Exxon Valdez Oil Spill
State/Federal Natural Resource Damage Assessment Final Report

Petroleum Hydrocarbons in Near-Surface Seawater of Prince William Sound, Alaska, following the *Exxon Valdez* Oil Spill II: Analysis of Caged Mussels

Air/Water Study Number 3
Subtidal Study Number 3A
Final Report

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Study History: Air/Water #3 (Geographic and Temporal Distribution of Dissolved and Particulate Petroleum Hydrocarbons in the Water Column) was first funded in 1989. In 1991 the study was renamed Subtidal Study Number 3 (Bio-availability and Transport of Hydrocarbons) but the objectives remained the same. The project was funded for closeout and renamed again in 1992 to Subtidal Study Number 3A to reflect the coordination with a related project (ST #3B). Two final reports will result from this project, hydrocarbons in caged mussels and hydrocarbons in the water. Two *Exxon Valdez* Oil Spill Symposium Proceedings papers resulting from this work are: Petroleum Hydrocarbons in Caged Mussels Deployed in Prince William Sound, Alaska after the *Exxon Valdez* Oil Spill, and Chemical Sampling and Analysis of Petroleum Hydrocarbons in Near-surface Seawater of Prince William Sound, Alaska after the *Exxon Valdez* Oil Spill.

Abstract: Mussels (*Mytilus trossulus*) were deployed at 22 locations inside Prince William Sound and 16 locations outside the Sound at depths of 1, 5 and 25 m for 2 to 8 weeks to determine the biological availability and persistence of petroleum-derived hydrocarbons from the *Exxon Valdez* oil (EVO) spill. Four successive deployments were made in 1989, and two each in 1990 and 1991. Mussels were analyzed for 27 alkane and 43 polynuclear aromatic hydrocarbon (PAH) analytes.

PAH concentrations derived from EVO in mussels decreased with depth, time, and distance from heavily oiled beaches. The highest concentration of total PAH was 5,700 ng/g wet tissue weight at Herring Bay, 1-m depth, 1-2 months after the spill, and slightly lower at north Smith Island and at Snug Harbor. Lower PAH concentrations were detected at other locations inside PWS, except the control site, Olsen Bay. Concentrations at all stations declined by late summer 1989. In 1990 and 1991, PAHs could only be detected near heavily oiled beaches at concentrations that were usually below 200 ng/g.

Hydrocarbon accumulation derived from EVO by deployed mussels indicates petroleum hydrocarbons were available to subsurface marine fauna the summer following the spill, which may be a route of oil ingestion exposure by fauna at higher trophic levels.

Key Words: Caged mussels, *Exxon Valdez*, hydrocarbons, oil spill, PAH, seawater

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EXECUTIVE SUMMARY

We deployed bay mussels (*Mytilus trossulus*) that were initially free of hydrocarbons in nearshore waters along the path of oil spilled from the T/V *Exxon Valdez*, to determine the biological availability and the persistence of petroleum-derived hydrocarbons to living marine resources of waters affected by the spill. Mussels filter substantial volumes of seawater, and may therefore accumulate petroleum hydrocarbons integrated over the deployment period. Mussels free of petroleum hydrocarbons were collected from Admiralty Island in southeastern Alaska, and were transplanted to 22 locations inside Prince William Sound (PWS) and to 16 locations outside PWS for 2 to 8 weeks at depths of 1, 5, and 25 m at each location. Four successive transplants were conducted in 1989 following the spill, and two transplants were conducted in 1990 and in during 1991. The mussels were retrieved at the end of each transplant period and stored frozen at -20°C for hydrocarbon analysis.

Transplanted and control mussels were analyzed with single ion mode gas chromatography-mass spectrometry for the most abundant 2- to 5-ring polynuclear aromatic hydrocarbons (PAHs) in the spilled oil, and with gas chromatography-flame ionization detection for alkane hydrocarbons, including pristane, phytane, and normal alkanes of 10 to 34 carbon atoms.

Results indicate that mussels transplanted along the path of the oil spill accumulated oil at concentrations that decreased with depth, time elapsed after the spill, and distance from heavily oiled beaches. The highest concentrations of total PAHs in the transplanted mussels was 5,700 ng/g wet tissue weight at Herring Bay, 1 m depth, 1-2 months after the spill; at the 5 and 25 m depths concentration there was 3,170 ng/g and 372 ng/g, respectively. Concentrations nearly as high at the respective depths were also found at north Smith Island and at Snug Harbor. The mussel transplant sites at each of these three locations were within 500 m of beaches that had been heavily oiled by the spill. The relative concentrations of PAH and of alkane analytes detected were generally consistent with those of *Exxon Valdez* oil (EVO), indicating up to 281,000 ng EVO/g wet tissue weight. Lower but detectable PAH concentrations were observed at most other transplant locations within PWS, with relative concentrations of PAH and alkane analytes that are generally consistent with those of EVO. The lowest PAH concentrations were found at the control site, Olsen Bay, where total PAH concentration generally ranged from 10 to 20 ng/g, with relative concentrations that were not consistent with EVO.

Alternative sources of dispersed petroleum hydrocarbons accumulated by the caged mussels, including diesel oil distilled in Alaska from North Slope crude oil and submarine oil seeps, were negligible compared with oil spilled from the *Exxon Valdez*.

Concentrations of PAHs consistent with EVO inside PWS declined substantially at all locations by late summer 1989. Total PAH concentration up to 1,470 ng/g was observed at Herring Bay, and was at least an order of magnitude lower at north Smith Island and at Snug

Harbor. Even lower concentrations of total PAHs consistent with EVO were detected at most of the remaining locations inside PWS, although not at Olsen Bay.

In 1990 and 1991, low concentrations of PAHs were sporadically detected at locations adjacent to heavily oiled beaches. Total PAH concentration of about 260 ng/g was detected at 1 m depth at Herring Bay and at Snug Harbor in 1990, while the highest PAH concentrations detected in 1991 were near detection limits.

Petroleum hydrocarbons were detected only sporadically in mussels deployed at locations outside PWS in 1989, and were generally below detection limits in mussels deployed during 1990 and 1991. This may have been due in part to poorer survival of the mussels transplanted to locations outside PWS, resulting from longer transport times.

The concentrations of PAHs we found in the caged mussels are consistent with results of a companion study where direct chemical analyses of subsurface seawater for petroleum hydrocarbons were performed on samples collected 1 to 6 weeks after the spill. Both these studies found the highest concentrations of PAHs attributable to EVO at the 1 m depths of sites adjacent to heavily oiled beaches. Comparison of the results of these two studies however, indicates that the caged mussels accumulated petroleum hydrocarbons from much lower seawater concentrations than could be detected by direct chemical analysis.

The accumulation of petroleum hydrocarbons by the transplanted mussels in 1989 indicates that these hydrocarbons were generally available to subsurface marine fauna, such as fish and invertebrate larvae, the summer after the spill, especially in shallow waters adjacent to oiled beaches. Oil accumulated from seawater at these intermediate trophic levels would serve as a route of oil exposure through ingestion to fauna at higher trophic levels.

INTRODUCTION

The *Exxon Valdez* oil spill (EVOS) of March 24, 1989 in PWS, Alaska, was the largest and most thoroughly studied accidental oil spill in U.S. history. At least 260,000 barrels (41,400 m^3) of Prudhoe Bay crude oil was released into the Sound by the spill, which subsequently contaminated the Alaska coastline and adjacent marine waters to distances more than 1,100 km from the spill origin at Bligh Reef. This spill was scientifically significant because PWS was nearly pristine prior to this spill (Karinen et al. 1993), so confounding petroleum hydrocarbons from sources other than this oil spill were generally absent. Consequently, the chemical fate and biological effects of oil from this spill should be especially unambiguous.

Subsurface seawater concentrations of petroleum hydrocarbons immediately after the spill were relatively low, and generally decreased to the detection limits of direct chemical analysis for practically-sized samples within a few weeks (Short and Harris, In prep.). After this time, additional petroleum hydrocarbons may have been mobilized into subsurface seawater by disturbance of persistent environmental reservoirs of oil, such as the action of storm waves or cleaning activities on oiled beaches. These events may release pulses of oil, possibly in association with fine-grained sediments, into seawater, and these pulses may escape detection by direct chemical sampling methods due to both the temporal and spatial heterogeneity of the pulses. Nonetheless, these pulses may present a chronic, low-concentration source of oil that is available to marine organisms, with impacts that are not well understood.

Caged bay mussels (*Mytilus trossulus*) that are initially free of petroleum hydrocarbons are particularly well suited for monitoring sporadically distributed hydrocarbons in seawater (National Research Council 1980; Phelps and Galloway 1980; Wolfe et al. 1981). *Mytilus edulis*, a closely related species, can filter up to about 340 L of seawater daily (Wildish and Miyares 1990), so the volume of seawater that is effectively sampled by mussels deployed for a month can be ten thousand-fold larger than volumes sampled for direct chemical analysis. Mussels can bioconcentrate hydrocarbons in the lipid compartment by factors as high as 10^6 on a whole tissue wet weight basis (Murray et al. 1991), indicating that depuration rates are slower than accumulation rates, resulting in persistence of some accumulated hydrocarbons for several weeks (Clark and Finley 1975; Ganning et al. 1983; Pruell et al. 1986). Bioconcentrated hydrocarbons are proportionally easier to detect, and give an indication of integrated hydrocarbon concentrations in seawater during the period the caged mussels are deployed. Mussels do not metabolize petroleum hydrocarbons significantly (Vandermeulen and Penrose 1978), so accumulated hydrocarbons may be characteristic of the exposure source.

We deployed mussels in cages along and adjacent to the path followed by the spilled oil for intervals of usually 1 month during the summers of 1989, 1990, and 1991 to determine the distribution of persistent petroleum hydrocarbons in the subsurface seawater column. The mussels originated from a pristine site in southeastern Alaska and were verified as free of petroleum hydrocarbons prior to deployment. We deployed 462 cages of mussels at 22 stations inside PWS and at 16 stations outside PWS adjacent to the Kenai and Alaskan peninsulas and

Kodiak Island. We analyzed mussels from 286 of these cages for 27 alkane and 43 polynuclear aromatic hydrocarbon (PAH) analytes. Our general objectives were to characterize and document petroleum hydrocarbon concentrations found at depths of 1 m, 5 m, and 25 m at the deployment locations and times. The biological relevance of detected hydrocarbons in these mussels is immediate, in that these hydrocarbons are obviously available biologically to the mussels and to other filter-feeding fauna at the same trophic level, and to the diverse fauna at higher trophic levels that feed on mussels.

OBJECTIVES

The original objectives of this study were stated in the State/Federal Natural Resource Damage Assessment Plan for the EVOS of August 1989 (p. 42), as follows:

A. Document water column hydrocarbon concentrations at a range of depths, locations, and times.

B. Quantify injury to water resources.

C. Relate water injury to biological injury.

D. Evaluate trends in ambient water quality through measurements of hydrocarbons in a biological indicator (*Mytilus*) as a surrogate for chemical measurements.

E. Identify potential alternative methods and strategies for restoration of lost use, populations, or habitat where injury is identified.

This document addresses objectives A through D above.

METHODS

Caged Mussel Deployment Stations

Caged mussels were deployed at 38 stations along or adjacent to the oil spill path at least once during the study period (1989-1991). Twenty two of these stations were located inside PWS, and the remainder were adjacent to the Kenai and Alaska peninsulas and Kodiak Island. Caged mussels were usually deployed at these stations for approximately 1 month.

The latitude and longitude of the deployment stations are presented in Tables I-1 and I-3 in Appendix I, together with the periods that mussels were deployed at each station. The

locations of the stations are also depicted in Figures 1 and 2, where the station numbers correspond with those of Tables I-1 & I-3. In addition, Figures 1 and 2 depict the path of the spilled *Exxon Valdez* crude oil, through PWS and along the northwest Gulf of Alaska, respectively. Figure 1 also shows the path of prevailing ocean currents (Galt et al. 1991).

Mussel Collection, Deployment, and Retrieval

Bay mussels were collected a few days before each deployment from Admiralty Island in southeast Alaska. Mussels with shell length greater than 45 mm were held at the Auke Bay Laboratory, then transported by air and then by boat at about 4°C to the deployment stations within 5 days for stations inside PWS, and within 10 days for stations outside PWS. A sample of mussels was taken just prior to each mussel shipment to evaluate hydrocarbon burdens in the mussels prior to deployment, and just after the final deployment of a cruise to determine any hydrocarbon uptake or deterioration of mussel condition during holding of mussels on the vessel.

Deployment cages consisted of nylon-mesh diver collecting bags fitted with rigid perforated polypropylene sheets at the bottom of the bags to support the mussels. Each cage contained 20 mussels. Filled bags were attached to a mooring line at depths of 1, 5, and 25 m (Fig. 3). The two shallower cage depths were chosen to correspond to water column depths sampled in the first 6 weeks after the spill (Short and Harris, In prep.). High mortality among mussels during transport to deployment stations made it necessary to deploy only the 2 shallower bags with 15 mussels per bag at some Alaska peninsula sites in 1989.

Although mussels were usually deployed for about 1 month at each site, deployment periods ranged from 2 to 8 weeks, depending on deployment vessel availability. Also, mussels were deployed for 2 months inadvertently at Herring Bay in PWS in 1989, because this deployment could not be located after 1 month, but was successfully located after 2 months.

When deployed mussels were retrieved, the number of surviving mussels was recorded to provide some indication of stress produced by the exposure environment and pre-exposure handling. Dead or gaping mussels were discarded. Surviving mussels were frozen at -18°C within 2 hours of retrieval, and transported frozen to the Auke Bay Laboratory for storage until analysis.

A condition index was determined for each mussel analyzed to determine whether mussels filtered water during deployment. The index (dry tissue weight/internal shell volume x 100) was adapted from Higgens (1938) and Crosby and Gale (1990). The dry tissue weight of each mussel was calculated as the product of the wet tissue weight and the ratio of dry weight and wet weight measured for each sample homogenate (see below). Shell volumes were calculated as the ratio of twice the weight of sand that could be contained in one shell valve and the apparent density of the sand. A stable or increased condition index was assumed to indicate that the mussel filtered an amount of water adequate to at least maintain its condition during deployment.

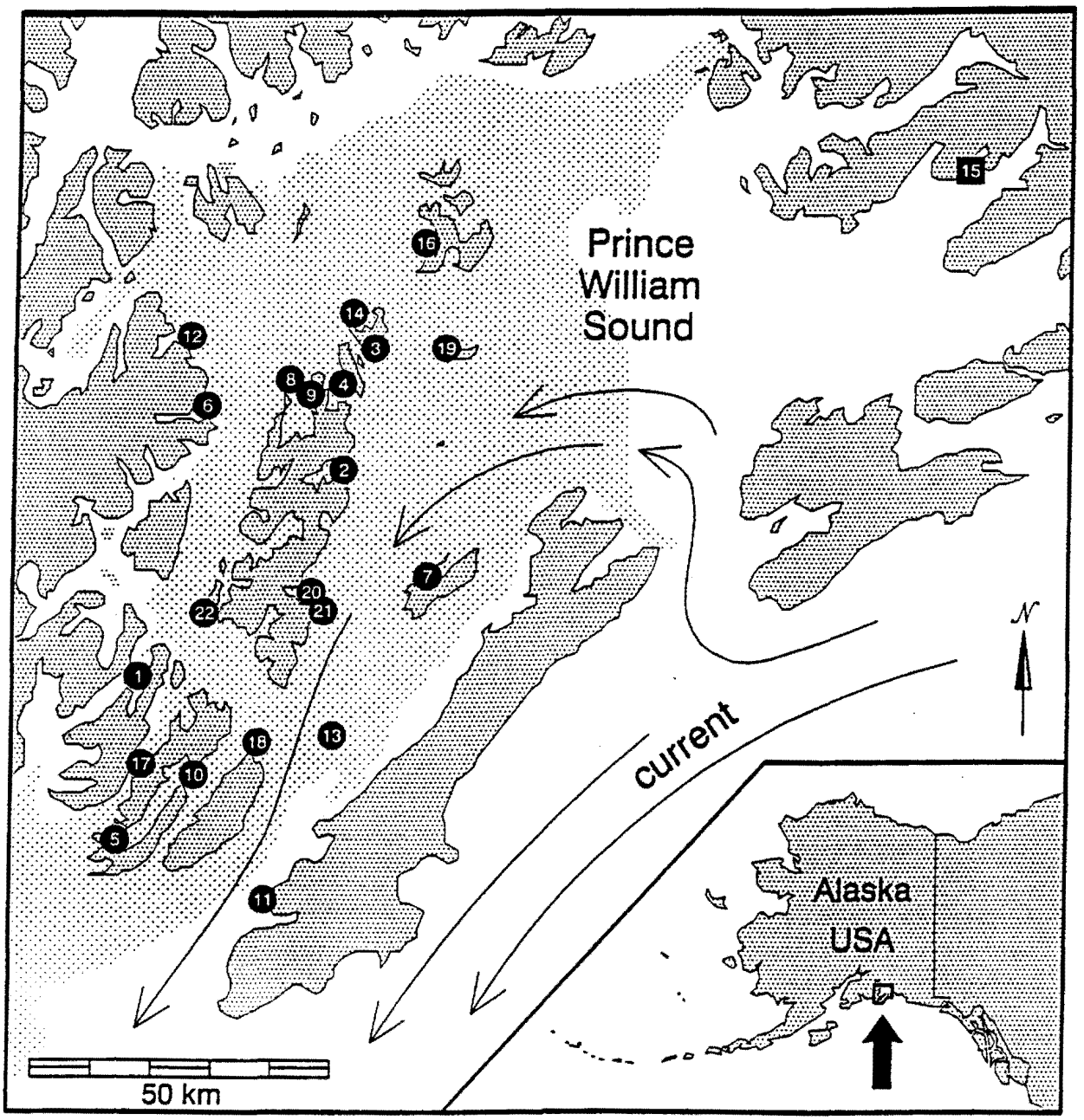

Figure 1.--Station locations in PWS, Alaska, where caged mussels were deployed subsequent to the EVOS spill of March 24, 1989. Station numbers within symbols correspond with the station numbers of Table I-1 in Appendix I. Arrows indicate the direction of prevailing oceanic currents through the Sound (Galt et al. 1991). Shaded area indicates the path of surface oil through the Sound. ■ indicates control site.

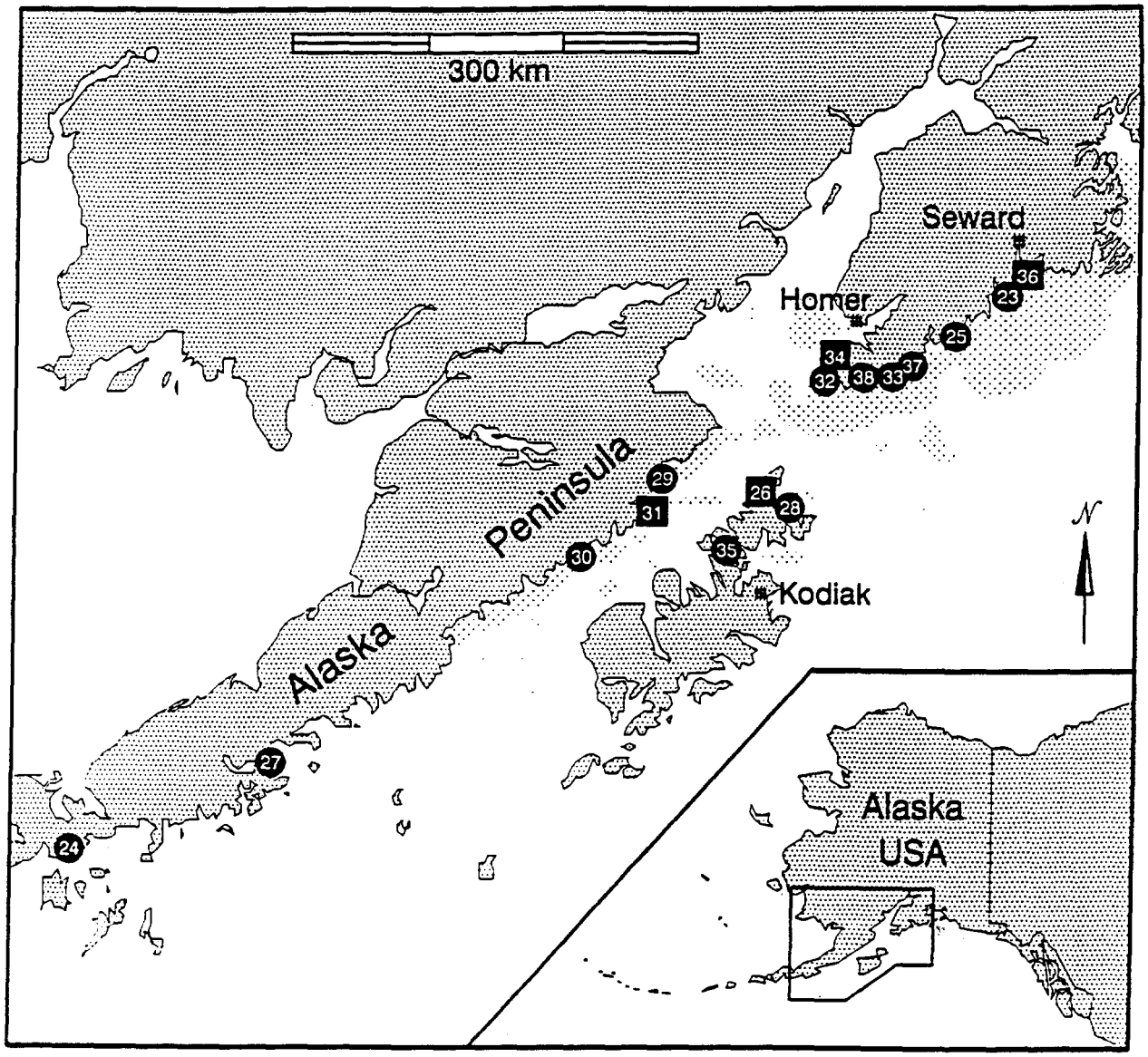

Figure 2.--Station locations in the northwestern Gulf of Alaska where caged mussels were deployed subsequent to the EVOS of March 24, 1989. Station numbers within symbols correspond with the station numbers of Table I-3 in Appendix I. Shaded area indicates the path of surface oil in the Gulf. ■ indicates control sites.

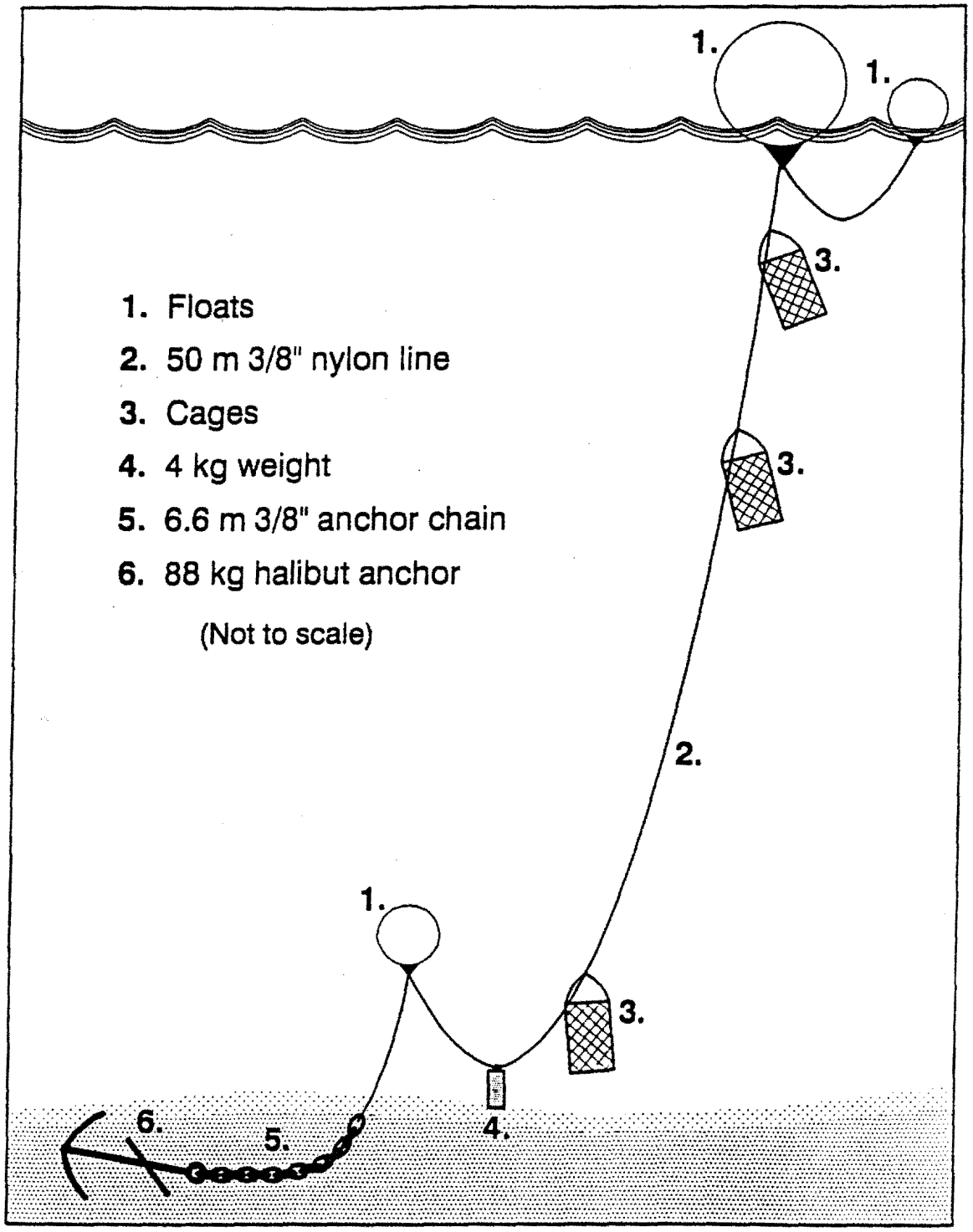

Figure 3.--Apparatus used to deploy caged mussels at deployment stations in PWS, Alaska, and along the southern coast of Alaska following the EVOS on March 24, 1989. This apparatus was used to suspend mussel cages at depths of 1, 5, and 25 m for periods ranging from 2 to 8 weeks.

Native Mussel Collection

Native mussels were collected in 1989 and 1990 from intertidal areas near caged mussel sites at Herring Bay, Olsen Bay, Sleepy Bay, Smith Island, and Snug Harbor to compare levels of biologically available hydrocarbons in the nearshore water column to levels in the adjacent intertidal. Sample collection, handling, storage, and analysis procedures were those used for caged samples.

Mussel Selection for Analysis

Mussels deployed inside PWS during the first deployment in May 1989 were analyzed in triplicate to assess the variance in hydrocarbon concentrations accumulated by mussels. Mussels from the remaining deployments, native mussels, and pre-deployment mussels were usually analyzed singly, with some of these analyzed as duplicates, to minimize analysis costs.

Of the mussels deployed outside PWS, only those from the shallowest (usually 1 m) deployment depths in July 1990 were analyzed. Mussels from the deeper deployment depths were not analyzed because hydrocarbons characteristic of oil contamination were not evident in mussels deployed at the shallower depths, and results from the 1989 deployments indicated the highest concentrations of these hydrocarbons in mussels occurred at the 1 m depth.

Sample Labeling and Chain of Custody

Sample labels included site name, type of sample, Julian date of sampling, sample depth (if applicable), and replicate number. The record of each person who had custody of samples, the date, time, and location of custodial transfer; and signatures of transferring parties are on file with Mr. Sid Korn at the Auke Bay Laboratory. Shipping containers were cross-wrapped with custody tape signed and dated by the person shipping the containers.

Dry Tissue Weight Determination

Ratios of mussel tissue wet and dry weights were measured by dehydrating 1 g of homogenized whole-mussel tissue for 24 h at 65°C and weighing the tissue mass remaining.

Preparation of Mussels for Hydrocarbon Analysis

Mussels were prepared and analyzed following procedures presented in detail by Larsen et al. (1992) Briefly, soft tissues of at least three mussels from each mussel cage were mechanically homogenized, and about 10 g of the homogenate was added to 70 g anhydrous sodium sulfate for dehydration, and spiked with 500 µL hexane solution containing five alkane and six aromatic deuterated surrogate hydrocarbon standards (listed in Table II-1, Appendix II).

Hydrocarbons were extracted from mussels by maceration with dichloromethane. The mixture of homogenate, sodium sulfate, and surrogate standards was macerated mechanically for

1 min, with each of three successive 50 mL aliquots of dichloromethane, and the dichloromethane separated by filtration through an additional 10 g sodium sulfate on a combusted glass-fiber filter after each maceration. The filters and filtered solids were macerated together after the first filtration. The combined dichloromethane extracts were reduced in volume over steam and exchanged with hexane to a final volume of ca 1 mL.

Extracted alkane and aromatic hydrocarbons were separated by silica gel-alumina column chromatography. The chromatographic columns consisted of 20 g silica gel (de-activated with 5% water) above 10 g alumina in a 20 mm id glass column filled with pentane. The alkane hydrocarbons eluted with 50 mL pentane, followed by the aromatic hydrocarbons that eluted with 250 mL 1:1 pentane:dichloromethane (by volume). The pentane solutions containing the alkane hydrocarbons from the samples were each reduced in volume over steam and exchanged with hexane to a final volume of ca 1 mL, spiked with 50 µL hexane internal standard containing 42 ng/µL dodecylcyclohexane (DCH) for estimating recoveries of the deuterated alkane hydrocarbon surrogate standards added initially, and stored for analysis by gas chromatography. The pentane:dichloromethane solutions containing the aromatic hydrocarbons were reduced in volume over steam to a final volume of ca 0.5 mL, and stored for further purification before analysis by gas chromatography/mass spectrometry.

Aromatic hydrocarbons from the sample extracts were further purified by gel-permeation high performance liquid chromatography. The injection volume was 0.5 mL into dichloromethane flowing at 7 mL/min through two size-exclusion gel columns (Phenomenex, phenogel, 22.5 mm x 250 mm, 100 Å pore size) connected sequentially. The initial 110 mL eluate was discarded, and the following 53 mL was concentrated over steam and exchanged with hexane to a final volume of ca 1 mL, then spiked with 25 µL hexane containing 80 ng/µl hexamethylbenzene (HMB) as an internal standard for estimating recoveries of the deuterated aromatic hydrocarbon surrogate standards added initially.

PAH Analysis

1. Instrumental Method

PAHs in samples and in standards were separated and analyzed with a Hewlett-Packard 5890 series II gas chromatograph equipped with a 5970B mass selective detector (MSD). The injection volume was 2 µL into a splitless injection port at 300°C. The initial oven temperature was 60°C, increasing at 10°C per minute immediately following injection to a final temperature of 300°C which was maintained for 25 minutes. The chromatographic column was a 25 m fused silica capillary (0.20 mm ID) coated with a 0.33 µm thick film of 5% phenyl methyl silicone. The helium carrier gas was maintained at 70 kPa inlet pressure.

The chromatographic column eluted into the 70 eV electron impact MSD through a 300°C transfer line. The ionizer temperature and pressure were 240°C and 10^{-5} torr, respectively. The MSD was operated in the selected ion monitoring (SIM) mode, and the specific ions and retention time windows of the SIM Table were chosen to detect all the calibrated aromatic

hydrocarbons, the surrogate standards, and the 200 most prominent peaks found on the total ion chromatogram of an aliquot of crude oil from the hold of the *Exxon Valdez* analyzed as a sample with the MSD operating in the scan mode. The MSD was tuned with mass 69, 102, and 512 fragments of perfluorotributylamine before each batch of samples was analyzed.

2. PAH Identification

A. Calibrated PAHs

Calibrated PAHs were identified based on retention time and ratio of two mass fragment ions characteristic of each hydrocarbon. Calibrated PAHs are listed in Table II-2, Appendix II, and include dibenzothiophene and the aromatic hydrocarbons in Standard Reference Material (SRM) 1491 supplied by the National Institute of Standards and Technology (NIST). Also listed in Table II-2, Appendix II are the mass of the quantification ion, the mass of the confirmation ion, and the mean ratio of these two ions in the calibration standards. Chromatographic peaks were identified as a calibrated aromatic hydrocarbon if both ions were co-detected at retention times within ±0.15 minutes of the mean retention time of the hydrocarbon in the calibration standards, and if the ratio of the confirmation ion to the quantification ion was within ±30% of the expected ratio.

B. Uncalibrated PAHs

Uncalibrated PAHs include the alkyl-substituted isomers of naphthalene, fluorene, dibenzothiophene, phenanthrene, fluoranthene, and chrysene listed in Table II-3, Appendix II. Uncalibrated aromatic hydrocarbons were identified by the presence, within a relatively wide retention time window, of a single mass fragment ion that is characteristic of the uncalibrated aromatic hydrocarbon sought. Table II-3 lists the mass of the fragment ions used for both identification and measurement, and the retention time windows used. Retention time windows for uncalibrated aromatic hydrocarbons were much wider than those for calibrated aromatic hydrocarbons. Mass fragments of uncalibrated aromatic hydrocarbons that eluted outside the windows listed in Table II-3 would not have been detected.

3. PAH Measurement

A. Calibrated PAHs

Concentrations of calibrated PAHs in the mussel extracts were estimated by a method employing multiple internal standards and a five-point calibration curve for each calibrated PAH. The deuterated surrogate standards that were initially spiked into each sample are treated as internal standards, where each surrogate compound is associated with one or more calibrated PAHs (see Tables II-1 and II-2, Appendix II). A calibration curve for each calibrated PAH and batch of samples analyzed was based on five different hexane dilutions of dibenzothiophene and NIST SRM 1491, where 1 mL of each dilution contained the same amount of deuterated surrogate standard as was initially spiked into the samples. Each calibration curve was derived

from linear regression of the ratio of MSD/SIM quantification ion response of the calibrated PAH and the associated deuterated surrogate standard as the ordinate, and the ratio of the amount of calibrated PAH and the amount of deuterated surrogate in 1 mL of each of five calibration standards as the abscissa. The highest calibration standard was 25 times more concentrated than the lowest standard, and PAH concentrations in the lowest standard corresponded with PAH concentrations in a 10 g sample of mussel tissue ranging from 3.6 to 8.3 ng/g (or 3 to 22 times the PAH concentrations that would have resulted from samples containing PAHs at the method detection limits, see below).

The amount of a calibrated PAH in the dichloromethane extract of a mussel tissue sample was calculated as the product of the inverse of the calibration curve regression line slope, the ratio of MSD/SIM quantification ion response to the calibrated PAH and the associated deuterated surrogate standard for the sample extract, and the amount of the deuterated surrogate standard associated with the PAH. The concentration of a calibrated PAH in the mussel tissue sample was calculated as the ratio of the amount of the hydrocarbon in the dichloromethane extract and the measured wet weight of the homogenate aliquot analyzed (about 10 g). This procedure compensated for losses of calibrated PAHs during sample preparation.

B. Uncalibrated PAHs

Concentrations of uncalibrated PAHs in the mussel tissue samples were determined with calibration curves and procedures for the most similar calibrated PAH. The MSD/SIM response to the quantification ion of each uncalibrated PAH identified, bearing the same carbon number of substituents, and derived from the same unsubstituted PAH, were summed; this sum was used in place of the most similar calibrated PAH response in the procedure described above for calculating concentrations of calibrated PAHs. For example, the fluorene calibration curve and procedure was used for all the methyl-substituted fluorenes identified, but the 1–methylphenanthrene calibration curve and procedure was used for all the alkyl-substituted phenanthrenes.

4. Detection Limits

A. Calibrated PAHs

Method detection limits (MDLs) were estimated for each calibrated PAH analyte following the procedure described in Appendix B, 40 CFR Part 136. These estimates of detection limit concentrations are indicated for each calibrated PAH analyte in Table III-1, Appendix III.

B. Uncalibrated PAHs

Method detection limits for uncalibrated PAHs were not experimentally determined. Consequently, detection limits for these analytes were arbitrarily assumed as the MDL of the most closely related calibrated PAH analyte.

5. Quality Assurance

A. String Structure and Quality Control Samples

Samples were analyzed in batches consisting of 12 samples, which together with five calibration standards and six quality control samples arranged in a specific sequence, are denoted as strings. Replicated samples were analyzed in different strings. The six quality control samples included two mid-level calibration standards, two reference samples, and two method blanks, one of which was spiked with hydrocarbon standards (denoted as "spiked blank"). One each of the mid-level calibration standards and of the reference samples, and the method blank were analyzed in the middle of each string, and the remaining three quality control samples were analyzed at the end of each string.

The mid-level calibration standards were analyzed to assess calibration accuracy and to verify instrument stability during analysis of the string; the results are summarized in Table IV-2, Appendix IV. This assessment of accuracy was directly related to NIST standards for all calibrated PAHs except dibenzothiophene. The reference samples were prepared as 10 g aliquots of NIST SRM 1974 enriched with a solution of selected PAH analytes prepared by NIST (denoted as "QC-TEST-1") to tissue concentrations ranging from 19 to 205 ng PAH/g, and were analyzed to assess analytical precision within and among strings for the selected PAH analytes. The results of the reference sample analyses are summarized in Table IV-1, Appendix IV.

Method blanks were analyzed to assess contaminants introduced during processing and analysis. Mussel tissue and method blank samples were processed and analyzed identically, except the method blanks contained no mussel tissue. Also, method blanks spiked with an amount of NIST SRM 1491 and dibenzothiophene equivalent to amounts that would be present from sample concentrations of 50 to 100 ng PAH/g, were analyzed to assess overall method accuracy. The results of the spiked method blank sample analyses are summarized in Table IV-3, Appendix IV.

B. Calibration Curve Linearity and Surrogate Standard Recoveries

Calibration curve linearity, expressed as the square of the correlation coefficient of regression (r^2), was greater than 0.99 for more than 95% of the PAH calibration curves. Recoveries of the deuterated surrogate standards that were added to each sample were estimated by comparing the ratio of deuterated surrogate response and the HMB internal standard of a sample with the mean of the same ratio derived from the calibration standards of the sample string (1 mL of each calibration standard contains the same amounts of these standards as was added to each sample, and each sample was concentrated to about 1 mL for instrumental analysis). PAHs that were associated with deuterated surrogate standard recoveries of less than 30%, or more than 150%, were treated as missing, affecting 1.3% of the PAH data.

C. Analytical Precision and Accuracy

The precision of the analytical procedure for selected PAH analytes, expressed as the coefficient of variation (CV, i.e., the ratio of the standard deviation and the mean of the calibrated PAHs found in the reference samples, expressed as percent) calculated from the results of the 46 strings analyzed, ranged from 10% to 21% (median 13%; Table IV-1, Appendix IV). Mean accuracy, determined as the ratio (expressed as percent) of the mean amount of calibrated PAH found in the NIST calibration check samples of the 46 strings analyzed for this study and the amount added, ranged from 98.7% to 107.1% (median 101.3%); corresponding CV ranged from 1.5% to 12.6% (median 4.5%; Table IV-2, Appendix IV). Mean accuracy based on the spiked blank samples ranged from 85.3% to 114.1% (median 101.8%); corresponding CV ranged from 5.6% to 18.6% (median 9.1%; Table IV-3, Appendix IV).

D. Contaminants in Method Blanks

Calibrated PAHs were detected above respective MDLs five times in the analysis of 25 calibrated PAHs in each of 46 method blanks (i.e., detection frequency = 5/(25x46) = 0.0044). Uncalibrated PAHs were detected above estimated MDLs 14 times, in the analysis of 18 uncalibrated PAHs in each of the 46 method blanks.

Alkane Hydrocarbon Analysis

1. Instrumental Method

Alkanes in samples and in standards were separated and analyzed with a Hewlett-Packard 5890 series II gas chromatograph equipped with a flame ionization detector (FID). The injection volume was 1 µL into a splitless injection port at 300°C. The 60°C initial oven temperature was maintained for 1 minute, then increased at 6°C per minute to a final temperature of 300°C which was maintained for 26 minutes. The chromatographic column was a 25 m fused silica capillary (0.20 mm ID) coated with a 0.33 µm thick film of 5% phenyl methyl silicone. The helium carrier gas flow rate was 0.80 mL per minute, and the column effluent was combined with 34 mL per minute nitrogen make-up gas before entering the FID. The FID was operated with hydrogen and air flowing at 33 and 410 mL per minute, respectively.

2. Alkane Hydrocarbon Identification

Alkane hydrocarbons were identified based on their retention times. Any peak detected above the integrator threshold within ±0.25% of the mean retention time of an alkane in the calibration standards was identified and quantified as that alkane. The calibration standards were prepared at our Laboratory, and contained the normal alkanes from decane through triacontane, dotriacontane, tetratriacontane, and 2,6,10,14-tetramethylpentadecane (pristane).

3. Alkane Hydrocarbon Measurement

Concentrations of calibrated alkanes in mussel tissues were estimated by an internal-standard method employing a five-point calibration curve for each calibrated alkane hydrocarbon. The deuterated surrogate standards that were initially spiked into each sample were treated as internal standards, where each surrogate compound was associated with a group of calibrated alkanes (see Tables II-1 and II-4, Appendix II). A calibration curve for each calibrated alkane and batch of samples analyzed was based on five different hexane dilutions of the concentrated alkane standard prepared at our Laboratory, where 1 mL of each dilution contained the same amount of deuterated surrogate standard as was initially spiked into the samples. Each calibration curve was derived from linear regression of the ratio of FID response of the calibrated alkane and the associated deuterated surrogate standard as the ordinate, and the ratio of the amount of calibrated alkane and the amount of deuterated surrogate in 1 mL of each of five calibration standards as the abscissa. The highest calibration standard was 50 times more concentrated than the lowest standard, and alkane concentrations in the lowest standard corresponded with alkane concentrations in a 10 g sample of mussel tissue ranging from 41 to 128 ng/g (or 3 to 21 times the alkane concentrations that would have resulted from samples containing alkanes at the method detection limits, see below).

Concentrations of 2,6,10,14-tetramethylhexadecane (phytane) were estimated as the mean of results derived from the calibrations curves for octadecane and nonadecane, because a suitable standard for this alkane was not available. The accuracy of this procedure, however, was verified with NIST-derived standards (see below).

Amounts of uncalibrated alkane hydrocarbons and the cumulative amount of hydrocarbons in the unresolved complex mixture (UCM) were calculated with respective detector responses and the calibration curve for hexadecane. Flame ionization detector response due to the UCM was determined as the difference of the total FID response and the response due to distinguishable peaks

4. Detection Limits

Method detection limits were estimated for each calibrated alkane analyte following procedure described in Appendix B, 40 CFR Part 136. These estimates of detection limit concentrations are indicated for each calibrated alkane analyte in Table III-3, Appendix III.

5. Quality Assurance

A. String Structure and Quality Control Samples

Samples were analyzed in strings comprising 12 samples, 5 calibration curve standards, and 7 quality control samples arranged in a specific sequence. Replicated samples were analyzed in different strings. The seven quality control samples included two mid-level calibration standards, two reference samples, a method blank, and a NIST-derived alkane standard. One

each of the mid-level calibration standards and of the reference samples, and the method blank were analyzed in the middle of each string, and the remaining four quality control samples were analyzed at the end of each string.

The mid-level calibration standards were analyzed to verify instrument stability during analysis of the string; the results are summarized in Table IV-4, Appendix IV. The reference samples were prepared as 10 g aliquots of NIST SRM 1974 enriched with a solution of alkanes prepared at our Laboratory to tissue concentrations ranging from either (a) 490 to 1,300 ng alkane/g, or (b) 49 to 130 ng alkane/g, and were analyzed to assess analytical precision within and among strings for the alkane analytes; these are respectively denoted as high and low reference samples. The results are summarized in Table IV-5, Appendix IV.

Method blanks were analyzed to assess contaminants introduced during processing and analysis. Mussel tissue and method blank samples were processed and analyzed identically, except the method blanks contained no mussel tissue. Method blanks spiked with an amount of Laboratory-prepared standards equivalent to amounts that would be present from sample concentrations of 400 to 1,300 ng alkane/g were analyzed to assess overall method accuracy. The results of analyses of the spiked method blanks are summarized in Table IV-6, Appendix IV. Also, a NIST-derived alkane standard (denoted as QA-CH-2) was analyzed with each string to relate accuracy assessments of alkanes with NIST standards; results of these analyses are summarized in Table IV-7, Appendix IV.

B Calibration Curve Linearity and Surrogate Standard Recoveries

Calibration curve linearity, expressed as the square of the correlation coefficient of regression (r^2), was greater than 0.99 for more than 95% of the alkane calibration curves. Recoveries of the deuterated surrogate standards that were added to each sample were estimated by comparing the ratio of deuterated surrogate response and the DCH internal standard of a sample with the mean of the same ratio derived from the calibration standards of the sample string (1 mL of each calibration standard contained the same amounts of these standards as was added to each sample, and each sample was concentrated to about 1 mL for instrumental analysis). Alkanes that were associated with deuterated surrogate standard recoveries of less than 30%, or more than 150%, were treated as missing, affecting 2.3% of the alkane data.

C Analytical Precision and Accuracy

The precision of the analytical procedure was evaluated based on results of the two reference samples analyzed with each string. Alkane CV in the high reference samples ranged from 7.8% to 29.4% (median 9.5%), and in the low reference samples ranged from 12.2% to 52.1% (median 23.4%; Table IV-4, Appendix IV). Mean accuracy, determined as the ratio (expressed as percent) of the mean amount of calibrated alkane found in the calibration check samples of the 46 strings analyzed for this study and the amount added, ranged from 99.4% to 103.6% (median 100.6%); corresponding CV ranged from 0.8% to 18.5% (median 1.7%; Table IV-5, Appendix IV). Mean accuracy based on the spiked blank samples ranged from 93.5% to

113.0% (median 100.2%); corresponding CV ranged from 4.9% to 18.4% (median 6.7%; Table IV-6, Appendix IV). Mean accuracy based on the NIST QA-CH-2 standards ranged from 88.3% to 151.9% (median 96.9%); corresponding CV ranged from 6.0% to 52.9% (median 9.0%; Table IV-7, Appendix IV).

D. Contaminants in Method Blanks

Calibrated PAHs were detected above respective MDLs 18 times in the analysis of 25 calibrated PAHs in each of 46 method blanks.

Data Analysis

I. Determination of EVO-PAH

Exxon Valdez crude oil was identified as the source of PAHs in mussels if the relative concentrations of phytane and the PAHs were consistent those of the spilled oil, except for characteristic alterations of composition due to weathering. These characteristic alterations include: (1) preferential loss of less substituted PAH homologues, and (2) preferential loss of lower molecular weight PAH.

The PAHs prevalent in *Exxon Valdez* crude oil were summed and denoted as EVO-PAHs for mussels identified as contaminated by the oil. The EVO-PAHs included all the alkyl-PAH homologues listed in Table II-3, Appendix II; their corresponding unsubstituted homologues; and biphenyl.

II. Detection limit convention for replicated samples

In cases where hydrocarbon concentrations were replicated and were near detection limits (resulting in some of the replicated concentration above the MDL for an analyte and some below) the analyte was reported as detected in Tables III-1 through III-14, Appendix III, if the concentration mean was above the MDL. If the concentration mean was below the MDL, the analyte was reported as below the MDL in these tables.

RESULTS

The concentrations of the calibrated PAHs, the uncalibrated PAHs, and the alkanes determined in this study are tabulated in Appendix III, in Tables III-1 through III-14. Also listed in Tables III-1 through III-3 are method detection limits for calibrated aromatic and alkane hydrocarbons, and results of analysis of 1 µL of crude oil from the cargo hold of the *Exxon Valdez*. Following is a summary and interpretation of the results in these Tables.

I. Inside PWS

A. May 1989

Petroleum hydrocarbons derived from *Exxon Valdez* crude oil were detected at all stations and at all depths of the May 1989 deployment inside PWS, except at the control station at Olsen Bay. The pattern of relative concentrations of PAHs and of phytane were consistent with patterns observed in *Exxon Valdez* crude oil and in mussels on oiled beaches. The PAHs detected in these caged mussels included chrysenes, which obviates diesel oil derived from North Slope crude oil as a significant source of oil in the caged mussels.

1. Sites Near Heavily Contaminated Beaches

Hydrocarbons characteristic of *Exxon Valdez* crude oil were highest in caged mussels deployed at 1 m depth adjacent to heavily oiled beaches in May 1989. Total hydrocarbon concentration, which included the UCM and both calibrated and un-calibrated alkane hydrocarbons and PAHs, was about 100,000 ng/g wet tissue in mussels after deployment at 1 m depth in Herring Bay, a heavily oiled embayment, and derived primarily from *Exxon Valdez* crude oil. Mean concentrations of EVO-PAHs and of phytane in these mussels were 5,740 ng/g and 815 ng/g, respectively, which are proportionally similar to respective concentrations in *Exxon Valdez* crude oil (Fig 4) Hydrocarbon concentrations were nearly as high in mussels deployed at 1 m depth near Smith Island and in Snug Harbor: mean total EVO-PAH concentration in mussels at these two stations was 3,090 ng/g and 1,040 ng/g, respectively, and concentrations of phytane and of total hydrocarbons varied proportionally (Fig. 4). These three stations were adjacent to beaches that were heavily oiled by spilled *Exxon Valdez* crude oil.

Hydrocarbons derived from *Exxon Valdez* crude oil in caged mussels generally decreased with deeper deployment depths. Mean EVO-PAH concentration in mussels at 5 m depth was 40% to 63% of the concentration at 1 m at the three stations adjacent to heavily oiled beaches during May 1989, and at 25 m depth was 6% to 15%. Also, concentrations of other hydrocarbons characteristic of *Exxon Valdez* crude oil decreased proportionally in these caged mussels (Fig. 5).

2. Other Stations Along the Oil Spill Path

At other stations along or adjacent to the path of the spilled oil during May 1989, distribution patterns of petroleum hydrocarbons in caged mussels were similar to those evident at stations adjacent to heavily oiled beaches, but concentrations of these hydrocarbons were substantially lower. At the five stations located along the path of the spilled oil (Bainbridge Passage, Elrington Passage, Johnson Cove, Prince of Wales Passage, and Squire Island), mean EVO-PAH concentration in caged mussels deployed at 1 m depth ranged from 89 ng/g to 425 ng/g. Similarly, at the three stations located near the margin of the path of the spilled oil (Main Bay, Montague Strait, and Outside Bay) the concentration ranged from 61 ng/g to 91 ng/g in caged mussels deployed at 1 m depth. Although petroleum hydrocarbon concentrations in caged

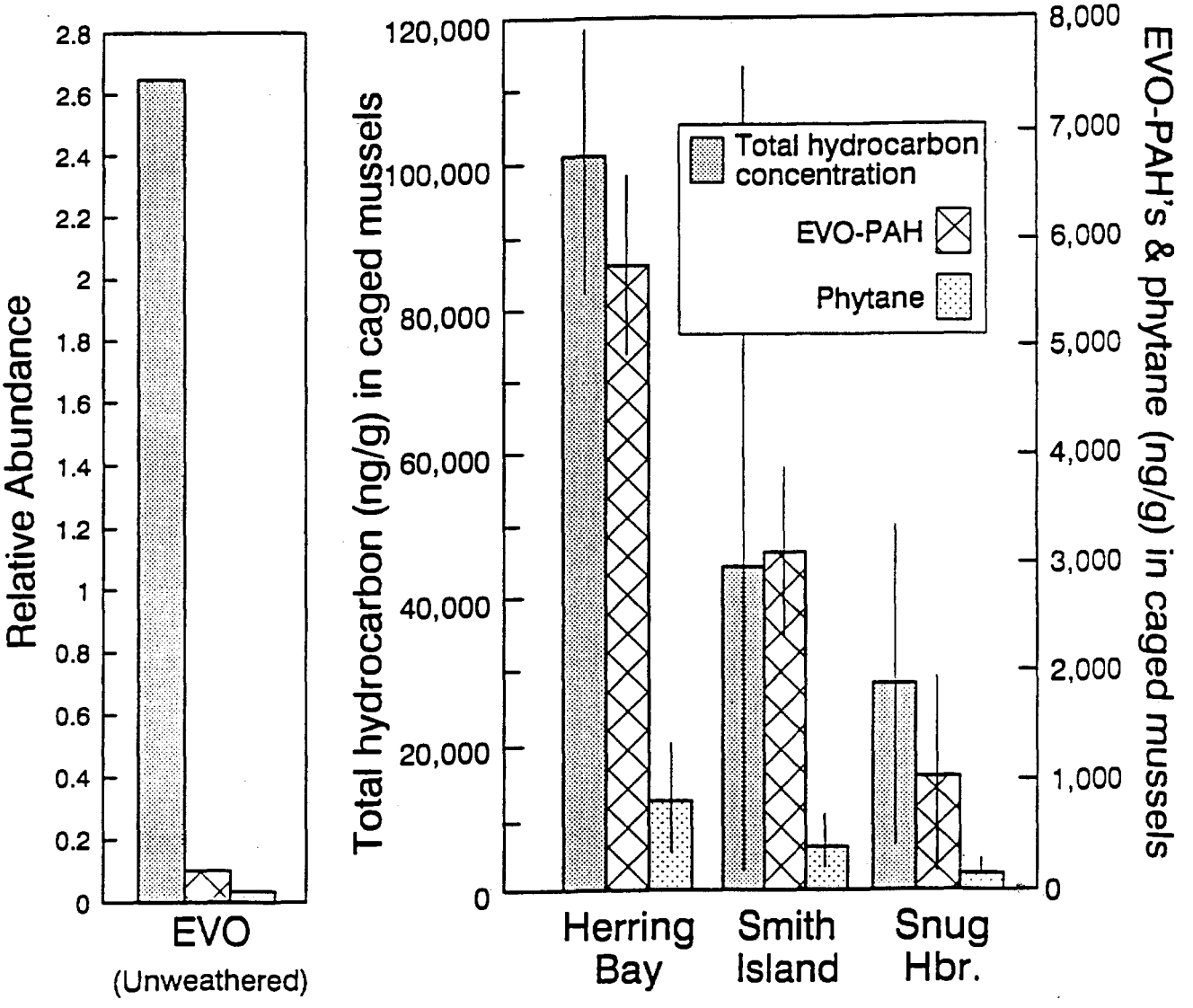

Figure 4.--Comparison of petroleum hydrocarbons characteristic of *Exxon Valdez* crude oil in caged mussels deployed at 1 m depth at stations adjacent to heavily oiled beaches during May, 1989, with the relative abundance of these hydrocarbons in unweathered crude oil from the hold of the *Exxon Valdez*, following the EVOS of March 24, 1989, in PWS, Alaska. Compared are total measured hydrocarbons, the sum of the most abundant PAHs in *Exxon Valdez* crude oil (EVO-PAH), and phytane, a branched alkane abundant in petroleum. In mussels, concentrations are ng/g wet tissue weight, with associated 95% confidence intervals; in *Exxon Valdez* crude oil, concentrations are relative.

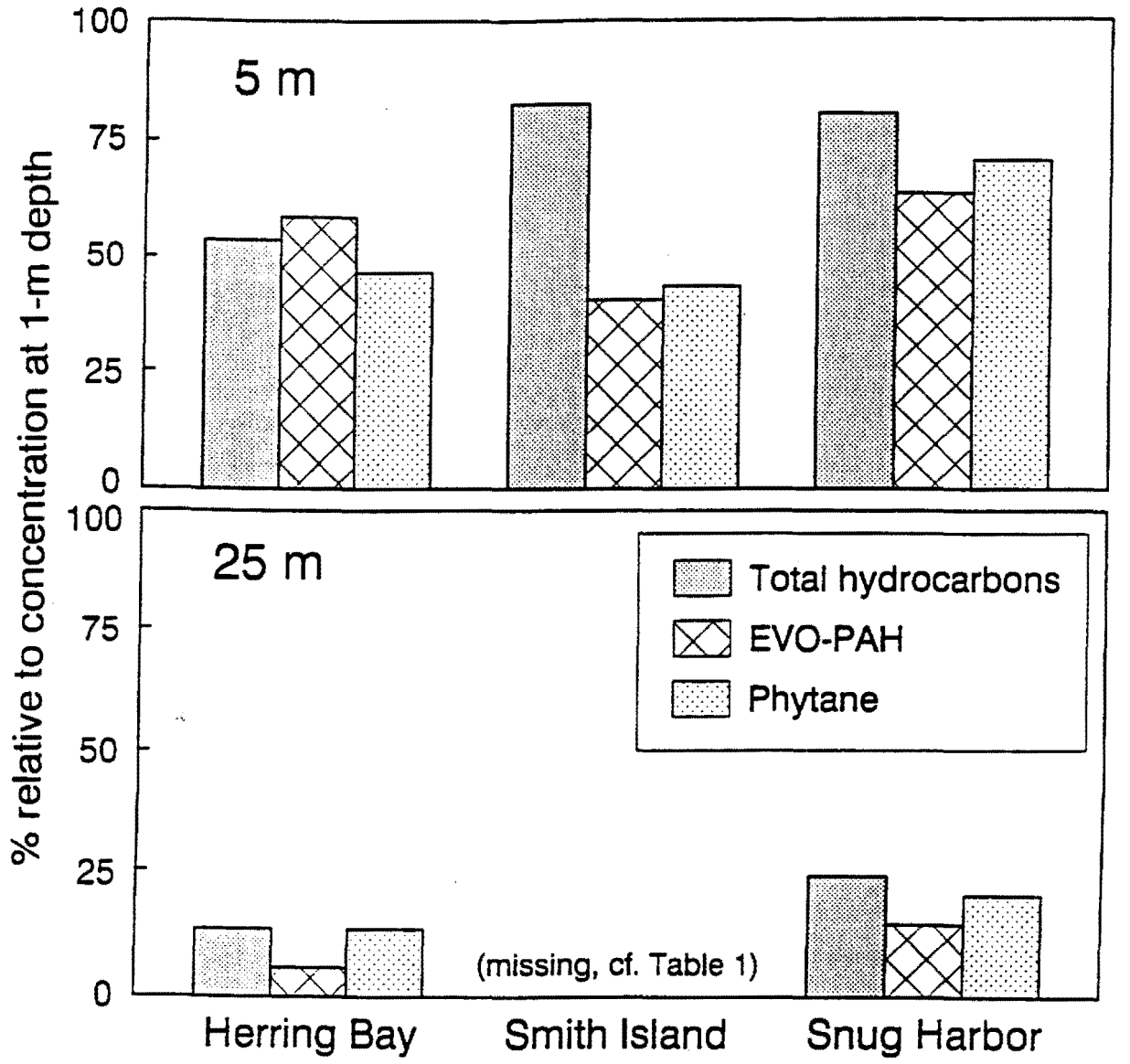

Figure 5.--Comparison of total measured hydrocarbons, EVO-PAH, and phytane in caged mussels deployed at 5 m and 25 m depths at stations adjacent to heavily oiled beaches during May, 1989, relative to respective 1 m deployment depth concentrations, following the EVOS of March 24, 1989, in PWS, Alaska. EVO-PAH is the sum of the most abundant PAHs in *Exxon Valdez* crude oil.

mussels often decreased with deployment depth at these stations, the trend was not consistent, especially at the less-contaminated stations. However, at all these stations and deployment depths, relative concentrations of petroleum hydrocarbons in caged mussels were broadly similar to those in *Exxon Valdez* crude oil.

3. Control Station (all sampling times)

Hydrocarbons characteristic of petroleum were consistently lowest in caged mussels deployed at the control station at Olsen Bay. Of the 24 mussel cages deployed at Olsen Bay during the course of this study from 1989 through 1991, the median summed PAH concentrations used to define the EVO-PAHs was less than 10 ng/g (Fig. 6). These summed PAH concentrations exceeded 30 ng/g in mussels of one cage only (25 m depth, May 1989), and naphthalene accounted for over 70% of the PAHs in the mussels of this cage. Total hydrocarbons in the mussels of these 24 cages ranged from 8 ng/g to 16,700 ng/g, with phytane consistently below detection limits.

4. Hydrocarbon in Mussels Prior to Deployment

Mussels were substantially free of petroleum hydrocarbons prior to deployment. Concentrations of the summed PAHs used to define the EVO-PAHs ranged up to 18 ng/g (median, 8 ng/g) in mussels prior to deployment. Total hydrocarbons ranged up to 6,600 ng/g, with phytane consistently below detection limits.

B. Temporal Decline, Summer 1989

Petroleum hydrocarbons consistently declined in successively deployed caged mussels after May 1989. At the three stations adjacent to heavily oiled beaches, EVO-PAHs accumulated by caged mussels at 1 m depth during the August 1989 deployment were about 10% those of corresponding stations and depth during the May 1989 deployment (Fig. 7), and similar declines occurred at other depths and for other petroleum hydrocarbons.

Petroleum hydrocarbons were detected progressively less frequently and at generally lower concentrations in mussels deployed at other stations along or adjacent to the spill path after May 1989. We detected EVO-PAHs in 67% of mussel cages deployed during June 1989 inside PWS, and in 19% and 29% of mussel cages deployed during July and August, respectively. The highest concentration of EVO-PAHs found in these mussels was 80 ng/g, 69 ng/g, and 41 ng/g for the June, July, and August deployments, respectively.

Mussels deployed at Herring Bay in June 1989 and retrieved after 2 months accumulated substantially more petroleum hydrocarbons than mussels deployed there in July 1989 and retrieved after 1 month. Concentrations of EVO-PAH and of phytane were generally 2 to 4 times higher in the mussels deployed for 2 months compared with those deployed for 1 month at corresponding depths (Appendix III, Tables III-1, -2, and -3).

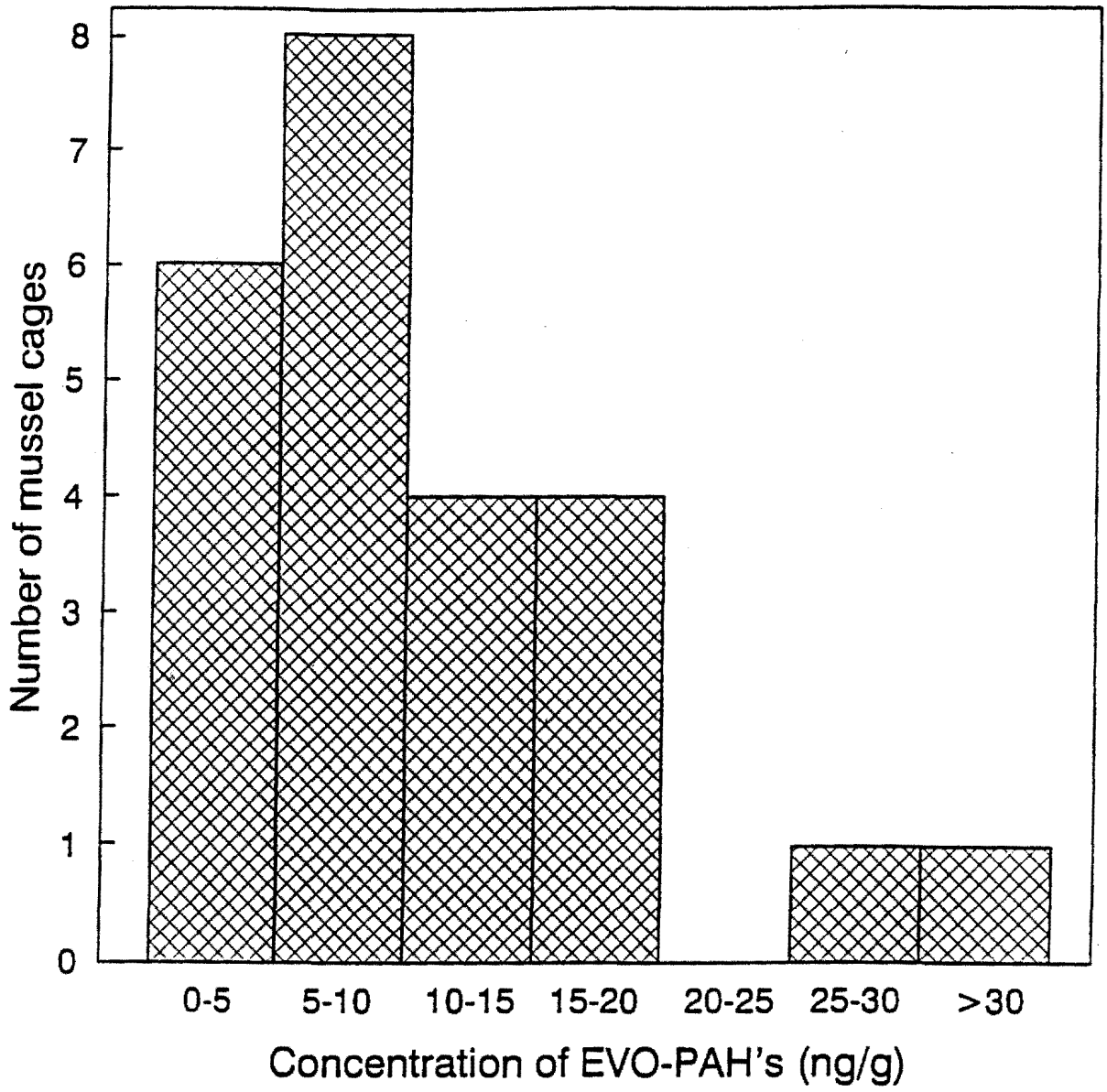

Figure 6.--Concentration distribution of EVO-PAH in all caged mussels deployed at the Olsen Bay control station in PWS, Alaska, following the EVOS of March 24, 1989 in the Sound. EVO-PAH is the sum of the most abundant PAHs in *Exxon Valdez* crude oil. The EVO-PAH concentration intervals are ng/g wet tissue weight of mussels, and N is the number of caged mussel observations within each concentration interval. The mean EVO-PAH concentration of the sample in the interval exceeding 30 ng/g was 46 ng/g, and was more than 70% naphthalene.

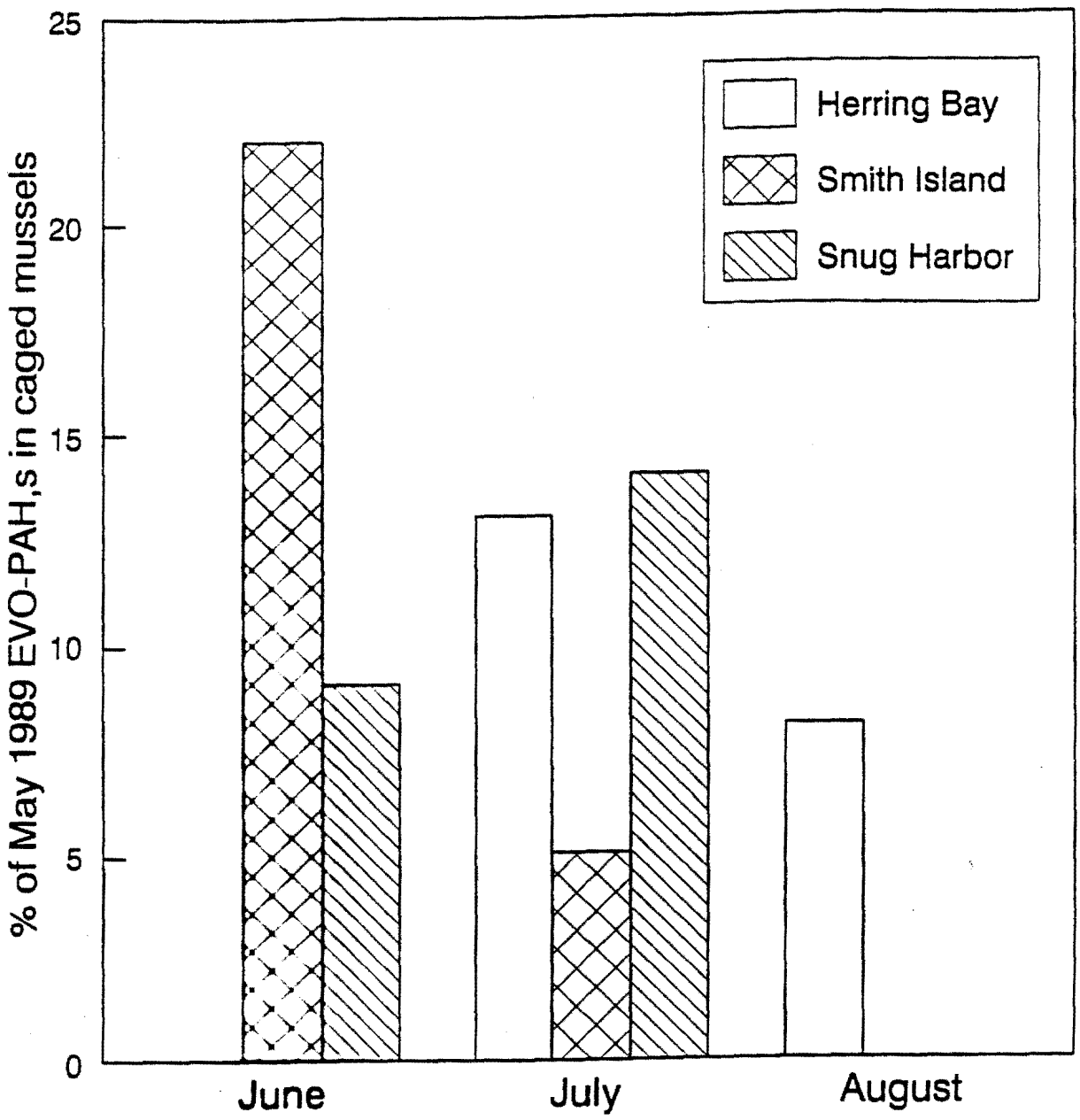

Figure 7.--Percent of May 1989 EVO-PAH concentrations in caged mussels deployed at 1 m depth at stations adjacent to heavily oiled beaches during the summer of 1989, following the EVOS of March 24, 1989, in PWS, Alaska. EVO-PAH is the sum of the most abundant PAHs in *Exxon Valdez* crude oil Percents are relative to EVO-PAH concentrations in caged mussels at the corresponding stations and depth in May, 1989, when these concentrations were highest.

C. 1990 and 1991

In 1990 and 1991, petroleum hydrocarbons were usually detected in caged mussels only at stations adjacent to heavily oiled beaches, and only at low concentrations. The highest 1990 concentration of EVO-PAH was 199 ng/g at Sleepy Bay during the July deployment at 5 m depth (the 1 m depth deployment was lost), followed by 72 ng/g and 115 ng/g at Northwest Bay, 1 m depth, during the June and August deployments, respectively. Lower concentrations of PAHs that were probably derived from *Exxon Valdez* crude oil were detected in caged mussels deployed at Bay of Isles, Herring Bay, Main Bay, Smith Island, and Snug Harbor, although the concentrations at these stations were often so low that source identification was less clear. Also, other petroleum hydrocarbons, such as phytane, were often not detected. Except for Main Bay, these stations were all adjacent to beaches that had been heavily oiled.

The highest EVO-PAH concentration found in caged mussels deployed in 1991 was 56 ng/g at Northwest Bay, 5 m depth. Very low concentrations of PAHs characteristic of petroleum may also have been present in caged mussels deployed at Bay of Isles, Herring Bay, and Sleepy Bay, where EVO-PAH concentration ranged up to 30 ng/g and phytane was occasionally detected.

D. Native Mussel Comparison

Concentrations of petroleum hydrocarbons in caged mussels deployed at 1 m depth near heavily oiled beaches were consistently lower than in mussels collected from adjacent beaches. In 1989, the concentration of EVO-PAH in caged mussels deployed at 1 m in Herring Bay during July was 2,150 ng/g (**Table III-13**, Appendix III), while mussels collected from the adjacent beach contained 6,710 ng/g EVO-PAH. During the August deployment in Herring Bay, EVO-PAH concentration was 452 ng/g and 1,640 ng/g in caged and beach mussels, respectively. At Smith island, EVO-PAH concentration was 163 ng/g and 3,120 ng/g in caged and beach mussels, respectively, during the August deployment, and at Snug Harbor in August, caged and beach mussel EVO-PAH concentration was 141 ng/g and 1,000 ng/g, respectively. In 1990, the highest EVO-PAH concentration in caged mussels was 199 ng/g at Sleepy Bay during the July deployment, but mussels collected contemporarily on the adjacent beach contained from 3,310 to 5,150 ng/g EVO-PAH In contrast, at the Olsen Bay control station, PAH concentrations in caged and in beach mussels were consistently near or below detection limits.

E. Pristane Results

Pristane, a branched alkane that has both biogenic and petrogenic sources, showed large seasonal variation in caged mussels at all stations. Pristane concentrations were highest in May, then declined thereafter to concentrations that were often below detection limits by fall. In May, pristane was often the most abundant alkane identified in the caged mussels, with concentrations ranging up to about 3,500 ng/g At stations adjacent to heavily oiled beaches, pristane concentrations in caged mussels were often much higher than expected on the basis of other

petroleum hydrocarbons measured. For example, the ratio of pristane and phytane in un-weathered *Exxon Valdez* crude oil was 1.28, but was often greater than 5 in caged mussels deployed during May 1989, despite the high concentrations of other petroleum hydrocarbons accumulated by these mussels.

II. Outside PWS

In 1989, petroleum hydrocarbons from the *Exxon Valdez* were evident at only two stations outside PWS, Tonsina Bay and Chignik Bay. At Tonsina Bay, EVO-PAH concentration ranged up to 266 ng/g in caged mussels deployed during July 1989, and were barely detected at 47 ng/g during the August deployment. At Chignik Bay, EVO-PAH concentration ranged up to 328 ng/g in caged mussels deployed during August. At both stations, petroleum hydrocarbon concentrations were highest in mussels deployed at 1 m depth. Phytane was consistently detected at both 1 m and 5 m at Chignik Bay (the 25 m depth mussel cage was lost) at concentration ranging up to 430 ng/g, but was detected only sporadically in the mussels deployed at Tonsina Bay at concentration ranging up to 59 ng/g.

Hydrocarbons characteristic of petroleum were generally near or below detection limits at the other stations outside PWS, and at all stations in 1990.

III. Stress Indicators

The observed levels of mortality and condition indicate that caged mussels were able to maintain their pre-exposure condition and function effectively as water sampling devices. Most exposed mussels had condition indices that increased during deployment; none had condition indices that decreased significantly. At sites in PWS, caged mussel mortality in 1989 averaged 6%. Mortality at Kenai, Alaska Peninsula, and Kodiak stations averaged 39%, and was correlated ($r^2 = 0.748$) with the number of days mussels were held out of water during transport to the deployment station and the number of days they were deployed. However, mortality at a station was not correlated with the condition indices of surviving mussels, indicating that survivors were able to function well in transplant locations.

Hydrocarbons in the water column or accumulated in mussel tissue did not affect short-term survival or condition. Significant differences among condition indices were related to deployment depth and site, but not to tissue hydrocarbon levels. Condition indices were generally higher in mussels at 1 m depth than at 5 and 25 m. Mussels at some impacted sites, Outside Bay, Smith Island, and Snug Harbor (deployment 1, 1989, 1 m), had significantly higher condition indices than mussels at all other sites, including Olsen Bay, and condition increased during deployment.

DISCUSSION

Oil dispersion from oiled-beach reservoirs

Our results indicate that a substantial proportion of the oil spilled from the *Exxon Valdez* dispersed into the water column compartment and was subsequently transported into the Gulf of Alaska. The initially high concentrations of petroleum hydrocarbons that were ubiquitous inside PWS in May 1989 (except at the control station at Olsen Bay), uniformly declined during the months following the spill. The association of the highest concentrations with stations adjacent to heavily oiled beaches suggests that heavily oiled beaches were the primary source of the oil which was subsequently dispersed into the water column by wave action and by cleanup activities. The presence of oil in caged mussels at stations remote from oiled beaches, in particular at the station near the middle of Montague Strait in May 1989, indicates a very large volume of seawater contaminated to depths of at least 25 m, at very low aqueous concentrations. Uncertainties associated with the aqueous oil concentrations, the volume of contaminated seawater, and the absolute flux of seawater through PWS during the summer of 1989 preclude a meaningful quantitative estimation of the volume of oil in this compartment, but the large seawater volumes and fluxes suggest a substantial fraction of the total spilled oil.

The distribution of hydrocarbons we observed in the most contaminated mussels suggests that these mussels may have accumulated hydrocarbons by ingestion of small particles of whole oil. The relative hydrocarbon abundances in these mussels (e.g. Fig. 4) are very similar to those characteristic of EVO. These compositional similarities suggest that the routes through which oil hydrocarbons were incorporated by the caged mussels may include ingestion of whole, particulate oil.

The highest PAH concentrations measured in caged mussels during this study were comparable with the highest concentrations found in a similar study using caged mussels for the *Amoco Cadiz* oil spill off the coast of Brittany in March 1978. Wolfe et al. (1981) deployed transplanted mussels in cages in the Baie de Morlaix at 1 m depth for 2 to 4 weeks beginning about 5 weeks after the spill. A comparable station in our study was at Herring Bay during May 1989. Individual petroleum PAH analytes measured in these two studies fall well within the same order of magnitude. This suggests that seawater dispersion of oil from oiled beaches may be a common process, at least where sufficient wave energy is available to mobilize the oil.

Dispersion of oil into the water column continued on a much reduced scale during 1990 and 1991. The close association of petroleum hydrocarbon concentrations in caged mussels with beaches that had been heavily oiled indicates these beaches as persistent reservoirs of oil that locally contaminated adjacent seawater by the same mechanisms as in 1989. Also, the consistently higher concentrations of petroleum hydrocarbons that we observed in mussels native to heavily oiled beaches in comparison with caged mussels deployed at stations immediately adjacent corroborates these beaches as proximal sources and persistent reservoirs of oil. Together, these results imply that petroleum hydrocarbons characteristic of *Exxon Valdez* crude oil will remain detectable in mussels native to oiled beaches substantially longer than would be

detectable in caged mussels deployed adjacent to them, because concentrations in caged mussels would decline below detection limits first.

The relative scarcity of petroleum hydrocarbons characteristic of *Exxon Valdez* crude oil in caged mussels at stations outside PWS is consistent with the proportions of spilled oil estimated to have beached inside and outside PWS. Wolfe et al. (In prep) estimated that approximately 40-45% of the original volume of spilled oil initially became beached within PWS, whereas only about 10% was carried outside PWS as floating oil, and much of this was deposited on beaches in the Kenai and Kodiak areas. Also, the area traversed by the spilled oil outside PWS was much larger than inside PWS, resulting in beaches that were less heavily oiled and more widely distributed compared with those inside PWS.

Alternative sources of petroleum hydrocarbons in caged mussels

Alternative sources of petroleum hydrocarbons evident in the caged mussels analyzed for this study were not supported by the relative distributions of individual hydrocarbons found in the mussels. Where elevated suites of petroleum PAHs were measured in the caged mussels, these suites consistently included chrysene and alkyl-substituted chrysenes in relative proportions consistent with those in weathered *Exxon Valdez* crude oil. In particular, the consistent absence in caged mussels of suites of petroleum PAHs that are characteristic of *Exxon Valdez* crude oil except that the chrysenes are missing, indicates that diesel oil distilled in Alaska from North Slope crude oil and subsequently introduced into the Sound through normal marine vessel traffic, or through increased traffic associated with spill cleanup activities, must have been a negligible source of petroleum hydrocarbons compared with crude oil spilled from the *Exxon Valdez*. Suites of petroleum hydrocarbons that are similar to those of *Exxon Valdez* crude oil except for the absence of chrysenes are characteristic of diesel oil distilled in Alaska from North Slope crude oil, and it was primarily this diesel oil that was used commercially in PWS before and during the oil spill cleanup period (Bence and Burns 1993).

The uniformity of the relative PAH concentrations in caged mussels deployed adjacent to heavily oiled beaches, as well as at stations remote from these beaches, together with the consistent temporal decline in the concentrations and detection frequency of these hydrocarbons precludes other crude oil sources, such as submarine oil seeps. Crude oil derived from submarine oil seeps along the southern coast of Alaska and east of PWS characteristically contains relatively low sulfur, resulting in relatively low suites of dibenzothiophene PAHs compared with other PAHs, and this oil may be carried into PWS by prevailing oceanic currents (Page et al. 1993). However, relative concentrations of dibenzothiophenes in the caged mussels are uniformly consistent with the higher-sulfur crude oil spilled from the *Exxon Valdez*. Also, it is improbable that the elevated concentrations and detection frequencies of petroleum PAHs in the caged mussels derived from seep oil would coincidentally be highest just after the initial EVOS, and continuously decline thereafter.

Sensitivity comparison of caged mussels and direct chemical analysis

The concentrations of petroleum hydrocarbons found in the caged mussels contrast with the low concentrations of hydrocarbons found by direct chemical analysis of seawater. The highest concentrations of petroleum hydrocarbons in caged mussels of this study were at the Herring Bay station in May 1989. Seawater hydrocarbon concentrations near this station were measured by direct chemical analysis and were reported in Part I of this study at concentrations that, by May 1989, approached the detection limits of the direct analysis (Short and Harris, In prep.). This contrast has been noted by Vandermeulen (1981) who commented on the caged mussel deployment study of the *Amoco Cadiz* oil spill conducted by Wolfe et al. (1981). This is probably due to the relative amounts of water sampled during direct chemical analysis (0.9 L) and the amount filtered by a mussel in 1 month (around 10,000 L). Higher concentrations of petroleum hydrocarbons found in the caged mussels are consistent with the higher volume of water they effectively "sample". Our study corroborates the extreme sensitivity attributed to caged mussels as surrogate water sampling devices; petroleum hydrocarbons were detected in the caged mussels where the corresponding aqueous concentrations were either orders of magnitude below the detection limits practical for direct chemical analysis, or else were so patchily distributed that the probability of sampling detectable concentrations was remote.

Effects of transplanting on mussel health

Stable or improved condition indices indicate mussels were able to adapt to transplant locations and function effectively for short-term (month) exposure periods. Hydrocarbon levels were not sufficiently high to cause cessation of feeding. If hydrocarbons in the water column or accumulated in tissue had any deleterious effect on short-term condition and survival of mussels, it was masked by factors that favored survival and high condition indices.

Hydrocarbon concentrations were more variable among replicates of caged mussels deployed outside PWS than those deployed inside. The high variability may be due to holding mussels for longer periods during transport before deployment. Mussels deployed outside PWS were generally very stressed, as evidenced by the higher mortality rate.

Limitations on pristane/phytane ratio as an oil source indicator in PWS

The seasonally high ratios of pristane and phytane observed in caged mussels deployed during spring and early summer indicate that hydrocarbon source discrimination based on this ratio must be used with great caution in PWS. This ratio was high even in caged mussels that contained substantially elevated petroleum hydrocarbon concentrations, due to a potent biogenic pristane source available during spring. Compelling evidence of this biogenic pristane source has been noted previously by Karinen et al. (1993).

Evidence for bioavailability of dispersed oil

The presence of EVO in the caged mussels of this study is *prima facie* evidence of the bioavailability of dispersed oil at least to submerged mussels, and suggests that the dispersed oil may have been a significant route of oil exposure to other marine fauna, such as larval invertebrates and fish. It is plausible that some of the dispersed oil was associated with plankton, which could have been ingested by fauna feeding on oiled plankton. Plankton are often concentrated in the upper seawater column adjacent to beaches, where they may have incorporated dispersing oil. Although our study does not establish this exposure route, it does establish its plausibility. In particular, our study clearly establishes 1) that oil derived from the *Exxon Valdez* pervaded the seawater column to a depth of at least 25 m throughout the path of the spill through PWS during the first few months after the spill, and subsequently became increasingly localized over the ensuing years; 2) this submerged oil was clearly available to mussels, and plausibly to other fauna; and 3) oil accumulated from seawater by mussels (and plausibly by other organisms) would consequently be available through ingestion to animals at higher trophic levels.

CONCLUSIONS

1. Dispersed oil from the *Exxon Valdez* pervaded the water column in PWS to a depth of at least 25 m along the path of the spilled oil through the Sound, at concentrations that continuously declined during the summer of 1989 and following years. The primary source of this oil was heavily oiled beaches, where the oil was mobilized by wave action and cleanup activities. This dispersed oil was much less prevalent in 1990 and 1991. Oil dispersion into the water column from oiled beaches, and subsequent transport to the Gulf of Alaska, may account for a substantial proportion of the spilled oil.

2. Sources of dispersed oil from the *Exxon Valdez* were uncommon outside PWS, due to the relatively small proportion of oil that floated out of the Sound initially, and the relatively large geographic area traversed by the floating oil outside the Sound.

3. Alternative sources of dispersed petroleum hydrocarbons accumulated by the caged mussels, including diesel oil distilled in Alaska from North Slope crude oil and crude oil from submarine oil seeps, were negligible compared with oil spilled from the *Exxon Valdez*.

4. Caged mussels afforded a much more sensitive means of monitoring seawater contamination by petroleum hydrocarbons compared with direct chemical sampling.

5. Hydrocarbon source discrimination indices based on ratios of pristane and phytane must be used with great caution in PWS.

6. Oil dispersed into the water column was available to mussels and plausibly to other marine fauna at intermediate trophic levels, such as fish and invertebrate larvae, especially in shallow

waters adjacent to oiled beaches. Oil accumulated at these trophic levels would serve as a route of oil exposure through ingestion to fauna at higher trophic levels.

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APPENDIX I

Table I-1.--Station names, numbers, abbreviations, and locations where caged mussels were deployed inside PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Station numbers correspond with those of Figure 1 in the text, and with those in Appendix III; station abbreviations correspond with those in Appendix III, and with those in Table I-2 following, which also lists deployment periods.

Station #	Station Name	Station Abbreviation	Latitude (N)	Longitude (W)
1	Bainbridge Passage	BAINP	60°08'40"	148°05'34"
2	Bay of Isles	BOISL	60°22'48"	147°42'18"
3	Block Island	BLOCI	60°31'45"	147°36'03"
4	Disk Island	DISKI	60°30'06"	147°39'30"
5	Elrington Passage	ELRIP	59°58'18"	148°07'00"
6	Eshamy Bay	ESHAB	60°27'06"	147°58'54"
7	Green Island	GREEI	60°16'48"	147°27'24"
8	Herring Bay*	HERRB	60°29'23"	147°43'33"
9	Herring Bay Berm**	HERRB	60°25'27"	147°47'06"
10	Johnson Cove	JOHNC	60°03'43"	147°58'38"
11	MacLeod Harbor	MACLH	59°52'49"	147°46'59"
12	Main Bay	MAIN	60°32'37"	148°04'05"
13	Montague Strait***	MONTS	60°07'03"	147°34'21"
14	Northwest Bay	NWBAY	60°33'18"	147°34'36"
15	Olsen Bay	OLSEN	60°43'48"	146°13'12"
16	Outside Bay	OUTSI	60°38'29"	147°28'42"
17	Prince of Wales Passage	PWALE	60°04'52"	148°04'30"
18	Sleepy Bay	SLEEB	60°04'18"	147°50'22"
19	Smith Island	SMITI	60°31'56"	147°21'24"
20	Snug Harbor****	SNUGH	60°15'19"	147°44'06"
21	Snug Harbor Berm	SNUGH	60°14'38"	147°43'42"
22	Squire Island	SQUII	60°14'20"	147°56'39"

*May, June and July, 1989 deployments at 60°28'45" N 147°43'12" W
**May, 1991 deployment at 60°26'46" N 147°46'47" W
***May, 1989 deployment at 60°06'25" N 147°37'00" W
****July, August, 1990 and May, 1991 deployments at 60°15'43" N 147°45'06" W

Table I-2.--Caged mussel deployment periods inside PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Locations of these stations are listed in Table I-1. Caged mussels successfully retrieved and analyzed from the three deployment depths of 1 m, 5 m, and 25 m are indicated by the symbol 'X', and the superscripts on this symbol indicate depths of successful retrieval in cases where some of the caged mussels were lost during deployment. Deployment stations are listed in the order of listing in Table I-1.

Station	1989				1990				1991
Abbreviation	May	June	July	August	May	June	July	August	May
BAINP	X	X	X	X		X^{1}		X^{1}	
BOISL						X^{1}		X^{1}	X
BLOCI						X^{1}		X^{1}	
DISKI						X		X	X
ELRIP	X	X	X	X^{1}		X^{1}			
ESHAB									X
GREEI								X^{1}	
HERRB	X		X*	X	X	X^{1}	X^{1}	X	X
HERRB							X	X	X
JOHNC	X	X	X	$X^{1,25}$		X^{1}		X^{1}	
MACLH						X^{1}		X^{1}	
MAIN	X	X	X	X	X^{1}			X^{1}	
MONTS	$X^{1,5}$		X	X^{1}					
NWBAY						X		X	X
OLSEN	X	X	X	X	X	X		X	X
OUTSI	X	X	X			X^{1}		X^{1}	
PWALE	X	X	X	$X^{5,25}$		X^{1}		X^{1}	
SLEEB						X	X^{5}		X
SMITI	$X^{1,5}$	X	X			X			
SNUGH	X	$X^{1,5}$	X		X	X	$X^{5,25}$	X	X
SNUGH							$X^{1,5}$		X
SQUII	X	X	X^{1}	$X^{1,25}$					

*Deployed in June and July, both collected in August.

Table I-3.--Station names, numbers, abbreviations, and locations where caged mussels were deployed outside PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Station numbers correspond with those of Figure 2 in the text, and with those in Appendix III; station abbreviations correspond with those in Appendix III, and with those of Table I-4 following.

Station #	Station Name	Station Abbreviation	Latitude (N)	Longitude (W)
23	Agnes Cove	AGNEC	59°46'15"	149°33'48"
24	Balboa Bay	BALBB	55°33'36"	160°35'24"
25	Black Bay	BLACB	59°32'23"	150°12'54"
26	Blue Fox Bay	BLUEF	58°27'12"	152°40'30"
27	Chignik Bay	CHIGB	56°18'18"	158°24'17"
28	Discoverer Bay	DISCB	58°20'54"	152°23'00"
29	Hallo Bay	HALLB	58°28'30"	154°02'06"
30	Katmai Bay	KATMB	58°00'48"	154°50'48"
31	Kukak Bay	KUKAB	58°21'05"	154°11'12"
32	Port Chatham	PCHAT	59°12'53"	151°45'39"
33	Port Dick	PDICK	59°17'06"	151°08'17"
34	Port Graham	PGRAH	59°22'12"	151°53'24"
35	Raspberry Bay	RASBS	58°02'42"	153°02'30"
36	Sunny Cove	SUNNC	59°54'51"	149°20'30"
37	Tonsina Bay	TONSB	59°18'43"	150°54'36"
38	Windy Bay	WINDB	59°13'25"	151°30'53"

Table I-4.--Caged mussel deployment periods outside PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Locations of these stations are listed in Table I-3. Caged mussels successfully retrieved and analyzed from the three deployment depths of 1 m, 5 m, and 25 m are indicated by the symbol 'X', and the superscripts on this symbol indicate depths of successful retrieval in cases where some of the caged mussels were lost during deployment. Deployment stations are listed in the order of listing in Table I-3

Station	1989		1990	
Abbreviation	July	August	June	July
AGNEC				X^{1}
BALBB		$X^{1,5}$		
BLACB	X	X		X^{1}
BLUEF	X	X		X^{1}
CHIGB		$X^{1,5}$		
DISCB	X	$X^{5,25}$		
HALLB		X^{1}	X^{5}	X^{1}
KATMB				X^{1}
KUKAB		$X^{1,5}$	X^{1}	
PCHAT	X	X		
PDICK	X	X		
PGRAH		$X^{1,5}$		
RASBS		X		
SUNNC	X	X		X^{1}
TONSB	X	X		X^{1}
WINDB				X^{1}

APPENDIX II

Table II-1.--Deuterated surrogate hydrocarbon standards used for determination of alkanes and PAH's in caged mussels deployed along and adjacent to the path of spilled oil following the grounding of the *Exxon Valdez* in PWS. The deuterated surrogate hydrocarbon standards, each identified by a number in the left-hand column, are listed below, together with the quantification ion mass of the PAHs, and the concentration in hexane of each of the standards in the sample spiking solution. A 500 µL aliquot of this solution was spiked into each environmental or quality control sample analyzed. The numbers in the left-hand column are used to relate the calibrated hydrocarbon analytes listed in Tables II-2 and II-4 below with the deuterated standards listed here.

I.D. number	Name	Mass of quantification ion	Concentration in spike solution (ng/ml)
1	Naphthalene - d_{12}	136	2.50
2	Acenaphthene - d_{10}	164	2.50
3	Phenanthrene - d_{10}	188	2.00
4	Chrysene - d_{12}	240	2.00
5	Benzo[a]pyrene - d_{12}	264	2.50
6	Perylene - d_{12}	264	2.50
7	n-Dodecane - d_{26}	N/A	10.50
8	n-Hexadecane - d_{34}	N/A	9.79
9	n-Eicosane - d_{42}	N/A	10.40
10	n-Tetracosane - d_{50}	N/A	9.89
11	n-Triacontane - d_{62}	N/A	10.00

Table II-2.--Calibrated PAHs determined in caged mussels deployed along and adjacent to the path of spilled oil following the grounding of the *Exxon Valdez* in PWS, Alaska. The calibrated aromatic hydrocarbons, and standardized abbreviations for them, are listed below, together with the number of the associated surrogate standard (see Table II-1 above), quantification ion mass, confirmation ion mass, and the mean ratio of these two ions in the calibration standards, of which the latter three are used for identification.

PAH	Abbreviation	Quantification ion mass	Confirmation ion mass	Expected ion ratio	I.D. number of surrogate standard used
Naphthalene	Naph	128	127	15	1
2-Methylnaphthalene	Menap2	142	141	88	1
1-Methylnaphthalene	Menap1	142	141	88	1
2,6 Dimethylnaphthalene	Dimeth	156	141	67	2
2,3,5 Trimethylnaphthalene	Trimeth	170	155	90	2
Biphenyl	Biphenyl	154	152	28	1
Acenaphthylene	Acenthy	152	153	13	2
Acenaphthene	Acenthe	154	153	99	2
Fluorene	Fluorene	166	165	92	2
Dibenzothiophene	Dithio	184	152	15	3
Phenanthrene	Phenanth	178	176	19	3
Anthracene	Anthra	178	176	18	3
1-Methylphenanthrene	Mephen1	192	191	57	3
Fluoranthrene	Fluorant	202	101	15	3
Pyrene	Pyrene	202	101	19	3
Chrysene	Chrysene	228	226	25	4
Benz-a-anthracene	Benanth	228	226	28	4
Benzo-b-fluoranthene	Benzobfl	252	253	22	5
Benzo-k-fluoranthene	Benzokfl	252	253	22	5
Benzo-e-pyrene	Benepy	252	253	23	5
Benzo-a-pyrene	Benapy	252	253	24	5
Perylene	Perylene	252	253	25	6
Ideno-1,2,3 cd-pyrene	Indeno	276	277	24	5
Dibenzo-a,h-anthracene	Dibenz	278	279	22	5
Benzo-g,h,i-perylene	Benzop	276	277	23	5

Table II-3.--Uncalibrated PAHs determined in caged mussels deployed along and adjacent to the path of spilled oil following the grounding of the *Exxon Valdez* in PWS, Alaska. The uncalibrated aromatic hydrocarbons, and standardized abbreviations for them, are listed below, together with the quantification ion mass and retention time windows used for identification.

Name	Abbreviation	Quantification ion mass	Retention time window (min)
C2 - Naphthalenes	C2naph	156	11.0 - 14.5
C3 - Naphthalenes	C3naph	170	12.5 - 16.5
C4 - Naphthalenes	C4naph	184	14.0 - 18.5
C1 - Fluorenes	C1fluor	180	15.0 - 18.0
C2 - Fluorenes	C2fluor	194	16.5 - 20.0
C3 - Fluorenes	C3fluor	208	18.0 - 21.5
C1 - Dibenzothiophenes	C1dithio	198	17.0 - 21.0
C2 - Dibenzothiophenes	C2dithio	212	18.0 - 23.0
C3 - Dibenzothiophenes	C3dithio	226	19.5 - 26.0
C1 - Phenanthrenes/Anthracenes	C1phenan	192	17.5 - 20.5
C2 - Phenanthrenes/Anthracenes	C2phenan	206	19.0 - 22.5
C3 - Phenanthrenes/Anthracenes	C3phenan	220	20.0 - 23.5
C4 - Phenanthrenes/Anthracenes	C4phenan	234	21.0 - 25.0
C1 - Fluoranthenes/Pyrenes	C1fluora	216	20.0 - 28.0
C1 - Chrysenes	C1chrys	242	24.5 - 27.5
C2 - Chrysenes	C2chrys	256	26.0 - 29.0
C3 - Chrysenes	C3chrys	270	27.0 - 31.0
C4 - Chrysenes	C4chrys	284	28.0 - 33.0

Table II-4.--Calibrated alkane hydrocarbons determined in caged mussels deployed along and adjacent to the path of spilled oil following the grounding of the *Exxon Valdez* in PWS, Alaska. The calibrated alkane hydrocarbons, and standardized abbreviations for them, are listed below, together with the number of the associated surrogate standard (see Table II-1 above).

Name	Abbreviation	I.D. of Surrogate Standard
n-Decane	C-10	7
n-Undecane	C-11	7
n-Dodecane	C-12	7
n-Tridecane	C-13	7
n-Tetradecane	C-14	8
n-Pentadecane	C-15	8
n-Hexadecane	C-16	8
n-Heptadecane	C-17	8
Pristane	Pris	8
n-Octadecane	C-18	9
n-Nonadecane	C-19	9
n-Eicosane	C-20	9
n-Heneicosane	C-21	9
n-Docosane	C-22	10
n-Tricosane	C-23	10
n-Tetracosane	C-24	10
n-Pentacosane	C-25	10
n-Hexacosane	C-26	10
n-Heptacosane	C-27	11
n-Octacosane	C-28	11
n-Nonacosane	C-29	11
n-Triacontane	C-30	11
n-Dotriacontane	C-32	11
n-Tetratriacontane	C-34	11

APPENDIX III

Table III-1 --Concentrations of calibrated PAHs in caged mussels deployed in 1989 in PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Table II-2 contains a key for the PAH abbreviations used here. Tables I-1 and I-2 list the station locations and deployment periods that correspond with the station numbers and abbreviations used here. Concentrations are reported as ng PAH/g wet tissue weight. Results of single determinations are presented alone; results of duplicate determinations are separated by commas, and results of more than 2 replicate determinations are followed by 95% confidence intervals in parentheses. Corresponding % moisture determinations for these samples are listed in Table III-2 following. Also listed in the May, 1989 portion of the present Table are the method detection limits for the PAHs, and the results (ng) of analysis of 1 µL of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below the method detection limits. A = surrogate recovery below 30%, data treated as missing. B = surrogate recovery above 150%; data treated as missing. * = below lowest calibration standard. Table III-1. Concentrations (ng/g) of [illegible] PAHs found at 1, 5, and 25 m depths in mussel tissue outside PWS, Alaska, May, 1989.

Station name	Station number	Depth (m)	Naph	Menap2	Menap1	Dimeth	Trimeth
Exxon Valdez crude 1 µl.			645	1179	905	672	328
BAINP	1	1	1.00* (-1.48-3.49)	0.00	0.48* (-0.71-1.67)	0.00	0.21* (-0.32-0.74)
		5	0.82* (-1.21-2.84)	0.00	0.00	0.00	0.27* (-0.40-0.95)
		25	10.6 (-8.99-30.2)	0.00	0.00	0.00	0.44* (-0.12-1.00)
ELRIP	5	1	7.80 (3.12-12.5)	1.10* (-0.33-2.54)	1.35* (-0.37-3.07)	0.00	0.84* (-0.37-2.04)
		5	0.00	0.00	0.00	0.00	0.61* (-0.15-1.36)
		25	1.32* (-1.95-4.58)	0.00	0.00	0.00	0.48* (-0.13-1.09)
HERRB	8	1	1.73* (0.14-3.31)	1.79* (0.83-2.75)	2.36* (1.08-3.64)	8.87 (8.13-9.60)	31.3 (27.7-34.8)
		5	3.25, 0.00	2.27*, 1.29*	2.72*, 1.79*	7.52*, 3.27*	24.1, 8.57
		25	0.00	0.00	0.76* (-1.12-2.64)	1.24* (-0.39-2.86)	1.96* (-0.63-4.55)
JOHNC	10	1	5.32* (-3.64-14.3)	0.00	0.00	0.61* (-0.15-1.37)	1.04* (-0.28-2.36)
		5	7.02 (-4.07-18.1)	0.81* (-0.20-1.83)	0.00	0.67* (-0.17-1.50)	0.93* (-0.28-2.14)
		25	2.34 (-0.58-5.26)	0.00	0.00	0.00	0.53* (-0.18-1.24)
MAINB	12	1	2.10* (-3.10-7.30)	0.00	0.00	0.29* (-0.42-1.00)	0.26* (-0.38-0.89)
		5	0.81 (-1.20-2.83)	0.34* (-0.50-1.17)	0.00	0.34* (-0.51-1.19)	0.00
		25	5.41 (-5.08-15.9)	0.37* (-0.55-1.30)	0.62* (-0.92-2.16)	0.40* (-0.59-1.38)	1.10* (-0.37-2.56)
MONTS	13	1	3.00 (-0.76-6.77)	0.40* (-0.59-1.38)	0.72* (-1.07-2.52)	0.54* (-0.14-1.21)	0.42* (-0.62-1.45)
		5	7.88 (6.92-8.85)	1.30* (1.20-1.40)	0.00	0.31* (-0.46-1.08)	0.28* (-0.42-0.99)
OLSEN	15	1	2.71 (-0.65-6.07)	0.99* (-0.34-2.31)	1.24* (-1.83-4.30)	0.00	0.00
		5	6.09 (-2.71-14.9)	0.51* (-0.75-1.77)	0.68* (-1.01-2.38)	0.00	0.00
		25	33.0 (24.7-41.4)	2.68* (2.24-3.11)	2.08* (-1.10-5.25)	0.27* (-0.39-0.93)	0.00
OUTSI	16	1	1.80* (-0.43-4.04)	0.00	0.00	0.28* (-0.42-0.99)	0.30* (-0.45-1.06)
		5	0.87 (-0.51-2.26)	0.25* (-0.15-0.66)	0.00	0.67* (0.29-1.05)	0.33* (-0.20-0.86)
		25	0.71 (-0.42-1.84)	0.00	0.00	0.50* (0.00-1.00)	0.91* (-0.54-2.36)
PWALE	17	1	2.64* (-1.25-6.53)	0.00	0.00	0.37* (-0.55-1.30)	0.15* (-0.19-0.34)
		5	3.07* (-0.77-6.91)	0.37* (-0.55-1.30)	0.00	0.34* (-0.50-1.18)	0.29* (-0.36-0.64)
		25	0.00	0.00	0.00	0.00	0.18* (-0.26-0.97)
SMITI	19	1	0.87 (-1.28-3.02)	2.62* (1.54-3.71)	3.18* (2.31-4.53)	10.7 (9.42-12.0)	29.9 (16.8-44.0)
		5	0.00	0.99* (-0.25-2.23)	0.50* (-0.29-1.73)	4.45* (2.59-6.30)	11.5 (7.98-16.2)
SNUGH	20	1	4.37 (-1.41-10.1)	1.92* (0.94-2.89)	2.39* (1.58-3.66)	2.48* (1.48-3.49)	5.58* (2.40-11.3)
		5	2.69 (-0.67-6.06)	0.97* (-0.26-2.20)	1.23* (0.17-2.88)	1.36* (-0.35-3.06)	3.74* (1.58-5.80)
		25	3.99 (1.98-6.01)	0.63* (-0.94-2.20)	1.74* (-1.02-6.04)	0.34* (-0.51-1.19)	0.68* (-0.22-1.98)
SQUII	22	1	13.0 (0.48-25.6)	1.33* (-0.50-3.16)	1.64* (-0.97-5.70)	0.45* (-0.67-1.58)	0.52* (-0.66-1.18)
		5	3.48* (-5.15-12.1)	0.00	0.57* (-0.33-1.97)	0.00	0.25* (-0.32-0.56)
		25	10.9 (2.52-19.3)	0.86* (-1.28-3.00)	1.33* (-0.78-4.63)	0.52* (-0.13-1.17)	0.44* (-0.65-1.09)
MDL			2.20	0.99	1.31	0.70	0.42

Table III-1.--Continued

Station name	Station number	Depth (m)	Biphenyl	Fluorene	Dithio	Phenanth	Mephenl
Exxon Valdez crude 1 µL			162	81.0	174	227	176
BAINP	1	1	0.40* (-0.60-1.40)	0.18* (-0.27-0.63)	0.38* (-0.90-0.86)	2.25* (1.52-2.98)	2.76* (1.46-4.05)
		5	0.29* (-0.43-1.02)	0.00	0.40* (-0.94-0.90)	1.83* (0.98-2.69)	2.80* (1.24-4.36)
		25	0.00	0.00	0.31* (-0.73-0.69)	0.90* (-0.41-2.20)	1.70* (-0.41-3.81)
ELRIP	5	1	0.95* (-0.23-2.13)	0.19* (-0.28-0.65)	0.19* (-0.63-0.67)	3.17* (0.88-5.46)	4.02 (1.95-6.10)
		5	0.60	0.21* (-0.31-0.73)	0.63* (-1.48-1.42)	2.01* (1.31-2.71)	6.36 (5.42-7.30)
		25	0.45* (-0.62-1.45)	[illegible]	0.46* (-1.07-1.03)	2.00* (1.60-2.40)	3.91* (2.30-5.52)
[illegible]	[illegible]	1	[illegible]	[illegible]	16.8 (-12.1-18.1)	27.5 (25.5-29.6)	89.1 (53.7-153)
		5	[illegible]	[illegible]	14.2 -5.44	24.8, 9.18	62.8, 23.8
		25	0.34* (-0.51-1.19)	0.32* (-0.47-1.11)	0.97* (-2.29-2.20)	2.28* (0.90-3.66)	7.44 (0.11-14.8)
[illegible]	10	1	[illegible]	0.41* (-0.12-0.94)	1.42* (-2.17-1.60)	3.49 (3.13-3.86)	7.76 (1.61-13.9)
		5	0.63* (-0.19-1.45)	0.32* (-0.09-0.88)	1.40* (-2.17-1.62)	2.89* (1.57-4.20)	9.33 (6.73-11.9)
		25	0.31* (-0.46-1.09)	0.00	0.43* (-1.05-1.02)	1.53* (0.37-2.69)	2.77* (-0.77-6.30)
MAINB	12	1	0.76* (-0.19-1.71)	0.19* (-0.28-0.66)	0.48* (-1.13-1.08)	1.71* (0.77-2.64)	1.19* (-0.31-2.70)
		5	0.00	0.18* (-0.26-0.61)	0.45* (-1.07-1.02)	2.15* (1.89-2.41)	1.81* (-0.73-4.35)
		25	0.50* (-0.74-1.74)	0.23* (-0.34-0.80)	0.80* (-1.92-1.85)	2.80* (1.64-3.96)	6.69 (1.31-12.1)
MONTS	13	1	1.73* (0.42-3.04)	0.00	0.19* (-0.62-0.66)	2.66* (2.38-2.93)	1.72* (-0.72-4.15)
		5	0.26* (-0.39-0.92)	0.22* (-0.33-0.77)	0.74* (-1.22-0.95)	1.17* (-0.48-2.83)	2.92* (1.08-4.76)
OLSEN	15	1	1.56* (0.57-2.56)	0.00	0.00	1.49* (1.41-1.57)	0.00
		5	0.35* (-0.51-1.21)	0.00	0.00	1.20* (-0.31-2.71)	0.00
		25	1.15* (0.73-1.56)	0.00	0.00	0.95* (-0.23-2.13)	0.00
OUTSI	16	1	1.48* (-0.66-3.62)	0.25* (-0.37-0.88)	0.16* (-0.52-0.56)	1.49* (-0.57-3.55)	1.27* (-0.42-2.96)
		5	0.50* (0.03-1.35)	0.34* (0.03-0.66)	0.53* (-0.29-0.80)	1.12* (0.29-1.95)	1.72* (0.60-2.84)
		25	0.33* (-0.20-0.86)	0.14* (-0.08-0.35)	0.45* (-0.03-1.17)	1.25* (-0.16-2.65)	2.06* (-0.15-4.27)
PWALE	17	1	1.22* (-0.54-2.98)	0.00	0.43* (-1.07-1.05)	1.89* (0.75-3.04)	1.92* (1.06-2.78)
		5	0.26* (-0.39-0.92)	0.00	0.55* (-1.30-1.24)	2.03* (0.92-3.14)	4.30* (3.65-4.95)
		25	0.31* (-0.46-1.09)	0.00	0.12* (-0.40-0.43)	1.36* (0.91-1.80)	1.57* (0.65-2.49)
SMITI	19	1	2.12* (-0.52-4.77)	3.57* (3.22-3.92)	15.6 (-23.4-17.0)	25.4 (22.5-28.3)	49.7 (41.9-57.6)
		5	0.30* (-0.44-1.03)	1.67* (1.56-1.78)	6.83* (-10.6-7.93)	11.9 (11.2-12.6)	42.9 (20.9-64.9)
SNUGH	20	1	2.30* (1.16-3.43)	0.96* (-0.24-2.17)	4.21* (-7.29-5.93)	8.17 (5.52-10.8)	15.1 (7.64-22.6)
		5	0.49* (-0.72-1.69)	0.62* (-0.16-1.39)	3.03* (-4.76-3.60)	5.88* (5.10-6.66)	20.9 (7.45-34.4)
		25	0.59* (0.87-2.04)	0.20* (-0.30-0.71)	0.25* (-0.81-0.87)	2.33* (2.05-2.61)	3.28* (1.40-5.16)
SQUII	22	1	1.97* (1.20-2.73)	0.22* (-0.33-0.78)	0.50 (-1.64-1.75)	3.10* (1.97-4.23)	2.99* (0.92-5.06)
		5	1.29* (-0.56-3.13)	0.22* (-0.33-0.78)	0.00	3.60* (2.12-5.08)	4.70* (0.01-9.40)
		25	0.83* (-0.23-1.89)	0.24* (-0.36-0.85)	0.18* (-0.60-0.64)	2.44* (1.94-2.94)	3.33* (2.49-4.17)
MDL			0.75	0.50	0.35	0.83	0.56

Table III-1.--Continued

Station name	Station number	Depth (m)	Chrysene
Exxon Valdez crude 1 µL			43.8
BAINP	1	1	1.66* (1.03-2.29)
		5	1.38* (1.10-1.66)
		25	0.90* (-0.22-2.03)
ELRIP	5	1	3.18* (0.66-5.69)
		5	[illegible]
		25	[illegible]
[illegible]	[illegible]	1	[illegible]
		5	[illegible]
		25	[illegible]
[illegible]	[illegible]	1	[illegible]
		5	[illegible]
		25	1.55* (-0.37-3.47)
MAINB	12	1	1.06* (-0.32-2.43)
		5	1.29* (-0.39-2.97)
		25	3.18* (2.53-3.84)
MONTS	13	1	3.59* (-2.61-9.79)
		5	1.24* (0.96-1.52)
OLSEN	15	1	0.00
		5	0.00
		25	0.00
OUTSI	16	1	1.25* (-0.54-3.04)
		5	1.12* (0.52-1.71)
		25	2.38* (-0.56-5.32)
PWALE	17	1	1.94* (1.04-2.84)
		5	1.93* (1.53-2.32)
		25	1.27* (1.02-1.52)
SMITI	19	1	21.4 (-5.17-48.0)
		5	15.1 (12.8-17.3)
SNUGH	20	1	8.99 (-2.58-20.6)
		5	11.5 (8.26-14.7)
		25	3.34* (2.87-3.81)
SQUII	22	1	2.09* (-1.08-5.26)
		5	1.68* (-0.99-4.34)
		25	2.04* (1.07-3.02)
MDL			0.55

Table III-1 --Concentrations (ng/g) of calibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, June, 1989.

Station name	Station number	Depth (m)	Naph	Menap2	Menap1	Dimeth	Trimeth	Biphenyl	Fluorene	Dithio	Phenanth	Mephen1	Chrysene
BAINP	1	1	0.00	0.00	0.00	0.00	0.00	1.95*	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	1.95*	0.00	0.00	0.00	0.00	0.00
		25	2.35*	0.00	5.29*	0.00	0.00	3.22*	0.00	0.00	0.00	0.00	0.00
ELRIP	5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	1.37*	0.83*	0.75*	0.00	0.73*	0.00	0.00	0.82	1.47
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.74*	0.00	1.29*	0.00	0.00
JOHNC	10	1	4.38	0.00	1.70*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	1.51*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	9.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAINB	12	1	0.00	0.00	2.30	0.00	0.00	0.00	0.00	0.00	1.24*	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	5.21	0.00	2.21*	0.00	0.00	3.38*	0.00	0.00	0.00	0.70	0.00
OLSEN	15	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OUTSI	16	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91*	0.65	1.13
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83
PWALE	17	1	0.00	0.00	0.00	0.00	0.00	1.82*	0.00	0.00	0.00	0.57	0.80
		5	0.00	0.00	0.00	0.00	0.00	2.36*	0.00	0.00	0.00	0.00	0.66
		25	0.00	0.00	0.00	0.00	0.00	1.36*	0.00	0.00	0.00	0.00	0.57
SMITI	19	1	0.00	0.00	0.00	1.09*	2.22*	0.00	0.00	1.46	2.56	5.51	9.81
		5	0.00	0.00	2.87*	0.00	0.00	0.00	0.00	0.00	1.85*	4.53	3.79
		25	0.00	0.00	2.96*	0.00	0.00	0.00	0.54*	0.00	0.00	0.00	1.98
SNUGH	20	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17*	1.05	4.44
		5	3.10*	0.00	0.00	0.00	0.00	0.00	0.00	0.54	1.29*	1.57	2.51
SQUII	22	1	0.00	0.00	1.55*	0.00	0.00	0.00	0.00	0.00	0.00	0.56	1.24
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-1.--Concentrations (ng/g) of calibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, July, 1989

Station name	Station number	Depth (m)	Naph	Menap2	Menap1	Dimeth	Trimeth	Biphenyl	Fluorene	Dithio
BAINP	1	1	0.00	0.00	1.32*	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 1.09*	0.00, 0.00	0.00, 0.00
ELRIP	5	1	0.00	0.00	0.00	0.00	0.00	0.87*	0.00	0.00
		5	0.00	0.00	1.53*	0.00	0.00	0.95*	0.00	0.00
		25	0.00	0.00	1.61*	0.00	0.00	1.00*	0.00	0.00
HERRB	8	1	A	A	A	0.97*	6.18*	0.93*	0.86*	1.40*
		5	4.20	0.00	0.00	0.00	2.18*	0.00	0.00	0.76*
		25	11.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		1*	A, 0.00	A, 0.00	A, 0.00	1.14*, 1.31*	2.64*, 3.93*	1.87*, 1.23*	1.10*, 0.00	0.00, 0.00
		5*	0.00, 2.59	1.07*, 0.00	2.08*, 0.00	0.00, 2.17*	0.74*, 4.80*	1.28*, 1.67*	0.53*, 0.93*	0.00, 2.57*
		25*	0.00	0.00	0.00	0.00	0.00	0.87*	0.00	0.00
JOHNC	10	1	A	A	A	A	A	A	A	0.00
		5	4.42	1.90*	2.98*	0.77	0.00	1.77*	0.76*	0.00
		25	0.00	0.00	2.06*	0.00	0.00	1.22*	0.58*	0.00
MAINB	12	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MONTS	13	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.91*	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.76*	0.00	0.00
OLSEN	15	1	0.00	0.00	2.54*	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.96*	0.00	0.00
OUTSI	16	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	9.83, 2.34*	0.00, 0.00	2.47*, 1.33*	0.00, 0.00	0.00, 0.00	0.00, 1.68*	0.00, 0.00	0.00, 0.00
PWALE	17	1	0.00	0.00	0.00	0.00	0.00	0.83*	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.89*	0.00	0.00
SMITI	19	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.77*	0.00	0.00	0.00	0.00
SNUGH	20	1	0.00	0.00	0.00	0.00	0.00	0.87*	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.94*	0.59*	0.00
		25	0.00	0.00	0.00	0.00	0.00	1.00*	0.00	0.00
SQUII	22	1	10.6	1.27*	0.00	0.00	0.00	1.31*	0.00	0.67*

Table III-1.--Continued

Station name	Station number	Depth (m)	Phenanth	Mephen1	Chrysene
BAINP	1	1	0.00	0.00	0.00
		5	0.00	0.00	0.00
		25	0.00, 1.41*	0.00, 0.00	0.00, 0.00
ELRIP	5	1	1.41*	0.00	1.33*
		5	1.21*	0.00	0.00
		25	1.37*	0.00	0.00
HERRB	8	1	2.50*	9.52	17.1
		5	1.39*	4.91*	6.84*
		25	0.00	0.00	0.00
		1*	4.17*, 1.68*	5.80*, 11.3	32.7, 39.7
		5*	2.24*, 1.84*	4.93*, 16.1	21.2, 27.7
		25*	0.00	0.00	3.20*
JOHNC	10	1	1.50*	0.00	0.00
		5	2.69*	0.99*	0.00
		25	1.96*	0.00	0.00
MAINB	12	1	0.00	0.00	0.00
		5	0.00	0.00	0.00
		25	0.00	0.00	0.00
MONTS	13	1	1.16*	0.00	0.00
		5	1.13*	0.00	0.00
		25	1.53*	0.00	0.00
OLSEN	15	1	1.11*	0.00	0.00
		5	0.00	0.00	0.00
		25	0.00	0.00	0.00
OUTSI	16	1	0.00	0.00	0.00
		5	0.00	0.00	0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00
PWALE	17	1	1.57*	2.31*	1.22*
		5	1.15*	0.00	0.00
		25	1.13*	0.00	0.00
SMITI	19	1	0.00	1.43*	2.34*
		5	0.00	1.32*	2.10*
		25	0.00	0.00	0.00
SNUGH	20	1	0.00	1.89*	3.79*
		5	0.00	2.14*	2.37*
		25	0.00	0.00	0.00
SQUII	22	1	1.24*	1.28*	1.45*

*Deployed in June, collected in August.

Table III-1.--Concentrations (ng/g) of calibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, August, 1989

Station name	Station number	Depth (m)	Naph	Menap2	Menap1	Dimeth	Trimeth	Biphenyl	Fluorene	Dithio
BAINP	1	1	2.81[a]	0.00	1.44[a]	0.00	0.00	0.00	0.00	0.00
		5	2.62[a]	0.00	2.54[a]	0.00	0.00	0.00	0.00	0.00
		25	5.21[a]	1.49[a]	1.96[a]	0.00	0.00	0.00	0.00	0.00
ELRIP	5	1	2.73[a]	0.00	4.46[a]	0.00	0.00	0.00	0.00	0.00
HERRB	8	1	2.40[a]	0.00	1.48[a]	0.00	0.79[a]	0.00	0.00	0.00
		5	2.39[a]	0.00	1.40[a]	0.00	0.00	0.00	0.00	0.48[a]
		25	3.88[a]	1.21[a]	2.36[a]	0.00	0.00	0.00	0.00	0.00
JOHNC	10	1	3.84[a]	1.36[a]	4.23[a]	0.00	0.00	0.00	0.00	0.00
		25	A	A	A	0.83[a]	0.00	0.00	0.00	0.00
MAINB	12	1	A	A	A	0.00	0.00	0.00	0.00	0.00
		5	4.75[a]	1.12[a]	1.78[a]	0.00	0.00	0.00	0.00	0.00
		25	4.73[a]	1.18[a]	1.50[a]	0.00	0.00	0.00	0.00	0.00
MONTS	13	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OLSEN	15	1	3.06[a]	0.00	1.72[a]	0.00	0.00	0.00	0.00	0.00
		5	2.71[a]	0.00	1.85[a]	0.00	0.00	0.00	0.00	0.00
		25	2.60[a]	0.00	1.37[a]	0.00	0.00	0.00	0.00	0.00
PWALE	17	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SQUII	22	1	0.00, A	0.00, A	4.30[a], A	0.00, 0.84[a]	0.00, 0.00	0.78[a], 0.91[a]	0.00, 0.72[a]	0.00, 0.00
		25	A	A	A	0.00	0.00	1.77[a]	0.00	0.00

Table III-1.--Continued.

Station name	Station number	Depth (m)	Phenanth	Mephenl	Chrysene
BAINP	1	1	0.00	0.00	0.00
		5	0.00	0.00	0.00
		25	0.00	0.00	0.00
ELRIP	5	1	1.29[a]	0.00	0.99[a]
HERRB	8	1	0.00	1.76[a]	8.92[a]
		[illegible]	[illegible]	2.43[a]	[illegible]
		[illegible]	[illegible]	[illegible]	1.12[a]
[illegible]	10	1	1.[illegible]	[illegible]	[illegible]
		[illegible]	1.81[a]	[illegible]	[illegible]
MAPIB	12	1	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]
		25	0.00	0.00	0.00
MONTS	13	1	1.22[a]	0.00	1.25[a]
OLSEN	15	1	0.00	0.00	0.00
		5	0.00	0.00	0.00
		25	0.00	0.00	0.00
PWALE	17	5	0.00	0.00	0.00
		25	0.00	0.00	0.00
SQUII	22	1	2.33[a], 1.61[a]	0.00, 0.78[a]	1.58[a], 0.00
		25	1.59[a]	0.00	0.96[a]

Table III-2. Concentrations of uncalibrated PAHs in caged mussels deployed in 1989 in PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Table II-3 contains a key for the PAH abbreviations used here. Tables I-1 and I-2 list the station locations and deployment periods that correspond with the station numbers and abbreviations used here. Concentrations are reported as ng PAH/g wet tissue weight. Results of single determinations are presented alone; results of duplicate determinations are separated by commas, and results of more that duplicate determinations are followed by 95% confidence intervals in parentheses. Corresponding % moisture determinations for these samples are also listed here. Also listed in the May, 1989 portion of the present Table are the method detection limits for corresponding calibrated PAHs, and the results (ng) of analysis of 1 µL of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits. Concentrations (ng/g) of uncalibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, May, 1989.

Station name	Station number	Depth (m)	C2naph	C3naph	C4naph	C1fluor	C2fluor
Exxon Valdez crude 1 µL			2802	2095	533	200	170
BAINP	1	1	1.65 (1.16-2.15)	2.14 (1.24-3.03)	1.35 (0.44-2.26)	0.61 (-0.31-1.53)	11.3 (0.52-22.0)
		5	1.69 (1.05-2.33)	1.92 (0.87-4.71)	1.25 (0.72-1.22)	0.74 (0.24-1.72)	2.56 (-0.75-5.86)
		25	13.2 (-41.7-71.0)	6.99 (-2.73-16.7)	0.99 (-0.83-2.80)	8.87 (-9.54-27.3)	1.95 (-0.56-4.46)
BLKIP	4	1	1.62 (0.96-2.28)	4.60 (1.83-10.0)	1.80 (0.82-7.61)	1.48 (0.51-3.48)	16.0 (-13.9-45.8)
		5	1.13 (0.56-2.56)	2.85 (0.77-6.46)	2.44 (1.99-6.86)	0.62 (0.23-1.47)	4.12 (-1.70-9.95)
		25	1.60 (0.40-3.59)	1.11 (0.48-3.36)	2.21 (2.24-6.66)	0.90 (-0.39-2.19)	3.90 (-1.91-9.70)
HIRRB	8	1	5.16 (4.24-58.8)	218 (182-253)	303 (242-363)	40.7 (33.1-48.3)	208 (190-226)
		5	35.9, 18.8	157, 60.3	183, 52.6	25.1, 14.4	164, 69.4
		25	3.98 (-1.39-9.36)	14.2 (-6.17-34.5)	15.4 (-13.3-44.0)	3.95 (-3.29-11.2)	15.4 (-11.2-41.9)
JOHNC	10	1	2.63 (-0.79-6.04)	8.05 (2.10-14.0)	8.73 (-0.15-17.6)	2.76 (0.81-4.72)	54.6 (50.6-58.7)
		5	2.85 (0.32-5.38)	7.13 (1.43-12.8)	4.42 (-5.14-14.0)	2.04 (-1.20-5.29)	17.3 (-16.4-50.9)
		25	2.99 (-2.38-8.36)	3.06 (-1.14-7.26)	2.10 (-0.92-5.12)	0.81 (-0.25-1.87)	4.37 (-1.05-9.80)
MAINB	12	1	0.74 (-1.10-2.58)	1.81 (-1.07-4.69)	1.59 (-2.36-5.54)	0.52 (-0.24-1.27)	7.39 (-1.86-16.6)
		5	0.41 (-0.26-1.09)	1.18 (-1.75-4.11)	1.22 (-1.81-4.25)	0.68 (-1.01-2.37)	3.69 (0.25-7.13)
		25	3.53 (-0.82-7.87)	9.24 (1.27-17.2)	5.06 (-6.17-16.3)	1.98 (0.60-3.36)	6.22 (-3.50-15.9)
MONTS	13	1	2.02 (-0.52-4.55)	2.74 (-1.12-6.59)	0.47 (-0.11-1.05)	0.62 (-0.15-1.39)	5.55 (1.57-9.54)
		5	0.57 (-0.84-1.97)	2.11 (-1.87-6.09)	1.42 (-2.11-4.95)	0.50 (-0.74-1.75)	2.91 (-1.45-7.26)
OLSEN	15	1	0.83 (-1.23-2.89)	0.60 (-0.31-1.51)	0.00	0.00	1.40 (0.12-2.69)
		5	0.34 (-0.50-1.18)	0.31 (-0.46-1.09)	2.01 (-2.97-6.99)	0.00	2.28 (0.39-4.17)
		25	3.18 (-1.71-8.07)	0.36 (-0.53-1.25)	0.00	0.00	0.38 (-0.56-1.32)
OUTSI	16	1	0.33 (-0.49-1.16)	2.45 (-1.49-6.39)	2.23 (-3.30-7.75)	0.50 (-0.74-1.73)	21.3 (3.32-39.4)
		5	2.28 (0.99-3.57)	3.43 (0.91-5.95)	2.83 (-0.15-5.81)	0.98 (0.21-1.74)	4.13 (2.17-6.09)
		25	2.15 (0.17-4.13)	6.61 (-1.18-14.4)	5.43 (-1.50-12.3)	1.26 (0.10-2.42)	4.35 (0.08-8.63)
PWALE	17	1	14.3 (-7.49-36.0)	3.17 (-1.08-7.42)	2.18 (0.12-5.39)	0.68 (-0.39-1.75)	5.11 (2.17-8.85)
		5	1.83 (-0.46-4.12)	2.32 (-1.22-5.86)	1.76 (-0.43-5.17)	0.62 (-0.29-1.53)	2.92 (-0.72-5.99)
		25	1.82 (-0.90-4.54)	1.77 (-0.42-3.96)	0.67 (-0.21-2.04)	0.60 (-0.16-1.37)	2.69 (-0.95-8.70)
SMITI	19	1	55.6 (46.3-64.9)	212 (207-216)	207 (178-253)	34.3 (29.8-38.9)	117 (72.8-176)
		5	18.9 (5.69-32.2)	69.4 (29.4-109)	61.0 (28.1-112)	10.7 (1.27-20.2)	47.9 (28.1-86.1)
SNUGH	20	1	12.5 (2.51-22.4)	37.6 (9.48-65.7)	36.9 (12.0-75.8)	6.81 (0.97-12.6)	38.1 (14.5-73.8)
		5	8.04 (-1.96-18.0)	21.7 (11.1-32.3)	38.0 (9.75-81.9)	4.93 (-1.20-11.1)	21.2 (5.00-47.4)
		25	3.23 (-1.32-7.78)	4.56 (1.37-7.75)	2.67 (1.75-4.12)	0.90 (-0.22-2.03)	3.90 (-0.67-10.5)
SQUII	22	1	2.52 (-1.79-6.83)	2.88 (-2.99-8.75)	1.81 (-0.36-5.18)	0.74 (-1.10-2.59)	6.84 (0.22-8.13)
		5	1.35 (-0.67-3.38)	0.95 (-1.40-3.29)	0.21 (-0.12-0.73)	1.33 (-1.97-4.64)	4.37 (0.61-6.23)
		25	6.45 (-1.85-14.7)	4.60 (-0.59-8.61)	16.8 (-8.72-56.5)	0.75 (-0.18-1.68)	3.28 (0.56-6.56)
MDL			0.70	0.42	0.42	0.50	0.50

Table III-2.--Continued

Station name	Station number	Depth (m)	C3fluor	C1dithio	C2dithio	C3dithio	C1phenan
Exxon Valdez crude 1 μL			134	371	507	428	672
BAINP	1	1	4.21 (0.59-7.83)	2.32 (2.24-2.40)	5.33 (-8.90-7.07)	6.11 (4.54-7.69)	8.54 (6.66-10.4)
		5	1.71 (-1.83-5.26)	1.98 (0.98-2.98)	4.37 (-8.54-7.49)	4.13 (-0.52-8.78)	6.33 (4.08-8.57)
		25	31.7 (-43.6-107)	1.36 (-0.33-3.05)	3.69 (-8.70-8.36)	3.82 (-1.02-8.66)	4.11 (2.20-6.02)
ELRIP	5	1	13.0 (-8.36-34.5)	5.37 (-1.50-12.2)	19.9 (-44.3-41.4)	23.1 (0.38-45.8)	16.0 (-4.85-36.9)
		5	3.03 (-1.10-7.17)	4.96 (3.94-5.99)	13.2 (-23.9-19.9)	16.7 (6.89-26.5)	11.7 (8.79-14.7)
		25	2.99 (-1.08-7.06)	3.80 (2.89-4.72)	12.7 (-21.3-17.0)	15.7 (9.17-22.2)	9.56 (7.03-12.1)
HERRB	8	1	263 (218-308)	175 (158-192)	536 (-408-576)	688 (631-745)	321 (296-366)
		5	182, 72.3	151, 57.1	456, 185	572, 252	271, 113
		25	11.8 (-7.63-31.2)	9.68 (-2.55-21.9)	27.8 (-64.1-60.9)	37.2 (-8.74-83.1)	20.0 (-3.61-43.5)
JOHNC	10	1	23.5 (4.72-42.2)	10.5 (8.59-12.5)	31.1 (-50.8-39.6)	41.7 (23.7-59.8)	35.1 (31.9-38.2)
		5	8.97 (-7.80-25.8)	8.76 (3.80-13.7)	23.5 (-45.4-39.5)	32.8 (15.3-50.3)	20.6 (7.43-33.8)
		25	2.39 (-1.02-5.81)	2.45 (-0.68-5.58)	7.57 (-17.7-17.0)	10.1 (-2.61-22.8)	5.82 (-1.43-13.1)
MAINB	12	1	2.25 (-0.57-5.07)	2.69 (0.77-4.61)	6.66 (-13.3-11.8)	6.50 (0.26-12.8)	6.77 (-2.82-16.4)
		5	0.36 (-0.54-1.26)	1.51 (-0.38-3.40)	3.64 (-7.42-6.65)	3.64 (0.28-7.00)	4.92 (0.74-9.10)
		25	3.24 (-1.52-8.00)	5.60 (2.48-8.73)	13.3 (-23.4-19.3)	11.1 (6.23-16.0)	14.8 (7.03-22.6)
MONTS	13	1	1.00 (-0.45-2.46)	2.20 (-1.04-5.44)	3.78 (-9.27-9.04)	2.72 (-0.88-6.32)	6.62 (-3.21-16.5)
		5	0.76 (-1.12-2.63)	2.54 (2.08-3.00)	3.51 (-6.60-5.66)	2.27 (1.06-3.49)	6.68 (5.60-7.75)
OLSEN	15	1	0.66 (-0.20-1.53)	0.00	0.00	0.00	0.00
		5	1.46 (-0.37-3.30)	0.00	0.00	0.31 (-0.46-1.09)	0.42 (-0.62-1.45)
		25	0.00	0.00	0.00	0.00	0.00
OUTSI	16	1	5.19 (3.45-6.92)	2.21 (1.73-2.70)	5.16 (-9.70-8.31)	3.92 (1.30-6.54)	11.9 (1.70-22.2)
		5	0.59 (0.05-1.57)	2.18 (1.54-2.81)	3.38 (-2.08-4.67)	3.47 (2.06-4.87)	5.42 (3.17-7.68)
		25	3.36 (-1.08-7.80)	3.65 (-1.28-8.58)	13.4 (-2.24-31.6)	14.8 (-5.59-35.2)	9.02 (-1.48-19.5)
PWALE	17	1	3.07 (-2.88-9.01)	2.89 (1.59-4.19)	8.20 (-15.0-12.6)	10.5 (7.08-14.0)	7.54 (4.36-10.7)
		5	1.01 (-0.50-2.53)	3.04 (0.93-5.15)	7.72 (-16.1-14.5)	9.61 (2.78-16.4)	7.66 (4.05-11.3)
		25	1.01 (-0.42-2.45)	1.35 (0.56-2.14)	4.91 (-8.76-7.27)	6.77 (1.76-11.8)	3.92 (2.76-5.07)
SMITI	19	1	120 (107-133)	116 (104-128)	270 (-399-287)	301 (289-314)	224 (219-229)
		5	48.0 (28.0-68.0)	47.1 (39.9-54.2)	104 (-170-133)	149 (109-190)	93.0 (76.5-109)
SNUGH	20	1	41.5 (4.70-78.4)	33.6 (14.6-52.6)	98.0 (-176-147)	119 (52.6-185)	68.7 (32.3-105)
		5	22.8 (2.73-42.8)	21.8 (16.8-26.9)	53.5 (-92.5-75.1)	76.8 (51.8-102)	45.0 (33.8-56.2)
		25	4.16 (-1.00-9.33)	3.84 (3.46-4.21)	14.1 (-21.0-15.2)	18.1 (15.7-20.5)	9.62 (8.26-11.0)
SQUII	22	1	7.08 (-0.02-14.2)	3.95 (0.27-7.62)	10.4 (-19.9-17.2)	11.2 (1.37-21.1)	11.9 (3.36-20.5)
		5	0.65 (-0.97-2.27)	3.18 (0.30-6.05)	6.03 (-9.93-7.80)	6.38 (0.37-12.4)	9.77 (3.54-16.0)
		25	1.95 (-0.67-4.58)	3.01 (0.69-5.33)	8.39 (-16.9-15.0)	7.50 (2.82-12.2)	8.12 (3.17-13.1)
MDL			0.50	0.35	0.35	0.35	0.56

Table III-2.--Continued.

Station name	Station number	Depth (m)	C2phenan	C3phenan	C4phenan	C1fluora	C1chrys
Exxon Valdez crude 1 μL			794	497	148	63.7	71.4
BAINP	1	1	12.0 (10.7-13.3)	17.2 (6.84-27.5)	2.63 (0.61-4.65)	0.00	0.61 (-0.17-1.39)
		5	10.3 (1.80-18.7)	7.06 (0.18-13.9)	1.83 (-0.97-4.63)	0.00	0.66 (-0.16-1.48)
		25	10.7 (10.3-11.1)	7.98 (7.16-8.80)	0.73 (-0.18-1.64)	0.00	1.01 (-1.50-3.53)
ELRIP	5	1	36.8 (3.03-70.6)	37.7 (-0.43-75.8)	20.4 (-6.56-47.3)	1.75 (-2.59-6.09)	4.24 (0.27-8.21)
		5	22.4 (7.47-37.3)	25.4 (9.67-41.1)	5.04 (-2.35-12.4)	0.59 (-0.87-2.04)	4.35 (0.37-8.34)
		25	22.5 (16.7-28.3)	22.7 (13.0-32.4)	2.15 (-0.58-4.89)	0.70 (-1.03-2.42)	3.41 (1.90-4.92)
HERRB	8	1	858 (802-913)	920 (848-992)	534 (386-683)	163 (114-212)	133 (107-158)
		5	731, 299	766, 302	776, 106	75.1, 42.8	103, 49.2
		25	57.4 (-8.45-123)	55.9 (-14.3-126)	21.4 (-15.1-57.9)	6.45 (-6.24-19.1)	11.2 (-4.29-26.7)
JOHNC	10	1	59.3 (46.7-72.0)	66.7 (51.6-81.9)	35.9 (10.7-61.2)	7.23 (-0.42-14.9)	8.12 (2.11-14.1)
		5	43.9 (28.3-59.4)	49.4 (25.6-73.2)	11.9 (-3.61-27.3)	3.45 (-1.44-8.33)	6.88 (0.39-13.4)
		25	13.5 (-3.25-30.3)	12.7 (-3.05-28.4)	5.59 (3.04-8.14)	0.48 (-0.71-1.67)	3.07 (0.85-5.30)
MAINB	12	1	13.4 (4.03-22.7)	16.8 (-10.1-43.8)	5.39 (-6.36-17.1)	0.68 (-1.01-2.37)	0.80 (-0.20-1.81)
		5	9.04 (1.83-16.2)	7.53 (-1.01-16.1)	1.98 (-2.93-6.88)	0.00	1.83 (-1.77-5.43)
		25	28.8 (12.1-45.4)	22.9 (-2.23-48.0)	4.20 (-5.09-13.5)	0.99 (-1.47-3.46)	3.80 (3.50-4.10)
MONTS	13	1	10.1 (2.67-17.6)	5.09 (0.73-9.45)	0.41 (-0.61-1.44)	0.00	0.50 (-0.13-1.14)
		5	9.68 (6.82-12.5)	10.6 (-3.78-24.9)	1.62 (-0.60-3.85)	0.00	1.24 (-1.12-3.61)
OLSEN	15	1	0.00	0.00	0.00	0.00	0.28 (-0.41-0.97)
		5	0.00	0.00	0.00	0.00	1.20 (-1.77-4.16)
		25	0.00	0.00	0.00	0.00	1.11 (-0.54-2.76)
OUTSI	16	1	10.7 (2.66-18.7)	8.98 (4.15-13.8)	1.89 (-1.26-5.04)	0.00	1.66 (0.29-3.03)
		5	8.33 (4.60-12.1)	6.16 (3.66-8.66)	1.26 (-0.12-2.63)	0.00	1.12 (-0.66-2.89)
		25	24.7 (-4.62-53.9)	23.4 (-5.84-52.7)	4.72 (-1.96-11.4)	0.79 (-0.47-2.05)	3.56 (-0.49-7.60)
PWALE	17	1	15.4 (8.42-22.4)	14.9 (7.87-21.9)	3.91 (1.60-7.51)	0.00	2.46 (1.15-4.51)
		5	14.6 (4.56-24.6)	15.2 (2.88-27.6)	2.58 (-0.27-7.03)	0.00	2.77 (0.06-4.11)
		25	8.44 (3.32-13.6)	10.5 (1.88-19.1)	2.14 (0.79-4.26)	0.00	2.76 (0.65-3.23)
SMITI	19	1	457 (423-490)	427 (364-490)	262 (88.1-532)	76.1 (21.7-131)	55.7 (28.8-76.4)
		5	195 (121-270)	196 (155-237)	79.3 (58.4-112)	19.0 (4.08-34.0)	23.5 (11.6-34.5)
SNUGH	20	1	171 (89.5-252)	179 (87.5-271)	83.9 (65.2-113)	24.5 (-7.14-56.2)	28.2 (14.0-51.2)
		5	108 (50.3-165)	118 (67.2-170)	47.2 (21.7-87.1)	7.93 (-1.37-17.2)	15.1 (1.53-33.5)
		25	29.8 (27.8-31.9)	34.6 (10.9-58.2)	7.35 (2.05-15.6)	0.00	5.20 (2.27-7.21)
SQUII	22	1	22.1 (6.37-37.8)	19.0 (3.02-35.0)	7.62 (1.53-17.1)	0.00	2.75 (-0.17-4.92)
		5	12.2 (4.10-20.3)	11.0 (3.59-18.3)	1.16 (0.23-2.62)	0.00	0.37 (-0.54-1.28)
		25	18.4 (8.20-28.5)	16.8 (6.68-26.8)	2.21 (0.62-4.70)	0.00	2.08 (-0.51-2.59)
MDL			0.56	0.56	0.56	1.18	0.55

Table III-2.--Continued

Station name	Station number	Depth (m)	C2chrys	C3chrys	C4chrys	% Moisture
Exxon Valdez crude 1 μL			94 5	32.3	0 00	
BAINP	1	1	4.24 (2.45-6.03)	0.00	0.00	89.3
		5	2.53 (0.45-4.61)	0.00	0.00	88.7
		25	2 20 (-1.02-5 41)	0.00	0.25 (-0 37-0.87)	90 0
ELRIP	5	1	4 11 (-3.70-11.9)	0.00	0.36 (-1 18-1.26)	88.3
		5	3 12 (2.16-4 09)	0.00	0.00	88.0
		25	3.56 (0.27-6 85)	0.26 (-0.38-0.89)	0.00	87.3
HERRB	8	1	120 (99.4-141)	47.5 (27.1-67 9)	8.25 (-3.85-14.1)	87.3
		5	87 5, 38 8	14.5, 15.1	0.00, 1.02	84.5
		25	7.74 (-3.71-19.2)	2.76 (-1.20-6.72)	0 31 (-1.01-1 08)	88.4
JOHNC	10	1	8 32 (0.78-15.9)	1 60 (-2.36-5.56)	0 28 (-0 91-0 97)	87.6
		5	7 06 (1 35-12 8)	0.99 (-1.47-3.46)	0.27 (-0 87-0 93)	85.0
		25	1.91 (-1 70-5.52)	0 00	0 00	89.4
MAINB	12	1	1.79 (-0 78-4.35)	0.00	0 00	88 7
		5	2 56 (0.05-5.07)	0 00	0.00	89.7
		25	2 53 (-2 68-7 75)	0.00	0 70 (-2 28-2 44)	87.3
MONTS	13	1	0 87 (-0 33-2 06)	0 00	0 00	85.0
		5	3 29 (-0 07-6 64)	0 42 (-0 63-1 47)	0 81 (-2 63-2 82)	86 7
OLSEN	15	1	0 50 (-0 12-1 12)	0 00	0 00	87 3
		5	1 67 (1 10-2 24)	0 00	0 42 (-1 38-1 47)	85 7
		25	0 28 (-0 42-0 99)	0 42 (-0 62-1 45)	0 00	89.7
OUTSI	17	1	4 55 (-1 09-10 2)	0 20 (-0 30-0 71)	1 85 (-4 72-4 68)	82 0
		5	4 14 (2 44-7 19)	0 34 (-0 20-0 89)	1 11 (-0 32-2 31)	85 0
		25	2 22 (0 76-3 68)	0 00	0 30 (-0 02-0 77)	88.5
PWALE	19	1	3 08 (1 62-4 54)	0 00	0 22 (-0 72-0 77)	87 0
		5	2 85 (0 97-4 73)	0 00	0 00	86.7
		25	1 54 (-1 42-4 50)	0 00	0 00	89.7
SMITI	19	1	47 1 (36.5-57 8)	17 6 (-1 99-37 1)	4 63 (-12 2-12 2)	79.7
		5	21 9 (1 35-42 5)	6 09 (-5 26-17 4)	0 85 (-2 77-2 97)	83 4
SNUGH	20	1	16 5 (1 23-31 7)	5 65 (-2 09-13 4)	0 83 (-2 00-1 93)	85 0
		5	13 5 (1 86-25 2)	1 52 (-2 25-5 29)	0 00	87 7
		25	2 21 (-0 53-4 96)	0 28 (-0 41-0 96)	0 00	89 7
SQUII	22	1	2 28 (-0 60-5 16)	0 00	0 00	87 4
		5	1 48 (-0 59-3 54)	0 00	0 00	88 3
		25	0 56 (-0 83-1 95)	0 22 (-0 33-0 78)	0 00	88 0
MDL			0 55	0 55	0 55	

Table III-2.--Concentrations (ng/g) of uncalibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, June, 1989.

Station name	Station number	Depth (m)	C2naph	C3naph	C4naph	C1fluor	C2fluor	C3fluor	C1dithio	C2dithio	C3dithio	C1phenan	C2phenan	C3phenan
BAINP	1	1	0.00	0.81	1.78	0.00	11.0	6.76	0.65	1.30	0.57	1.35	4.04	7.12
		5	0.00	1.05	1.94	0.00	8.65	4.72	0.52	1.03	0.48	0.83	3.31	1.58
		25	0.00	0.89	6.22	0.00	13.9	8.66	0.00	1.40	1.25	0.95	2.51	2.21
ELRIP	5	1	0.64	0.91	0.00	0.00	0.00	0.00	0.42	0.98	0.50	1.48	2.12	1.40
		5	2.31	2.31	0.00	0.00	1.74	0.00	1.08	2.76	3.29	3.26	7.27	7.52
		25	2.02	1.37	0.00	0.00	5.76	0.00	0.00	0.00	0.00	0.83	1.68	0.00
JOHNC	10	1	1.26	0.00	0.00	0.00	0.00	0.00	0.00	1.23	1.39	0.00	2.61	1.69
		5	0.43	0.00	0.00	0.00	0.00	0.00	0.48	1.60	2.04	1.95	3.89	3.95
		25	0.51	0.00	0.00	0.00	0.00	0.00	0.00	1.27	1.35	0.00	2.73	2.62
MAINB	12	1	0.00	0.00	4.69	16.2	8.96	5.07	6.81	4.82	5.06	6.50	3.18	0.84
		5	0.00	0.00	2.75	0.00	7.19	4.62	0.69	1.48	0.69	1.28	3.78	1.05
		25	0.64	1.13	7.73	1.11	16.0	10.4	0.87	2.19	2.21	2.29	8.07	5.90
OLSEN	15	1	0.00	0.00	0.00	0.00	1.04	0.00	0.00	0.00	0.44	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	1.92	0.00	0.00	0.00	0.86	0.63	0.00	0.00
		25	1.08	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.46	0.00	0.00	0.00
OUTSI	16	1	0.73	0.00	0.00	0.00	0.64	0.00	1.17	2.75	2.13	2.64	7.35	1.79
		5	1.43	1.34	0.00	0.00	1.57	0.51	1.53	2.47	2.52	4.33	7.05	1.96
		25	0.70	0.65	0.00	0.00	0.73	0.00	0.00	1.05	0.86	0.84	2.76	0.00
PWALE	17	1	0.00	1.04	2.85	0.00	4.27	2.83	0.68	1.88	2.34	2.06	5.31	12.5
		5	0.00	0.00	2.71	0.00	6.85	3.94	0.00	1.33	1.64	1.14	3.90	4.39
		25	0.00	0.51	1.96	0.00	2.68	1.77	0.00	1.09	1.31	0.68	2.67	8.18
SMITI	19	1	3.22	15.5	24.9	2.16	18.6	32.5	15.2	54.0	88.0	26.5	98.3	157
		5	0.00	3.54	33.6	1.46	17.2	13.8	3.94	18.8	29.7	9.02	34.9	57.4
		25	0.71	1.41	0.63	0.00	0.00	0.63	0.43	2.13	5.47	2.07	5.65	27.9
SNUGH	20	1	1.00	1.90	0.00	0.00	0.00	1.22	2.30	8.37	13.1	5.68	15.9	16.6
		5	1.50	1.37	0.00	0.00	2.66	0.71	2.71	8.16	7.22	7.53	15.8	8.73
SQUII	22	1	0.00	0.00	21.7	0.62	0.79	0.00	0.60	1.56	3.74	2.31	4.06	5.88
		5	0.99	0.52	0.00	0.00	0.63	0.00	0.00	0.95	0.57	1.59	2.22	2.15
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.46	1.03	2.09	1.19

Table III-2.--Continued.

Station name	Station number	Depth (m)	C4phenan	C1fluora	C1chrys	C2chrys	C3chrys	C4chrys	% Moisture
BAINP	1	1	0.36	0.00	0.00	0.00	0.00	0.00	90.0
		5	0.00	0.00	0.00	0.00	0.00	0.00	91.1
		25	0.83	0.00	0.00	0.00	0.00	0.00	90.0
ELRIP	5	1	0.00	0.00	0.57	0.00	0.00	0.00	87.9
		5	0.56	0.00	0.91	0.00	0.00	0.00	88.0
		25	0.00	0.00	0.00	0.00	0.00	0.00	91.0
JOHNC	10	1	0.63	0.00	0.00	0.00	0.00	0.00	89.0
		5	0.97	0.00	0.58	0.70	0.00	0.00	87.9
		25	0.76	0.00	0.58	0.00	0.00	0.00	88.0
MAINB	12	1	0.70	2.05	1.57	2.58	7.18	0.00	89.0
		5	0.48	0.00	0.00	0.00	0.00	0.00	97.0
		25	1.96	0.00	0.00	0.00	0.00	0.00	90.0
OLSEN	15	1	0.00	0.00	0.00	13.6	0.00	0.58	89.0
		5	0.00	0.00	0.00	13.9	0.00	0.00	87.0
		25	0.00	0.00	0.00	5.25	0.00	0.00	90.0
OUTSI	16	1	2.34	0.00	0.00	6.12	0.00	0.00	92.0
		5	0.00	0.00	0.98	8.57	0.00	0.00	87.0
		25	0.00	0.00	0.00	5.50	0.00	0.00	92.0
PWALE	17	1	1.05	0.00	0.00	0.00	0.00	0.00	90.0
		5	1.44	0.00	0.00	0.00	0.00	0.00	92.0
		25	0.95	0.00	0.00	0.00	0.00	0.00	94.0
SMITI	19	1	73.4	11.0	26.8	9.57	1.33	0.00	88.1
		5	35.1	2.95	8.07	11.4	1.48	0.00	88.0
		25	5.44	0.00	2.37	1.03	0.00	0.00	88.0
SNUGH	20	1	4.34	0.00	8.04	6.14	0.00	0.00	92.0
		5	1.97	0.00	6.08	5.97	0.00	0.00	88.0
SQUII	22	1	1.37	0.00	0.72	1.08	0.00	0.00	88.0
		5	0.84	0.00	0.00	0.00	0.00	0.00	88.0
		25	0.00	0.00	0.00	0.00	0.00	0.00	90.0

Table III-2 --Concentrations (ng/g) of uncalibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, July, 1989.

Station name	Station number	Depth (m)	C2naph	C3naph	C4naph	C1fluor	C2fluor	C3fluor	C1dithio	C2dithio
BAINP	1	1	0.00	0.51	0.00	0.00	1.19	1.17	0.41	1.04
		5	0.00	0.46	0.00	0.00	0.51	0.00	0.00	0.83
		25	0.77, 0.00	0.60, 0.00	0.00, 0.00	0.00, 0.00	0.98, 17.4	0.00, 2.44	0.00, 0.00	0.78, 0.00
ELRIP	5	1	0.00	0.54	0.00	1.16	9.89	1.97	0.92	1.82
		5	0.00	0.00	0.00	0.00	17.3	2.09	0.00	0.82
		25	0.00	0.00	0.00	0.00	2.50	0.00	0.00	0.00
HERRB	8	1	4.10	35.7	59.5	7.82	44.2	53.2	11.0	54.8
		5	1.48	16.6	24.3	2.63	23.7	33.5	13.0	49.7
		25	0.00	1.18	1.58	0.00	1.75	1.31	0.59	2.11
		1*	7.35, 6.51	20.2, 34.5	29.7, 66.6	3.48, 7.60	21.8, 45.7	46.3, 107	19.0, 45.8	107, 258
		5*	2.61, 11.5	4.69, 40.8	7.14, 67.2	1.55, 6.96	5.79, 50.3	15.0, 111	6.68, 44.4	43.1, 232
		25*	1.87	1.78	0.00	0.00	2.39	2.33	0.76	14.3
JOHNC	10	1	A	A	A	A	A	A	0.78	2.32
		5	2.83	3.05	1.97	0.97	1.97	1.14	1.49	3.81
		25	2.47	1.51	0.00	1.14	0.78	0.54	0.00	1.88
MAINB	12	1	0.00	0.00	0.00	0.00	1.52	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	2.15	0.00	0.00	0.44
		25	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MONTS	13	1	0.00	0.00	0.00	0.00	11.0	1.84	0.77	0.72
		5	0.00	0.00	0.00	0.00	1.03	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OLSEN	15	1	0.00	0.00	0.00	0.00	1.37	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.92	0.50	1.19	0.55
OUTSI	16	1	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.58
		5	0.00	1.23	0.00	0.00	0.00	0.00	0.00	1.58
		25	0.00, 0.00	1.25, 0.87	0.00, 0.00	0.00, 0.50	1.15, 1.08	0.71, 0.99	0.36, 0.44	1.32, 1.16
PWALE	17	1	0.00	0.98	0.00	0.00	6.35	1.25	1.25	2.94
		5	0.00	0.00	0.00	0.00	0.61	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SMITI	19	1	0.00	3.70	6.16	0.00	4.81	0.77	1.53	16.3
		5	0.00	1.36	3.48	0.85	3.57	1.50	1.58	10.2
		25	0.00	0.59	0.00	0.00	0.00	0.00	0.00	1.03
SNUGH	20	1	0.00	3.30	4.78	1.07	2.88	2.31	2.46	13.1
		5	1.18	4.27	2.08	0.00	3.40	1.78	3.36	16.1
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99
SQUII	22	1	1.43	0.62	0.00	0.00	2.63	0.97	3.19	7.22

Table III-2.--Continued

Station name	Station number	Depth (m)	C3dithio	C1phenan	C2phenan	C3phenan	C4phenan	C1fluora	C1chrys	C2chrys
BAINP	1	1	1.25	0.90	2.11	2.11	0.76	0.00	0.82	0.86
		5	0.87	0.85	1.46	1.72	0.00	0.00	0.59	0.00
		25	1.04, 0.00	1.19, 8.96	2.39, 1.85	2.26, 6.48	0.71, 0.00	0.00, 0.00	0.00, 0.00	0.60, 7.67
ELRIP	5	1	4.01	6.31	7.67	10.3	2.00	0.00	2.43	12.5
		5	0.97	10.2	2.58	6.32	1.29	0.00	0.00	5.98
		25	0.00	1.18	1.45	0.00	0.00	0.00	1.15	6.69
HERRB	8	1	106	29.1	153	12.8	89.7	14.3	31.0	19.5
		5	65.5	16.9	66.1	94.3	49.2	5.90	10.9	4.46
		25	3.45	1.12	4.11	8.28	3.93	0.00	0.77	1.50
		1*	247, 539	30.1, 65.9	151, 372	304, 667	141, 276	54.3, 79.3	95.9, 109	98.4, 93.8
		5*	109, 471	10.0, 69.2	62.5, 334	154, 592	72.4, 242	26.8, 90.7	76.3, 60.8	58.3, 60.5
		25*	32.0	2.87	20.2	66.6	28.0	10.9	7.07	8.70
JOHNC	10	1	2.98	1.24	3.65	4.16	0.74	0.00	4.81	0.00
		5	6.17	4.27	6.77	18.9	1.14	0.00	0.90	0.00
		25	2.63	1.47	4.00	4.16	0.44	0.00	0.68	0.00
MAINB	12	1	0.00	0.00	1.27	0.84	0.00	0.00	0.00	4.34
		5	0.00	0.74	1.19	0.00	0.00	0.00	0.62	4.92
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.41
MONTS	13	1	0.00	5.69	1.84	2.28	0.00	0.00	0.72	6.98
		5	0.00	0.00	0.00	0.89	0.00	0.00	0.00	9.22
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00
OLSEN	15	1	0.00	0.68	0.00	0.00	0.00	0.00	0.00	6.07
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81
		25	6.20	0.80	0.00	0.00	0.00	0.00	0.00	2.21
OUTSI	16	1	0.45	0.00	1.25	0.00	0.00	0.00	0.00	0.61
		5	2.22	0.98	3.85	3.59	0.00	0.00	4.40	1.75
		25	1.66, 1.68	1.66, 1.93	4.18, 3.25	3.39, 2.81	1.01, 0.00	0.00, 0.00	0.00, 0.00	1.12, 0.00
PWALE	17	1	2.82	6.59	7.59	5.82	0.00	0.00	0.56	6.98
		5	0.00	0.00	0.00	0.00	0.00	0.00	1.27	5.38
		25	0.00	0.00	1.37	1.65	0.00	0.00	0.70	6.29
SMITI	19	1	26.3	5.14	21.4	38.4	23.5	1.62	4.76	6.18
		5	19.0	4.08	16.7	26.3	8.84	0.00	3.03	7.97
		25	2.02	0.00	1.52	3.11	0.00	0.00	0.64	2.12
SNUGH	20	1	20.5	5.89	22.1	30.7	9.78	0.00	6.28	9.19
		5	22.3	7.23	24.0	23.7	6.31	2.35	3.57	6.93
		25	2.06	0.00	1.89	3.36	0.00	0.00	0.00	2.92
SQUII	22	1	5.71	6.52	11.8	5.02	1.00	0.00	1.51	5.02

Table III-2.--Continued

Station name	Station number	Depth (m)	C3chrys	C4chrys	% Moisture
BAINP	1	1	0.00	0.00	87.5
		5	0.00	0.00	88.0
		25	0.00, 0.00	0.00, 0.00	88.0
ELRIP	5	1	0.00	0.00	82.0
		5	0.00	0.00	87.0
		25	0.00	0.00	89.0
HERRB	8	1	10.8	1.14	--
		5	2.71	0.65	87.8
		25	0.00	0.00	88.6
		1*	34.1, 28.1	2.78, 1.20	91.5
		5*	20.2, 23.0	1.33, 1.83	90.5
		25*	0.00	0.74	90.0
JOHNC	10	1	0.73	0.00	90.0
		5	0.00	0.00	--
		25	0.00	0.00	--
MAINB	12	1	0.00	0.00	91.0
		5	0.00	0.00	91.0
		25	0.00	0.00	93.0
MONTS	13	1	0.00	0.00	89.1
		5	0.00	0.00	89.0
		25	0.00	0.00	90.0
OLSEN	15	1	0.00	0.00	90.0
		5	0.00	0.00	89.0
		25	0.00	0.00	91.0
OUTSI	16	1	0.00	0.00	89.0
		5	0.00	0.00	90.0
		25	0.00, 0.00	0.00, 0.00	90.5
PWALE	17	1	0.00	0.00	88.0
		5	0.00	0.00	89.0
		25	0.00	0.00	89.0
SMITI	19	1	0.00	0.00	88.0
		5	0.00	0.00	85.0
		25	0.00	0.00	88.0
SNUGH	20	1	1.83	0.00	89.0
		5	0.00	0.00	87.0
		25	0.00	0.00	90.0
SQUII	22	1	0.00	0.00	87.0

*Deployed in June, collected in August.

Table III-2.--Concentrations (ng/g) of uncalibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, August, 1989.

Station name	Station number	Depth (m)	C2naph	C3naph	C4naph	C1fluor	C2fluor	C3fluor	C1dithio	C2dithio
BAINP	1	1	1.11	0.00	0.00	0.00	1.38	0.00	0.00	0.39
		5	0.00	0.72	0.00	0.00	1.75	0.00	0.00	0.47
		25	0.00	0.00	0.00	0.00	3.60	0.00	0.00	0.52
ELRIP	5	1	0.00	1.44	0.94	0.56	1.24	1.26	0.99	2.65
HERRB	8	1	0.81	4.86	9.55	2.88	15.3	17.4	7.33	35.9
		5	0.88	4.14	7.75	2.43	21.2	15.0	6.42	32.0
		25	0.00	0.00	0.00	0.00	0.57	0.00	0.52	2.37
JOHNC	10	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75
		25	1.85	1.57	0.81	0.65	0.53	0.89	0.85	3.11
MAINB	12	1	1.96	0.00	0.00	0.00	1.90	0.00	0.00	0.70
		5	0.00	0.00	0.00	0.00	1.31	0.00	0.00	0.96
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MONTS	13	1	0.00	0.49	0.00	0.00	2.42	0.00	0.67	1.99
OLSEN	15	1	0.00	0.00	0.00	0.00	0.65	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PWALE	17	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.64	0.00	1.44	10.7	0.00	0.00	1.61	0.69
SQUII	22	1	1.14, 2.87	0.00, 1.16	0.00, 0.00	0.00, 0.95	0.00, 0.87	1.08, 0.00	0.71, 0.60	1.36, 2.21
		25	0.79	0.00	0.00	0.00	0.82	0.00	0.00	0.00

Table III-2 --Continued

Station name	Station number	Depth (m)	C3dithio	C1phenan	C2phenan	C3phenan	C4phenan	C1fluora	C1chrys	C2chrys
BAINP	1	1	0.00	0.79	0.00	0.61	0.00	0.00	0.00	0.00
		5	0.00	0.68	0.00	5.95	0.00	0.00	0.00	0.69
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81
ELRIP	5	1	3.40	1.26	3.98	5.64	1.95	0.00	1.36	4.78
HERRB	8	1	73.7	10.2	44.6	103	42.7	19.2	19.9	21.2
		5	61.5	10.3	38.0	76.2	36.3	16.5	15.6	15.2
		25	3.47	0.83	1.31	19.5	2.09	0.00	7.88	2.90
JOHNC	10	1	1.11	0.00	1.27	0.91	0.00	0.00	2.34	1.11
		25	5.09	0.67	4.07	7.00	1.95	0.00	0.59	0.83
MAINB	12	1	1.11	0.00	0.00	9.32	0.73	0.00	0.00	1.87
		5	1.34	0.75	0.00	2.43	0.86	0.00	0.00	2.47
		25	0.00	0.00	0.00	5.06	0.00	0.00	0.00	0.00
MONTS	13	1	3.58	1.55	5.83	2.97	2.55	0.00	0.88	9.51
OLSEN	15	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	3.01	0.00	0.00	0.00	1.49
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90
PWALE	17	5	0.37	0.00	1.24	0.00	0.00	0.00	0.00	2.45
		25	0.61	0.00	0.62	0.00	0.00	0.00	4.57	1.06
SQUII	22	1	2.83, 2.22	0.00, 1.41	3.06, 2.07	14.6, 2.00	0.73, 0.54	0.00, 0.00	0.59, 0.00	1.08, 0.00
		25	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-2.--Continued

Station name	Station number	Depth (m)	C3chrys	C4chrys	% Moisture
BAINP	1	1	0.92	0.00	88.5
		5	0.00	0.00	87.1
		25	0.00	0.00	92.0
ELRIP	5	1	0.00	0.00	86.0
HERRB	8	1	10.8	0.00	89.3
		5	7.13	0.00	85.9
		25	0.00	0.00	90.6
JOHNC	10	1	0.00	0.00	90.0
		25	1.20	0.00	92.0
MAINB	12	1	0.00	0.00	88.2
		5	0.00	0.00	89.3
		25	0.00	0.00	92.3
MONTS	13	1	0.00	0.00	84.0
OLSEN	15	1	0.00	0.00	88.7
		5	1.09	0.00	90.5
		25	1.18	0.00	91.5
PWALE	17	5	0.00	0.00	91.0
		25	7.05	0.00	93.0
SQUII	22	1	0.00, 0.00	0.77, 0.00	87.5
		25	0.00	0.00	92.0

Table III-3 Concentrations of alkanes in caged mussels deployed in 1989 in PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Table II-4 contains a key for the alkane abbreviations used here. Tables I-1 and I-2 list the station locations and deployment periods that correspond with the station numbers and abbreviations used here. Concentrations are reported as ng alkanes/g wet tissue weight. Results of single determinations are presented alone; results of duplicate determinations are separated by commas, and results of more than duplicate determinations are followed by 95% confidence intervals in parentheses. Corresponding % moisture determinations for these samples are listed in Table III-2 above. Also listed in the May, 1989 portion of the present Table are the method detections limits for these alkanes, and the results (ng) of analysis of 1 µL of unweathered crude oil spilled from the hold of the *Exxon Valdez* deterined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits. A = surrogate recovery below 30%; data treated as missing. B = surrogate recovery above 150%; data treated as missing. ' = below lowest calibration standard.
Concentrations (ng/g) of alkanes found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, May, 1989

Station name	Station number	Depth (m)	C10	C11	C12	C13	C14
Exxon Valdez crude 1 µL			4292	3550	3717	3932	3168
BAINP	1	1	92.9' (-137-323)	34.6' (-28.5-97.6)	1.88' (-2.78-6.53)	7.77' (-11.5-27.0)	27.3' (-40.4-95.1)
		5	0.00	2.88' (-4.26-10.0)	2.25' (-3.33-7.83)	0.00	6.53' (-9.67-22.7)
		25	235 (-348-818)	78.4' (-116-273)	4.15' (-1.10-9.39)	22.8' (-33.7-79.3)	8.49' (-12.6-29.5)
ELRIP	5	1	7.22' (-10.7-25.1)	0.00	0.00	0.00	0.00
		5	18.3' (-4.40-41.0)	0.00	4.19' (-1.02-9.40)	0.00	0.00
		25	12.3' (-18.2-42.8)	58.1' (-86.0-202)	11.5' (1.99-21.0)	5.55' (-8.21-19.3)	10.2' (-15.1-35.6)
HERRB	8	1	25.5' (10.8-40.2)	42.3' (19.9-64.8)	124' (54.6-194)	221 (95.2-348)	307 (196-419)
		5	30.3', 27.0'	32.9', 32.0'	63.9', 99.4'	107, 166	167, 232
		25	5.66' (-8.37-19.7)	10.1' (7.36-12.7)	19.5' (8.71-30.3)	28.4' (-7.24-64.1)	56.6' (-24.8-139)
JOHNC	10	1	5.68' (-8.40-19.8)	3.26' (-4.83-11.4)	3.38' (-5.00-11.8)	0.00	0.00
		5	44.1' (-18.5-107)	0.00	6.17' (-1.60-13.9)	3.91' (-5.78-13.6)	7.05' (-10.4-24.5)
		25	18.1' (-26.7-62.8)	3.41' (-5.05-11.9)	4.09' (-6.06-14.2)	6.35' (-9.40-22.1)	11.5' (-17.0-39.9)
MAINB	12	1	30.6' (-12.7-73.9)	4.14' (-6.13-14.4)	0.00	0.00	0.00
		5	29.9' (15.3-44.5)	0.00	0.00	3.97' (-5.87-13.8)	0.00
		25	5.36' (-7.93-18.7)	2.65' (-3.93-9.23)	8.88' (4.01-13.8)	0.00	8.15' (-12.1-28.4)
MONTS	13	1	21.7' (-8.70-52.1)	0.00	1.88' (-2.78-6.54)	0.00	0.00
		5	20.1' (13.4-26.7)	2.68' (-3.97-9.33)	0.00	4.03' (-5.96-14.0)	0.00
OLSEN	15	1	14.2' (-21.0-49.3)	0.00	2.21' (-3.28-7.70)	3.55' (-5.25-12.4)	6.58' (-9.73-22.9)
		5	32.2' (-9.33-73.7)	2.97' (-4.40-10.3)	1.89' (-2.80-6.58)	0.00	0.00
		25	9.59' (-14.2-33.4)	13.6' (9.96-17.3)	2.57' (-3.80-8.93)	0.00	0.00
OUTSI	16	1	38.5' (-19.4-96.5)	10.6' (-4.72-25.9)	11.4' (-3.07-25.8)	11.1' (-2.70-24.8)	6.78' (-10.0-23.6)
		5	21.1' (5.14-37.0)	5.86' (-1.12-12.9)	5.87' (0.46-11.3)	7.23' (0.47-14.0)	0.00
		25	5.24' (-3.09-13.6)	6.23' (-0.20-12.7)	4.34' (2.04-6.64)	0.00	0.00
PWALE	17	1	5.15' (-7.63-17.9)	0.00	0.00	0.00	0.00
		5	16.1' (-4.01-36.1)	5.07' (-7.50-17.6)	2.43' (-1.43-8.44)	0.00	0.00
		25	10.3' (-15.2-35.9)	2.84' (-4.20-9.87)	6.95' (0.28-17.3)	4.08' (-6.04-14.2)	10.8' (-15.9-26.7)
SMITI	19	1	44.3' (-23.9-113)	34.0' (-8.41-76.5)	57.0' (7.80-134)	95.1' (-26.8-217)	204 (66.2-268)
		5	51.8' (14.9-88.7)	16.3' (-5.19-37.7)	29.1' (5.47-65.9)	46.0' (-16.3-108)	74.4' (26.2-143)
SNUGH	20	1	11.2' (-16.5-38.9)	2.84' (-4.21-9.89)	9.65' (-5.69-33.6)	24.6' (-16.2-65.4)	39.0' (-13.6-136)
		5	20.7' (-4.96-46.3)	2.91' (-4.30-10.1)	16.6' (11.2-25.0)	25.5' (13.1-37.9)	41.2' (9.57-76.7)
		25	9.15' (-13.5-31.8)	6.65' (-1.94-15.3)	3.92' (0.79-8.80)	0.00	0.00
SQUII	22	1	6.82' (-10.1-23.7)	8.98' (-3.84-21.8)	3.26' (-1.93-11.4)	0.00	0.00
		5	18.7' (-4.64-42.1)	20.8' (-30.8-72.3)	1.92' (-1.13-6.68)	0.00	0.00
		25	7.50' (-11.1-26.1)	7.52' (-2.27-17.3)	3.42' (-2.02-11.9)	0.00	0.00
MDL			13.4	7.84	5.10	10.3	19.6

Table III-3.--Continued.

Station name	Station number	Depth (m)	C15	C16	C17	Phe	C18
Exxon Valdez crude 1 µL			2937	2582	2118	2054	2575
BAINP	1	1	91.9* (112.2*-)	91.8* (86.6-180)	14.8* (-48.2-51.6)	424 (284-564)	0.00
		5	22.2* (-7.55-51.9)	0.00	14.3* (-46.4-49.7)	401 (282-520)	6.33* (-9.37-22.0)
		25	59.2* (-21.3-140)	31.2* (-46.2-109)	0.00	184 (126-243)	0.00
ELRIP	5	1	31.7* (19.0-44.4)	0.00	0.00	4344 (568-8121)	0.00
		5	16.0* (-3.86-35.9)	0.00	0.00	2792 (2150-3435)	0.00
		25	31.2* (-7.83-70.3)	10.9* (-16.2-38.1)	0.00	2411 (1624-3199)	6.19* (-9.16-21.5)
HERRB	8	1	354 (307-402)	195 (165-225)	81.1* (-4.79-210)	1574 (1241-1908)	172* (86.1-328)
		5	204, 195	123, 106	0.00, 0.00	1384, 1164	135, 35.1*
		25	87.5* (28.6-146)	84.8* (17.8-152)	35.9* (-117-125)	468 (327-609)	44.5* (11.6-77.4)
JOHNC	10	1	21.2* (-6.79-49.2)	0.00	0.00	1562 (1361-1763)	6.80* (-10.1-23.7)
		5	22.6* (-5.63-50.9)	0.00	0.00	1804 (1001-2607)	0.00
		25	33.9* (-8.14-75.9)	13.2* (-19.6-46.1)	28.3* (-92.1-98.6)	541 (-106-1188)	0.00
MAINB	12	1	19.0* (-4.60-42.7)	0.00	0.00	697 (499-896)	0.00
		5	34.0* (27.1-41.0)	0.00	0.00	691 (583-798)	7.34* (-10.9-25.5)
		25	38.7* (24.9-52.5)	0.00	0.00	270 (89.4-451)	0.00
MONTS	13	1	29.5* (23.6-35.3)	0.00	0.00	2740 (2473-3008)	0.00
		5	32.6* (28.5-36.8)	0.00	0.00	1732 (1374-2090)	0.00
OLSEN	15	1	32.3* (20.0-44.5)	0.00	16.9* (-54.9-58.8)	252 (85.7-418)	0.00
		5	31.2* (19.4-43.0)	0.00	38.3* (-93.3-90.8)	421 (314-529)	0.00
		25	36.8* (28.5-45.2)	0.00	13.1* (-42.6-45.7)	143 (45.0-242)	0.00
OUTSI	16	1	29.6* (16.8-42.3)	0.00	0.00	1854 (1177-2530)	0.00
		5	27.1* (24.9-31.1)	0.00	0.00	1601 (1350-1853)	0.00
		25	30.9* (23.0-38.8)	0.00	0.00	395 (296-493)	0.00
PWALE	17	1	18.5* (-7.83-44.9)	0.00	0.00	1990 (336-3644)	0.00
		5	18.4* (-4.49-41.4)	0.00	0.00	1689 (1458-1920)	0.00
		25	21.9* (-7.20-51.0)	12.3* (-18.2-42.8)	0.00	1278 (863-1693)	0.00
SMITI	19	1	193 (136-249)	121 (49.9-191)	24.4* (-79.3-84.9)	2499 (1082-3916)	89.8* (72.2-107)
		5	98.6* (38.3-159)	67.6* (-36.1-171)	0.00	1313 (878-1748)	29.0* (-9.54-67.6)
SNUGH	20	1	73.9* (35.3-113)	32.7* (-9.37-74.8)	15.9* (-51.8-55.4)	1364 (471-2256)	46.9* (31.6-62.3)
		5	50.4* (28.7-72.0)	35.6* (26.5-44.6)	13.2* (-42.9-45.9)	1047 (696-1398)	31.3* (21.0-41.5)
		25	33.1* (23.4-42.9)	0.00	0.00	753 (-116-1622)	0.00
SQUII	22	1	39.5* (30.9-48.1)	0.00	0.00	983 (590-1377)	0.00
		5	22.1* (-9.56-53.7)	0.00	0.00	653 (262-1044)	0.00
		25	37.0* (14.5-59.6)	0.00	14.3* (-46.4-49.7)	373 (66.2-680)	5.19* (-7.69-18.1)
MDL			18.1	28.4	37.9	20.4	14.7

Table III-3 --Continued

Station name	Station number	Depth (m)	[illegible]	[illegible]	[illegible]	C21	C22
Exxon Valdez crude 1 µl.			1901	1755	2107	1718	1311
BAINP	1	1	0 (0)	0 (0)	0 (0)	0.00	10.1* (-2.70-23.0)
		5	11.3* (-16.7-39.3)	7.36* (-10.9-25.7)	7.97* (-11.8-27.7)	4.96* (-7.35-17.3)	4.30* (-6.37-15.0)
		25	0 (0)	0 (0)	0 (0)	0.00	0.00
ELRIP	5	1	42.9* (19.2-66.7)	0 (0)	0.00	13.6* (-4.15-31.3)	60.5* (-0.94-122)
		5	30.5* (21.1-39.9)	0.00	0.00	0.00	9.18* (-2.34-20.7)
		25	36.0* (17.8-54.1)	5.95* (-8.80-20.7)	19.5* (-6.55-45.5)	10.1* (-2.45-22.7)	19.8* (10.8-28.7)
HERRB	8	1	815 (580-1050)	125* (89.2-162)	185 (135-236)	186 (136-237)	234 (196-271)
		5	483, 264	77.7*, 42.6*	92.3*, 64.6*	68.0*, 58.3*	101, 36.7*
		25	111* (9.67-213)	20.8* (-30.8-72.4)	32.3* (-47.9-113)	18.7* (-6.96-44.4)	62.0* (14.9-109)
JOHNC	10	1	77.1* (53.2-101)	9.27* (-13.7-32.3)	25.7* (-10.6-62.1)	35.1* (17.0-53.1)	38.0* (25.8-50.2)
		5	59.3* (55.0-63.6)	5.94* (-8.79-20.7)	18.8* (-5.32-42.9)	17.6* (-4.24-39.3)	29.0* (13.9-44.2)
		25	13.5* (-20.0-47.0)	0.00	7.15* (-10.6-24.9)	0.00	14.4* (8.30-20.5)
MAINB	12	1	27.8* (17.0-38.6)	0.00	10.7* (-15.8-37.2)	8.30* (-12.3-28.9)	14.1* (-7.77-36.0)
		5	33.1* (13.7-52.5)	6.29* (-9.30-21.9)	13.3* (-19.6-46.1)	6.31* (-9.34-22.0)	18.1* (9.74-26.5)
		25	0 (0)	0.00	0.00	0.00	19.8* (-17.0-56.6)
MONTS	13	1	7.38* (-10.9-25.7)	0.00	0.00	0.00	6.93* (-2.35-16.2)
		5	0 (0)	0.00	0.00	0.00	9.61* (-2.63-21.8)
OLSEN	15	1	0 (0)	0.00	0.00	0.00	3.10* (-4.59-10.8)
		5	0.00	0.00	0.00	0.00	3.52* (-5.21-12.3)
		25	0.00	0.00	0.00	0.00	13.1* (-5.70-31.9)
OUTSI	16	1	20.3* (-4.89-45.5)	0.00	7.14* (-10.6-24.9)	0.00	9.48* (-2.49-21.4)
		5	7.00* (-4.13-18.1)	0.00	0.00	0.00	8.27* (3.46-13.1)
		25	0.00	0.00	0.00	0.00	6.37* (0.37-12.4)
PWALE	17	1	15.9* (-3.97-35.7)	0.00	6.73* (-9.97-23.4)	0.00	8.43* (-5.48-22.3)
		5	7.14* (-10.6-24.8)	0.00	0.00	0.00	4.98* (-1.28-11.2)
		25	8.89* (-13.2-30.9)	0.00	0.00	0.00	20.2* (-11.6-52.0)
SMITI	19	1	394 (350-439)	93.0* (64.1-122)	160 (110-211)	150 (118-198)	179 (149-209)
		5	170 (133-207)	24.8* (-6.40-56.0)	70.6* (42.9-98.2)	66.2* (55.0-83.7)	86.4* (62.8-110)
SNUGH	20	1	147 (71.1-222)	42.0* (17.8-66.2)	78.8* (27.8-130)	69.9* (53.9-94.8)	83.0* (55.1-111)
		5	103 (60.7-146)	23.5* (16.1-31.0)	51.4* (50.6-52.1)	53.7* (48.2-62.3)	63.5* (51.1-75.9)
		25	30.2* (17.8-42.6)	0.00	9.73* (-14.4-33.8)	0.00	19.0* (17.3-20.7)
SQUII	22	1	32.2* (18.3-46.2)	0.00	12.3* (-18.2-42.9)	7.59* (-4.48-26.4)	17.3* (-12.8-47.4)
		5	8.91* (-13.2-31.0)	0.00	7.46* (-11.0-26.0)	0.00	16.6* (11.8-21.4)
		25	0.00	0.00	12.1* (-17.9-42.1)	0.00	30.5* (-45.1-106)
MDL			20.4	17.3	19.7	14.5	5.41

Table III-3.--Continued

Station name	Station number	Depth (m)	C23	C24	C25	C26	C27
Exxon Valdez crude 1 µL			1210	1167	1079	819	778
BAINP	1	1	15.0* (-4.05-34.0)	14.3* (-5.55-34.2)	13.5* (10.7-16.2)	13.2* (-21.8-17.2)	18.5* (16.8-20.2)
		5	0.00	0.00	9.31* (-2.23-20.8)	7.02* (-16.6-15.9)	7.56* (-11.2-26.3)
		25	0.00	0.00	0.00	0.00	0.00
ELRIP	5	1	141 (-33.8-316)	203 (-32.7-438)	197 (-6.86-400)	157 (-347-324)	103 (0.05-206)
		5	14.6* (12.9-16.4)	22.9* (18.3-27.5)	28.6* (27.8-29.4)	32.2* (-49.3-36.6)	32.5* (16.4-48.6)
		25	8.89* (-13.2-30.9)	22.7* (4.34-41.0)	22.2* (11.0-33.4)	18.8* (-31.1-24.5)	13.8* (-3.79-31.4)
HERRB	8	1	236 (210-261)	299 (263-335)	300 (240-360)	272 (-180-350)	193 (104-281)
		5	83.6, 0.00	116, 0.00	62.1, 0.00	47.1, 0.00	39.4, 24.5
		25	48.1* (-9.16-105)	53.7* (-49.2-157)	74.4* (-14.4-163)	66.0* (-133-119)	52.0* (14.5-89.6)
JOHNC	10	1	44.0* (-5.62-93.6)	54.8* (-29.7-139)	48.1* (-24.8-121)	47.4 (-116-113)	40.1 (-9.75-89.9)
		5	27.1* (8.32-45.9)	35.0* (17.0-53.0)	40.4* (34.2-46.5)	46.4* (-69.7-50.9)	39.7 (18.8-60.7)
		25	9.99* (-14.8-34.8)	15.3* (-22.7-53.4)	17.1* (-10.2-44.4)	17.8* (-35.5-31.4)	29.2 (6.40-52.0)
MAINB	12	1	15.2* (-3.68-34.1)	20.7* (-6.05-47.4)	20.2* (-10.2-50.7)	25.0* (-61.2-59.7)	15.6* (-7.54-38.6)
		5	20.4* (13.9-26.8)	25.0* (18.4-31.7)	38.2* (21.4-55.1)	31.3* (-58.3-49.7)	18.2* (-4.40-40.9)
		25	33.4* (-49.4-116)	43.5* (-64.4-151)	45.9* (-51.1-143)	35.2* (-107-112)	21.4 (-31.6-74.4)
MONTS	13	1	12.8* (-3.09-28.6)	10.7* (-15.9-37.3)	0.00	4.14* (-13.5-14.4)	0.00
		5	12.1* (-18.0-42.2)	17.0* (-25.2-59.3)	24.0* (-15.4-63.3)	22.6* (-57.2-56.4)	14.3* (-21.2-49.9)
OLSEN	15	1	5.97* (-8.83-20.8)	13.4* (-5.71-32.5)	6.71* (-9.93-23.3)	8.68* (-21.0-20.3)	6.25* (-9.25-21.7)
		5	15.3* (-4.06-34.6)	22.8* (-6.61-52.3)	29.9* (3.52-56.2)	24.6* (-48.7-43.0)	27.3* (16.3-38.3)
		25	18.4* (-10.9-47.8)	24.5* (-14.2-63.2)	25.3* (-12.8-63.4)	18.7* (-46.5-45.6)	15.0* (-3.93-34.0)
OUTSI	16	1	17.1* (-9.50-43.7)	20.2* (-29.9-70.3)	25.9* (-11.7-63.5)	28.1* (-67.6-65.4)	20.5 (-11.5-52.5)
		5	6.08* (-3.59-15.7)	17.2* (7.23-35.0)	25.0* (20.1-29.9)	18.8* (-13.4-22.2)	12.8* (5.49-20.2)
		25	0.00	0.00	2.45* (-1.45-6.36)	0.00	4.11* (-2.43-10.7)
PWALE	17	1	13.3* (-16.9-30.2)	21.9* (-32.4-76.3)	27.9* (-8.27-64.1)	25.9* (-62.2-60.2)	32.1* (12.1-52.2)
		5	0.00	12.2* (-2.92-27.3)	21.3* (14.2-28.3)	15.6* (-26.1-20.7)	15.2* (-3.67-34.0)
		25	30.5* (-45.2-75.7)	45.4* (-67.2-158)	50.9* (-51.9-154)	45.1* (-124-126)	34.8* (-12.0-81.5)
SMITI	19	1	177 (91.4-288)	205 (189-220)	198 (150-246)	180 (-321-266)	126 (47.6-205)
		5	94.1* (67.8-101)	110 (83.0-137)	117 (90.2-145)	117 (-185-141)	97.5 (73.1-122)
SNUGH	20	1	77.0* (56.2-110)	89.0 (37.8-140)	85.3 (-10.1-181)	84.9* (-201-193)	54.8 (-13.2-123)
		5	60.9* (9.14-108)	73.4* (40.9-106)	74.4* (50.0-98.9)	78.2* (-129-101)	63.6 (47.3-79.9)
		25	10.8* (-3.43-14.2)	16.9* (-4.14-37.9)	15.0* (9.98-20.1)	16.4* (-30.8-26.4)	13.3* (-4.54-31.2)
SQUIH	22	1	16.1* (-1.77-17.9)	20.3* (-5.16-45.7)	18.0* (-5.84-41.9)	13.3* (-36.1-36.6)	9.18* (-13.6-31.9)
		5	14.6* (-4.61-41.2)	18.2* (-5.07-41.4)	27.5* (7.41-47.7)	26.7* (-48.9-41.3)	24.9* (13.9-35.8)
		25	69.6* (-103-173)	98.3* (-145-342)	96.8* (-143-337)	82.6* (-254-268)	53.4* (-79.1-186)
MDL			10.7	12.4	7.30	7.46	14.1

Table III-3.--Continued.

Station name	Station number	Depth (m)	C28	C29	C30	C32	C34
Exxon Valdez crude 1 µL			781	638	512	322	344
BAINP	1	1	20.5* (9.02-32.1)	9.06* (-13.4-31.5)	0.00	0.00	0.00
		5	8.02* (-11.9-27.9)	9.48* (-14.0-33.0)	6.56* (-9.70-22.8)	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00
ELRIP	5	1	52.8 (-32.3-138)	25.0* (-37.0-87.0)	14.7* (-21.8-51.3)	0.00	0.00
		5	29.5* (2.62-56.3)	10.2* (-15.1-35.6)	11.5* (-17.0-39.9)	0.00	0.00
		25	13.8* (-6.52-34.2)	0.00	0.00	0.00	0.00
HERRB	8	1	148 (95.5-242)	93.0 (43.7-142)	72.0* (32.3-112)	39.9* (17.8-62.1)	53.4* (24.6-82.2)
		5	0.00, 17.9*	0.00, 0.00	0.00, 45.4*	0.00, 29.2*	0.00, 0.00
		25	31.0* (12.3-49.6)	8.71* (-12.9-30.3)	0.00	0.00	0.00
JOHNC	10	1	35.1* (-8.85-79.1)	25.7* (-6.16-57.5)	12.5* (-18.5-43.4)	3.73* (-5.53-13.0)	5.79* (-8.56-20.1)
		5	30.5* (15.9-45.1)	14.6* (-21.6-50.8)	6.56* (-9.71-22.8)	0.00	8.32* (-12.3-28.9)
		25	9.32* (-13.8-32.4)	0.00	0.00	0.00	0.00
MAINB	12	1	13.6* (-5.39-32.6)	9.04* (-13.4-31.5)	0.00	0.00	0.00
		5	10.6* (-2.64-23.9)	0.00	0.00	0.00	0.00
		25	11.8* (-17.4-40.9)	0.00	0.00	0.00	0.00
MONTS	13	1	7.94* (-11.8-27.6)	0.00	0.00	0.00	0.00
		5	9.74* (-14.4-33.9)	0.00	0.00	0.00	0.00
OLSEN	15	1	7.13* (-10.5-24.8)	11.0* (-16.2-38.2)	6.44* (-9.53-22.4)	5.76* (-8.53-20.1)	0.00
		5	11.9* (-2.86-26.7)	15.8* (-23.3-54.8)	5.41* (-8.01-18.8)	0.00	0.00
		25	6.43* (-9.52-22.4)	0.00	6.29* (-9.30-21.9)	0.00	0.00
OUTSI	16	1	17.5* (-25.9-60.8)	16.1* (-23.8-55.9)	10.8* (-15.9-37.5)	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00
PWALE	17	1	33.0* (2.13-63.8)	16.8* (-24.9-58.5)	12.4* (-18.4-43.3)	0.00	0.00
		5	8.06* (-11.9-28.1)	0.00	0.00	0.00	0.00
		25	24.9* (-6.35-56.2)	0.00	0.00	0.00	0.00
SMITI	19	1	86.2* (24.2-148)	53.6* (-15.9-123)	33.7* (-8.75-76.2)	8.25* (-4.87-28.7)	11.5* (-16.8-28.3)
		5	57.9* (45.8-70.1)	28.9* (-7.01-64.8)	23.2* (-6.54-52.9)	5.81* (-3.43-20.2)	9.90* (-12.6-52.2)
SNUGH	20	1	49.2* (-13.4-112)	34.5* (-9.23-78.2)	20.9* (-5.09-47.0)	6.79* (-4.00-23.6)	12.6* (-16.2-28.8)
		5	43.6* (36.0-51.2)	33.7* (-30.3-37.2)	18.7* (14.6-22.9)	6.20* (-3.66-21.6)	0.00
		25	9.92* (-2.57-22.4)	0.00	0.00	0.00	0.00
SQUII	22	1	14.9* (-3.80-33.5)	0.00	0.00	0.00	0.00
		5	11.9* (-3.16-26.9)	0.00	0.00	0.00	0.00
		25	29.5* (-43.6-103)	17.7* (-26.2-61.6)	8.21* (-12.1-28.6)	0.00	0.00
MDL			12.9	23.9	15.8	11.0	6.44

Table III-4. Concentrations of calibrated PAHs in caged mussels deployed in 1990 in PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Table II-2 contains a key for the PAH abbreviations used here. Tables I-1 and I-2 list the station locations and deployment periods that correspond with the station numbers and abbreviations used here. Concentrations are reported as ng PAH/g wet tissue weight. Results of single determinations are presented alone; results of duplicate determinations are separated by commas, and results of more that duplicate determinations are followed by 95% confidence intervals in parentheses. Corresponding % moisture determinations for these samples are listed in Table III-5 following. Method detection limits for these PAHs are listed in Table III-1 above, as are results (ng) of analysis of 1 µL of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits. A = surrogate recovery below 30%; data treated as missing. B = surrogate recovery above 150%; data treated as missing. * = below lowest calibration standard. Table III-4.-- Concentrations (ng/g) of calibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, May, 1990.

Station name	Station number	Depth (m)	Naph	Menap2	Menap1	Dimeth	Trimeth	Biphenyl	Fluorene	Dithio	Phenanth	Mephen1	Chrysene
HERRB	8	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19*	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	2.01*	0.79*	0.00	1.84*	0.00	0.00
MAINB	12	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08*	0.00	0.00
OLSEN	15	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.85*	0.00	0.00	0.00	0.00	0.00
SNUGH	20	1	0.00	0.00	0.00	0.00	0.00	0.79*	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	1.65*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-4 --Concentrations (ng/g) of calibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, June, 1990

Station name	Station number	Depth (m)	Naph	Menap2	Menap1	Dimeth	Trimeth	Biphenyl	Fluorene	Dithio	Phenanth	Mephen1	Chrysene
BAINP	1	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BOISL	2	1	0.00	0.00	0.00	0.00	1.13'	0.00	1.39'	0.00	0.00	2.21'	1.13'
BLOCI	3	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45'	0.00	0.00
DISKI	4	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ELRIP	5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	B
HERRB	8	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	B
JOHNC	10	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	B
MACLH	11	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	B
NWBAY	14	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	1.82'	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OLSEN	15	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.57'	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OUTSI	16	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41'	0.00	0.00
PWALE	17	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SLEEB	18	1	A	A	A	0.00	0.00	0.00	0.65'	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SMITI	19	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	5.95'	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SNUGH	20	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	B
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-4 --Concentrations (ng/g) of calibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, July, 1990

Station name	Station number	Depth (m)	Naph	Menaph	Menaph1	Dimeth	Trimeth	Biphenyl	Fluorene	Dithio	Phenanth	Mephen1	Chrysene
HERRB	8	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HERRB	9	1	0.00	0.00	1.67*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38*
		5	0.00	0.00	1.68*	0.00	0.00	2.66*	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	1.75*	0.00	0.00	3.93*	0.00	0.00	0.00	0.00	0.00
SLEEB	18	5	0.00	0.00	1.40*	0.00	1.28*	0.00	0.00	0.42*	1.54*	1.98*	3.74*
SNUGH	20	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SNUGH	21	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11*
		5	0.00	0.00	0.00	0.00	0.00	1.76*	0.00	0.00	0.00	0.00	0.00

Table III-4 --Concentrations (ng/g) of calibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, August, 1990

Station name	Station number	Depth (m)	Naph	Menap 2	Menap 1	Dimeth	Trimeth	Biphenyl	Fluorene	Dibtho
BAINP	1	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00, 0.00
BOISL	2	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0 [illegible]	0 [illegible]	0.00
BLOCI	3	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00
DISKI	4	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00, 0.00
		5	0.00	0 [illegible]	0 [illegible]	0.00	0.00	0.00	0.00	0.00
		25	0.00	0 [illegible]	0 [illegible]	0.00	0.00	0.00	0.00	0.00
GREEI	7	1	0.00	0 [illegible]	1 44*	0.00	0.00	0.00	0.00	0.00
HERRB	8	1	0.00, 4 34*	0.00, 1 06*	1 37*, 3 13*	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00,0 50*	0.00, 0.00
		5	A	A	A	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HERRB	9	1	0.00, 3 36*	0.00, 1 25*	0.00, 3 42*	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0 74*	0.00, 0.00
		5	0.00, 5 94*	0.00, 2 16*	1 70*, 4 79*	0.00, 0.00	0.00, 0.00	0.00, 5 73*	0.00, 0.00	0.51*, 0.00
		25	3 03*, 0.00	1 16*, 0.00	2 77*, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
JOHNC	10	1	0.00, 3 57*	0.00, 1 04*	0.00, 1 79*	0.00, 0.00	0.00, 0.00	0.00, 2 78*	0.00, 0.00	0.00, 0.00
MACLH	11	1	3 60*	1 01*	2 31*	0.00	0.00	2 77*	0.00	0.00
MAINB	12	1	0.00, 2 83*	0.00, 0.00	0.00, 3 08*	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0 52*	0.00, 0.00
NWBAY	14	1	0.00	0.00	2 88*	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OLSEN	15	1	0.00	0.00	1 79*	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	1 70*	0.00	0.00	0.00	0.00	0.00
OUTSI	16	1	A	A	A	0.00	0.00	0.00	0.00	0.00
PWALE	17	1	0.00, 3 99*	0.00, 1 29*	0.00, 2 75*	0.00, 0.00	0.00, 0.00	0.00, 2 92*	0.00, 0.00	0.00, 0.00
SNUGH	20	1	A	A	A	A	A	A	A	0.00
		5	0.00	1 05*	4 96*	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-4.--Continued

Station name	Station number	Depth (m)	Phenanth	Mephen1	Chrysene
BAINP	1	1	0.00, 0.00	0.00, 0.00	0.00, 0.00
BOISL	2	1	0.00	0.00	1.81*
BLOCI	3	1	0.00	0.00	0.00
DISKI	4	1	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00	0.00	0.00
		25	0.00	0.00	0.00
GREEI	7	1	0.00	0.00	0.00
[illegible]	8	1	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]
JOHNC	10	1	0.00, 0.00	0.00, 0.00	0.00, 0.00
MACLH	11	1	0.00	0.00	0.00
MAINB	12	1	0.00, 0.00	0.84*, 0.00	0.00, 0.00
NWBAY	14	1	0.00	1.06*	2.59*
		5	0.00	0.00	0.00
		25	0.00	0.00	1.08*
OLSEN	15	1	0.00	0.00	0.00
		5	0.00	0.00	0.00
		25	0.00	0.00	0.00
OUTSI	16	1	0.00	0.00	0.00
PWALE	17	1	0.00, 0.00	0.00, 0.00	0.00, 0.00
SNUGH	20	1	0.00	0.00	0.00
		5	0.00	0.00	0.00
		25	0.00	0.00	0.00

Table III-5 Concentrations of uncalibrated PAHs in caged mussels deployed in 1990 in PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Table II-3 contains a key for the PAH abbreviations used here. Tables I-1 and I-2 list the station locations and deployment periods that correspond with the station numbers and abbreviations used here. Concentrations are reported as ng PAH/g wet tissue weight. Results of single determinations are presented alone; results of duplicate determinations are separated by commas, and results of more that duplicate determinations are followed by 95% confidence intervals in parentheses. Corresponding % moisture determinations for these samples are also listed here. Method detection limits for these PAHs are listed in Table III-2 above, as are results (ng) of analysis of 1 µL of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits. A = surrogate recovery below 30%; data treated as missing. B = surrogate recovery above 150%; data treated as missing. Concentrations (ng/g) of uncalibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, June, 1990.

Station name	Station number	Depth (m)	C2naph	C3naph	C4naph	C1fluor	C2fluor	C3fluor	C1dithio	C2dithio	C3dithio	C1phenan	C2phenan	C3phenan
BAINP	1	1	0.00	0.00	0.00	0.00	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BOISI	2	1	1.26	1.38	0.00	0.00	4.99	0.00	0.45	2.49	3.37	4.44	6.31	21.3
[illegible]	3	1	[illegible]	[illegible]	[illegible]	[illegible]	0.81	0.00	0.00	1.61	3.64	0.00	5.95	5.62
[illegible]	4	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.66	0.00	0.00	0.00	4.04	0.00	1.30
		5	[illegible]	[illegible]	[illegible]	[illegible]	1.11	2.25	0.00	0.00	0.00	6.33	0.73	2.45
		25	[illegible]	0.44	[illegible]	0.00	2.08	0.00	0.00	0.00	0.00	1.03	0.00	0.00
[illegible]	5	1	[illegible]	[illegible]	[illegible]	[illegible]	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00
[illegible]	6	1	0.00	0.00	0.00	0.00	0.75	0.71	0.00	0.00	0.00	0.00	0.00	0.00
JOHNC	10	1	0.00	0.83	1.07	0.00	0.52	0.00	0.00	0.55	0.57	0.00	1.17	0.00
MACLH	11	1	0.00	0.00	0.00	0.00	3.85	0.86	0.00	0.00	0.00	0.00	0.00	0.00
NWBAY	14	1	0.00	1.05	1.23	0.00	3.66	2.76	0.73	4.73	8.90	2.01	7.67	15.9
		5	0.00	0.00	1.27	0.00	3.37	1.79	0.00	1.15	2.42	1.70	2.25	10.7
		25	0.00	0.63	0.00	0.00	0.67	0.56	0.00	1.17	2.71	0.74	1.78	3.77
OLSEN	15	1	0.00	0.00	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.54	0.00	2.09	6.23	1.39	0.00	0.00	0.00	2.80	0.00	7.78
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OUTSI	16	1	0.00	0.00	0.00	0.00	1.44	0.00	0.00	0.00	0.00	0.64	0.00	0.00
PWALE	17	1	0.00	0.00	0.00	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SLEEB	18	1	1.81	0.00	2.06	0.00	3.64	2.55	0.00	0.63	1.14	1.46	1.61	10.5
		5	0.00	0.00	0.00	0.00	3.46	0.70	0.00	0.00	0.00	1.28	0.71	5.26
		25	0.96	0.00	0.00	0.00	4.08	1.23	0.00	0.00	0.00	1.71	0.00	0.00
SMITI	19	1	0.00	0.00	0.00	0.00	14.5	2.97	0.40	0.51	0.00	5.84	1.72	2.01
		5	0.00	0.00	0.00	0.00	6.31	3.71	0.00	0.00	0.00	1.99	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00
SNUGH	20	1	0.00	0.46	0.00	0.00	2.48	0.64	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	1.62	0.00	0.00	0.00	0.00	0.85	0.00	0.00
		25	0.00	0.00	0.00	0.00	1.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-5.--Continued

Station name	Station number	Depth (m)	C4phenan	C1fluora	C1chrys	C2chrys	C3chrys	C4chrys	% Moisture
BAINP	1	1	0.00	0.00	0.00	0.00	0.00	0.00	81.1
BOISL	2	1	3.72	0.00	2.60	7.28	0.00	0.00	85.9
BLOCI	3	1	1.95	0.00	1.27	1.15	0.00	0.00	88.0
DISKI	4	1	0.00	0.00	0.00	5.81	0.00	0.00	85.0
		5	0.00	0.00	0.00	5.33	0.00	0.00	90.0
		25	0.00	0.00	0.00	0.00	0.00	0.00	87.0
ELRIP	5	1	0.00	0.00	B	B	B	B	83.0
HERRB	8	1	0.00	0.00	B	B	B	B	90.0
JOHNC	10	1	0.00	0.00	B	B	B	B	84.0
MACLH	11	1	1.45	0.00	B	B	B	B	82.0
NWBAY	14	1	9.75	0.00	4.31	5.07	1.10	0.70	87.0
		5	1.66	0.00	1.56	5.80	0.00	0.00	89.0
		25	1.81	0.00	2.09	3.54	1.06	0.00	85.0
OLSEN	15	1	0.00	0.00	0.00	4.94	0.00	0.60	89.1
		5	0.00	0.00	0.00	5.83	0.00	0.70	87.0
		25	0.00	0.00	0.00	0.00	0.00	0.00	90.1
OUTSI	16	1	0.00	0.00	0.00	0.00	0.00	0.00	89.0
PWALE	17	1	0.00	0.00	0.00	0.00	0.00	0.00	90.0
SLEEB	18	1	1.07	0.00	0.00	4.19	0.00	0.00	90.0
		5	0.00	0.00	0.00	7.20	0.00	0.00	85.0
		25	0.00	0.00	0.00	0.66	0.00	0.00	88.0
SMITI	19	1	0.00	0.00	0.00	5.90	0.00	0.00	85.0
		5	0.00	0.00	0.00	5.49	0.00	0.00	85.0
		25	0.00	0.00	0.00	0.00	0.00	0.56	90.0
SNUGH	20	1	0.00	0.00	0.00	0.00	0.00	0.00	86.0
		5	0.00	0.00	0.00	0.00	0.00	0.00	86.1
		25	0.00	0.00	0.00	0.00	0.00	0.00	90.0

Table III-5.--Concentrations (ng/g) of uncalibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, July, 1990

Station name	Station number	Depth (m)	C2naph	C3naph	C4naph	C1fluor	C2fluor	C3fluor	C1dithio	C2dithio	C3dithio	C1phenan	C2phenan	C3phenan
HERRB	8	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.78	0.00	0.57	0.00
HERRB	9	1	0.00	0.00	0.00	0.00	0.92	3.07	0.00	1.65	3.63	0.00	1.59	0.00
		5	0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00	2.64	0.84	0.78	7.30
		25	1.04	1.68	1.84	0.00	1.79	0.00	0.00	0.00	1.60	0.00	1.19	7.00
SLEEB	18	5	2.44	8.15	1.54	2.14	5.17	10.2	5.40	20.0	32.3	9.09	25.3	33.3
SNUGH	20	5	0.00	0.00	0.00	0.00	1.14	0.58	0.00	0.38	0.00	0.00	0.00	3.87
		25	0.00	0.00	1.47	0.00	2.07	0.00	0.00	0.00	0.00	0.00	1.19	0.00
SNUGH	21	1	0.84	0.86	0.00	0.00	1.80	0.61	0.89	2.82	4.25	1.75	4.82	0.00
		5	0.91	0.00	2.10	0.00	1.39	0.82	0.00	0.00	0.00	0.76	0.00	0.00

Table III-5.--Continued.

Station name	Station number	Depth (m)	C4phenan	C1fluora	C1chrys	C2chrys	C3chrys	C4chrys	% Moisture
HERRB	8	1	0.00	0.00	0.00	0.00	0.00	0.00	90.0
HERRB	9	1	1.29	0.00	0.93	1.52	0.00	0.93	88.1
		5	0.00	0.00	0.00	5.14	0.00	0.00	90.0
		25	0.00	0.00	0.00	4.80	0.00	0.00	86.1
SLEEB	18	5	13.4	3.80	6.40	8.83	4.03	0.00	89.0
SNUGH	20	5	0.00	0.00	1.03	0.80	0.00	0.63	89.1
		25	0.00	0.00	0.00	0.00	0.00	0.00	90.0
SNUGH	21	1	0.00	0.00	0.00	0.86	0.00	0.00	90.0
		5	0.00	0.00	0.00	0.00	0.00	0.00	88.0

Table III-5 --Concentrations (ng/g) of uncalibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, August, 1990.

Station name	Station number	Depth (m)	C2naph	C3naph	C4naph	C1fluor	C2fluor	C3fluor	C1dithio	C2dithio
BAINP	1	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	8.92, 12.3	2.77, 1.67	0.00, 0.00	0.00, 0.36
BOISL	2	1	1.74	1.25	0.00	0.00	0.00	0.00	0.00	2.95
BLOCI	3	1	0.00	0.00	0.00	0.00	2.16	0.00	0.00	2.92
DISKI	4	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	3.64, 0.00	0.67, 1.83	0.00, 0.00	0.41, 0.00	0.47, 0.00
		5	0.00	0.00	0.00	0.00	0.69	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GREEI	7	1	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.00
HERRB	8	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 73.0	0.00 1.68	0.00, 0.76	0.00, 0.00	1.07, 1.51
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	1.62	0.00	0.00	0.00	0.00	0.78	0.00	0.00
HERRB	9	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	1.20, 4.91	0.65, 0.97	0.00, 0.00	1.36, 1.09
		5	1.72, 0.00	0.56, 0.00	0.00, 0.00	0.00, 0.99	0.00, 4.38	2.08, 0.00	0.00, 0.00	0.84, 0.00
		25	0.00, 0.00	0.00, 0.00	41.1, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.98	0.00, 0.00	0.00, 0.00
JOHNC	10	1	0.00, 0.00	0.56, 0.00	0.45, 0.00	0.00, 0.00	10.9, 0.80	2.13, 1.04	0.49, 0.00	2.25, 0.70
MACLH	11	1	0.00	0.00	0.00	0.00	1.31	0.54	0.00	0.00
MAINB	12	1	0.00, 0.00	0.00, 0.00	0.61, 0.00	0.00, 0.00	3.00, 3.08	6.24, 1.68	0.85, 0.61	1.54, 1.64
NWBAY	14	1	0.00	1.18	0.00	0.00	3.18	3.13	1.00	8.78
		5	0.00	0.00	0.00	0.95	0.88	0.00	0.00	0.00
		25	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.58
OLSEN	15	1	0.00	0.00	0.00	0.00	0.50	1.65	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.51	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.88	0.00	0.00	0.00
OUTSI	16	1	0.00	0.00	0.00	0.00	1.06	1.36	0.00	0.00
PWALE	17	1	0.00, 0.98	0.00, 0.00	0.00, 0.00	0.00, 0.00	5.19, 2.79	0.00, 1.11	0.37, 0.00	0.78, 0.00
SNUGH	20	1	A	A	A	A	A	A	0.00	0.00
		5	0.00	0.00	0.00	0.00	1.51	0.61	0.00	0.00
		25	0.00	0.00	0.00	0.00	1.82	0.00	0.00	0.00

Table III-5.--Continued

Station name	Station number	Depth (m)	C3dithio	C1phenan	C2phenan	C3phenan	C4phenan	C1fluora	C1chrys	C2chrys
BAINP	1	1	0.00, 0.00	2.68, 3.83	3.09, 1.36	2.34, 1.48	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 2.47
BOISL	2	1	7.03	0.80	4.67	9.63	2.55	0.00	2.89	2.48
BLOCI	3	1	6.94	0.00	2.27	7.35	4.70	0.00	4.97	3.87
DISKI	4	1	0.72, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.57	0.79, 2.12
		5	0.00	0.00	0.85	4.36	0.00	0.00	0.00	0.00
		25	0.52	0.00	1.50	0.00	0.00	0.00	0.00	0.69
GREEN	7	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HOKKO	8	1	2.19, 1.29	0.00, 0.00	1.48, 1.35	1.20, 3.68	0.81, 1.60	0.00, 0.00	0.68, 0.56	3.68, 0.57
		5	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.91
		25	0.00	0.00	1.24	3.98	0.00	0.00	0.00	0.00
HEKKO	9	1	1.14, 2.49	0.00, 0.00	2.10, 2.13	9.01, 3.00	1.30, 1.57	0.00, 0.00	1.09, 0.63	2.74, 0.00
		5	1.57, 0.81	0.89, 0.00	1.53, 0.00	6.21, 0.99	0.68, 0.00	0.00, 0.00	0.00, 0.00	0.77, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 1.64
JOHNC	10	1	3.49, 0.59	1.48, 0.00	2.85, 1.76	3.78, 1.06	0.00, 0.00	0.00, 0.00	0.00, 0.00	2.01, 0.00
MACLH	11	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAINB	12	1	4.18, 3.29	2.71, 1.62	3.39, 4.47	2.90, 5.38	0.00, 0.00	0.00, 0.00	0.69, 0.00	1.83, 0.00
NWBAY	14	1	20.1	3.16	14.8	23.6	13.6	2.19	4.78	7.08
		5	0.00	0.00	1.11	0.00	0.00	0.00	0.00	1.75
		25	1.70	0.00	2.39	2.17	1.41	0.00	1.48	3.00
OLSEN	15	1	0.38	0.00	1.09	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.56	0.00	0.00	0.00	0.00	0.97	0.00
OUTSI	16	1	0.00	0.00	0.91	0.00	0.00	0.00	0.00	0.00
PWALE	17	1	0.94, 0.00	0.73, 1.16	1.28, 1.66	0.60, 0.57	0.00, 0.00	0.00, 0.00	0.00, 0.62	2.29, 0.00
SNUGH	20	1	0.00	0.00	0.00	0.74	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	3.89	0.00	0.00	0.00	0.94

Table III-5.--Continued

Station name	Station number	Depth (m)	C3chrys	C4chrys	% Moisture
BAINP	1	1	0.00, 0.00	0.00, 0.00	84.0
BOISL	2	1	0.00	0.00	90.0
BLOCI	3	1	0.00	0.00	88.0
DISKI	4	1	0.99, 0.00	0.00, 0.00	91.5
		5	0.00	0.00	89.0
		25	[illegible]	[illegible]	[illegible]
[illegible]	7	1	[illegible]	[illegible]	[illegible]
[illegible]	8	1	[illegible]	[illegible]	[illegible]
		5	[illegible]	[illegible]	[illegible]
		25	[illegible]	[illegible]	[illegible]
[illegible]	9	1	[illegible]	[illegible]	91.5
		5	[illegible]	[illegible]	90.0
		25	0.00, 0.00	0.00, 0.00	92.0
JOHNC	10	1	0.00, 0.00	0.00, 0.00	88.0
MACLH	11	1	0.00	0.00	85.0
MAINB	12	1	0.00, 0.00	0.00, 0.00	85.0
NWBAY	14	1	2.67	0.00	86.9
		5	0.00	0.00	89.0
		25	1.22	0.00	92.0
OLSEN	15	1	0.00	0.00	89.0
		5	0.00	0.00	90.0
		25	0.00	0.00	89.0
OUTSI	16	1	0.00	0.00	89.0
PWALE	17	1	0.00, 0.00	0.00, 0.00	84.1
SNUGH	20	1	0.00	0.00	92.0
		5	0.00	0.00	89.0
		25	0.00	0.00	89.1

Table III-6. Concentrations of alkanes in caged mussels deployed in 1989 in PWS, Alaska, following the EVOS of March 24, 1990, in the Sound. Table II-4 contains a key for the alkane abbreviations used here. Tables I-1 and I-2 list the station locations and deployment periods that correspond with the station numbers and abbreviations used here. Concentrations are reported as ng alkane/g wet tissue weight. Results of single determinations are presented alone; results of duplicate determinations are separated by commas, and results of more that duplicate determinations are followed by 95% confidence intervals in parentheses. Corresponding % moisture determinations for these samples are listed in Table III-5 above. Method detection limits for these PAHs are listed in Table III-3 above, as are results (ng) of analysis of 1 µL of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits. A = surrogate recovery below 30%; data treated as missing. B = surrogate recovery above 150%; data treated as missing. * = below lowest calibration standard.
Concentrations (ng/g) of alkanes found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, May, 1990.

Station name	Station number	Depth (m)	C10	C11	C12	C13	C14	C15	C16	C17	Pris	C18	Phyt	C19	C20	C21
HERRB	8	1	0.00	0.00	5.72*	0.00	0.00	0.00	0.00	0.00	80.1*	0.00	0.00	0.00	0.00	0.00
		5	24.4*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	217	0.00	0.00	0.00	0.00	0.00
		25	14.1*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.0*	0.00	0.00	0.00	0.00	0.00
MAINB	12	1	0.00	0.00	7.32*	0.00	0.00	21.3*	0.00	0.00	96.5*	0.00	0.00	0.00	0.00	0.00
OLSEN	15	1	0.00	0.00	6.40*	0.00	0.00	20.6*	0.00	85.7*	351	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	19.0*	0.00	0.00	146	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	20.9*	0.00	0.00	1052	0.00	0.00	0.00	0.00	0.00
SNUGH	20	1	29.6*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	871	0.00	0.00	0.00	0.00	0.00
		5	44.4*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	497	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	21.1*	0.00	0.00	1576	0.00	0.00	0.00	0.00	0.00

Table III-6.--Continued

Station name	Station number	Depth (m)	C22	C23	C24	C25	C26	C27	C28	C29	C30	C32	C34
HERRB	8	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.29*
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAINB	12	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OLSEN	15	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	13.6*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SNUGH	20	1	0.00	0.00	0.00	19.5*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-6 --Concentrations (ng/g) of alkanes found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, June, 1990

Station name	Station number	Depth (m)	C10	C11	C12	C13	C14	C15	C16	C17	Pris	C18	Phyt	C19	C20	C21
BAINP	1	1	0.00	0.00	5.20'	0.00	0.00	64.2'	0.00	273	151	0.00	0.00	0.00	0.00	0.00
BOISL	2	1	0.00	0.00	6.86'	18.6'	0.00	58.6'	0.00	134'	152'	0.00	23.0'	0.00	0.00	0.00
BLOCI	3	1	20.3'	0.00	5.74'	0.00	0.00	79.7'	0.00	134	193	0.00	0.00	0.00	0.00	0.00
DISKI	4	1	44.6'	0.00	7.06'	10.8'	0.00	61.5'	0.00	132	153'	0.00	0.00	0.00	0.00	0.00
		5	35.5'	0.00	0.00	0.00	0.00	43.6'	0.00	99.6'	143	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	44.2'	0.00	0.00	278	0.00	0.00	0.00	0.00	0.00
ELRIP	5	1	0.00	0.00	0.00	0.00	0.00	44.7'	0.00	295	452	0.00	0.00	0.00	0.00	0.00
HERRB	8	1	0.00	0.00	0.00	0.00	0.00	39.5'	0.00	105'	101'	0.00	0.00	0.00	0.00	0.00
JOHNC	10	1	0.00	0.00	6.69'	0.00	0.00	55.7'	0.00	181	256	0.00	0.00	0.00	0.00	0.00
MACLH	11	1	0.00	0.00	7.76'	0.00	0.00	104'	0.00	60.3'	282	0.00	0.00	0.00	0.00	0.00
NWBAY	14	1	0.00	0.00	8.89'	0.00	0.00	91.0	0.00	157	171	0.00	0.00	0.00	0.00	0.00
		5	52.2'	0.00	10.1'	18.6'	0.00	50.8'	0.00	99.5	127	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	15.4'	21.2'	71.9'	0.00	0.00	276	0.00	0.00	0.00	0.00	0.00
OLSEN	15	1	26.0'	0.00	5.66'	12.2'	24.8'	55.3'	0.00	69.2	103'	0.00	0.00	0.00	0.00	0.00
		5	24.7'	0.00	0.00	0.00	0.00	65.2'	0.00	161	111	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	30.7'	0.00	0.00	39.0'	0.00	0.00	0.00	0.00	0.00
OUTSI	16	1	0.00	0.00	6.24'	0.00	0.00	43.1'	0.00	78.1'	204	0.00	0.00	0.00	0.00	0.00
PWALE	17	1	0.00	0.00	5.79'	0.00	0.00	33.1'	0.00	86.4'	256'	0.00	0.00	0.00	0.00	0.00
SLEEB	18	1	A	A	A	A	0.00	60.0'	0.00	105'	217	0.00	0.00	0.00	0.00	0.00
		5	16.5'	0.00	0.00	0.00	0.00	33.7'	0.00	0.00	225	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	6.87'	0.00	22.7'	32.1'	0.00	0.00	320	0.00	0.00	0.00	0.00	0.00
SMITI	19	1	17.2'	0.00	6.89'	0.00	0.00	51.5'	0.00	41.7'	164	0.00	0.00	0.00	0.00	0.00
		5	23.3'	0.00	9.42'	16.9'	0.00	45.8'	0.00	0.00	202	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	38.0'	0.00	0.00	128'	0.00	0.00	0.00	0.00	0.00
SNUGH	20	1	A	A	A	A	0.00	37.7'	0.00	46.6'	163	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	18.0'	0.00	52.1'	0.00	0.00	243	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	5.66'	0.00	0.00	21.3'	0.00	0.00	122'	0.00	0.00	0.00	0.00	0.00

Table III-6.--Continued

Station name	Station number	Depth (m)	C22	C23	C24	C25	C26	C27	C28	C29	C30	C32	C34
BAINP	1	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BOISL	2	1	6.14*	0.00	0.00	25.2*	11.6*	0.00	0.00	0.00	0.00	0.00	0.00
BLOCI	3	1	0.00	0.00	0.00	11.0*	8.38*	16.3*	0.00	0.00	0.00	0.00	0.00
DISKI	4	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ELRIP	5	1	0.00	0.00	0.00	12.3*	16.5*	20.6*	19.9*	0.00	0.00	13.4*	0.00
HERRB	8	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOHNC	10	1	0.00	12.5*	19.0*	29.0*	33.1*	37.5	29.4*	29.3*	19.5*	14.2*	0.00
MACLH	11	1	0.00	0.00	0.00	10.7*	12.4*	16.2*	14.9*	0.00	0.00	15.1*	0.00
NWBAY	14	1	0.00	0.00	0.00	8.83*	0.00	18.1	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	9.81*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OLSEN	15	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OUTSI	16	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PWALE	17	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SLWWB	18	1	0.00	0.00	0.00	9.11*	0.00	14.1	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SMITI	19	1	0.00	0.00	0.00	7.91*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SNUGH	20	1	27.9*	113	232	327	360	344	301	246	160	59.7*	12.5*
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-6.--Concentrations (ng/g) of alkanes found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, July, 1990.

Station name	Station number	Depth (m)	C10	C11	C12	C13	C14	C15	C16	C17	Pris	C18	Phyt	C19	C20	C21
HERRB	8	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.1	0.00	32.9*	0.00	94.2*	46.9*	0.00
HERRB	9	1	0.00	0.00	8.72*	0.00	19.9*	30.1*	0.00	0.00	20.4*	0.00	0.00	0.00	0.00	27.4*
		5	63.4*	0.00	6.82*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	69.7*	0.00	0.00	0.00	0.00	32.8*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SLEEB	18	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.8*	58.9*	78.1*	55.4*	220*	118*	0.00
SNUGH	20	5	0.00	0.00	0.00	10.4*	0.00	35.0*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	59.0*	0.00	0.00	0.00	0.00	50.1*	41.0*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SNUGH	21	1	0.00	13.6*	18.9*	15.4*	23.7*	57.9*	0.00	0.00	105*	0.00	36.2*	0.00	0.00	28.2*
		5	89.4*	0.00	0.00	0.00	0.00	32.2*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-6.--Continued

Station name	Station number	Depth (m)	C22	C23	C24	C25	C26	C27	C28	C29	C30	C32	C34
HERRB	8	1	6.31*	0.00	0.00	7.85*	14.0*	38.9*	47.4*	0.00	0.00	0.00	0.00
HERRB	9	1	0.00	0.00	0.00	0.00	0.00	16.8*	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	8.85*	14.8*	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SLEEB	18	5	17.6	0.00	0.00	16.4*	9.99*	16.1*	41.4*	0.00	23.8*	0.00	0.00
SNUGH	20	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SNUGH	21	1	0.00	0.00	0.00	33.3*	62.2*	66.3	19.1*	49.6*	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-6.--Concentrations (ng/g) of alkanes found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, August, 1990.

Station name	Station number	Depth (m)	C10	C11	C12	C13	C14	C15	C16	C17
BAINP	1	1	0.00, 0.00	0.00, 0.00	7.18*, 5.86*	0.00, 0.00	0.00, 38.6*	77.0*, 183	0.00, 76.4*	110*, 127
BOISL	2	1	0.00	0.00	0.00	0.00	0.00	27.7*	0.00	0.00
BLOCI	3	1	0.00	0.00	0.00	0.00	0.00	68.3*	0.00	0.00
DISKI	4	1	0.00, 0.00	6.25*, 0.00	0.00, 6.25*	0.00, 0.00	0.00, 0.00	57.3*, 50.1*	0.00, 0.00	33.7*, 27.4*
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GREEI	7	1	0.00	0.00	5.25*	0.00	0.00	55.5*	0.00	0.00
HERRB	8	1	0.00, 0.00	0.00, 0.00	0.00, 6.42*	0.00, 0.00	0.00, 0.00	44.0*, 54.6*	0.00	0.00
		5	0.00	0.00	5.36*	13.0*	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HERRB	9	1	0.00, 0.00	0.00, 0.00	5.11*, 0.00	0.00, 0.00	0.00, 0.00	24.6*, 38.0*	0.00, 0.00	0.00, 0.00
		5	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 31.5*	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 6.98*	0.00, 0.00	0.00, 0.00	25.7*, 65.6	0.00, 33.2*	0.00, 0.00
JOHNC	10	1	0.00, 0.00	7.91*, 14.5*	11.2*, 19.6*	13.6*, 11.3*	26.1*, 0.00	56.5, 61.6*	0.00, 0.00	0.00, 0.00
MACLH	11	1	A	A	A	A	0.00	59.1*	0.00	0.00
MAINB	12	1	0.00, 0.00	20.2*, 15.1*	35.6*, 31.4*	76.7*, 53.9*	54.1*, 50.0*	155, 117	61.0*, 52.0*	147, 94.9
NWBAY	14	1	0.00	0.00	9.11*	11.2*	25.3*	86.3*	0.00	0.00
		5	0.00	10.4*	43.9*	55.1*	31.6*	18.5*	42.0*	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OLSEN	15	1	0.00	7.94*	9.38*	0.00	20.4*	86.3*	0.00	0.00
		5	0.00	0.00	0.00	0.00	24.4*	187	113	0.00
		25	0.00	0.00	0.00	13.2*	0.00	43.3*	0.00	0.00
OUTSI	16	1	A	A	A	A	0.00	71.2*	0.00	0.00
PWALE	17	1	0.00, 0.00	0.00, 0.00	5.75*, 5.27*	0.00, 0.00	0.00, 0.00	89.2*, 56.8*	32.7*, 0.00	48.0*, 40.8*
SNUGH	20	1	0.00	0.00	5.76*	0.00	0.00	31.0*	0.00	0.00
		5	A	A	A	A	0.00	76.1*	0.00	0.00
		25	A	A	A	A	0.00	44.9*	29.4*	0.00

Table III-6 --Continued

Station name	Station number	Depth (m)	Pris	C18	Phyt	C19	C20	C21	C22	C23
BAINP	1	1	424, 395	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 74.3*	0.00, 20.8*	0.00, 0.00
BOISL	2	1	73.3*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLOCI	3	1	72.6*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DISKI	4	1	33.7*, 27.4*	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	35.2*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	32.5*	0.00	0.00	0.00	0.00	14.6*	0.00	0.00
GREEI	7	1	70.0*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HERRB	8	1	36.5*, 54.6*	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	24.1*, 0.00	9.12*, 0.00	0.00, 0.00
		5	41.3*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	29.0*	0.00	0.00	0.00	0.00	20.5*	0.00	0.00
HERRB	9	1	30.8*, 37.5*	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	5.67*, 0.00	0.00, 0.00
		5	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 6.53*	0.00, 0.00
JOHNC	10	1	77.5*, 84.0*	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	25.4, 0.00	6.03*, 0.00	0.00, 0.00
MACLH	11	1	110*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAINB	12	1	228, 143	22.5*, 0.00	69.7*, 51.0*	31.1*, 0.00	0.00, 0.00	47.3*, 12117*	16.4*, 0.00	0.00, 0.00
NWBAY	14	1	39.5*	0.00	0.00	0.00	0.00	22.1*	15.7*	0.00
		5	583	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OLSEN	15	1	93.0*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	78.0*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	45.4*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OUTSI	16	1	37.5*	0.00	0.00	0.00	0.00	0.00	7.20*	0.00
PWALE	17	1	147, 160	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	46.8*, 0.00	9.18*, 0.00	0.00, 0.00
SNUGH	20	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	52.0*	0.00	0.00	0.00	0.00	0.00	6.48*	0.00
		25	31.6*	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-6.--Continued.

Station name	Station number	Depth (m)	C24	C25	C26	C27	C28	C29	C30	C32
BAINP	1	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 15.4*	0.00, 0.00	0.00, 35.3*	0.00, 0.00	0.00, 0.00
BOISL	2	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLOCI	3	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DISKI	4	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GREEI	7	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HERRB	8	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	22.0*, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00	0.00	0.00	15.9*	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HERRB	9	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	14.4*, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
JOHNC	10	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	26.5*, 0.00	0.00, 0.00	0.00, 0.00
MACLH	11	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAINB	12	1	0.00, 0.00	13.0*, 0.00	0.00, 0.00	14.7*, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
NWBAY	14	1	0.00	13.5*	14.0*	27.0*	41.2*	38.2*	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OLSEN	15	1	0.00	0.00	0.00	0.00	49.7*	26.8*	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OUTSI	16	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PWALE	17	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
SNUGH	20	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	8.46*	0.00	0.00	38.2*	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-6.--Continued

Station name	Station number	Depth (m)	C34
BAINP	1	1	0.00, 0.00
BOISL	2	1	0.00
BLOCI	3	1	0.00
DISKI	4	1	0.00, 0.00
		5	0.00
		25	0.00
GREEI	7	1	0.00
HERRB	8	1	0.00, 0.00
		5	0.00
		25	0.00
HERRB	9	1	0.00, 0.00
		5	0.00, 0.00
		25	0.00, 0.00
JOHNC	10	1	0.00, 0.00
MACLH	11	1	0.00
MAINB	12	1	0.00, 0.00
NWBAY	14	1	0.00
		5	0.00
		25	0.00
OLSEN	15	1	0.00
		5	0.00
		25	0.00
OUTSI	16	1	0.00
PWALE	17	1	0.00, 0.00
SNUGH	20	1	0.00
		5	0.00
		25	0.00

Table III-7. Concentrations of calibrated PAHs in caged mussels deployed in 1991 in PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Table II-2 contains a key for the PAH abbreviations used here. Tables I-1 and I-2 list the station locations and deployment periods that correspond with the station numbers and abbreviations used here. Concentrations are reported as ng PAH/g wet tissue weight. Results of single determinations are presented alone; results of duplicate determinations are separated by commas, and results of more that duplicate determinations are followed by 95% confidence intervals in parentheses. Corresponding % moisture determinations for these samples are listed in Table III-8 following. Method detection limits for these PAHs are listed in Table III-1 above, as are results (ng) of analysis of 1 µL of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits. A = surrogate recovery below 30%; data treated as missing. B = surrogate recovery above 150%, data treated as missing. * = below lowest calibration standard.
Concentrations (ng/g) of calibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, May, 1991

Station name	Station number	Depth (m)	Naph	Menap2	Menap1	Dimeth	Trimeth	Biphenyl	Fluorene	Dithio	Phenanth	Mephen1	Chrysene
BOISL	2	1	0.00	0.00	2.07*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66*
		5	0.00	0.00	2.47*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	1.98*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DISKI	4	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57*
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESHAB	6	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88*	0.00	0.00
		5	0.00	0.00	2.53*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.86*	0.00	0.00	0.00	0.00	0.00
HERRB	8	1	0.00	0.00	1.90*	0.00	0.00	1.14*	0.00	0.00	0.00	0.00	0.57*
		5	0.00	0.00	2.40*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65*
		25	0.00	0.00	1.76*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64*
HERRB	9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90*	0.00	0.94*
		5	0.00	0.00	2.47*	0.00	0.00	1.16*	0.65*	0.00	2.79*	0.00	0.64*
		25	0.00	0.00	3.15*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57*
NWBAY	14	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17*
		25	0.00	0.00	2.72*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71*
OLSEN	15	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60*
SLEEB	18	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80*
		5	0.00	0.00	2.02*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	1.44*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SNUGH	20	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	A	A	A	0.00	0.00	1.02*	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	2.88*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SNUGH	21	1	0.00	0.00	0.00	0.00	0.00	1.24*	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-8. Concentrations of uncalibrated PAHs in caged mussels deployed in 1991 in PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Table II-3 contains a key for the PAH abbreviations used here. Tables I-1 and I-2 list the station locations and deployment periods that correspond with the station numbers and abbreviations used here. Concentrations are reported as ng PAH/g wet tissue weight. Results of single determinations are presented alone; results of duplicate determinations ar separated by commas, and results of more that duplicate determinations are followed by 95% confidence intervals in parentheses. Corresponding % moisture determinations for these samples are also listed here. Method detection limits for these PAHs are listed in Table III-2 above, as are results (ng) of analysis of 1 µL of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits. Concentrations of uncalibrated PAHs found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, May, 1991

Station name	Station number	Depth (m)	C2naph	C3naph	C4naph	C1fluor	C2fluor	C3fluor	C1dithio	C2dithio	C3dithio	C1phenan	C2phenan	C3phenan
BOISL	2	1	0.00	1.54	0.46	0.57	2.73	2.08	0.00	1.20	1.94	1.39	1.96	2.85
		5	0.00	1.12	0.53	0.53	2.09	1.09	0.00	0.54	0.65	1.04	1.11	1.18
		25	0.00	0.80	0.00	0.48	2.12	1.02	0.00	0.00	0.00	1.14	0.00	0.00
DISKI	4	1	0.00	0.00	0.00	0.00	1.15	1.00	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	1.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.52	0.00	0.00	0.00	0.00	0.00	0.00
ESHAB	6	1	0.00	0.00	0.00	0.00	1.50	0.85	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	1.64	0.00	0.00	0.00	0.00	0.86	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HERRB	8	1	1.04	0.00	0.00	0.00	2.85	1.28	0.00	0.00	0.00	0.87	0.00	1.48
		5	0.72	0.58	0.00	0.00	1.18	0.95	0.00	0.00	0.00	0.56	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HERRB	9	1	0.00	0.62	0.00	0.00	8.03	2.18	0.54	0.67	1.36	3.44	0.70	2.62
		5	0.91	0.76	0.00	0.00	0.62	0.78	0.00	0.00	0.00	0.78	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NWBAY	14	1	0.00	0.00	0.00	0.00	2.54	0.00	0.00	0.00	0.79	1.42	0.00	1.50
		5	0.00	0.59	0.78	0.00	0.98	0.59	0.62	4.07	7.32	1.17	6.58	17.4
		25	0.80	0.00	0.00	0.00	0.61	1.79	0.00	0.00	0.00	0.57	0.00	0.87
OLSEN	15	1	0.00	1.39	0.00	0.00	2.65	0.00	0.00	0.00	0.00	1.86	1.55	0.00
		5	0.00	0.00	0.00	0.00	5.32	0.00	0.00	0.00	0.00	2.42	2.07	0.00
		25	0.00	1.29	0.00	0.57	3.13	1.71	0.00	0.00	0.00	1.63	0.00	4.52
SLEEB	18	1	0.00	0.00	0.00	0.00	0.00	1.08	0.00	0.70	2.08	0.78	1.26	2.93
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	3.68	0.00	0.99	0.00	0.00	0.00	0.61	0.00	0.00
SNUGH	20	1	0.00	0.00	0.00	0.00	3.18	1.07	0.00	0.00	0.00	1.54	0.00	0.61
		5	0.00	0.00	0.00	0.00	0.85	1.31	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.52	0.00	1.09	1.94	1.08	0.00	0.00	0.00	1.18	0.57	0.58
SNUGH	21	1	0.00	0.00	0.00	0.89	0.79	0.68	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	4.32	1.50	0.00	0.00	0.00	1.87	0.00	0.59

Table III-8 --Continued

Station name	Station number	Depth (m)	C4phenan	C1flore	C1chrys	C2chrys	C3chrys	C4chrys	% Moisture
BOISL	2	1	1 59	0 00	0 00	0 86	0 00	0 00	86 0
		5	0 69	0 00	0 81	1 05	0 00	0 82	82 0
		25	0 00	0 00	0 00	0 00	0 00	0 00	89 0
DISKI	4	1	0 00	0 00	0 00	1 60	0 00	0 85	87 0
		5	0 00	0 00	0 00	0 00	0 00	0 00	88 0
		25	0 00	0 00	0 00	1 86	0 62	0 63	91 0
ESHAB	6	1	0 00	0 00	0 00	2 43	0 00	2 49	88 0
		5	0 00	0 00	0 00	2 07	0 00	1.78	87 0
		25	0 00	0 00	0 00	0 00	0 00	0 00	91 0
HERRB	8	1	0 00	0 00	0 00	2 10	0 00	1.18	86.0
		5	0 00	0 00	0 00	2 03	0 00	1.46	86 0
		25	0 00	0 00	0 00	0 89	0 00	0 00	90.0
HERRB	9	1	1 01	0 00	1 55	3 19	0 00	1.96	85 0
		5	0 00	0 00	1 56	2 12	0 00	1 32	86.0
		25	0 00	0 00	0 00	1 67	0 00	0.71	91 0
NWBAY	14	1	0 74	0 00	0 00	1 85	0 00	0 00	86 0
		5	5 86	0 00	3 88	4 03	0 00	0 00	89 0
		25	0 00	0 00	0 00	3 70	0 00	1 32	89 0
OLSEN	15	1	0 00	0 00	0 00	0 00	0 00	0 00	84 0
		5	0 00	0 00	0 00	0 00	0 00	0 00	84 0
		25	0 00	0 00	0 77	0 89	0 00	0 00	85 0
SLEEB	18	1	1 55	0 00	2 03	1 70	0 00	0.00	88 0
		5	0 00	0 00	0 57	0 77	0 00	0 00	86 0
		25	0 00	0 00	0 66	1 45	0 00	0 00	89 0
SNUGH	20	1	0 00	0.00	0.00	1.13	0 00	0.62	83 0
		5	0 00	0 00	0 00	0 00	0 00	0 00	88 0
		25	0 00	0 00	0 00	0 00	0 00	0.00	91 0
SNUGH	21	1	0 00	0 00	0 00	0 81	0 00	0.00	88 1
		5	0 00	0 00	0 00	1 01	0 00	0 00	85 0

Table III-9. Concentrations of alkanes in caged mussels deployed in 1991 in PWS, Alaska, following the EVOS of March 24, 1990, in the Sound. Table II-4 contains a key for the alkane abbreviations used here. Tables I-1 and I-2 list the station locations and deployment periods that correspond with the station numbers and abbreviations used here. Concentrations are reported as ng alkane/g wet tissue weight. Results of single determinations are presented alone; results of duplicate determinations are separated by commas, and results of more that duplicate determinations are followed by 95% confidence intervals in parentheses. Corresponding % moisture determinations for these samples are listed in Table III-8 above. Method detection limits for these PAHs are listed in Table III-3 above, as are results (ng) of analysis of 1 µl of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits. A = surrogate recovery below 30%, data treated as missing. B = surrogate recovery above 150%, data treated as missing. * = below lowest calibration standard. Concentrations (ng/g) of alkanes found at 1, 5, and 25 m depths in mussel tissue inside PWS, Alaska, May, 1991.

Station name	Station number	Depth (m)	C10	C11	C12	C13	C14	C15	C16	C17	Pris	C18	Phyt	C19	C20	C21
BOISL	2	1	A	A	A	A	0.00	0.00	0.00	41.6*	368	0.00	0.00	0.00	0.00	0.00
		5	A	A	A	A	0.00	25.2*	0.00	43.2*	760	0.00	24.3*	0.00	0.00	0.00
		25	A	A	A	A	0.00	0.00	0.00	0.00	175	0.00	0.00	0.00	0.00	0.00
DISKI	4	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1013	0.00	0.00	0.00	0.00	0.00
		5	0.00	8.90*	8.92*	19.3*	0.00	0.00	0.00	0.00	580	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	620	0.00	0.00	0.00	0.00	0.00
ESHAB	6	1	0.00	0.00	0.00	0.00	0.00	25.0*	0.00	0.00	1453	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	6.89*	0.00	0.00	25.6*	0.00	0.00	633	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.0*	0.00	0.00	0.00	0.00	0.00
HERRB	8	1	0.00	0.00	11.0*	12.8*	0.00	42.9*	0.00	46.3*	1441	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	27.2*	0.00	0.00	1117	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	32.2*	0.00	0.00	729	0.00	0.00	0.00	0.00	0.00
HERRB	9	1	0.00	0.00	9.87*	10.6*	0.00	27.3*	0.00	0.00	3504	0.00	26.2*	0.00	0.00	0.00
		5	0.00	0.00	6.14*	0.00	0.00	34.4*	0.00	0.00	995	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	6.72*	12.3*	0.00	20.0*	0.00	0.00	435	0.00	0.00	0.00	0.00	0.00
NWBAY	14	1	A	A	A	A	22.0*	77.5	75.9*	0.00	2062	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	18.7*	0.00	0.00	25.5*	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	15.1*	28.7*	25.7*	0.00	0.00	0.00	869	0.00	0.00	0.00	0.00	0.00
OLSEN	15	1	0.00	0.00	7.59*	12.7*	0.00	0.00	0.00	309	105*	0.00	0.00	20.0*	0.00	0.00
		5	0.00	0.00	8.50*	14.0*	0.00	0.00	0.00	241	148	15.2*	0.00	18.2*	0.00	0.00
		25	0.00	0.00	0.00	10.5*	0.00	0.00	0.00	0.00	607	0.00	0.00	0.00	0.00	0.00
SLEEB	18	1	0.00	0.00	6.00*	12.4*	0.00	0.00	0.00	0.00	650	0.00	32.6*	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	753	0.00	0.00	0.00	0.00	0.00
		25	0.00	8.37*	0.00	0.00	0.00	0.00	0.00	0.00	347	0.00	0.00	0.00	0.00	0.00
SNUGH	20	1	0.00	0.00	10.6*	24.4*	0.00	0.00	0.00	0.00	403	0.00	0.00	0.00	0.00	0.00
		5	0.00	7.98*	6.36*	24.7*	0.00	27.2*	0.00	0.00	225	0.00	0.00	0.00	0.00	0.00
		25	15.4*	159	9.27*	0.00	0.00	0.00	0.00	0.00	143	0.00	0.00	0.00	0.00	0.00
SNUGH	21	1	0.00	0.00	6.06*	0.00	0.00	0.00	0.00	0.00	554	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	9.50*	0.00	0.00	0.00	0.00	0.00	377	0.00	0.00	0.00	0.00	0.00

Table III-9.–Continued.

Station name		Station number	Depth (m)	C22	C23	C24	C25	C26	C27	C28	C29	C30	C32	C34
BOISL		2	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DISKI	4	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESHAB		6	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HERRB		8	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HERRB		9	1	0.00	0.00	0.00	8.89*	0.00	16.0*	0.00	0.00	0.00	0.00	0.00
			5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NWBAY		14	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			5	0.00	0.00	0.00	8.37*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OLSEN		15	1	0.00	0.00	0.00	0.00	0.00	17.6*	0.00	0.00	0.00	0.00	0.00
			5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SLEEB		18	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SNUGH		20	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SNUGH		21	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table III-10. Concentrations of calibrated PAHs in caged mussels deployed outside PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Table II-2 contains a key for the PAH abbreviations used here. Tables I-3 and I-4 list the station locations and deployment periods that correspond with the station numbers and abbreviations used here. Concentrations are reported as ng PAH/g wet tissue weight. Results of single determinations are presented alone; results of duplicate determinations are separated by commas, and results of more that duplicate determinations are followed by 95% confidence intervals in parentheses. Corresponding % moisture determinations for these samples are listed in Table III-11 following. Method detection limits for these PAHs are listed in Table III-1 above, as are results (ng) of analysis of 1 µL of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits. A = surrogate recovery below 30%; data treated as missing. B = surrogate recovery above 150%; data treated as missing. * = below lowest calibration standard. Concentrations (ng/g) of calibrated PAHs found at 1, 5, and 25 m depths in mussel tissue outside PWS, Alaska.

Station name	Station number	Depth (m)	Naph	Menap2	Menap1	Dimeth	Trimeth	Biphenyl
July, 1989								
BLACB	25	1	0.00, 0.00	0.00, 0.00	0.00, 1.38*	0.00, 0.00	0.00, 0.00	1.94*, 1.11*
		5	0.00, 0.00	0.00, 1.51*	1.87*, 3.31*	0.00, 0.00	0.00, 0.00	0.00, 0.76*
		25	0.00, 0.00	0.00, 0.00	0.00, 1.84*	0.00, 0.00	0.00, 0.00	0.00, 0.00
BLUEF	26	1	0.00	0.00	0.00	0.00	0.16* (-0.58-0.57)	0.00
		5	0.00, 0.00	0.00, 0.00	1.33*, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	A, 0.00	A, 1.03*	A, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
DISCB	28	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00, A	1.07*, A	0.00, A	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
PCHAT	32	1	0.70* (0.10-1.81)	0.29* (0.04-0.76)	0.54* (0.08-1.40)	0.00	0.00	0.00
		3	0.00, 0.00	0.00, 1.52*	0.00, 1.91*	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, A	0.00, A	0.00, A	0.00, 0.00	0.00, 0.00	0.00, 1.46*
PDICK	33	1	A, 0.00	A, 0.00	A, 0.00	A, 0.00	A, 0.00	A, 0.00
		5	9.17	0.00	0.00	0.00	0.00	0.00
		25	A, 0.00	A, 0.00	A, 1.66*	0.00, 0.00	0.00, 0.00	0.00, 0.00
SUNNC	36	1	5.13* (0.61-11.99)	0.42* (0.06-1.07)	0.69 (0.10-1.79)	0.00	0.00	0.19 (0.03-0.49)
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
TONSB	37	1	4.82, 0.00	0.00, 0.00	0.00, 0.00	0.77*, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00, A	0.00, A	1.73*, A	0.00, 0.00	0.00, 0.00	0.99*, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
August, 1989								
BALBB	24	1	0.00, 0.00	0.00, 2.74*	0.00, 3.83*	0.00, 0.95*	0.00, 0.00	0.00, 0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
BLACB	25	1	6.10	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	10.5	3.96*	3.87*	0.77*	0.00	0.00
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	2.32*	0.00	0.00	0.00	0.00	0.00
		25	25.8	8.24*	7.00*	1.49*	0.00	0.00
CHIGB	27	1	0.00, 0.00	1.43*, 0.00	0.00, 0.00	1.13*, 1.15*	2.74*, 4.09*	0.00, 0.00
		5	0.00, 0.00	1.25*, 0.00	0.00, 0.00	0.95*, 1.10*	0.88*, 1.21*	0.00, 0.00
DISCB	28	5	2.75*	1.02*	2.95*	0.00	0.00	0.00
		25	4.50	0.00	0.00	0.00	0.00	0.00
HALLB	29	1	1.33* (0.19-3.44)	0.25* (0.04-0.66)	1.00* (0.08-1.92)	0.00	0.00	0.59* (0.05-1.15)
KUKAB	31	1	0.00	1.01*	2.05*	0.00	0.00	1.32*
		5	0.00	0.00	3.14*	0.00	0.00	1.11*

Table III-10.--Continued

Station name	Station number	Depth (m)	Naph	Menap2	Menap1	Dimeth	Trimeth	Biphenyl
PCHAT	32	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
PDICK	33	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	6.16	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
PGRAH	34	1	0.00	0.00	3.82*	0.00	0.00	0.00
		5	2.64*	0.00	0.00	0.00	0.00	0.00
RASBS	35	1	7.70	1.09*	1.66*	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
SUNNC	36	1	7.87	3.08*	3.20*	0.00	0.00	0.00
		5	2.61*	0.00	0.00	0.00	0.00	0.00
		25	6.53	0.00	6.51*	0.00	0.00	0.00
TONSB	37	1	A, A	A, A	A, A	0.00, 0.00	0.00, 0.00	1.33*, 0.00
		5	A	A	A	0.00	0.00	2.39*
		25	0.00	0.00	0.00	0.00	0.00	0.00
June, 1990								
HALLB	29	5	0.00	0.00	0.00	0.00	0.00	0.00
KUKAB	31	1	0.00	0.00	0.00	0.00	0.00	0.00
July, 1990								
AGENC	23	1	3.17*	0.00	0.00	0.00	0.00	0.00
BLACB	25	1	3.29*	0.00	0.00	0.00	0.00	0.00
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00	0.00
HALLB	29	1	0.00	0.00	0.00	0.00	0.00	0.00
KATMB	30	1	0.00	0.00	0.00	0.00	0.00	0.00
SUNNC	36	1	4.94*	0.00	0.00	0.00	0.00	0.00
TONSB	37	1	0.00	0.00	0.00	0.00	0.00	0.00
WINDB	38	1	0.00	0.00	0.00	0.00	0.00	0.00

Table III-10.--Continued.

Station name	Station number	Depth (m)	Fluorene	Dithio	Phenanth	Mephenl	Chrysene
July, 1989							
BLACB	25	1	0.00, 0.00	0.00, 0.00	0.94*, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00, 0.00	0.00, 0.00	2.64*, 0.00	1.22*, 0.00	1.36*, 0.00
		25	0.50*, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
BLUEF	26	1	0.00	0.00	0.44* (-1.57-1.53)	0.00	0.00
		5	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
DISCB	28	1	0.00, 0.00	0.00, 0.00	0.00, 0.90	0.00, 0.00	0.00, 0.00
		5	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
PCHAT	32	1	0.00	0.00	0.64* (0.06-1.29)	0.14* (-0.05-0.38)	0.00
		3	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
PDICK	33	1	A, 0.00	0.00, 0.00	1.06*, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00	0.00	0.00	0.00	0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
SUNNC	36	1	0.00	0.00	0.65* (0.06-1.32)	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
TONSB	37	1	0.00, 0.00	0.00, 0.00	0.00, 1.38*	1.67*, 1.74*	5.95*, 5.72*
		5	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 2.13*
		25	0.00, 0.00	0.00, 0.00	1.02*, 0.00	0.00, 0.00	0.00, 0.00
August, 1989							
BALBB	24	1	0.00, 0.00	0.00, 0.00	1.76*, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00	0.00	0.00	0.00	0.00
BLACB	25	1	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00
		25	0.87*	0.00	2.26*	0.00	0.00
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00
		25	1.04*	0.00	3.59*	0.00	0.00
CHIGB	27	1	1.78*, 2.13*	1.92*, 2.32*	9.86, 14.0	5.34*, 8.77	2.85*, 3.35*
		5	0.00, 0.94*	0.63*, 0.82*	3.26*, 3.94*	1.62*, 2.05*	0.00, 3.58*
DISCB	28	5	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00
HALLB	29	1	0.14* (0.02-0.35)	0.00	0.87* (0.04-1.34)	0.00	0.00
KUKAB	31	1	0.00	0.00	1.61*	0.00	0.00
		5	0.00	0.00	1.75*	0.00	0.00

Table III-10 --Continued

Station name	Station number	Depth (m)	Fluorene	Dibenzothiophene	Phenanthrene	Methylphenanthrene	Chrysene
PCHAT	32	1	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00
PDICK	33	1	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00
PGRAH	34	1	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00
RASBS	35	1	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00
SUNNC	36	1	0.65*	0.00	2.70*	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00
TONSB	37	1	0.00, 0.00	0.00, 0.00	1.12*, 0.00	0.00, 0.00	1.45*, 3.78*
		5	0.00	0.00	1.55*	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00
June, 1990							
HALLB	29	5	0.00	0.00	0.00	0.00	0.00
KUKAB	31	1	0.00	0.00	0.98*	0.00	
July, 1990							
AGENC	23	1	0.00	0.00	0.00	0.00	0.00
BLACB	25	1	0.00	0.00	0.00	0.00	0.00
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00
HALLB	29	1	0.00	0.00	0.00	0.00	0.00
KATMB	30	1	0.00	0.00	0.00	0.00	0.00
SUNNC	36	1	0.00	0.00	0.00	0.00	0.00
TONSB	37	1	0.00	0.00	0.00	0.00	0.00
WINDB	38	1	0.00	0.00	0.00	0.00	B

Table III-11 Concentrations of uncalibrated PAHs in caged mussels deployed outside PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Table II-3 contains a key for the PAH abbreviations used here. Tables I-3 and I-4 list the station locations and deployment periods that correspond with the station numbers and abbreviations used here. Concentrations are reported as ng PAH/g wet tissue weight. Results of single determinations are presented alone; results of duplicate determinations are separated by commas, and results of more than duplicate determinations are followed by 95% confidence intervals in parentheses. Corresponding % moisture determinations for these samples are also listed here. Method detection limits for these PAHs are listed in Table III-2 above, as are results (ng/ml of analysis) of 1 µl of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits. A = surrogate recovery below 50%, data treated as missing. B = surrogate recovery above 150%, data treated as missing.
* = below lowest calibration standard. Concentrations (ng/g) of uncalibrated PAHs found at 1, 5, and 25 m depths in mussel tissue outside PWS, Alaska

Station name	Station number	Depth (m)	C2naph	C3naph	C4naph	C1fluor	C2fluor	C3fluor
July, 1989								
BLACB	25	1	2.04, 5.55	0.00, 0.00	0.00, 0.00	0.00, 0.00	1.75, 0.00	2.92, 4.87
		5	2.36, 0.00	0.65, 0.00	0.00, 0.00	1.82, 1.22	1.04, 1.44	0.00, 3.44
		25	0.00, 0.82	1.60, 1.65	0.00, 0.00	0.94, 1.51	4.47, 0.00	2.80, 0.86
BLUEF	26	1	1.42 (-3.79-3.46)	1.86 (-2.91-2.15)	0.00	0.92 (-1.59-1.24)	3.27 (-10.5-9.99)	1.43 (-4.06-3.77)
		5	0.73, 1.45	0.90, 2.02	1.30, 1.66	0.81, 0.81	4.86, 1.33	2.49, 0.50
		25	6.81, 0.00	1.83, 0.00	3.61, 0.89	0.00, 0.73	2.39, 0.47	4.20, 1.31
DISCB	28	1	1.63, 1.57	0.00, 0.00	0.00, 0.00	0.00, 0.00	2.20, 2.14	5.23, 1.74
		5	0.00, 1.41	0.00, 0.91	1.37, 0.00	0.00, 0.63	0.00, 2.13	0.00, 1.16
		25	2.41, 0.00	1.24, 0.00	0.00, 0.00	0.00, 0.00	0.00, 1.27	4.49, 2.55
PCHAT	32	1	2.69 (-1.63-4.41)	0.13 (-0.04-0.33)	0.64 (-0.29-1.37)	0.00	0.99 (-0.69-1.34)	5.26 (-2.38-11.4)
		3	0.58, 1.19	0.00, 0.00	0.52, 0.00	3.67, 1.32	1.01, 0.88	2.50, 0.00
		25	0.00, 1.78	0.62, 0.00	0.58, 1.05	0.75, 0.00	14.1, 0.00	8.94, 3.15
PDICK	33	1	2.10, 5.66	1.14, 0.53	0.00, 0.00	0.00, 0.00	2.87, 0.47	9.34, 5.46
		5	1.73	0.69	0.00	1.65	1.46	1.80
		25	2.88, 0.00	0.00, 0.00	0.00, 0.00	0.00, 2.04	0.46, 0.00	9.31, 0.00
SUNNC	36	1	1.98 (-1.09-3.63)	0.52 (-0.24-1.11)	0.32 (-0.17-0.62)	0.20 (-0.06-0.51)	0.71 (-0.33-1.53)	2.48 (1.75-3.23)
		5	0.00	0.64	0.00	0.00	7.71	4.69
		25	1.89, 0.00	0.00, 0.00	0.56, 0.00	0.00, 0.00	0.64, 0.00	1.87, 0.00
TONSB	37	1	1.49, 3.03	3.78, 2.70	5.60, 5.32	1.12, 1.28	4.15, 19.9	4.78, 17.4
		5	3.94, 2.27	1.39, 0.70	0.00, 1.52	0.82, 0.00	0.00, 2.11	5.79, 5.16
		25	1.50, 0.71	0.50, 0.87	0.00, 0.00	0.00, 0.00	0.73, 17.2	3.14, 11.7
August, 1989								
BALBB	24	1	2.25, 1.09	1.08, 0.00	0.00, 1.40	0.00, 2.05	1.62, 31.8	2.23, 0.98
		5	5.77	3.37	1.33	1.80	6.11	4.94
BLACB	25	1	1.67	0.79	0.00	0.00	0.59	1.72
		5	1.42	0.00	0.00	0.00	0.58	0.00
		25	18.2	1.35	0.00	0.00	0.00	0.00
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	1.13	0.00
		25	5.18	2.98	0.00	0.00	0.00	0.00
CHIGB	27	1	3.06, 6.95	21.2, 29.7	25.9, 35.7	5.28, 6.80	16.8, 42.9	12.5, 27.7
		5	0.71, 2.26	6.49, 9.43	5.97, 10.2	2.04, 2.32	6.90, 8.56	1.51, 5.64
DISCB	28	5	0.58	0.00	0.00	0.00	0.98	0.00
		25	1.01	0.00	0.00	0.00	0.00	0.00
HALLB	29	1	0.45 (-0.21-0.95)	0.11 (-0.04-0.28)	0.00	0.00	0.00	0.26 (-0.09-0.69)
KUKAB	31	1	1.57	0.00	0.00	0.00	6.49	0.00
		5	1.74	1.51	0.00	0.00	0.00	0.00

Table III-11.--Continued.

Station name	Station number	Depth (m)	C2naph	C3naph	C4naph	C1fluor	C2fluor	C3fluor
PCHAT	32	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	1.19	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.62	0.81
PDICK	33	1	0.53	0.00	0.00	0.50	2.20	0.00
		5	0.00	0.00	0.00	0.00	0.92	1.34
		25	0.00	0.00	0.00	0.00	1.31	0.00
PGRAH	34	1	1.12	0.00	0.00	0.00	0.75	0.00
		5	0.00	0.00	0.00	0.00	1.06	0.00
[illegible]	[illegible]	1	0.00	0.00	0.00	0.68	0.63	0.59
		5	0.00	0.61	0.00	0.00	3.28	1.90
		25	0.00	0.00	0.00	0.00	0.73	0.00
[illegible]	[illegible]	1	1.04	0.00	0.00	0.00	0.00	0.00
		5	0.67	0.00	0.00	0.00	0.70	0.00
		25	0.55	0.00	0.00	0.72	0.00	0.00
TONSB	37	1	0.00, 0.00	0.00, 0.00	0.75, 0.00	0.00, 0.00	0.00, 4.64	3.52, 1.64
		5	0.56	0.00	0.00	0.00	0.64	0.65
		25	0.00	0.43	0.00	0.00	1.63	1.22
June, 1990								
HALLB	29	5	0.00	0.00	0.00	0.00	0.00	0.00
KUKAB	31	1	0.72	0.00	0.00	0.00	2.92	0.00
July, 1990								
AGEBC	23	1	0.00	0.44	0.57	0.00	0.00	0.00
BLACB	25	1	0.00	0.45	0.00	0.00	0.00	0.00
BLUEF	26	1	0.00	0.00	0.00	0.00	1.47	0.00
HALLB	29	1	0.00	0.00	0.00	0.00	1.64	1.41
KATMB	30	1	0.00	0.00	0.00	0.00	1.20	0.00
SUNNC	36	1	0.00	0.43	0.00	0.00	0.00	0.00
TONSB	37	1	0.00	0.00	0.00	0.00	6.71	0.75
WINDB	38	1	0.00	0.52	0.61	0.00	0.84	0.00

Table III-11.--Continued

Station name	Station number	Depth (m)	C1dithio	C2dithio	C3dithio	C1phenan	C2phenan	C3phenan
July, 1989								
BLACB	25	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.58, 0.00	3.04, 0.00	0.00, 0.00
		5	0.00, 0.00	0.00, 0.00	0.66, 0.00	1.56, 0.53	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.64, 0.00	0.44, 0.00	0.63, 0.00	0.00, 0.76	0.92, 7.78
BLUEF	26	1	0.31 (-0.77-0.69)	0.14 (-0.50-0.49)	0.24 (-0.84-0.82)	0.97 (-1.82-1.47)	1.26 (-2.55-2.12)	0.66 (-1.87-1.74)
		5	[illegible]	0.54, 0.36	0.17, 0.40	0.66, 1.36	1.47, 0.84	3.11, 0.71
		25	[illegible]	[illegible]	0.00, 0.00	1.86, 0.00	0.00, 2.57	17.0, 8.31
DISCB	28	1	[illegible]	[illegible]	[illegible]	1.01, 0.71	1.44, 0.00	7.97, 0.00
		5	[illegible]	[illegible]	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	[illegible]	[illegible]	0.00, 0.89	0.88, 0.00	0.00, 0.58	1.02, 0.00
HALLB	32	1	[illegible]	[illegible]	0.23 (-0.12-0.44)	0.26 (-0.09-0.69)	1.64 (-1.21-1.97)	0.18 (-0.06-0.46)
		3	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.45, 0.00	0.00, 0.00	0.82, 0.59
		25	0.00, 0.57	0.89, 0.00	0.64, 0.00	0.75, 0.00	1.25, 0.00	0.94, 0.69
PDICK	33	1	0.00, 0.00	0.00, 1.34	0.00, 0.00	0.00, 1.64	4.05, 5.94	0.00, 0.00
		5	0.70	0.68	0.95	1.36	0.82	7.30
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.95, 0.62	0.43, 9.74
SUNNC	36	1	0.00	0.00	0.26 (-0.09-0.67)	0.57 (-0.29-1.11)	1.04 (0.51-2.11)	0.22 (-0.07-0.56)
		5	0.00	0.50	0.00	0.00	0.00	0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	2.25, 2.57	3.15, 3.35
TONSB	37	1	3.82, 4.37	16.3, 29.6	26.0, 53.6	5.50, 7.49	25.3, 40.9	52.1, 70.9
		5	0.00, 1.14	0.82, 6.83	1.81, 12.0	0.52, 3.59	0.50, 12.3	4.09, 46.8
		25	0.00, 0.00	1.58, 1.49	3.70, 2.64	0.71, 0.67	4.99, 2.81	5.26, 5.89
August, 1989								
BALBB	24	1	0.00, 0.92	0.00, 0.60	0.00, 0.00	1.67, 9.02	1.86, 5.97	0.00, 2.67
		5	1.75	0.84	0.96	4.42	1.73	1.55
BLACB	25	1	0.00	0.00	2.24	0.00	0.00	0.79
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
CHIGB	27	1	11.0, 16.2	19.7, 35.1	15.7, 30.8	19.5, 32.4	34.3, 52.6	23.2, 31.8
		5	2.89, 3.87	4.42, 4.80	3.90, 6.01	6.37, 8.42	11.3, 10.5	4.82, 21.0
DISCB	28	5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.52	0.00	0.00	0.00
HALLB	29	1	0.00	0.00	0.00	0.00	0.00	0.00
KUKAB	31	1	0.00	0.00	1.59	0.00	0.00	0.00
		5	0.00	0.00	0.45	0.83	0.95	6.29

Table III-11.--Continued

Station name	Station number	Depth (m)	C1dithio	C2dithio	C3dithio	C1phenan	C2phenan	C3phenan
PCHAT	32	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
PDICK	33	1	0.00	0.36	0.00	0.73	1.03	0.00
		5	0.00	0.00	1.04	0.00	0.00	0.00
		25	0.00	0.00	2.76	0.00	0.00	0.00
PGRAH	34	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.80
RASBS	35	1	0.00	0.00	2.56	0.00	0.00	0.00
		5	0.00	0.00	0.55	1.78	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
SUNNC	36	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
TONSB	37	1	0.00, 0.00	4.65, 2.75	8.62, 6.01	0.00, 0.70	6.01, 4.88	11.4, 10.7
		5	0.00	0.67	2.54	0.00	1.41	4.84
		25	0.00	0.00	0.58	0.65	7.37	
June, 1990								
HALLB	29	5	0.00	0.00	0.00	0.00	0.00	0.00
KUKAB	31	1	0.00	0.00	0.00	0.00	0.00	0.00
July, 1990								
AGENC	23	1	0.00	0.00	0.00	0.00	0.00	0.00
BLACB	25	1	0.00	0.00	0.00	0.00	0.00	0.00
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00	0.00
HALLB	29	1	0.00	0.00	0.00	0.00	0.00	0.00
KATMB	30	1	0.00	0.00	0.00	0.00	0.00	0.00
SUNNC	36	1	0.00	0.00	0.00	0.00	0.00	0.00
TONSB	37	1	0.00	0.00	0.49	0.00	0.00	0.98
WINDB	38	1	0.00	0.85	0.98	0.86	2.77	0.00

Table III-11 --Continued

Station name	Station number	Depth (m)	C4phenan	C1fluora	C1chrys	C2chrys	C3chrys	C4chrys	% Moisture
July, 1989									
BLACB	25	1	0.00, 0.00	0.00, 0.58	0.00, 0.00	0.00, 1.79	0.00, 0.70	0.00, 4.33	90.0
		5	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 1.15	0.00, 0.43	0.00, 1.09	91.0
		25	0.00, 0.00	0.00, 0.61	0.59, 0.00	0.00, 1.15	0.00, 0.00	0.00, 0.00	90.6
BLUEF	26	1	0.41 (-1.48-1.44)	0.00	0.31 (-1.11-1.08)	1.14 (-4.06-3.96)	0.00	0.00	90.3
		5	0.00, 0.00	0.00, 0.00	1.06, 0.00	0.00, 2.43	0.00, 0.00	0.00, 1.04	83.5
		25	0.00, 0.00	0.54, 0.00	0.00, 0.00	0.59, 0.54	3.46, 1.50	1.52, 0.00	85.0
DISCB	28	1	0.00, 0.00	0.62, 0.00	2.93, 0.00	3.19, 0.00	1.36, 0.00	1.39, 0.00	86.0
		5	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.61	1.28, 0.63	88.1
		25	0.00, 0.00	1.02, 0.00	0.00, 0.00	0.68, 0.00	2.61, 0.00	0.00, 0.00	90.0
PCHAT	32	1	0.00	0.00	0.00	0.67 (-0.34-1.34)	0.00	1.11 (-0.52-2.34)	88.7
		3	0.65, 0.00	0.65, 0.00	0.00, 0.00	0.54, 0.45	1.55, 0.00	2.50, 1.65	87.6
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 1.22	0.00, 0.00	0.00, 4.19	90.0
PDICK	33	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 2.32	0.00, 0.95	0.00, 5.24	89.6
		5	0.00	0.00	0.00	2.15	0.00	0.00	85.9
		25	0.00, 0.00	0.53, 0.00	0.00, 0.00	0.52, 0.00	0.00, 1.89	2.18, 1.71	91.5
SUNNC	36	1	0.17 (-0.05-0.43)	0.18 (-0.06-0.47)	2.11 (-1.11-4.04)	0.47 (-0.15-1.22)	0.00	0.34 (-0.11-0.89)	90.5
		5	0.00	0.00	0.00	0.00	0.00	0.00	92.0
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.49	0.00, 0.00	0.00, 0.00	89.0
TONSB	37	1	17.0, 35.2	4.79, 6.80	9.98, 12.3	9.81, 10.6	1.11, 1.01	0.00, 0.00	92.0
		5	2.74, 5.63	0.00, 1.50	0.93, 0.00	3.48, 4.07	2.09, 0.00	0.00, 5.88	90.5
		25	1.43, 4.22	0.00, 0.00	3.95, 0.66	0.00, 1.08	0.00, 0.00	0.00, 0.00	90.0
August, 1989									
BALBB	24	1	0.00, 0.51	0.00, 0.00	0.00, 0.00	0.00, 4.37	0.00, 0.00	0.00, 1.24	91.0
		5	0.00	7.57	0.00	5.83	2.48	1.11	80.0
BLACB	25	1	0.00	0.00	0.00	7.61	0.00	0.91	90.0
		5	0.00	0.00	0.00	2.13	0.00	0.00	87.2
		25	0.00	0.00	0.00	0.00	0.00	0.00	91.0
BLUEF	26	1	0.00	0.00	0.00	1.81	0.00	0.00	90.0
		5	0.00	0.00	0.00	5.12	0.00	0.00	87.0
		25	0.00	0.00	0.00	0.00	0.00	0.00	100
CHIGB	27	1	5.90, 6.13	1.71, 3.55	3.15, 1.03	1.83, 0.00	0.00, 0.00	1.19, 0.00	85.5
		5	0.50, 2.30	0.95, 1.83	0.00, 0.44	0.91, 1.05	0.00, 0.45	0.99, 0.00	84.7
DISCB	28	5	0.00	0.00	0.00	2.89	0.00	0.00	89.0
		25	0.00	0.00	0.00	7.47	1.08	0.00	88.1
HALLB	29	1	0.00	0.00	0.00	0.00	0.00	0.00	91.0
KUKAB	31	1	0.00	0.00	0.00	0.00	1.23	0.00	90.0
		5	0.00	0.00	0.00	0.00	0.00	0.00	90.0

Table III-11.--Continued

Station name	Station number	Depth (m)	C4phenan	C1fluora	C1chrys	C2chrys	C3chrys	C4chrys	% Moisture
PCHAT	32	1	0.00	0.00	0.00	4.81	0.00	0.00	91.0
		5	0.00	0.00	0.00	3.21	0.00	0.00	90.0
		25	0.00	0.00	0.68	3.89	0.00	0.00	91.0
PDICK	33	1	0.00	0.00	0.00	6.71	0.00	0.00	86.0
		5	0.00	0.00	0.00	10.3	0.97	1.17	89.0
		25	0.00	0.00	0.00	10.5	0.92	2.78	91.0
PGRAH	34	1	0.00	0.00	0.71	1.48	0.00	0.00	90.0
		5	0.84	0.00	0.00	6.02	0.00	0.00	87.0
RASBS	35	1	0.00	1.27	0.00	14.0	2.36	0.83	88.0
		5	0.00	2.67	0.00	12.8	0.63	1.75	90.0
		25	0.00	0.00	0.00	4.58	0.00	0.00	88.0
SUNNC	36	1	0.00	0.00	0.00	0.00	0.00	0.00	89.0
		5	0.00	0.00	0.00	4.05	0.00	0.00	88.0
		25	0.00	0.00	0.00	1.47	0.00	0.00	90.0
TONSB	37	1	2.89, 4.6	0.00, 0.00	3.14, 2.38	2.58, 3.13	0.73, 0.00	0.00, 0.00	91.5
		5	0.80	0.00	0.00	0.00	0.00	0.00	89.0
		25	0.00	0.00	0.00	5.20	0.00	0.00	91.0
June, 1990									
HALLB	29	5	0.00	0.00	0.00	4.47	0.00	0.00	89.0
KUKAB	31	1	0.00	0.00	0.00	0.64	0.00	0.00	84.0
July, 1990									
AGENC	23	1	0.00	0.00	0.00	0.00	0.00	0.00	86.0
BLACB	25	1	0.00	0.00	0.00	0.00	0.00	0.00	89.0
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00	0.00	89.0
HALLB	29	1	0.00	0.00	0.00	1.83	0.00	1.47	92.0
KATMB	30	1	0.00	0.00	0.00	0.00	0.00	0.00	87.9
SUNNC	36	1	0.00	0.00	0.00	0.00	0.00	0.00	91.0
TONSB	37	1	0.00	0.00	0.00	0.00	0.00	0.00	87.0
WINDB	38	1	0.59	0.00	0.00	0.00	0.00	0.00	87.0

Table III-12. Concentrations of alkanes in caged mussels deployed outside PWS, Alaska, following the EVOS of March 24, 1989, in the Sound. Table II-4 contains a key for the alkane abbreviations used here. Tables 1-3 and 1-4 list the station locations and deployment periods that correspond with the station numbers and abbreviations used here. Concentrations are reported as ng alkane/g wet tissue weight. Results of single determinations are presented alone; results of duplicate determinations are separated by commas, and results of more that duplicate determinations are followed by 95% confidence intervals in parentheses. Corresponding % moisture determinations for these samples are listed in Table III-11 above. Method detection limits for these PAHs are listed in Table III-3 above, as are results (ng) of analysis of 1 µL of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits. A = surrogate recovery below 30%, data treated as missing. B = surrogate recovery above 150%, data treated as missing. * = below lowest calibration standard. Concentrations (ng/g) of alkanes found at 1, 5, and 25 m depths in mussel tissue outside PWS, Alaska.

Station name	Station number	Depth (m)	C10	C11	C12	C13	C14	C15
July, 1989								
BLACB	25	1	177, 584	13.1*, 222	7.14*, 0.00	0.00, 66.2	0.00, 0.00	26.9*, 0.00
		5	38.0, A	0.00, A	0.00, A	0.00, A	0.00, 0.00	24.5*, 0.00
		25	A,A	A,A	A,A	A,A	0.00, 0.00	23.2*, 42.5*
BLUEF	26	1	75.4 (-198-179)	25.8 (-91.9-89.6)	3.58* (-12.8-12.5)	8.64* (-30.8-30.1)	0.00	7.92* (-28.3-27.6)
		5	0.00, 61.0	0.00, 0.00	7.21*, 0.00	0.00, 0.00	0.00, 23.4*	35.6*, 38.9*
		25	553, 172	211, 0.00	0.00, 0.00	62.5, 0.00	0.00, 0.00	31.9*, 0.00
DISCB	28	1	305, 50.0*	70.5, 7.98*	0.00, 0.00	23.8*, 0.00	0.00, 0.00	29.0*, 21.9*
		5	0.00, A	0.00, A	0.00, A	0.00, A	0.00, 30.7*	0.00, 53.9*
		25	474*, 0.00	171*, 0.00	0.00, 0.00	53.5*, 0.00	0.00, 0.00	27.5*, 0.00
PCHAT	32	1	192 (-96.8-381)	61.6 (-24.1-146)	9.81* (-3.21-25.4)	17.2* (-5.62-44.5)	0.00	10.2* (-5.34-19.6)
		3	135, 0.00	64.1, 0.00	0.00, 0.00	25.5*, 0.00	21.6*, 0.00	30.8*, 0.00
		25	0.00, 364	0.00, 156	0.00, 0.00	0.00, 49.8*	0.00, 0.00	26.8*, 18.6*
PDICK	33	1	0.00, 348	0.00, 103	0.00, 0.00	0.00, 31.6*	0.00, 0.00	0.00, 25.5*
		5	A	A	A	A	0.00	44.2*
		25	A, 179	A, 13.8	A, 83.3*	A, 17.5*	24.3*, 0.00	33.6*, 0.00
SUNNC	36	1	218 (-91.2-496)	52.9 (-17.3-137)	1.47* (-0.48-3.81)	17.4* (-5.70-45.2)	17.1* (-8.64-33.8)	20.9* (-10.7-40.8)
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	454, 73.1	0.00, 0.00	0.00, 26.3	0.00, 11.0*	0.00, 0.00	0.00, 0.00
TONSB	37	1	A, 71.4*	A, 18.0*	A, 7.35*	A, 13.9*	0.00, 25.2*	26.9*, 41.7*
		5	268, 713	23.4, 232	0.00, 0.00	22.0*, 73.7	20.0, 22.3*	38.7*, 23.5*
		25	20.1*, 0.00	0.00, 0.00	5.42*, 0.00	0.00, 0.00	0.00, 0.00	0.00, 25.5*
August, 1989								
BALBB	24	1	251, 155	11.6*, 0.00	0.00, 70.0	10.3*, 17.9*	19.8*, 22.6*	60.0a, 72.4*
		5	84.2	22.8	0.00	16.3*	30.1*	113*
BLACB	25	1	A	A	A	A	0.00	30.4*
		5	0.00	0.00	6.65*	19.9*	0.00	26.1*
		25	A	A	A	A	0.00	35.1*
BLUEF	26	1	0.00	0.00	6.39*	10.8*	0.00	43.6*
		5	0.00	0.00	6.55*	12.3*	0.00	84.6*
		25	A	A	A	A	22.0*	46.1*
CHIGB	27	1	340, 111	18.5, 29.3*	41.8, 48.1*	47.7*, 72.7*	42.2*, 93.4*	170, 194
		5	381, 401	0.00, 32.2	0.00, 0.00	0.00, 18.7*	0.00, 22.6*	63.5*, 90.0*
DISCB	28	5	A	A	A	A	0.00	31.4*
		25	0.00	0.00	0.00	19.5*	0.00	29.6*
HALLB	29	1	0.00	0.00	0.00	0.00	0.00	37.5* (-28.8-41.1)
KUKAB	31	1	0.00	0.00	0.00	0.00	0.00	56.8*
		5	A	A	A	A	0.00	37.4*

Table III-12.--Continued

Station name	Station number	Depth (m)	C10	C11	C12	C13	C14	C15
PCHAT	32	1	0.00	0.00	8.36*	12.0*	0.00	26.9*
		5	0.00	0.00	0.00	11.6*	0.00	27.4*
		25	0.00	0.00	6.18*	0.00	0.00	24.4*
PDICK	33	1	2.16	0.00	5.62*	11.7*	0.00	22.3*
		5	0.00	0.00	6.25*	14.1*	0.00	23.5*
		25	0.00	0.00	0.00	0.00	0.00	18.5*
PGRAH	34	1	1.82	0.00	0.00	10.9*	0.00	27.3*
		5	0.00	0.00	8.55*	10.6*	0.00	34.5*
PASHS	35	1	0.00	9.77*	19.1*	23.7*	0.00	43.5*
		5	0.00	0.00	0.00	0.00	0.00	44.4*
		25	0.00	0.00	6.21*	0.00	0.00	45.2*
SUNNC	36	1	0.00	0.00	5.79*	18.8*	0.00	33.0*
		5	7.67	0.00	6.19*	26.1*	0.00	28.4*
		25	0.00	13.1*	0.00	27.7*	0.00	35.7*
TONSB	37	1	A, A	A, A	A, A	A, A	25.9*, 0.00	54.4*, 29.7*
		5	A	A	A	A	20.2*	63.4*
		25	0.00	0.00	5.57*	0.00	0.00	19.6*
June, 1990								
HALLB	29	5	20.8*	0.00	0.00	0.00	0.00	21.5*
KUKAB	31	1	0.00	0.00	5.93*	0.00	0.00	31.0*
July, 1990								
AGENC	23	1	0.00	0.00	0.00	0.00	0.00	59.0*
BLACB	25	1	0.00	0.00	0.00	0.00	0.00	32.8*
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00	21.6*
HALLB	29	1	0.00	0.00	5.39*	0.00	0.00	31.3*
KATMB	30	1	0.00	0.00	0.00	0.00	0.00	29.7*
SUNNC	36	1	0.00	0.00	0.00	0.00	0.00	30.2*
TONSB	37	1	0.00	0.00	0.00	0.00	0.00	26.0*
WINDB	38	1	0.00	0.00	0.00	0.00	0.00	44.9*

Table III-12 --Continued

Station name	Station number	Depth (m)	C16	C17	Pris	C18	Phyt	C19
July, 1989								
BLACB	25	1	0.00, 0.00	0.00, 0.00	32.4*, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 0.00	25.2*, 35.6*	0.00, 0.00	0.00, 0.00	0.00, 0.00
BLUEF	26	1	0.00	0.00	24.6* (-87.9 85.8)	0.00	10.7* (-38.2-37.2)	0.00
		5	[illegible]	[illegible]	[illegible]	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	[illegible]	[illegible]	[illegible]	0.00, 0.00	0.00, 0.00	0.00, 0.00
DISCB	28	1	[illegible]	[illegible]	[illegible]	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	[illegible]	[illegible]	[illegible]	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	[illegible]	[illegible]	[illegible]	0.00, 0.00	0.00, 0.00	0.00, 0.00
HALLB	29	1	0.00	0.00	32.5* (-19.3 54.6)	0.00	0.00	0.00
		3	0.00, 0.00	0.00, 0.00	26.6*, 37.1*	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 0.00	46.9*, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
PDICK	33	1	0.00, 0.00	0.00, 0.00	0.00, 66.5*	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00	0.00	69.9*	0.00	0.00	0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
SUNNC	36	1	8.13* (-2.66-21.1)	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00, 0.00	0.00, 0.00	48.9* 29.1*	0.00, 0.00	0.00, 0.00	0.00, 0.00
TONSB	37	1	0.00, 0.00	0.00, 59.6*	65.3*, 69.7*	0.00, 0.00	58.8*, 0.00	0.00, 0.00
		5	0.00, 0.00	0.00, 0.00	39.0*, 53.4*	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 0.00	65.6*, 31.5*	0.00, 0.00	0.00, 0.00	0.00, 0.00
August, 1989								
BALBB	24	1	0.00, 34.0*	0.00, 80.1*	27.6*, 53.0*	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	35.6*	69.3*	90.3*	24.6*	68.2*	23.7*
BLACB	25	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
CHIGB	27	1	123, 146	191, 0.00	490, 703	0.00, 0.00	430, 415	84.7*, 71.6*
		5	0.00, 0.00	64.7*, 65.3*	121*, 125*	0.00, 0.00	69.1*, 74.8*	0.00, 23.2*
DISCB	28	5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
HALLB	29	1	0.00	12.6* (-4.12-32.7)	0.00	0.00	0.00	0.00
KUKAB	31	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00

Table III-12.--Continued

Station name	Station number	Depth (m)	C16	C17	Pris	C18	Phyt	C19
PCHAT	32	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
PDICK	33	1	0.00	0.00	31.3*	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
PGRAH	34	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
RASBS	35	1	0.00	0.00	110*	0.00	0.00	0.00
		5	0.00	0.00	63.5*	0.00	0.00	0.00
		25	0.00	0.00	23.4*	0.00	0.00	0.00
SUNNC	36	1	0.00	54.0*	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
TONSB	37	1	45.3*, 0.00	66.7*, 0.00	73.8*, 0.00	0.00, 0.00	29.5*, 0.00	0.00, 0.00
		5	0.00	62.7*	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
June, 1990								
HALLB	29	5	0.00	0.00	0.00	0.00	0.00	0.00
KUKAB	31	1	0.00	0.00	69.6*	0.00	0.00	0.00
July, 1990								
AGENC	23	1	0.00	0.00	0.00	0.00	0.00	0.00
BLACB	25	1	0.00	0.00	26.2*	0.00	0.00	0.00
BLUEF	26	1	0.00	52.9*	0.00	0.00	0.00	0.00
HALLB	29	1	0.00	0.00	0.00	0.00	0.00	0.00
KATMB	30	1	0.00	0.00	0.00	0.00	0.00	0.00
SUNNC	36	1	0.00	0.00	0.00	0.00	0.00	0.00
TONSB	37	1	0.00	0.00	30.4*	0.00	0.00	0.00
WINDB	38	1	0.00	0.00	0.00	0.00	0.00	0.00

Table III-12.--Continued.

Station name	Station number	Depth (m)	C20	C21	C22	C23	C24	C25
July, 1989								
BLACB	25	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00	3.04* (-10.9-10.6)
		5	0.00, 0.00	59.1*, 83.7*	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 22.5*
		25	0.00, 0.00	89.9*, 74.4*	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
DISCB	28	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 15.7*	0.00, 7.71*	0.00, 0.00	0.00, 0.00	0.00, 0.00
PCHAT	32	1	0.00	0.00	0.00	0.00	3.20* (-1.05-8.29)	8.52* (-2.79-22.1)
		3	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	21.6*, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
PDICK	33	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00, 0.00	78.3*, 0.00	47.8*, 0.00	64.4*, 0.00	37.6*, 0.00	25.0*, 0.00
SUNNC	36	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
TONSB	37	1	0.00, 0.00	0.00, 17.8*	24.9*, 19.5*	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00, 0.00	0.00, 0.00	5.93*, 0.00	13.9, 0.00	29.9*, 0.00	45.8*, 0.00
		25	0.00, 0.00	0.00, 0.00	6.21*, 0.00	0.00, 0.00	0.00, 0.00	9.07*, 0.00
August, 1989								
BALBB	24	1	0.00, 0.00	81.8*, 0.00	11.1*, 0.00	14.4*, 0.00	0.00, 0.00	11.3*, 0.00
		5	0.00	0.00	7.61*	20.5*	48.8*	83.7*
BLACB	25	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	7.01*	0.00	0.00	7.42*
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	6.41*	0.00	12.8*	9.97*
CHIGB	27	1	53.6*, 0.00	25.3*, 0.00	59.4*, 21.1*	52.3*, 22.1*	30.7*, 33.8*	30.9*, 76.6*
		5	0.00, 0.00	0.00, 0.00	11.4*, 19.1*	0.00, 20.0*	0.00, 14.1*	12.5*, 14.9a
DISCB	28	5	0.00	30.5*	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
HALLB	29	1	0.00	0.00	0.00	0.00	0.00	0.00
KUKAB	31	1	0.00	0.00	0.00	0.00	0.00	8.51*
		5	0.00	0.00	0.00	0.00	0.00	0.00

Table III-12.--Continued.

Station name	Station number	Depth (m)	C20	C21	C22	C23	C24	C25
PCHAT	32	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
PDICK	33	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
PGRAH	34	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
RASBS	35	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	9.60*
SUNNC	36	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
TONSB	37	1	30.4*, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	8.48*, 7.52*
		5	0.00	0.00	0.00	0.00	0.00	14.7*
		25	0.00	0.00	0.00	0.00	0.00	0.00
June, 1990								
HALLB	29	5	0.00	0.00	0.00	0.00	0.00	0.00
KUKAB	31	1	0.00	0.00	0.00	0.00	0.00	0.00
July, 1990								
AGENC	23	1	0.00	0.00	0.00	0.00	0.00	13.7*
BLACB	25	1	0.00	0.00	0.00	0.00	0.00	0.00
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00	17.8*
HALLB	29	1	0.00	0.00	0.00	0.00	0.00	0.00
KATMB	30	1	0.00	0.00	0.00	0.00	0.00	13.8*
SUNNC	36	1	0.00	0.00	0.00	0.00	0.00	9.87*
TONSB	37	1	0.00	0.00	0.00	0.00	16.5*	27.2*
WINDB	38	1	0.00	0.00	0.00	11.5*	24.8*	38.7*

Table III-12.--Continued.

Station name	Station number	Depth (m)	C26	C27	C28	C29	C30	C32
July, 1989								
BLACB	25	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
BLUEF	26	1	4.58* (-16.3-15.9)	0.00	0.00	0.00	0.00	0.00
		5	0.00, 26.0*	0.00, 29.3	0.00, 24.1*	0.00, 27.2	0.00, 28.0*	0.00, 17.1*
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
DISCB	28	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
PCHAT	32	1	10.7*(-3.49-27.6)	13.5* (-4.41-34.9)	13.0* (-4.25-33.7)	14.5* (-4.74-37.6)	9.46* (-3.09-24.5)	8.01* (-2.62-20.8)
		3	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	12.7*, 0.00
		25	0.00, 8.80*	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
PDICK	33	1	12.4*, 0.00	0.00, 0.00	19.2a, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
SUNNC	36	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
TONSB	37	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	59.3*, 0.00	59.9, 0.00	54.9*, 0.00	47.2*, 0.00	41.5*, 0.00	23.6*, 0.00
		25	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
August, 1989								
BALBB	24	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	88.0	90.7	79.0*	73.4*	74.0*	37.3*
BLACB	25	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	21.4*	0.00	0.00	0.00
BLUEF	26	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	9.42*	0.00	0.00	0.00	0.00	0.00
CHIGB	27	1	21.1*, 76.8	22.5*, 105	13.2*, 97.2	0.00, 95.7	0.00, 73.2*	0.00, 49.7*
		5	10.6*, 15.5*	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
DISCB	28	5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
HALLB	29	1	0.00	0.00	0.00	0.00	0.00	0.00
KUKAB	31	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00

Table III-12.--Continued

Station name	Station number	Depth (m)	C26	C27	C28	C29	C30	C32
PCHAT	32	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
PDICK	33	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
PGRAH	34	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
RASBS	35	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
SUNNC	36	1	0.00	0.00	0.00	0.00	0.00	0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
TONSB	37	1	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00	0.00, 0.00
		5	0.00	0.00	0.00	0.00	0.00	0.00
		25	0.00	0.00	0.00	0.00	0.00	0.00
June, 1990								
HALLB	29	5	0.00	0.00	0.00	0.00	0.00	0.00
KUKAB	31	1	0.00	15.3*	0.00	0.00	0.00	0.00
July, 1990								
AGENC	23	1	19.7*	20.9*	23.4*	0.00	0.00	12.8*
BLACB	25	1	0.00	0.00	0.00	0.00	0.00	0.00
BLUEF	26	1	23.5*	27.6	21.7*	0.00	0.00	0.00
HALLB	29	1	0.00	0.00	0.00	0.00	0.00	0.00
KATMB	30	1	18.4*	22.9*	18.0*	0.00	0.00	0.00
SUNNC	36	1	16.1*	17.0*	14.0*	0.00	0.00	0.00
TONSB	37	1	30.4*	32.8	30.6*	28.6*	19.2*	17.8*
WINDB	38	1	48.2*	51.7	46.6*	41.0*	27.0*	19.2*

Table III-12.--Continued.

Station name	Station number	Depth (m)	C34
July, 1989			
BLACB	25	1	0.00, 0.00
		5	0.00, 0.00
		25	0.00, 0.00
BLUEF	26	1	0.00
		5	0.00, 0.00
		25	0.00, 0.00
DISCB	28	1	0.00, 0.00
		5	0.00, 0.00
		25	0.00, 0.00
PCHAT	32	1	5.34* (-1.75-13.8)
		3	0.00, 0.00
		25	0.00, 0.00
PDICK	33	1	0.00, 0.00
		5	0.00, 0.00
		25	0.00
SUNNC	36	1	0.00
		5	0.00, 0.00
		25	0.00, 0.00
TONSB	37	1	0.00, 0.00
		5	0.00, 0.00
		25	0.00, 0.00
August, 1989			
BALBB	24	1	0.00, 0.00
		5	33.4*
BLACB	25	1	0.00
		5	0.00
		25	0.00
BLUEF	26	1	0.00
		5	0.00
		25	0.00
CHIGB	27	1	0.00, 40.9*
		5	0.00, 14.6*
DISCB	28	5	0.00
		25	0.00
HALLB	29	1	5.07* (-1.66-13.1)
KUKAB	31	1	0.00
		5	0.00

Table III-12.--Continued

Station name	Station number	Depth (m)	C34
PCHAT	32	1	0.00
		5	0.00
		25	0.00
PDICK	33	1	0.00
		5	0.00
		25	0.00
PGRAH	34	1	0.00
		5	0.00
RASBS	35	1	0.00
		5	0.00
		25	0.00
SUNNC	36	1	0.00
		5	0.00
		25	0.00
TONSB	37	1	0.00, 0.00
		5	0.00
		25	0.00
June, 1990			
HALLB	29	5	0.00
KUKAB	31	1	0.00
July, 1990			
AGENC	23	1	0.00
BLACB	25	1	0.00
BLUEF	26	1	0.00
HALLB	29	1	0.00
KATMB	30	1	0.00
SUNNC	36	1	0.00
TONSB	37	1	0.00
WINDB	38	1	0.00

Table III-13.--Calibrated PAHs in beach mussels collected near selected caged mussel deployment stations in PWS, Alaska, following the EVOS of March 24, 1989 in the Sound. Also listed are the collection date of these mussels, and the station abbreviation of the adjacent caged mussel deployment station. Table II-2 contains a key for the PAH abbreviations used here. Concentrations are reported as ng PAH/g wet tissue weight, corresponding % moisture determinations for these samples are listed in Table III-14 following. Method detection limits for these PAHs are listed in Table III-1 above, as are results (ng) of analysis of 1 μL of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits.

Station name	Sampling date	Naph	Menap2	Menap1	Dimeth	Trimeth	Biphenyl	Fluorene	Dithio	Phenanth	Mephen1	Chrysene
HERRB	08-03-89	2.26	1.05	0.00	2.83	13.2	0.00	1.19	6.20	8.36	35.1	121
HERRB	09-07-89	9.38	5.44	6.62	0.00	0.00	0.00	0.11	0.00	0.19	7.63	33.5
OLSEN	09-05-89	0.52	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.22	0.00	1.21
OLSEN	08-01-90	2.41	0.61	3.57	0.00	0.00	0.55	0.00	0.00	0.96	0.00	0.00
SLEEB	08-04-90	1.24	0.83	1.30	5.45	23.3	0.35	0.00	0.14	0.00	42.8	56.4
SLEEB	08-04-90	0.68	1.13	2.02	14.1	47.9	0.19	4.29	13.5	24.6	69.3	71.4
SMITI	09-16-89	188	35.3	33.9	2.29	2.68	2.70	1.05	0.00	3.03	17.7	44.0
SNUGH	09-09-89	0.81	0.47	0.21	0.00	1.95	0.24	0.00	0.00	2.18	6.01	22.2

Table III-14.--Uncalibrated PAHs in beach mussels collected near selected caged mussel deployment stations in PWS, Alaska, following the EVOS of March 24, 1989 in the Sound. Also listed are the collection date of these mussels, and the station abbreviation of the adjacent caged mussel deployment station. Table II-3 contains a key for the PAH abbreviations used here. Concentrations are reported as ng PAH/g wet tissue weight, corresponding % moisture determinations for these samplies are listed here. Method detection limits for these PAHs are listed in Table III-2 above, as are results (ng) of analysis of 1 μl. of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits.

Station name	Sampling date	C2naph	C3naph	C4naph	C1fluor	C2fluor	C3fluor	C1dithio	C2dithio	C3dithio	C1phenan	C2phenan	C3phenan
HERRB	08-03-89	18.9	104	281	42.0	225	377	135	560	920	167	778	1170
HERRB	09-07-89	0.00	4.15	57.4	3.5	30.7	85.2	16.5	109	237	21.1	168	361
OLSEN	09-05-89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OLSEN	08-01-90	0.00	0.00	0.00	0.81	0.00	4.69	0.00	0.00	1.25	0.00	0.00	0.00
SLEEB	08-04-90	27.3	155	168	43.7	152	167	96.5	313	407	173	471	476
SLEEB	08-04-90	68.9	316	295	83.1	215	258	173	492	615	304	710	687
SMITI	09-16-89	11.6	31.2	62.7	12.9	64.7	134	27.8	2523	543	49.1	293	613
SNUGH	09-09-89	1.17	12.3	23.4	4.76	24.8	49.8	16.5	104	191	27.6	121	207

Table III-14.--Continued.

Station name	Sampling date	C4phenan	C1fluora	C1chrys	C2chrys	C3chrys	C4chrys	% Moisture
HERRB	08-03-89	696	276	283	300	153	52.2	93.0
HERRB	09-07-89	218	101	59.7	66.6	34.5	1.61	94.0
OLSEN	09-05-89	0.00	0.00	0.00	0.00	0.00	0.00	93.0
OLSEN	08-01-90	0.00	0.00	0.02	0.00	0.00	0.00	94.0
SLEEB	08-04-90	219	103	9807	105	40.1	3.71	89.1
SLEEB	08-04-90	293	156	137	139	55.3	6.86	88.0
SMITI	09-16-89	343	68.4	127	131	61.8	13.5	100.0
SNUGH	09-09-89	74.4	17.5	42.3	40.9	15.6	1.51	91.0

Table III-15. Alkanes in beach mussels collected near selected caged mussel deployment stations in PWS, Alaska, following the EVOS of March 24, 1989 in the Sound. Also listed are the collection date of these mussels, and the station abbreviation of the adjacent caged mussel deployment station. Table II-4 contains a key for the alkane abbreviations used here. Concentrations are reported as ng alkane/g wet tissue weight, corresponding % moisture determinations for these samples are listed in Table III-14 above. Method detection limits for these alkanes are listed in Table III-3 above, as are results (ng) of analysis of 1 μL of unweathered crude oil spilled from the hold of the *Exxon Valdez* determined by the methods of this study. Entries of 0.00 indicate concentrations below method detection limits.

Station name	Sampling date	C10	C11	C12	C13	C14	C15	C16	C17	Pris	C18	Phyt	C19	C20	C21
HERRB	08-03-89	19.1	24.8	68.1	166	108	376	275	243	672	97.1	545	98.9	120	79.1
HERRB	09-07-89	45.4	15.6	0.00	41.7	13.6	98.6	85.9	120	222	55.3	194	36.1	28.4	28.0
OLSEN	09-05-89	0.00	3.58	4.84	5.84	4.08	24.7	7.06	18.3	5.03	4.81	0.00	7.52	0.00	0.00
OLSEN	08-01-90	0.00	2.06	5.92	8.80	10.9	45.9	13.7	16.3	9.97	0.28	0.00	0.00	3.21	8.58
SLEEB	08-04-90	22.8	9.51	37.2	110	133	211	226	166	411	194	365	81.1	28.4	81.4
SLEEB	08-04-90	0.00	17.8	75.1	183	236	218	136	57.0	439	112	326	72.9	136	116
SMITI	09-16-89	190	106	456	822	55.9	357	232	161	507	185	324	140	156	175
SNUGH	09-09-89	0.00	13.3	27.7	48.4	30.2	42.3	31.7	160	317	108	237	98.2	144	68.5

Table III-15.--Continued.

Station name	Sampling date	C22	C23	C24	C25	C26	C27	C28	C29	C30	C32	C34
HERRB	08-03-89	111	93.6	145	224	247	219	194	161	114	117	196
HERRB	09-07-89	34.2	22.5	22.9	68.9	64.3	101	50.9	32.4	25.0	19.1	0.00
OLSEN	09-05-89	0.00	0.00	0.00	0.00	0.00	5.56	0.00	4.52	0.00	0.00	0.00
OLSEN	08-01-90	5.02	3.19	2.11	5.28	2.61	6.86	18.0	16.7	0.00	0.00	0.00
SLEEB	08-04-90	111	106	155	175	180	216	154	121	95.7	61.6	0.00
SLEEB	08-04-90	162	163	222	251	260	199	166	129	129	59.1	0.00
SMITI	09-16-89	311	140	87.7	144	111	108	108	102	108	46.7	67.9
SNUGH	09-09-89	82.9	38.3	23.5	60.1	37.2	62.6	76.6	56.4	37.1	24.1	34.3

APPENDIX IV

Table IV-1.--Summary of calibrated PAH concentrations measured in reference samples. Two reference samples were processed and analyzed with each batch of 12 mussel samples. Listed below for each calibrated PAH is (1) the mean measured concentration, calculated from all the reference samples analyzed; (2) the standard deviation associated with (1); (3) the coefficient of variation (CV), calculated as 100 times the ratio of (2) and (1), (4) the nominal PAH concentrations present in each sample due to the reference spike, as determined by the National Institute of Standards and Technology (NIST) (except for dibenzothiophene); (5) the percent accuracy, calculated as 100 times the ratio of (1) and (4); and (6) the number, n, of reference samples included for these calculations. A total of 46 batches were analyzed; n is less than twice this number due to unacceptable recovery of associated deuterated surrogate standards, and because three batches were analyzed with a different reference material (see Methods section). Except for dibenzothiophene, which was purchased commercially, the PAHs in these reference samples were derived from Standard Reference Material 1491, supplied by NIST. The concentrations reported are ng PAH/g wet tissue weight.

Aromatic Hydrocarbon	Mean	SD	CV (%)	Expected Value	Percent Accuracy	n
Phenanth	218	31.58	14.5	205	106.2	85
Mephen1	77	8.97	11.6	69	112.1	85
Fluorant	204	27.27	13.3	169	121.0	85
Pyrene	161	21.26	13.2	136	118.4	85
Benanth	92	17.13	18.6	78	117.9	85
Chrysene	125	26.45	21.1	106	118.3	85
Benepy	60	6.89	11.6	50	120.5	84
Benapy	42	4.19	10.0	39	107.5	84
Indeno	14	1.66	11.5	19	76.0	82

Table IV-2.--Summary of calibrated PAH concentrations measured in calibration stability samples. A mid-level calibration standard (prepared from NIST standards) was analyzed in the middle and near the end of each batch of 12 mussels, to verify the accuracy and stability of the calibration curve determined initially for the batch. Listed below for each calibrated PAH is (1) the mean measured concentration, calculated from all the verification standards analyzed; (2) the standard deviation associated with (1); (3) the coefficient of variation (CV), calculated as 100 times the ratio of (2) and (1); (4) the nominal concentration of the standard; (5) the percent accuracy, calculated as 100 times the ratio of (1) and (4); and (6) the number, n, of verification standards included for these calculations. A total of 46 batches were analyzed; n may be less than twice this number due to unacceptable recovery of associated deuterated surrogate standards (see Methods section). Concentrations are ng PAH/g wet tissue weight.

Aromatic Hydrocarbon	Mean	SD	CV (%)	Expected Value	Percent Accuracy	n
Naph	34.5	0.50	1.45	34.5	99.9	92
Menap2	39.3	0.98	2.50	39.5	100.5	92
Menap1	41.2	0.88	2.13	41.5	100.7	92
Dimeth	35.6	0.80	2.25	36.0	101.0	92
Trimeth	32.1	0.92	2.87	33.0	102.7	92
Biphenyl	34.8	1.20	3.44	35.0	100.5	92
Acenthy	34.2	1.63	4.78	34.8	101.8	92
Acenthe	36.5	0.85	2.33	36.4	99.8	92
Fluorene	36.0	1.36	3.77	36.4	101.0	92
Dithio	39.5	1.11	2.81	40.0	101.3	84
Phenanth	35.4	1.18	3.33	35.1	99.1	84
Mephen1	33.9	1.43	4.21	35.0	103.2	84
Anthra	39.1	1.75	4.49	39.1	100.0	84
Fluorant	28.2	1.52	5.38	29.6	104.9	84
Pyrene	28.1	1.64	5.86	29.5	104.9	84
Benanth	17.6	2.19	12.44	18.0	101.9	84
Chrysene	35.6	4.26	11.95	35.2	98.7	84
Benzobfl	25.7	1.93	7.49	26.3	102.0	91
Benzokfl	27.1	1.95	7.19	27.9	102.6	91
Benepy	27.6	1.87	6.79	28.1	102.0	91
Benapy	33.8	1.51	4.47	34.0	100.3	91
Perylene	35.3	1.79	5.08	35.6	100.9	92
Indeno	30.2	2.14	7.11	31.5	104.3	91
Dibenz	25.1	2.00	7.97	25.9	103.3	91
Benzop	24.7	3.12	12.63	26.5	107.1	91

Table IV-3.--Summary of calibrated PAH concentrations measured in spiked method blank samples. A method blank sample spiked with a NIST PAH standard was analyzed with each batch of 12 mussels, to assess method accuracy. Listed below for each calibrated PAH is (1) the mean measured concentration, calculated from all the verification standards analyzed; (2) the standard deviation associated with (1); (3) the coefficient of variation (CV), calculated as 100 times the ratio of (2) and (1); (4) the nominal concentration of the standard; (5) the percent accuracy, calculated as 100 times the ratio of (1) and (4); and (6) the number, n, of verification standards included for these calculations. A total of 46 batches were analyzed; n is less than this number due to unacceptable recovery of associated deuterated surrogate standards (see Methods section). Concentrations are ng PAH/g wet tissue weight.

Aromatic Hydrocarbon	Mean	SD	CV (%)	Expected Value	Percent Accuracy	n
Naph	84.0	5.62	6.7	82.5	101.8	45
Menap2	96.7	5.95	6.2	94.5	102.3	45
Menap1	102.3	6.22	6.1	99.5	102.8	45
Dimeth	81.2	5.75	7.1	86.5	93.9	45
Trimeth	77.9	5.73	7.4	79	98.6	45
Biphenyl	84.8	7.74	9.1	84	101.0	45
Acenthy	78.5	5.97	7.6	83.5	94.0	45
Acenthe	88.2	4.99	5.6	87.5	100.9	45
Fluorene	90.1	6.00	6.7	87	103.5	45
Dibenzo	51.2	6.21	12.1	60	85.3	41
Phenanth	85.6	5.99	7.0	84	101.9	45
Mephen1	85.3	6.78	7.9	84	101.9	45
Anthra	90.5	8.80	9.7	94	96.3	45
Fluorant	72.7	6.68	9.2	71	102.4	45
Pyrene	72.1	8.06	11.2	83.5	86.3	45
Benanth	44.0	7.24	16.4	43	102.4	45
Chrysene	92.2	17.20	18.6	84.5	109.4	45
Benzobfl	70.9	11.80	16.6	63	112.5	45
Benzokfl	73.0	11.22	15.4	67	108.9	44
Benepy	77.0	11.48	14.9	67.5	114.1	45
Benapy	83.2	5.66	6.8	81.5	102.1	45
Perylene	85.0	5.88	6.9	85.5	99.4	35
Indeno	72.7	10.71	14.7	75.5	96.2	45
Dibenz	58.8	8.59	14.6	62	94.8	45
Benzop	64.7	7.84	12.1	63.5	101.8	45

Table IV-4.--Summary of alkane concentrations measured in calibration stability samples. A mid-level calibration standard was analyzed in the middle and near the end of each batch of 12 mussels to verify the stability of the calibration curve determined initially for the batch. Listed below for each alkane is (1) the mean measured concentration, calculated from all the verification standards analyzed; (2) the standard deviation associated with (1); (3) the coefficient of variation (CV), calculated as 100 times the ratio of (2) and (1); (4) the nominal concentration of the standard; and (5) the percent accuracy, calculated as 100 times the ratio of (1) and (4). A total of 46 batches were analyzed; n may be less than twice this number due to unacceptable recovery of associated deuterated surrogate standards (see Methods section). Concentrations are ng alkane/g wet tissue weight.

Alkane	Mean	SD	CV (%)	Spike Amount	Percent Accuracy	n
C10	1267	18.65	1.5	1274	99.4	92
C11	1213	13.48	1.1	1212	100.1	92
C12	1295	10.38	0.8	1289	100.5	92
C13	1339	19.86	1.5	1326	101.0	92
C14	1299	23.13	1.8	1274	102.0	92
C15	1220	10.90	0.9	1198	101.8	92
C16	1343	10.35	0.8	1318	101.9	92
C17	1461	25.12	1.7	1447	101.0	92
Pristane	1403	28.37	2.0	1355	103.6	92
C18	1563	26.65	1.7	1541	101.4	92
C19	1363	44.25	3.2	1349	101.1	92
C20	1224	14.39	1.2	1349	101.3	92
C21	1188	24.66	2.1	1208	101.1	92
C22	1336	26.11	2.0	1175	99.9	92
C23	1197	20.90	1.7	1337	99.9	92
C24	1247	22.43	1.8	1198	100.0	92
C25	1174	25.03	2.1	1247	99.8	92
C26	1163	29.09	2.5	1176	99.6	91
C27	490	15.82	3.2	1168	99.4	91
C28	1302	38.65	3.0	493	100.1	91
C29	1166	17.57	1.5	1301	100.1	91
C30	1236	28.31	2.3	1165	100.5	91
C32	1176	100.98	9.4	1230	101.0	91
C34	1224	226.78	18.5	1164	102.7	91

Table IV-5.--Summary of alkane concentrations measured in high and low reference samples. Two reference samples were processed and analyzed with 38 of the 46 batches of mussels (8 of the batches were analyzed with different reference materials not summarized here). Listed below for each alkane is (1) the mean measured concentration, calculated from all the reference samples analyzed; (2) the standard deviation associated with (1); (3) the coefficient of variation (CV), calculated as 100 times the ratio of (2) and (1); (4) the nominal alkane concentrations present due to the reference spike; (5) the percent accuracy, calculated as 100 times the ratio of (1) and (4); and (6) the number, n, of reference samples included for these calculations. Accuracies are usually more than 100% due to alkanes present in the mussel tissue above those added with the reference spike. The reference spikes were prepared from commercially purchased alkanes. The concentrations are ng alkane/g wet tissue weight.

Alkane	Mean	SD	CV (%)	Spike Amount	Percent Accuracy	n
			High			
C10	1140	136.19	11.9	1275	89.4	42
C11	1205	119.36	9.9	1212	99.4	42
C12	1306	101.44	7.8	1289	101.3	42
C13	1449	124.40	8.6	1326	109.3	42
C14	1340	157.07	11.7	1225	109.4	42
C15	1218	128.85	10.6	1198	101.7	42
C16	1297	111.92	8.6	1318	98.4	42
C17	1409	153.58	10.9	1447	97.4	42
Pristane	1417	134.57	9.5	1355	104.6	42
C18	1568	122.80	7.8	1541	101.7	42
C19	1397	108.42	7.8	1349	103.6	42
C20	1246	103.96	8.3	1209	103.1	42
C21	1246	119.22	9.6	1175	106.0	38
C22	1370	113.42	8.3	1337	102.5	42
C23	1238	103.87	8.4	1198	103.3	38
C24	1257	181.14	14.4	1247	100.8	42
C25	1223	111.55	9.1	1176	104.0	38
C26	1157	189.40	16.4	1168	99.1	42
C27	516	52.78	10.2	493	104.7	38
C28	1350	161.70	12.0	1301	103.8	42
C29	1241	103.07	8.3	1165	106.6	38
C30	1300	114.52	8.8	1230	105.7	42
C32	1164	240.17	20.6	1164	100.0	42
C34	1150	337.56	29.4	1192	96.5	42

Table IV-5.--Continued.

			Low			
C10	84.5	24.87	29.4	106	79.8	32
C11	111.1	26.68	24.0	101	110.0	33
C12	214.5	73.44	34.2	108	198.6	33
C13	248.4	55.94	22.5	111	223.8	33
C14	249.8	102.65	41.1	106	235.6	34
C15	242.2	55.59	22.9	100	242.2	34
C16	206.1	57.02	27.7	110	187.4	34
C17	179.7	25.85	14.4	121	148.5	32
Pristane	247.7	129.15	52.1	113	219.2	34
C18	197.3	54.09	27.4	129	152.9	34
C19	165.7	51.72	31.2	113	146.6	34
C20	118.0	27.30	23.1	101	116.9	34
C21	107.9	19.62	18.2	98	110.1	34
C22	128.7	25.04	19.4	112	114.9	34
C23	115.7	18.03	15.6	100	115.7	34
C24	120.4	14.69	12.2	104	115.7	34
C25	132.0	29.25	22.2	98	134.7	34
C26	115.4	27.37	23.7	98	117.7	34
C27	71.7	19.85	27.7	41	174.8	33
C28	119.7	28.41	23.7	109	109.8	33
C29	121.2	26.47	21.8	97	125.0	33
C30	117.6	21.89	18.6	103	114.2	33
C32	111.1	22.72	20.5	97	114.5	33
C34	118.5	34.33	29.0	96	123.5	33

Table IV-6.--Summary of alkane concentrations measured in spiked blank accuracy evaluation standards. One of these standards was analyzed at the end of each batch of 12 mussels to verify the accuracy of alkane determinations. Listed below for each alkane is (1) the mean measured concentration, calculated from all the verification standards analyzed; (2) the standard deviation associated with (1); (3) the coefficient of variation (CV), calculated as 100 times the ratio of (2) and (1); (4) the nominal concentration of the standard; and (5) the percent accuracy, calculated as 100 times the ratio of (1) and (4). A total of 46 batches were analyzed; n may be less than twice this number due to unacceptable recovery of associated deuterated surrogate standards (see Methods section). Concentrations are as ng alkane/g wet tissue weight.

Alkane	Mean	SD	CV (%)	Spike Amount	Percent Accuracy	n
C10	993	66.06	6.7	1062	93.5	45
C11	995	67.00	6.7	1010	98.5	45
C12	1100	68.46	6.2	1074	102.4	45
C13	1134	61.40	5.4	1105	102.6	45
C14	1022	105.37	10.3	1062	96.3	46
C15	994	74.56	7.5	998	99.6	46
C16	1134	76.60	6.8	1098	103.3	46
C17	1236	119.86	9.7	1206	102.5	46
Pristane	1275	96.85	7.6	1129	113.0	46
C18	1246	85.62	6.9	1284	97.1	46
C19	1119	65.28	5.8	1124	99.6	46
C20	1019	57.02	5.6	1007	101.2	46
C21	1002	58.46	5.8	979	102.1	42
C22	1120	54.93	4.9	1114	100.6	46
C23	1008	49.11	4.9	998	101.0	42
C24	1037	104.79	10.1	1039	99.8	46
C25	985	57.94	5.9	980	100.5	42
C26	961	105.98	11.0	973	98.8	46
C27	409	26.83	6.6	411	99.5	42
C28	1080	95.41	8.8	1084	99.6	46
C29	976	53.10	5.4	971	100.5	42
C30	1029	53.47	5.2	1025	100.4	46
C32	962	131.89	13.7	970	99.1	46
C34	976	179.42	18.4	993	98.3	45

Table IV-7.--Summary of alkane concentrations measured in NIST-derived accuracy evaluation standards (QA-CH-2). One of these standards was analyzed at the end of each batch of 12 mussels to verify the accuracy of alkane determinations. Listed below for each alkane is (1) the mean measured concentration, calculated from all the verification standards analyzed; (2) the standard deviation associated with (1); (3) the coefficient of variation (CV), calculated as 100 times the ratio of (2) and (1); (4) the nominal concentration of the standard, as determined by the National Institute of Standards and Technology; and (5) the percent accuracy, calculated as 100 times the ratio of (1) and (4). A total of 46 batches were analyzed; n may be less than this number due to unacceptable recovery of associated deuterated surrogate standards (see Methods section). Concentrations are ng alkane/g wet tissue weight.

Alkane	Mean	SD	CV (%)	Spike Amount	Percent Accuracy	n
C10	899	62.10	6.9	930	96.7	45
C11	934	63.11	6.8	1058	88.3	46
C12	904	59.89	6.6	930	97.2	46
C13	850	58.35	6.9	870	97.7	46
C14	837	71.76	8.6	863	97.1	46
C15	823	68.60	8.3	848	97.1	46
C16	712	56.75	8.0	740	96.2	46
C17	678	70.37	10.4	683	99.2	46
Pristane	377	70.05	18.6	434	86.8	46
C18	615	58.05	9.4	641	96.0	46
Phytane	40	8.85	22.1	45	89.6	39
C19	522	49.12	9.4	548	95.3	46
C20	509	46.58	9.2	527	96.5	46
C22	411	31.07	7.6	428	95.9	46
C24	309	18.66	6.0	321	96.2	46
C26	231	20.64	8.9	236	97.9	46
C28	143	45.21	31.5	161	89.3	46
C30	114	13.61	11.9	116	98.4	39
C32	114	38.98	34.1	94	122.0	38
C34	122	64.53	52.9	80	151.9	38