	103.9	
C2-Chrysenes	123.7	
C3-Chrysenes	19.3	J
C4-Chrysenes	20.0	J
Benzo(b)fluoranthene	8.6	J
Benzo(k)fluoranthene	9.8	J
Benzo(e)pyrene	18.4	J
Benzo(a)pyrene	16.6	J
Perylene	2.8	J
Indeno(1,2,3-c,d)pyrene	0.1	J
Dibenzo(a,h)anthracene	2.2	J
Benzo(g,h,i)perylene	7.3	J

TOTAL PAH (ng/mL) 14458.6

(Excluding Perylene)

Specific Isomers	Value (ng/mL)	Qual
1-Methylnaphthalene	1412.6	
2-Methylnaphthalene	1756.0	
2,6-Dimethylnaphthalene	898.1	
1,6,7-Trimethylnaphthalene	513.1	
1-Methylphenanthrene	251.6	

QC Sample Type	Lab Sample ID
GERG STD CHK	W41216

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
16			Use Batch Info

Matrix	OIL
Batch	M2879
Volume (mL)	1.0 .NULL.

ANALYTE	Value (ng/mL)	Qual
Naphthalene	628.5	
C1-Naphthalenes	2798.9	
C2-Naphthalenes	1929.6	
C3-Naphthalenes	1443.4	
C4-Naphthalenes	714	
Biphenyl	161.8	
Acenaphthylene	3.4	J
Acenaphthene	10.9	J
Fluorene	156.9	
C1-Fluorenes	330.3	
C2-Fluorenes	550	
C3-Fluorenes	567.4	
Anthracene	19.2	J
Phenanthrene	335.5	
C1-Phen/Anthracenes	713.6	
C2-Phen/Anthracenes	625.5	
C3-Phen/Anthracenes	418.2	
C4-Phen/Anthracenes	288.8	
Dibenzothiophene	191.1	
C1-Dibenzothiophenes	365.8	
C2-Dibenzothiophenes	485.2	
C3-Dibenzothiophenes	442.2	
Fluoranthene	10.5	J
Pyrene	18.0	J
C1-Fluoranthenes/Pyrenes	145.1	
Benzo(a)anthracene	5.4	J
Chrysene	67.4	
C1-Chrysenes	95.2	
C2-Chrysenes	109.6	
C3-Chrysenes	19.1	J
C4-Chrysenes	6.5	J
Benzo(b)fluoranthene	1.6	J
Benzo(k)fluoranthene	9.5	J
Benzo(e)pyrene	15.1	J
Benzo(a)pyrene	3.9	J
Perylene	1.6	J
Indeno(1,2,3-c,d)pyrene	1.7	J
Dibenzo(a,h)anthracene	2.5	J
Benzo(g,h,i)perylene	3.8	J
TOTAL PAH (ng/mL) (Excluding Perylene)	13694.8	

Specific Isomers	Value (ng/mL)	Qual
1-Methylnaphthalene	1224.0	
2-Methylnaphthalene	1574.9	
2,6-Dimethylnaphthalene	652.4	
1,6,7-Trimethylnaphthalene	409.6	
1-Methylphenanthrene	242.2	

QC Sample Type	Lab Sample ID
GERG STD CHK	W41228

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
16			Use Batch Info

Matrix	OIL
Batch	T1139
Volume (mL)	1.0 .NULL.

ANALYTE	Value (ng/mL)	Qual
Naphthalene	610.0	
C1-Naphthalenes	2600.2	
C2-Naphthalenes	2679.3	
C3-Naphthalenes	2309.7	
C4-Naphthalenes	1383.5	
Biphenyl	198.9	
Acenaphthylene	22.9	
Acenaphthene	47.8	
Fluorene	135.8	
C1-Fluorenes	510.7	
C2-Fluorenes	901	
C3-Fluorenes	1089.5	
Anthracene	11.0	J
Phenanthrene	316.3	
C1-Phen/Anthracenes	735.2	
C2-Phen/Anthracenes	950.7	
C3-Phen/Anthracenes	866.6	
C4-Phen/Anthracenes	404.6	
Dibenzothiophene	212.1	
C1-Dibenzothiophenes	482.2	
C2-Dibenzothiophenes	690.3	
C3-Dibenzothiophenes	553.0	
Fluoranthene	10.5	J
Pyrene	18.7	J
C1-Fluoranthenes/Pyrenes	114.6	
Benzo(a)anthracene	3.8	J
Chrysene	61.8	
C1-Chrysenes	143.9	
C2-Chrysenes	119.9	
C3-Chrysenes	17.5	J
C4-Chrysenes	32.2	
Benzo(b)fluoranthene	9.9	J
Benzo(k)fluoranthene	1.2	J
Benzo(e)pyrene	19.5	J
Benzo(a)pyrene	4.0	J
Perylene	5.0	J
Indeno(1,2,3-c,d)pyrene	1.1	J
Dibenzo(a,h)anthracene	1.3	J
Benzo(g,h,i)perylene	5.0	J
TOTAL PAH (ng/mL) (Excluding Perylene)	18275.9	

Specific Isomers	Value (ng/mL)	Qual
1-Methylnaphthalene	1151.6	
2-Methylnaphthalene	1448.6	
2,6-Dimethylnaphthalene	1653.4	Q
1,6,7-Trimethylnaphthalene	455.3	
1-Methylphenanthrene	238.4	

QC Sample Type	Lab Sample ID
GERG STD CHK	W41232

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
16			Use Batch Info

Matrix	OIL
Batch	T1140
Volume (mL)	1.0 .NULL.

ANALYTE	Value (ng/mL)	Qual
Naphthalene	582.8	
C1-Naphthalenes	2534.5	
C2-Naphthalenes	2542	
C3-Naphthalenes	2143.2	
C4-Naphthalenes	1183.5	
Biphenyl	232.2	
Acenaphthylene	23.6	
Acenaphthene	13.2	J
Fluorene	134.3	
C1-Fluorenes	519.4	
C2-Fluorenes	742.1	
C3-Fluorenes	759.1	
Anthracene	4.5	J
Phenanthrene	365.6	
C1-Phen/Anthracenes	937.2	
C2-Phen/Anthracenes	1007.7	
C3-Phen/Anthracenes	618.6	
C4-Phen/Anthracenes	355.6	
Dibenzothiophene	241.5	
C1-Dibenzothiophenes	555.7	
C2-Dibenzothiophenes	767.8	
C3-Dibenzothiophenes	577.3	
Fluoranthene	8.2	J
Pyrene	17.8	J
C1-Fluoranthenes/Pyrenes	108.2	
Benzo(a)anthracene	89.8	
Chrysene	7.5	J
C1-Chrysenes	142.7	
C2-Chrysenes	111.1	
C3-Chrysenes	14.8	J
C4-Chrysenes	33.3	
Benzo(b)fluoranthene	12.1	J
Benzo(k)fluoranthene	1.2	J
Benzo(e)pyrene	17.5	J
Benzo(a)pyrene	3.8	J
Perylene	2.8	J
Indeno(1,2,3-c,d)pyrene	1.0	J
Dibenzo(a,h)anthracene	1.4	J
Benzo(g,h,i)perylene	4.4	J
TOTAL PAH (ng/mL) (Excluding Perylene)	17416.0	

Specific Isomers	Value (ng/mL)	Qual
1-Methylnaphthalene	1117.6	
2-Methylnaphthalene	1416.9	
2,6-Dimethylnaphthalene	951.4	
1,6,7-Trimethylnaphthalene	504.7	
1-Methylphenanthrene	259.4	

QC Sample Type	Lab Sample ID
GERG STD CHK	S46169

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	14		Use Batch Info

Matrix	OIL
Batch	T1075
Volume (mL)	1.0 .NULL.

ANALYTE	Value (ng/mL)	Qual
n-C10	455.9	
n-C11	1802.9	
n-C12	2566.5	
n-C13	2595.8	
n-C14	2266.9	
n-C15	3214.5	
n-C16	2347.9	
n-C17	2090.8	
Pristane	1626.5	
n-C18	1905.2	
Phytane	1075.1	
n-C19	1740.3	
n-C20	1714	
n-C21	1610.8	
n-C22	1562.4	
n-C23	1361.3	
n-C24	1301.5	
n-C25	1086.4	
n-C26	1060.6	
n-C27	768.5	
n-C28	590.3	
n-C29	512.8	
n-C30	409.8	
n-C31	447.0	
n-C32	246.0	
n-C33	242.3	
n-C34	175.5	J

TOTAL AHC (ng/mL) 36776.7

TRUAHC (ug/mL)	457.3
TOTAL RAHC (ug/mL)	95.8
UCM (ug/mL)	361.5

QC Sample Type	Lab Sample ID
GERG STD CHK	S46170

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	14		Use Batch Info

Matrix	OIL
Batch	T1076
Volume (mL)	1.0 .NULL.

ANALYTE	Value (ng/mL)	Qual
n-C10	671.2	
n-C11	1737.3	
n-C12	2476.1	
n-C13	2667.2	
n-C14	2315.8	
n-C15	2586.7	
n-C16	2306.6	
n-C17	1925.4	
Pristane	1605.3	
n-C18	1682.6	
Phytane	1044.9	
n-C19	1668.7	
n-C20	1636.7	
n-C21	1476.7	
n-C22	1492.1	
n-C23	1318.3	
n-C24	1243.5	
n-C25	1070.1	
n-C26	964.3	
n-C27	856.1	
n-C28	638.8	
n-C29	504.0	
n-C30	383.2	
n-C31	456.0	
n-C32	274.0	
n-C33	276.5	
n-C34	208.6	

TOTAL AHC (ng/mL) 35485.9

TRUAHC (ug/mL)	439.0
TOTAL RAHC (ug/mL)	92.8
UCM (ug/mL)	346.1

QC Sample Type	Lab Sample ID
GERG STD CHK	W40899

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	15		Use Batch Info

Matrix	OIL
Batch	T1109
Volume (mL)	1.0 .NULL.

ANALYTE	Value (ng/mL)	Qual
n-C10	872	
n-C11	2035.4	
n-C12	2720.5	
n-C13	3136.5	
n-C14	2994.0	
n-C15	3088	
n-C16	2831.6	
n-C17	2595.2	
Pristane	2068.8	
n-C18	2223.2	
Phytane	1158.9	
n-C19	2267.6	
n-C20	1936.8	
n-C21	1931.4	
n-C22	1851.9	
n-C23	1662.9	
n-C24	1758.1	
n-C25	1585.7	
n-C26	1583.9	
n-C27	1253.7	
n-C28	1084.0	
n-C29	891	
n-C30	796.2	
n-C31	855.2	
n-C32	542.9	
n-C33	405.5	
n-C34	460.5	

TOTAL AHC (ng/mL)	46591.4

TRUAHC (ug/mL)	598.9
TOTAL RAHC (ug/mL)	101.4
UCM (ug/mL)	497.5

QC Sample Type	Lab Sample ID
GERG STD CHK	W00011

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	OIL
Batch	M2879
Volume (mL)	1.0 .NULL.

ANALYTE	Value (ng/mL)	Qual
n-C10	953.8	
n-C11	2099.9	
n-C12	2971.7	
n-C13	2887.1	
n-C14	3120.4	
n-C15	3331.8	
n-C16	2627.5	
n-C17	2662.7	
Pristane	1762.9	
n-C18	2440.0	
Phytane	1351.6	
n-C19	2271.7	
n-C20	2186.6	
n-C21	2191.3	
n-C22	2061.3	
n-C23	1805.0	
n-C24	1791.9	
n-C25	1562.4	
n-C26	1363.6	
n-C27	1179.1	
n-C28	860.5	
n-C29	733.3	
n-C30	542.0	
n-C31	486.9	
n-C32	361.8	
n-C33	271	
n-C34	214.3	

TOTAL AHC (ng/mL) 46092

TRUAHC (ug/mL)	677.1
TOTAL RAHC (ug/mL)	72.9
UCM (ug/mL)	604.2

QC Sample Type	Lab Sample ID
GERG STD CHK	W00035

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	OIL
Batch	T1139
Volume (mL)	1.0 .NULL.

ANALYTE	Value (ng/mL)	Qual
n-C10	1765.5	
n-C11	2934.2	
n-C12	4716.2	
n-C13	5818.1	Q
n-C14	5008	
n-C15	5037.5	
n-C16	4275.5	
n-C17	4000.6	
Pristane	2804.3	
n-C18	3482.9	
Phytane	1671.4	
n-C19	3235.3	
n-C20	3247.6	
n-C21	2909.5	
n-C22	2775.9	
n-C23	2624.6	
n-C24	2559.1	
n-C25	2031.4	
n-C26	2090.2	
n-C27	1470.0	
n-C28	1066.9	
n-C29	1012.1	
n-C30	824.3	
n-C31	763.9	
n-C32	586.9	
n-C33	183.2	
n-C34	423.4	

TOTAL AHC (ng/mL) 69318.5

TRUAHC (ug/mL)	787.4
TOTAL RAHC (ug/mL)	676.5
UCM (ug/mL)	110.9

QC Sample Type	Lab Sample ID
GERG STD CHK	W00077

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	OIL
Batch	T1140
Volume (mL)	1.0 .NULL.

ANALYTE	Value (ng/mL)	Qual
n-C10	1439.9	
n-C11	2981.9	
n-C12	4684.2	
n-C13	5940.5	Q
n-C14	4990.2	
n-C15	4540.0	
n-C16	3850.6	
n-C17	3661.0	
Pristane	2517	
n-C18	2981.8	
Phytane	1597.2	
n-C19	2946.2	
n-C20	2962.8	
n-C21	2735.0	
n-C22	2741	
n-C23	2336.8	
n-C24	2228.6	
n-C25	2059.8	
n-C26	1843.5	
n-C27	1303.0	
n-C28	993.5	
n-C29	912.7	
n-C30	769.3	
n-C31	717.9	
n-C32	534.9	
n-C33	503.6	
n-C34	312.3	

TOTAL AHC (ng/mL) 65085.2

TRUAHC (ug/mL)	644.9
TOTAL RAHC (ug/mL)	71.1
UCM (ug/mL)	573.7

APPENDIX C

Quality Control Results

4.0 Standard Reference Materials

QC Sample Type	Lab Sample ID
SRM NIST 2974	Q18101

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	14		Use Batch Info

Matrix	TISSUE
Batch	T1075

Wet Weight (g)	0.51	WET
Dry Weight (g)	0.47	DRY
Solids (%)	92.4	DRY
Lipids (%)	4.1	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	19.6	Q
C1-Naphthalenes	22.6	J
C2-Naphthalenes	16.2	J
C3-Naphthalenes	18.5	J
C4-Naphthalenes	27.0	J
Biphenyl	5.4	J
Acenaphthylene	11.2	Q
Acenaphthene	21.2	J
Fluorene	6.0	J
C1-Fluorenes	47.8	
C2-Fluorenes	38.6	
C3-Fluorenes	111.8	
Anthracene	20.5	Q
Phenanthrene	23.1	
C1-Phen/Anthracenes	25.5	J
C2-Phen/Anthracenes	81.8	
C3-Phen/Anthracenes	112.0	
C4-Phen/Anthracenes	40.1	J
Dibenzothiophene	2.1	J
C1-Dibenzothiophenes	16.7	J
C2-Dibenzothiophenes	34.1	J
C3-Dibenzothiophenes	75.4	
Fluoranthene	125.2	
Pyrene	103.2	
C1-Fluoranthenes/Pyrenes	63.1	
Benzo(a)anthracene	21.0	
Chrysene	72.0	
C1-Chrysenes	36.8	
C2-Chrysenes	20.5	J
C3-Chrysenes	4.7	J
C4-Chrysenes	5.2	J
Benzo(b)fluoranthene	41.9	
Benzo(k)fluoranthene	16.7	
Benzo(e)pyrene	70.5	
Benzo(a)pyrene	8.3	J
Perylene	5.4	J
Indeno(1,2,3-c,d)pyrene	16.3	
Dibenzo(a,h)anthracene	6.1	J
Benzo(g,h,i)perylene	20.9	
TOTAL PAH (ng/g) (Excluding Perylene)	1409.7	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	9.6	J
2-Methylnaphthalene	13.0	J
2,6-Dimethylnaphthalene	9.0	J
1,6,7-Trimethylnaphthalene	5.2	J
1-Methylphenanthrene	10.2	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	98.2	
Acenapthene-D10	87.1	
Phenanthrene-D10	98.2	
Chrysene-D12	68.6	
Perylene-D12	52.9	

QC Sample Type	Lab Sample ID
SRM NIST 2974	Q18110

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	14		Use Batch Info

Matrix	TISSUE
Batch	T1076

Wet Weight (g)	0.51	WET
Dry Weight (g)	0.46	DRY
Solids (%)	90.0	DRY
Lipids (%)	4.1	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	33.7	Q
C1-Naphthalenes	28.4	J
C2-Naphthalenes	11.6	J
C3-Naphthalenes	23.6	J
C4-Naphthalenes	22.3	J
Biphenyl	6.7	J
Acenaphthylene	11.0	Q
Acenaphthene	19.0	J
Fluorene	9.6	J
C1-Fluorenes	44.5	
C2-Fluorenes	40.6	
C3-Fluorenes	103.0	
Anthracene	25.2	Q
Phenanthrene	21.7	
C1-Phen/Anthracenes	19.3	J
C2-Phen/Anthracenes	74.9	
C3-Phen/Anthracenes	89.2	
C4-Phen/Anthracenes	37.4	J
Dibenzothiophene	2.3	J
C1-Dibenzothiophenes	14.4	J
C2-Dibenzothiophenes	41.2	
C3-Dibenzothiophenes	70.0	
Fluoranthene	123.0	
Pyrene	1.1	J
C1-Fluoranthenes/Pyrenes	68.1	
Benzo(a)anthracene	112.3	Q
Chrysene	104.9	
C1-Chrysenes	12.3	J
C2-Chrysenes	25.9	
C3-Chrysenes	3.4	J
C4-Chrysenes	4.6	J
Benzo(b)fluoranthene	69.8	
Benzo(k)fluoranthene	73.3	
Benzo(e)pyrene	75.2	
Benzo(a)pyrene	107.2	Q
Perylene	131.2	Q
Indeno(1,2,3-c,d)pyrene	0.9	J
Dibenzo(a,h)anthracene	0.8	J
Benzo(g,h,i)perylene	26.3	
TOTAL PAH (ng/g) (Excluding Perylene)	1558.6	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	10.5	J
2-Methylnaphthalene	17.9	J
2,6-Dimethylnaphthalene	5.6	J
1,6,7-Trimethylnaphthalene	5.1	J
1-Methylphenanthrene	11.5	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	59.0	
Acenapthene-D10	62.4	
Phenanthrene-D10	71.4	
Chrysene-D12	72.0	
Perylene-D12	44.5	

QC Sample Type	Lab Sample ID
SRM NIST 2974	Q18386

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	15		Use Batch Info

Matrix	TISSUE
Batch	T1109

Wet Weight (g)	0.52	WET
Dry Weight (g)	0.46	DRY
Solids (%)	87.4	DRY
Lipids (%)	4.0	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	75.6	Q
C1-Naphthalenes	22.3	J
C2-Naphthalenes	22.3	J
C3-Naphthalenes	18.3	J
C4-Naphthalenes	21.5	J
Biphenyl	3.9	J
Acenaphthylene	2.9	J
Acenaphthene	17.1	Q
Fluorene	2.8	J
C1-Fluorenes	11.7	J
C2-Fluorenes	11.7	J
C3-Fluorenes	69.4	
Anthracene	6.1	J
Phenanthrene	17.3	
C1-Phen/Anthracenes	31.1	
C2-Phen/Anthracenes	64.7	
C3-Phen/Anthracenes	54.3	
C4-Phen/Anthracenes	25.1	J
Dibenzothiophene	2.5	J
C1-Dibenzothiophenes	11.2	J
C2-Dibenzothiophenes	34.6	
C3-Dibenzothiophenes	44.1	
Fluoranthene	121.4	
Pyrene	94.8	
C1-Fluoranthenes/Pyrenes	46.9	
Benzo(a)anthracene	18.2	
Chrysene	75.2	
C1-Chrysenes	37.3	
C2-Chrysenes	17.4	J
C3-Chrysenes	0.0	ND
C4-Chrysenes	5.2	J
Benzo(b)fluoranthene	48.5	
Benzo(k)fluoranthene	4.6	J
Benzo(e)pyrene	63.8	
Benzo(a)pyrene	12.7	J
Perylene	4.6	J
Indeno(1,2,3-c,d)pyrene	10.0	J
Dibenzo(a,h)anthracene	2.5	J
Benzo(g,h,i)perylene	20.6	J
TOTAL PAH (ng/g) (Excluding Perylene)	1148.2	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	8.1	J
2-Methylnaphthalene	14.2	J
2,6-Dimethylnaphthalene	5.2	J
1,6,7-Trimethylnaphthalene	5.2	J
1-Methylphenanthrene	6.6	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	61.9	
Acenapthene-D10	50.9	
Phenanthrene-D10	50.8	
Chrysene-D12	52.9	
Perylene-D12	29.1	Q

QC Sample Type	Lab Sample ID
SRM NIST 2974	Q18588

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	TISSUE
Batch	T1139

Wet Weight (g)	0.57	WET
Dry Weight (g)	0.52	DRY
Solids (%)	91.3	DRY
Lipids (%)	12.1	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	17.7	
C1-Naphthalenes	19.8	J
C2-Naphthalenes	11.8	J
C3-Naphthalenes	11.0	J
C4-Naphthalenes	44.5	
Biphenyl	5.3	J
Acenaphthylene	5.2	
Acenaphthene	29.6	
Fluorene	5.8	J
C1-Fluorenes	25.0	
C2-Fluorenes	22.9	
C3-Fluorenes	17.0	J
Anthracene	10.0	
Phenanthrene	19.1	
C1-Phen/Anthracenes	51.2	
C2-Phen/Anthracenes	108.7	
C3-Phen/Anthracenes	234.7	
C4-Phen/Anthracenes	109.4	
Dibenzothiophene	2.5	J
C1-Dibenzothiophenes	28.8	
C2-Dibenzothiophenes	60.5	
C3-Dibenzothiophenes	69.3	
Fluoranthene	148.1	
Pyrene	131.2	
C1-Fluoranthenes/Pyrenes	112.2	
Benzo(a)anthracene	20.4	
Chrysene	84.0	
C1-Chrysenes	57.5	
C2-Chrysenes	30.9	J
C3-Chrysenes	1.1	J
C4-Chrysenes	5.6	J
Benzo(b)fluoranthene	45.4	
Benzo(k)fluoranthene	14.9	
Benzo(e)pyrene	80.0	
Benzo(a)pyrene	10.5	J
Perylene	4.9	J
Indeno(1,2,3-c,d)pyrene	16.6	
Dibenzo(a,h)anthracene	3.8	J
Benzo(g,h,i)perylene	19.8	
TOTAL PAH (ng/g) (Excluding Perylene)	1691.6	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	8.0	J
2-Methylnaphthalene	11.9	J
2,6-Dimethylnaphthalene	6.0	J
1,6,7-Trimethylnaphthalene	4.2	J
1-Methylphenanthrene	9.0	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	94.1	
Acenapthene-D10	83.3	
Phenanthrene-D10	85.2	
Chrysene-D12	86.4	
Perylene-D12	94.1	

QC Sample Type	Lab Sample ID
SRM NIST 2974	Q18599

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	TISSUE
Batch	T1140

Wet Weight (g)	0.53	WET
Dry Weight (g)	0.47	DRY
Solids (%)	90.1	DRY
Lipids (%)	3.4	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	19.0	
C1-Naphthalenes	14.6	J
C2-Naphthalenes	28.1	
C3-Naphthalenes	37.9	
C4-Naphthalenes	56.8	
Biphenyl	5.4	J
Acenaphthylene	5.4	
Acenaphthene	30.6	
Fluorene	4.9	J
C1-Fluorenes	15.3	J
C2-Fluorenes	16.5	J
C3-Fluorenes	10.5	J
Anthracene	8.3	
Phenanthrene	21.7	
C1-Phen/Anthracenes	53.2	
C2-Phen/Anthracenes	165.8	
C3-Phen/Anthracenes	261.3	
C4-Phen/Anthracenes	131.8	
Dibenzothiophene	2.5	J
C1-Dibenzothiophenes	40.1	
C2-Dibenzothiophenes	77.5	
C3-Dibenzothiophenes	74.0	
Fluoranthene	159.6	
Pyrene	136.7	
C1-Fluoranthenes/Pyrenes	119.5	
Benzo(a)anthracene	22.3	
Chrysene	85.0	
C1-Chrysenes	66.2	
C2-Chrysenes	0.0	ND
C3-Chrysenes	2.7	J
C4-Chrysenes	6.0	J
Benzo(b)fluoranthene	50.4	
Benzo(k)fluoranthene	26.6	
Benzo(e)pyrene	81.3	
Benzo(a)pyrene	105.0	
Perylene	5.5	J
Indeno(1,2,3-c,d)pyrene	18.4	
Dibenzo(a,h)anthracene	4.1	J
Benzo(g,h,i)perylene	21.0	
TOTAL PAH (ng/g) (Excluding Perylene)	1985.8	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	6.6	J
2-Methylnaphthalene	8.1	J
2,6-Dimethylnaphthalene	12.8	
1,6,7-Trimethylnaphthalene	6.3	J
1-Methylphenanthrene	9.3	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	73.1	
Acenapthene-D10	85.9	
Phenanthrene-D10	90.7	
Chrysene-D12	95.0	
Perylene-D12	66.3	

QC Sample Type	Lab Sample ID
SRM NIST 1941a	Q18610

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	SEDIMENT
Batch	M2879
Dry Weight (g)	1.51 DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	685.2	
C1-Naphthalenes	388.3	
C2-Naphthalenes	224.1	
C3-Naphthalenes	140.1	
C4-Naphthalenes	115.2	
Biphenyl	70.4	Q
Acenaphthylene	88.4	Q
Acenaphthene	47.8	
Fluorene	122.3	
C1-Fluorenes	256.2	
C2-Fluorenes	225.9	
C3-Fluorenes	304.6	
Anthracene	248.3	
Phenanthrene	407.1	
C1-Phen/Anthracenes	282.7	
C2-Phen/Anthracenes	221.1	
C3-Phen/Anthracenes	129.6	
C4-Phen/Anthracenes	79.5	
Dibenzothiophene	44.3	
C1-Dibenzothiophenes	46.1	
C2-Dibenzothiophenes	73.6	
C3-Dibenzothiophenes	56.8	
Fluoranthene	866.7	
Pyrene	691.7	
C1-Fluoranthenes/Pyrenes	401.4	
Benzo(a)anthracene	598.8	
Chrysene	538.9	
C1-Chrysenes	249.3	
C2-Chrysenes	159.1	
C3-Chrysenes	29.8	
C4-Chrysenes	67.9	
Benzo(b)fluoranthene	771	
Benzo(k)fluoranthene	483.1	
Benzo(e)pyrene	460.6	
Benzo(a)pyrene	605.2	
Perylene	339.3	
Indeno(1,2,3-c,d)pyrene	630.6	
Dibenzo(a,h)anthracene	156.0	
Benzo(g,h,i)perylene	411.3	
TOTAL PAH (ng/g) (Excluding Perylene)	11378.9	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	127.2	
2-Methylnaphthalene	261.1	
2,6-Dimethylnaphthalene	116.6	
1,6,7-Trimethylnaphthalene	56.6	
1-Methylphenanthrene	75.6	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	69.3	
Acenapthene-D10	86.9	
Phenanthrene-D10	114.5	
Chrysene-D12	114.1	
Perylene-D12	78.2	

QC Sample Type	Lab Sample ID
SRM NIST 2974	Q18101

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	14		Use Batch Info

Matrix	TISSUE
Batch	T1075

Wet Weight (g)	0.51	WET
Dry Weight (g)	0.47	DRY
Solids (%)	92.4	DRY
Lipids (%)	4.1	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	68.0	J
n-C11	43.3	J
n-C12	272.6	J
n-C13	265.2	J
n-C14	0.0	ND
n-C15	342.9	J
n-C16	1432.7	
n-C17	1429.2	
Pristane	108.1	J
n-C18	207.2	J
Phytane	64.0	J
n-C19	204.8	J
n-C20	116.2	J
n-C21	542.3	
n-C22	75.3	J
n-C23	135.2	J
n-C24	56.9	J
n-C25	180.9	J
n-C26	244.8	J
n-C27	138.8	J
n-C28	31.4	J
n-C29	3382	
n-C30	352.1	J
n-C31	803.4	
n-C32	395.3	
n-C33	165.2	J
n-C34	35.3	J

TOTAL AHC (ng/g)	11092.8

TRUAHC (ug/g)	395.2
TOTAL RAHC (ug/g)	55.4
UCM (ug/g)	339.7

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	66.7	
C20 (Deuterated)	79.8	
C24 (Deuterated)	78.6	
C30 (Deuterated)	80.9	

QC Sample Type	Lab Sample ID
SRM NIST 2974	Q18110

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	14		Use Batch Info

Matrix	TISSUE
Batch	T1076

Wet Weight (g)	0.51	WET
Dry Weight (g)	0.46	DRY
Solids (%)	90.0	DRY
Lipids (%)	4.1	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	0.0	ND
n-C11	90.9	J
n-C12	299.7	J
n-C13	255.9	J
n-C14	297.8	J
n-C15	255.4	J
n-C16	1429.2	
n-C17	1157.2	
Pristane	73.7	J
n-C18	150.2	J
Phytane	55.1	J
n-C19	668.6	
n-C20	358.0	
n-C21	679.0	
n-C22	8.3	J
n-C23	184.9	J
n-C24	76.7	J
n-C25	162.1	J
n-C26	244.4	J
n-C27	58.4	J
n-C28	32.0	J
n-C29	21.4	J
n-C30	127.7	J
n-C31	290.2	J
n-C32	299.5	J
n-C33	169.2	J
n-C34	63.2	J

TOTAL AHC (ng/g)	7508.6

TRUAHC (ug/g)	328.4
TOTAL RAHC (ug/g)	77.1
UCM (ug/g)	251.2

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	87.4	
C20 (Deuterated)	100.2	
C24 (Deuterated)	119.3	
C30 (Deuterated)	98.1	

QC Sample Type	Lab Sample ID
SRM NIST 2974	Q18386

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	15		Use Batch Info

Matrix	TISSUE
Batch	T1109

Wet Weight (g)	0.52	WET
Dry Weight (g)	0.46	DRY
Solids (%)	87.4	DRY
Lipids (%)	4.0	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	351.7	J
n-C11	2339.3	
n-C12	412.0	J
n-C13	598.7	J
n-C14	667.1	J
n-C15	2481.4	
n-C16	1899.7	
n-C17	1772.8	
Pristane	407.0	J
n-C18	401.2	
Phytane	1152.6	
n-C19	1754.7	
n-C20	550.6	
n-C21	1291.8	
n-C22	1315.6	
n-C23	1219.1	
n-C24	141.8	J
n-C25	329.6	J
n-C26	861.8	
n-C27	1169.1	
n-C28	565.2	
n-C29	726.9	
n-C30	344.3	J
n-C31	535.9	
n-C32	452.8	
n-C33	780.1	
n-C34	281.9	J

TOTAL AHC (ng/g)	24804.5

TRUAHC (ug/g)	311.8	
TOTAL RAHC (ug/g)	66.7	
UCM (ug/g)	245.1	J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	92.4	
C20 (Deuterated)	87.4	
C24 (Deuterated)	101.7	
C30 (Deuterated)	101.9	

QC Sample Type	Lab Sample ID
SRM NIST 2974	Q18588

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	TISSUE
Batch	T1139

Wet Weight (g)	0.57	WET
Dry Weight (g)	0.52	DRY
Solids (%)	91.3	DRY
Lipids (%)	12.1	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	2656.7	
n-C11	202.6	J
n-C12	449.8	
n-C13	426.5	
n-C14	540.8	
n-C15	3190.7	
n-C16	1940.1	
n-C17	1758.5	
Pristane	113.7	J
n-C18	390.5	
Phytane	1362.9	
n-C19	272.7	
n-C20	656.9	
n-C21	428.9	
n-C22	1048.6	
n-C23	242.0	
n-C24	178.6	
n-C25	246.7	
n-C26	472.3	
n-C27	50.6	J
n-C28	287.8	
n-C29	487.5	
n-C30	253.4	
n-C31	361.6	
n-C32	560.9	
n-C33	329.0	
n-C34	1744.4	
TOTAL AHC (ng/g)	20654.7	

TRUAHC (ug/g)	440.9
TOTAL RAHC (ug/g)	69.1
UCM (ug/g)	371.8

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	64.7	
C20 (Deuterated)	73.1	
C24 (Deuterated)	73.9	
C30 (Deuterated)	71.1	

QC Sample Type	Lab Sample ID
SRM NIST 2974	Q18599

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	TISSUE
Batch	T1140

Wet Weight (g)	0.53	WET
Dry Weight (g)	0.47	DRY
Solids (%)	90.1	DRY
Lipids (%)	3.4	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1865.1	
n-C11	180.7	J
n-C12	437.8	
n-C13	447.9	
n-C14	588.4	
n-C15	3020.9	
n-C16	1995.4	
n-C17	1648.1	
Pristane	197.2	J
n-C18	613.9	
Phytane	60.0	J
n-C19	231.3	
n-C20	62.5	J
n-C21	55.6	J
n-C22	610.9	
n-C23	11.9	J
n-C24	62.6	J
n-C25	219.9	
n-C26	454.1	
n-C27	58.9	J
n-C28	134.4	J
n-C29	54.0	J
n-C30	57.7	J
n-C31	294.5	
n-C32	342.5	
n-C33	115.2	J
n-C34	945.0	
TOTAL AHC (ng/g)	14766.4	

TRUAHC (ug/g)	649.1
TOTAL RAHC (ug/g)	213.3
UCM (ug/g)	435.8

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	69.0	
C20 (Deuterated)	82.0	
C24 (Deuterated)	69.0	
C30 (Deuterated)	69.0	

QC Sample Type	Lab Sample ID
SRM NIST 1941a	Q18610

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
	16		Use Batch Info

Matrix	SEDIMENT
Batch	M2879
Dry Weight (g)	1.51 DRY

ANALYTE	Value (ng/g)	Qual
n-C10	45.4	J
n-C11	102.5	
n-C12	96.2	
n-C13	190.5	
n-C14	161.8	
n-C15	238.8	
n-C16	390.3	
n-C17	244.5	
Pristane	71.0	
n-C18	124.5	J
Phytane	100.6	
n-C19	149.0	
n-C20	180.1	
n-C21	146.3	
n-C22	199.5	
n-C23	153.6	
n-C24	1470.0	
n-C25	194.2	
n-C26	100.5	
n-C27	214.8	
n-C28	481.7	
n-C29	360.3	
n-C30	117.3	
n-C31	446.1	
n-C32	158.6	J
n-C33	317.1	
n-C34	186.8	

TOTAL AHC (ng/g)	6642.2

TRUAHC (ug/g)	314.1
TOTAL RAHC (ug/g)	27.8
UCM (ug/g)	286.3

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	68.0	
C20 (Deuterated)	115.0	
C24 (Deuterated)	87.0	
C30 (Deuterated)	64.0	

Laboratory QC - TOC SRMs

SURVEY	LABSAMP_TY	LABSAMP_DE	LABSAMP_ID	BATCH_ID	ANALYTE	VALUE	VALUE_QU	UNIT	EXP_VAL	UNIT
16	SRM	SRM NIST 1941a	SRM051800A	5/18/00	TOC	4.15		%	4.8	%
	SRM	SRM NIST 1941a	SRM051800C	5/18/00	TOC	4.0		%	4.8	%

APPENDIX C

Quality Control Results

5.0 Duplicates

QC Sample Type	Lab Sample ID
DUPLICATE	Q18102

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
ZAB-B	14	3	PWS99TIS0040

Matrix	TISSUE
Batch	T1075

Wet Weight (g)	5.31	WET
Dry Weight (g)	0.61	DRY
Solids (%)	11.6	DRY
Lipids (%)	2.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	18.8	
C1-Naphthalenes	26.6	
C2-Naphthalenes	18.9	
C3-Naphthalenes	13.7	
C4-Naphthalenes	11.5	
Biphenyl	5.0	J
Acenaphthylene	1.6	J
Acenaphthene	7.0	
Fluorene	4.8	J
C1-Fluorenes	31.7	
C2-Fluorenes	11.4	J
C3-Fluorenes	62.9	
Anthracene	0.6	J
Phenanthrene	8.2	J
C1-Phen/Anthracenes	20.4	
C2-Phen/Anthracenes	9.8	J
C3-Phen/Anthracenes	6.5	J
C4-Phen/Anthracenes	0.1	J
Dibenzothiophene	1.3	J
C1-Dibenzothiophenes	0.1	J
C2-Dibenzothiophenes	0.1	J
C3-Dibenzothiophenes	1.2	J
Fluoranthene	0.4	J
Pyrene	0.6	J
C1-Fluoranthenes/Pyrenes	0.5	J
Benzo(a)anthracene	1.5	J
Chrysene	1.9	J
C1-Chrysenes	0.2	J
C2-Chrysenes	10.3	J
C3-Chrysenes	0.8	J
C4-Chrysenes	2.0	J
Benzo(b)fluoranthene	1.0	J
Benzo(k)fluoranthene	0.9	J
Benzo(e)pyrene	0.2	J
Benzo(a)pyrene	2.6	J
Perylene	0.8	J
Indeno(1,2,3-c,d)pyrene	0.3	J
Dibenzo(a,h)anthracene	0.8	J
Benzo(g,h,i)perylene	0.8	J
TOTAL PAH (ng/g) (Excluding Perylene)	286.6	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	10.8	
2-Methylnaphthalene	15.8	
2,6-Dimethylnaphthalene	6.8	
1,6,7-Trimethylnaphthalene	2.0	J
1-Methylphenanthrene	2.4	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	66.1	
Acenapthene-D10	68.9	
Phenanthrene-D10	73.3	
Chrysene-D12	49.4	
Perylene-D12	141.1	Q

QC Sample Type	Lab Sample ID
DUPLICATE	Q18111

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	14	2	PWS99TIS0048

Matrix	TISSUE
Batch	T1076

Wet Weight (g)	10.12	WET
Dry Weight (g)	0.53	DRY
Solids (%)	5.3	DRY
Lipids (%)	6.7	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	15.1	
C1-Naphthalenes	14.9	
C2-Naphthalenes	11.9	
C3-Naphthalenes	22.0	
C4-Naphthalenes	19.9	
Biphenyl	4.0	
Acenaphthylene	1.3	J
Acenaphthene	4.9	
Fluorene	3.0	J
C1-Fluorenes	64.9	
C2-Fluorenes	70.1	
C3-Fluorenes	100.1	
Anthracene	3.2	
Phenanthrene	5.9	
C1-Phen/Anthracenes	46.7	
C2-Phen/Anthracenes	3.1	J
C3-Phen/Anthracenes	2.8	J
C4-Phen/Anthracenes	1.3	J
Dibenzothiophene	2.1	J
C1-Dibenzothiophenes	4.5	J
C2-Dibenzothiophenes	1.7	J
C3-Dibenzothiophenes	1.7	J
Fluoranthene	1.5	J
Pyrene	0.9	J
C1-Fluoranthenes/Pyrenes	0.3	J
Benzo(a)anthracene	0.3	J
Chrysene	0.6	J
C1-Chrysenes	0.1	J
C2-Chrysenes	9.3	J
C3-Chrysenes	0.8	J
C4-Chrysenes	6.3	J
Benzo(b)fluoranthene	0.1	J
Benzo(k)fluoranthene	0.1	J
Benzo(e)pyrene	0.4	J
Benzo(a)pyrene	0.1	J
Perylene	2.2	J
Indeno(1,2,3-c,d)pyrene	0.4	J
Dibenzo(a,h)anthracene	0.3	J
Benzo(g,h,i)perylene	0.2	J
TOTAL PAH (ng/g) (Excluding Perylene)	426.9	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	5.7	
2-Methylnaphthalene	9.3	
2,6-Dimethylnaphthalene	3.4	
1,6,7-Trimethylnaphthalene	2.1	J
1-Methylphenanthrene	1.7	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	56.6	
Acenapthene-D10	62.4	
Phenanthrene-D10	68.6	
Chrysene-D12	77.4	
Perylene-D12	50.7	

QC Sample Type	Lab Sample ID
DUPLICATE	Q18387

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	15	2	PWS99TIS0063

Matrix	TISSUE
Batch	T1109

Wet Weight (g)	10.27	WET
Dry Weight (g)	0.68	DRY
Solids (%)	6.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	46.8	
C1-Naphthalenes	13.0	J
C2-Naphthalenes	7.4	J
C3-Naphthalenes	11.0	
C4-Naphthalenes	21.5	
Biphenyl	2.5	J
Acenaphthylene	0.5	J
Acenaphthene	4.1	
Fluorene	2.7	J
C1-Fluorenes	11.2	J
C2-Fluorenes	7.9	J
C3-Fluorenes	14.8	
Anthracene	0.9	J
Phenanthrene	5.2	J
C1-Phen/Anthracenes	3.0	J
C2-Phen/Anthracenes	3.8	J
C3-Phen/Anthracenes	2.5	J
C4-Phen/Anthracenes	0.6	J
Dibenzothiophene	0.5	J
C1-Dibenzothiophenes	1.9	J
C2-Dibenzothiophenes	2.4	J
C3-Dibenzothiophenes	1.9	J
Fluoranthene	2.5	J
Pyrene	1.4	J
C1-Fluoranthenes/Pyrenes	1.3	J
Benzo(a)anthracene	1.0	J
Chrysene	1.7	J
C1-Chrysenes	0.9	J
C2-Chrysenes	3.2	J
C3-Chrysenes	0.5	J
C4-Chrysenes	0.0	ND
Benzo(b)fluoranthene	1.2	J
Benzo(k)fluoranthene	0.5	J
Benzo(e)pyrene	1.0	J
Benzo(a)pyrene	0.5	J
Perylene	0.3	J
Indeno(1,2,3-c,d)pyrene	0.2	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.1	J

TOTAL PAH (ng/g) 181.6

(Excluding Perylene)

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	5.7	J
2-Methylnaphthalene	7.3	J
2,6-Dimethylnaphthalene	2.7	J
1,6,7-Trimethylnaphthalene	2.0	J
1-Methylphenanthrene	1.6	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	48.3	
Acenapthene-D10	65.2	
Phenanthrene-D10	75.1	
Chrysene-D12	86.1	
Perylene-D12	94.9	

QC Sample Type	Lab Sample ID
DUPLICATE	Q18589

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
SHH-B	16	1	PWS00TIS0007

Matrix	TISSUE
Batch	T1139

Wet Weight (g)	7.09	WET
Dry Weight (g)	0.66	DRY
Solids (%)	9.3	DRY
Lipids (%)	3.6	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	17.0	
C1-Naphthalenes	23.3	
C2-Naphthalenes	12.2	
C3-Naphthalenes	12.7	
C4-Naphthalenes	0.7	J
Biphenyl	4.6	J
Acenaphthylene	1.1	J
Acenaphthene	6.5	
Fluorene	4.9	J
C1-Fluorenes	0.6	J
C2-Fluorenes	0.3	J
C3-Fluorenes	0.4	J
Anthracene	1.5	J
Phenanthrene	9.9	
C1-Phen/Anthracenes	6.5	J
C2-Phen/Anthracenes	0.1	J
C3-Phen/Anthracenes	0.8	J
C4-Phen/Anthracenes	0.3	J
Dibenzothiophene	0.6	J
C1-Dibenzothiophenes	0.4	J
C2-Dibenzothiophenes	0.2	J
C3-Dibenzothiophenes	0.1	J
Fluoranthene	4.3	J
Pyrene	3.3	J
C1-Fluoranthenes/Pyrenes	3.8	J
Benzo(a)anthracene	1.0	J
Chrysene	2.2	J
C1-Chrysenes	2.4	J
C2-Chrysenes	0.0	ND
C3-Chrysenes	0.5	J
C4-Chrysenes	1.7	J
Benzo(b)fluoranthene	2.0	J
Benzo(k)fluoranthene	0.5	J
Benzo(e)pyrene	1.2	J
Benzo(a)pyrene	1.5	J
Perylene	1.7	J
Indeno(1,2,3-c,d)pyrene	1.1	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.7	J
TOTAL PAH (ng/g) (Excluding Perylene)	130.8	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	9.6	
2-Methylnaphthalene	13.6	
2,6-Dimethylnaphthalene	4.1	J
1,6,7-Trimethylnaphthalene	2.4	J
1-Methylphenanthrene	2.0	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	72.9	
Acenapthene-D10	77.7	
Phenanthrene-D10	82.4	
Chrysene-D12	77.2	
Perylene-D12	65.7	

QC Sample Type	Lab Sample ID
DUPLICATE	Q18600

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	16	3	PWS00TIS0027

Matrix	TISSUE
Batch	T1140

Wet Weight (g)	7.02	WET
Dry Weight (g)	0.51	DRY
Solids (%)	7.2	DRY
Lipids (%)	5.4	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	14.0	
C1-Naphthalenes	19.0	J
C2-Naphthalenes	20.0	
C3-Naphthalenes	24.1	
C4-Naphthalenes	22.7	
Biphenyl	3.9	J
Acenaphthylene	1.9	J
Acenaphthene	7.1	
Fluorene	5.4	J
C1-Fluorenes	1.3	J
C2-Fluorenes	0.7	J
C3-Fluorenes	3.5	J
Anthracene	1.5	J
Phenanthrene	9.1	J
C1-Phen/Anthracenes	0.6	J
C2-Phen/Anthracenes	3.8	J
C3-Phen/Anthracenes	0.0	ND
C4-Phen/Anthracenes	0.7	J
Dibenzothiophene	0.9	J
C1-Dibenzothiophenes	0.3	J
C2-Dibenzothiophenes	0.2	J
C3-Dibenzothiophenes	2.7	J
Fluoranthene	6.3	J
Pyrene	4.7	J
C1-Fluoranthenes/Pyrenes	8.9	J
Benzo(a)anthracene	8.1	J
Chrysene	9.6	J
C1-Chrysenes	0.3	J
C2-Chrysenes	0.7	J
C3-Chrysenes	1.0	J
C4-Chrysenes	0.1	J
Benzo(b)fluoranthene	11.5	J
Benzo(k)fluoranthene	3.9	J
Benzo(e)pyrene	6.6	J
Benzo(a)pyrene	8.5	J
Perylene	2.7	J
Indeno(1,2,3-c,d)pyrene	5.4	J
Dibenzo(a,h)anthracene	0.5	J
Benzo(g,h,i)perylene	3.8	J
TOTAL PAH (ng/g) (Excluding Perylene)	222.6	

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	7.5	J
2-Methylnaphthalene	11.5	J
2,6-Dimethylnaphthalene	5.5	J
1,6,7-Trimethylnaphthalene	4.2	J
1-Methylphenanthrene	2.1	J

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	77.7	
Acenapthene-D10	94.7	
Phenanthrene-D10	98.3	
Chrysene-D12	97.1	
Perylene-D12	78.9	

QC Sample Type	Lab Sample ID
DUPLICATE	Q18613

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
GOC-S	16	2	PWS00PAT0002

Matrix	SEDIMENT
Batch	M2879

Wet Weight (g)	20.93	WET
Dry Weight (g)	13.04	DRY
Solids (%)	62.3	DRY

ANALYTE	Value (ng/g)	Qual
Naphthalene	2.4	
C1-Naphthalenes	3.6	
C2-Naphthalenes	2.4	
C3-Naphthalenes	2.6	
C4-Naphthalenes	1.3	
Biphenyl	0.7	
Acenaphthylene	0.4	
Acenaphthene	1.1	
Fluorene	3.4	
C1-Fluorenes	3.1	
C2-Fluorenes	4.0	
C3-Fluorenes	4.7	
Anthracene	1.1	
Phenanthrene	8.1	
C1-Phen/Anthracenes	5.0	
C2-Phen/Anthracenes	3.2	
C3-Phen/Anthracenes	2.2	
C4-Phen/Anthracenes	1.6	
Dibenzothiophene	1.1	
C1-Dibenzothiophenes	1.3	
C2-Dibenzothiophenes	1.6	
C3-Dibenzothiophenes	1.2	
Fluoranthene	6.9	
Pyrene	3.8	
C1-Fluoranthenes/Pyrenes	1.5	
Benzo(a)anthracene	1.9	
Chrysene	3.4	
C1-Chrysenes	1.3	
C2-Chrysenes	1.4	
C3-Chrysenes	0.1	J
C4-Chrysenes	0.0	ND
Benzo(b)fluoranthene	1.3	
Benzo(k)fluoranthene	0.5	
Benzo(e)pyrene	1.0	
Benzo(a)pyrene	1.0	J
Perylene	0.2	J
Indeno(1,2,3-c,d)pyrene	0.4	J
Dibenzo(a,h)anthracene	0.1	J
Benzo(g,h,i)perylene	0.4	J

TOTAL PAH (ng/g) 80.9

(Excluding Perylene)

Specific Isomers	Value (ng/g)	Qual
1-Methylnaphthalene	1.2	
2-Methylnaphthalene	2.4	
2,6-Dimethylnaphthalene	1.5	
1,6,7-Trimethylnaphthalene	1.3	
1-Methylphenanthrene	1.2	

Surrogate Recoveries	Percent	Qual
Naphthalene-D8	53.9	
Acenapthene-D10	69.3	
Phenanthrene-D10	80.6	
Chrysene-D12	82.9	
Perylene-D12	99.5	

QC Sample Type	Lab Sample ID
DUPLICATE	Q18102

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
ZAB-B	14	3	PWS99TIS0040

Matrix	TISSUE
Batch	T1075

Wet Weight (g)	5.31	WET
Dry Weight (g)	0.61	DRY
Solids (%)	11.6	DRY
Lipids (%)	2.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	31.7	J
n-C11	0.0	ND
n-C12	67.9	J
n-C13	23.9	J
n-C14	4.1	J
n-C15	114.7	J
n-C16	309.9	J
n-C17	89.5	J
Pristane	100.2	J
n-C18	76.1	J
Phytane	128.3	J
n-C19	247.1	J
n-C20	710.4	
n-C21	1179.5	
n-C22	92.3	J
n-C23	2309.7	
n-C24	308.7	
n-C25	489.2	
n-C26	3.1	J
n-C27	876.6	
n-C28	807.8	
n-C29	8027.7	
n-C30	1926.5	
n-C31	1072.8	
n-C32	24.8	J
n-C33	299.8	
n-C34	15.3	J

TOTAL AHC (ng/g)	19337.3
TRUAHC (ug/g)	386.4
TOTAL RAHC (ug/g)	117.5
UCM (ug/g)	268.9

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	56.2	
C20 (Deuterated)	78.7	
C24 (Deuterated)	86.7	
C30 (Deuterated)	79.7	

QC Sample Type	Lab Sample ID
DUPLICATE	Q18111

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	14	2	PWS99TIS0048

Matrix	TISSUE
Batch	T1076

Wet Weight (g)	10.12	WET
Dry Weight (g)	0.53	DRY
Solids (%)	5.3	DRY
Lipids (%)	6.7	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	2369.9	
n-C11	40.4	J
n-C12	113.7	J
n-C13	62.4	J
n-C14	248.5	J
n-C15	69.3	J
n-C16	781.0	J
n-C17	9536.8	
Pristane	1242	
n-C18	142.1	J
Phytane	1361.1	
n-C19	17264.1	
n-C20	2625.6	
n-C21	20145.7	
n-C22	459.8	
n-C23	16642.4	
n-C24	236.7	J
n-C25	1389.4	
n-C26	660.1	
n-C27	1472.1	
n-C28	1066.6	
n-C29	10156.8	
n-C30	2453.0	
n-C31	1424.2	
n-C32	188.0	J
n-C33	32.9	J
n-C34	104.3	J

TOTAL AHC (ng/g)	92288.7
TRUAHC (ug/g)	769.0
TOTAL RAHC (ug/g)	552.2
UCM (ug/g)	216.8 J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	66.7	
C20 (Deuterated)	80.8	
C24 (Deuterated)	76.3	
C30 (Deuterated)	90.5	

QC Sample Type	Lab Sample ID
DUPLICATE	Q18387

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	15	2	PWS99TIS0063

Matrix	TISSUE
Batch	T1109

Wet Weight (g)	10.27	WET
Dry Weight (g)	0.68	DRY
Solids (%)	6.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	276.8	J
n-C11	0.0	ND
n-C12	41.1	J
n-C13	0.0	ND
n-C14	0.0	ND
n-C15	225.4	J
n-C16	145.0	J
n-C17	292.4	J
Pristane	3901	
n-C18	82.0	J
Phytane	75.8	J
n-C19	284.7	
n-C20	275.9	
n-C21	268.0	
n-C22	148.7	J
n-C23	176.2	J
n-C24	230.8	J
n-C25	326.0	
n-C26	5862.5	
n-C27	4595.7	
n-C28	1051.3	
n-C29	758.9	
n-C30	1567.4	
n-C31	2471.4	
n-C32	3867.8	
n-C33	2712.1	
n-C34	4126.5	

TOTAL AHC (ng/g)	33763.2

TRUAHC (ug/g)	804.1
TOTAL RAHC (ug/g)	176.3
UCM (ug/g)	627.8

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	57.0	
C20 (Deuterated)	56.4	
C24 (Deuterated)	77.3	
C30 (Deuterated)	67.2	

QC Sample Type	Lab Sample ID
DUPLICATE	Q18589

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
SHH-B	16	1	PWS00TIS0007

Matrix	TISSUE
Batch	T1139

Wet Weight (g)	7.09	WET
Dry Weight (g)	0.66	DRY
Solids (%)	9.3	DRY
Lipids (%)	3.6	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	117.5	J
n-C11	49.7	J
n-C12	98.4	J
n-C13	257.6	
n-C14	224.2	J
n-C15	634.8	
n-C16	446.2	
n-C17	319.0	
Pristane	110.3	J
n-C18	173.1	
Phytane	129.4	
n-C19	2242.7	
n-C20	176.8	
n-C21	538.6	
n-C22	252.3	
n-C23	237.0	
n-C24	326.7	
n-C25	462.6	
n-C26	587.7	
n-C27	644.3	
n-C28	755.9	
n-C29	741	
n-C30	450.8	
n-C31	433.7	
n-C32	456.7	
n-C33	553.0	
n-C34	64.6	J

TOTAL AHC (ng/g)	11484.6

TRUAHC (ug/g)	187.6
TOTAL RAHC (ug/g)	95.9
UCM (ug/g)	91.6

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	76.3	
C20 (Deuterated)	79.9	
C24 (Deuterated)	74.2	
C30 (Deuterated)	70.5	

QC Sample Type	Lab Sample ID
DUPLICATE	Q18600

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
AMT-B	16	3	PWS00TIS0027

Matrix	TISSUE
Batch	T1140

Wet Weight (g)	7.02	WET
Dry Weight (g)	0.51	DRY
Solids (%)	7.2	DRY
Lipids (%)	5.4	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	1166.5	
n-C11	131.7	J
n-C12	77.3	J
n-C13	225.3	J
n-C14	421.2	
n-C15	540.4	J
n-C16	546.8	
n-C17	154.0	J
Pristane	977.4	
n-C18	192.7	
Phytane	1736.6	
n-C19	492.2	
n-C20	565.8	
n-C21	51.7	J
n-C22	1686.8	
n-C23	86.0	J
n-C24	138.5	J
n-C25	274.3	
n-C26	180.7	
n-C27	203.7	
n-C28	293.7	
n-C29	333.4	
n-C30	180.6	
n-C31	88.7	J
n-C32	139.7	
n-C33	101.4	J
n-C34	27.1	J

TOTAL AHC (ng/g)	11014.1

TRUAHC (ug/g)	679.0
TOTAL RAHC (ug/g)	380.4
UCM (ug/g)	298.6

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	81.0	
C20 (Deuterated)	99.0	
C24 (Deuterated)	80.0	
C30 (Deuterated)	70.0	

QC Sample Type	Lab Sample ID
DUPLICATE	Q18613

ASSOCIATED SAMPLE INFORMATION

Station	Survey	Rep	KLI Sample ID
GOC-S	16	2	PWS00PAT0002

Matrix	SEDIMENT
Batch	M2879

Wet Weight (g)	20.93	WET
Dry Weight (g)	13.04	DRY
Solids (%)	62.3	DRY

ANALYTE	Value (ng/g)	Qual
n-C10	34.7	
n-C11	1.0	J
n-C12	7.0	
n-C13	2.3	J
n-C14	5.2	
n-C15	11.5	
n-C16	5.5	
n-C17	12.0	
Pristane	9.5	
n-C18	8.3	
Phytane	3.9	
n-C19	5.3	
n-C20	8.7	
n-C21	11.4	
n-C22	9.6	
n-C23	20.4	
n-C24	8.6	
n-C25	34.8	
n-C26	7.1	
n-C27	181.8	
n-C28	12.6	
n-C29	86.1	
n-C30	7.7	
n-C31	81.5	
n-C32	8.2	
n-C33	37.3	
n-C34	7.9	

TOTAL AHC (ng/g)	629.8

TRUAHC (ug/g)	7.4
TOTAL RAHC (ug/g)	1.9
UCM (ug/g)	5.5 J

Surrogate Recoveries	Percent	Qual
C12 (Deuterated)	110.0	
C20 (Deuterated)	62.0	
C24 (Deuterated)	57.0	
C30 (Deuterated)	66.0	

Laboratory QC - Total Organic Carbon Duplicates

SURVEY	STN_ID	REP	SAMPLE ID	LABSAMP_ ID	BATCH_ID	ANALYTE	RESULT VALUE	DUPLICATE VALUE	UNIT	RPD	UNIT
16	GOC-S	1	PWS00PAT0001	C34880D	5/18/00	TOC	0.43	0.44	%	3	%

ANAL_TY	ANALYTE	LABSAMP_TY	SAMP_ID	LABSAMP_ID	BATCH_ID	VALUE	VALUE_UN	RPD
PGS	CLAY	DUP	.NULL.	C33748QA	4/30/00	7.03	%	20.4
PGS	CLAY	SAMP	.NULL.	C33748	4/30/00	5.73	%	20.4
PGS	SAND	DUP	.NULL.	C33748QA	4/30/00	88.81	%	1.4
PGS	SAND	SAMP	.NULL.	C33748	4/30/00	90.03	%	1.4
PGS	SILT	DUP	.NULL.	C33748QA	4/30/00	4.16	%	1.9
PGS	SILT	SAMP	.NULL.	C33748	4/30/00	4.24	%	1.9