



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION II

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NEW YORK, NEW YORK 10007-1866

DocID 80149

**HUDSON RIVER PCBs REASSESSMENT RI/FS
COMMUNITY INTERACTION PROGRAM**

JOINT LIAISON GROUP MEETING

Monday, December 11, 1995

7:30 pm
Latham, NY

AGENDA

Welcome

Ann Rychlenski
Community Relations Coordinator
USEPA Region II

Introduction

Doug Tomchuk
Remedial Project Manager
USEPA Region II

**Presentation & Demonstration
Phase 2 Database Report**

Dr. Edward Garvey
TAMS Consultants, Inc.
Amy Michelson
Gradient Corporation

Closing Remarks

Ann Rychlenski

PHASE 2 REPORT - FURTHER SITE CHARACTERIZATION AND ANALYSIS DATABASE REPORT

Dr. Edward Garvey, TAMS Consultants, Inc.
Amy Michelson, Gradient Corporation

PHASE 2 REPORT - FURTHER SITE CHARACTERIZATION AND ANALYSIS DATABASE REPORT

- Overview
- Database Elements
- (20 minute break)
- Example Database Queries

DATABASE OVERVIEW: PURPOSE

Foundation for all studies to be performed by
USEPA for the Reassessment RI/FS

DATABASE OVERVIEW: ATTRIBUTES

Combination of data from many sources:

- ◆ Historical data collected prior to the Reassessment
- ◆ Complementary programs by other investigators (e.g., GE, NOAA)
- ◆ Phase 2 Reassessment sampling effort

DATABASE OVERVIEW: ATTRIBUTES (cont)

- More than 20 years of monitoring data
- Data from many media
 - ◆ Sediments
 - ◆ Dissolved and suspended matter in the water column
 - ◆ Fish and invertebrates tissues
- Both upper and lower Hudson River

DATABASE OVERVIEW: ATTRIBUTES (cont)

- Measurements of Total PCB, Aroclor mixtures, and congener-specific distributions
- Conventional parameters (e.g., TSS, TOC, grainsize distributions, percent lipids)

DATABASE OVERVIEW: PROCESS

- Compiled historical data during Phase 1
- Uploaded Phase 2 data
- Merged and reformatted additional data sources identified since Phase 1 including data from GE, USGS, NYSDOT, NYSDEC, and LDEO

DATABASE OVERVIEW: STATISTICS

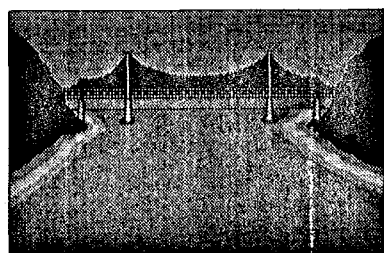
- Over 100 tables
- Over 1,00,000 records
- Available on CD as "read-only" in two database formats: ParadoxTM 4.0 and FoxProTM/dBASE IIITM

DATABASE ELEMENTS: TERMS

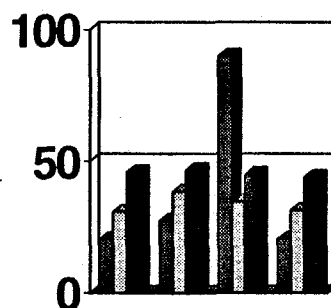
Collection of information organized into

- ◆ Tables
 - ◆ Records (rows)
 - ◆ Fields (columns)
- ◆ Links (relationships between elements)
- ◆ Data dictionaries
- ◆ Data glossaries

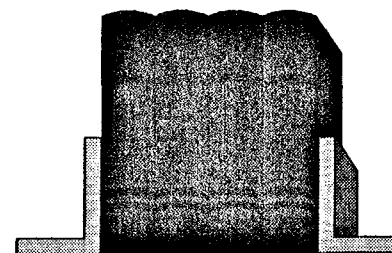
DATABASE ELEMENTS: HUDSON RIVER DATABASE



Sampling
Information

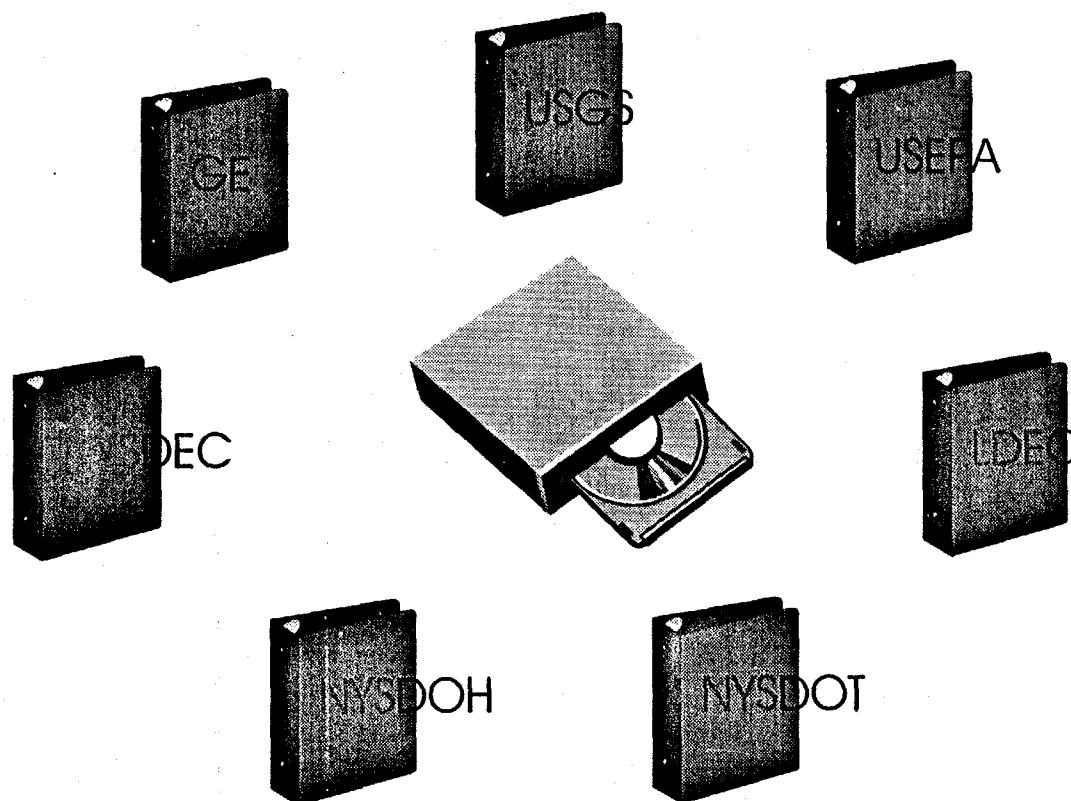


Chemical
Data

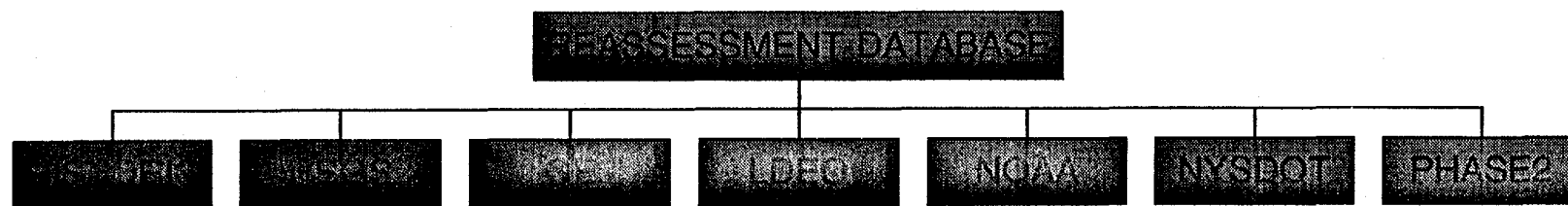


Definitions

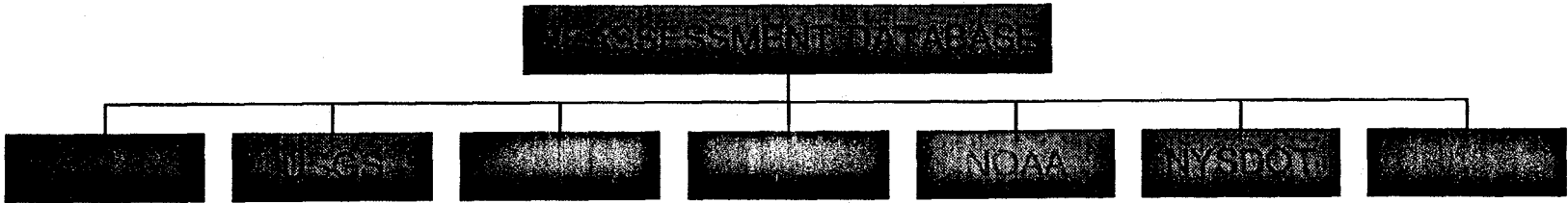
DATABASE ELEMENTS: DATA SOURCES



DATABASE ELEMENTS: DIRECTORY STRUCTURE



DATABASE ELEMENTS: SEDIMENT DATA



SEDIMENT DATA: HISTORIC

■ 1976-78 NYSDEC survey

- ◆ Aroclor mixtures measured in over 1,000 core and grab samples
- ◆ 40-mile region of the Hudson

■ 1984 NYSDEC Thompson Island Pool (TIP) survey

- ◆ Aroclor mixtures and Total PCBs in some 2,000 samples
- ◆ Approximately 5-mile reach in TIP
- ◆ Conventional parameters

SEDIMENT DATA: HISTORIC (cont)

- 1989 GE Baseline Studies for the Remnant Deposit Containment Project
 - ◆ Aroclor mixtures
 - ◆ Five locations near remnant deposits
- 1990 GE Sediment Sampling for Bioremediation Investigations
 - ◆ Aroclor mixtures
 - ◆ Approximately 100 cores from 12 "hot spots" from Fort Edward to below Mechanicville

SEDIMENT DATA: GE

- 1991 sediment program
- More than 400 sediment samples (composites)
- Total PCBs, homologue distributions, and capillary peak concentrations
- Conventional parameters
- Samples with coordinates located above RM 190

SEDIMENT DATA: LDEO

- Total PCB or Aroclor mixtures
- Radionuclide data
- Three cores from TIP and Kingston

SEDIMENT DATA: PHASE 2

- High Resolution Sediment Coring Study (1992)
 - ◆ 28 cores from Glens Falls to upper NY Bay
 - ◆ 12 supplemental core top samples
 - ◆ Approximately 500 samples
 - ◆ Congener-specific PCB analyses
 - ◆ Conventional parameter (e.g., grainsize, TON, radionuclides)

SEDIMENT DATA: PHASE 2 (cont)

- Low Resolution Sediment Coring Study (1994)
 - ◆ More than 160 cores from TIP and "hotspots" below TIP
 - ◆ Approximately 400 samples analyzed
 - ◆ Congener-specific PCB analyses
 - ◆ Conventional parameter (e.g., grain size, TON, radionuclides)

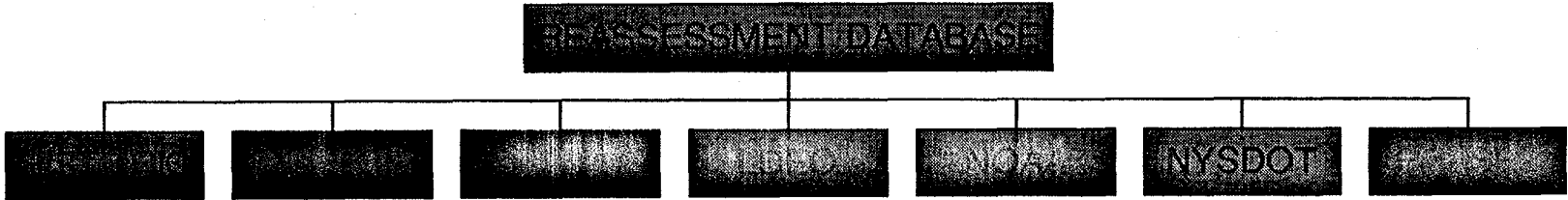
SEDIMENT DATA: PHASE 2 (cont)

- Confirmatory Sampling (geophysical investigation) (1992)
 - ◆ 87 cores and 98 grab samples
 - ◆ Approximately 340 samples analyzed
 - ◆ Hudson Falls to Lock 5
 - ◆ All conventional parameters (e.g., grainsize distributions, TC, TN)

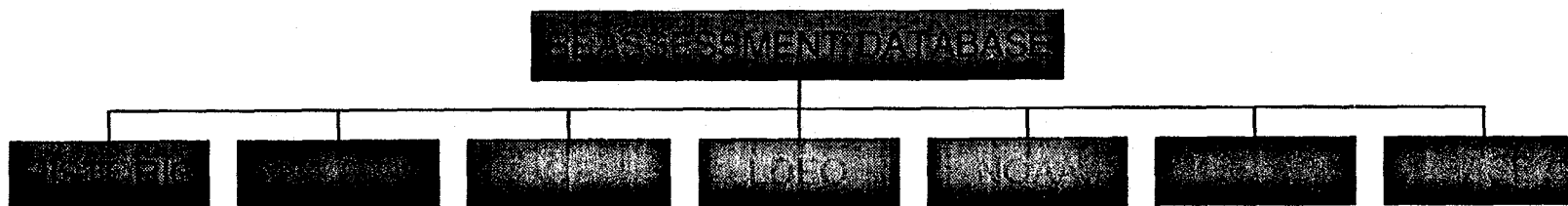
SEDIMENT DATA: PHASE 2 (cont)

- Ecological sediment sampling (1993)
 - ◆ Approximately 100 samples paired with fish and invertebrate samples
 - ◆ Congener-specific PCB analysis
 - ◆ Conventional parameters (e.g., grainsize distributions, TOC)

DATABASE ELEMENTS: WATER COLUMN DATA



DATABASE ELEMENTS: FLOW DATA



WATER COLUMN DATA: PHASE 2

- 1994 Suspended Solids Monitoring
 - ◆ High flow conditions (April)
 - ◆ Conventional parameters only (e.g., TSS, WLOI, DOC)
 - ◆ 18 stations in the upper Hudson
- 1993 Suspended Solids Monitoring
 - ◆ April to October
 - ◆ Waterford to Fort Miller only
 - ◆ TSS only

WATER COLUMN DATA: PHASE 2 (cont)

■ 1993 Transect samples

- ◆ Six transects consisting of 12 to 16 stations along the upper and lower Hudson
- ◆ Dissolved and particulate phases
- ◆ Approximately 100 samples collected January to September
- ◆ Congener-specific PCB analyses
- ◆ Conventional parameter (e.g., TSS, WLOI)

WATER COLUMN DATA: PHASE 2 (cont)

- 1993 Flow-Averaged samples
 - ◆ Six 15-day flow-based composites from 4 main stem stations along the upper Hudson
 - ◆ Collected April to September
 - ◆ Approximately 25 samples
 - ◆ Congener-specific PCB analyses
 - ◆ Conventional parameters (e.g., TSS, WLOI)

WATER COLUMN DATA: GE

- Temporal Water Column Monitoring Program
- Over 1,500 samples from 1991 to 1995
- From Troy to Hudson Falls
- Total PCBs, homologue distributions, and capillary column peak concentrations
- Conventional parameters (e.g., TSS)

WATER COLUMN DATA: USGS

- Water quality data from WATSTORE
- Total PCB and Aroclor mixtures
- 1975 to 1994
- From Green Island to Corinth

FLOW DATA: USGS

- Daily river discharge (flow) rates
- 1970 (some earlier) to 1994
- Upper Hudson and Mohawk stations

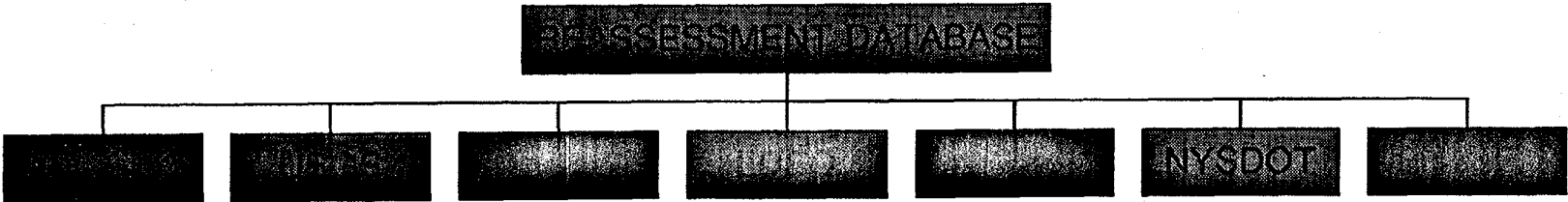
FLOW DATA: NYSDOT

- Staff gauge readings along the Champlain Canal in the upper Hudson 1976 - 1992

FLOW DATA: PHASE 2

- Calculated flow at Waterford and Stillwater (USGS data not available because of construction)
- January through September 1993

DATABASE ELEMENTS:
BIOTA DATA



BIOTA DATA: HISTORIC

- More than 11,000 fish samples
 - ◆ 1973 to 1994
 - ◆ Individual fish and composited fish samples
 - ◆ Aroclor mixtures with Total PCBs being derived as the sum of Aroclors
- Macroinvertebrate data

BIOTA DATA: GE

- 75 archived NYSDEC fish samples and 18 biota samples (mostly fish) from GE 1992 Food Chain Program
- Total PCBs and Aroclor mixtures

BIOTA DATA: NOAA

- 115 fish samples collected at selected stations in upper and lower Hudson
- Collected in 1993 from 10 of 20 ECO sampling locations
- Congener-specific PCB analysis
- Percent lipids

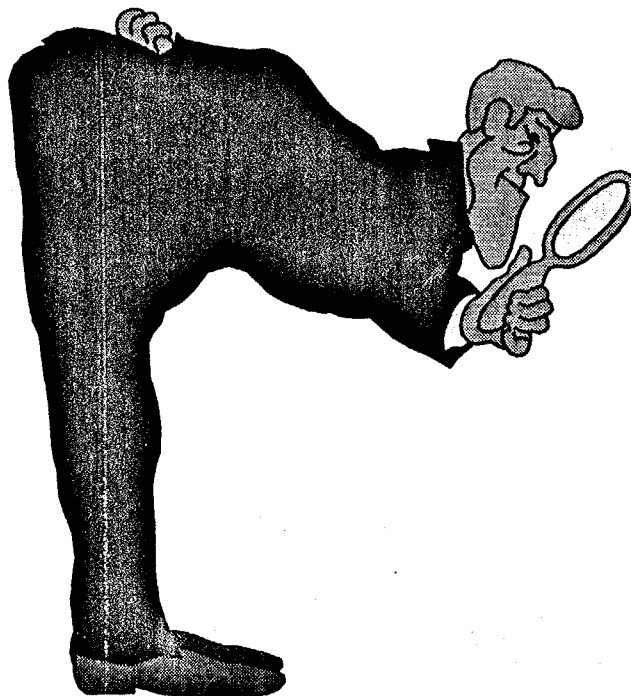
BIOTA DATA: PHASE 2

- 120 fish samples collected at selected stations in upper and lower Hudson
 - ◆ Collected in 1993 from 20 sampling locations
 - ◆ Congener-specific PCB analysis
 - ◆ Percent lipids

BIOTA DATA: PHASE 2 (cont)

- 87 Benthic and epibenthic samples from selected stations in upper and lower Hudson
 - ◆ Collected in 1993 from 20 sampling locations
 - ◆ Congener-specific PCB analysis
 - ◆ Percent lipids

EXAMPLE DATABASE QUERIES



EXAMPLE DATABASE QUERIES: SEDIMENT

What is the distribution of PCB homologue sums with depth for a sediment core near the Thompson Island Dam?



EXAMPLE DATABASE QUERIES: SEDIMENT (cont)

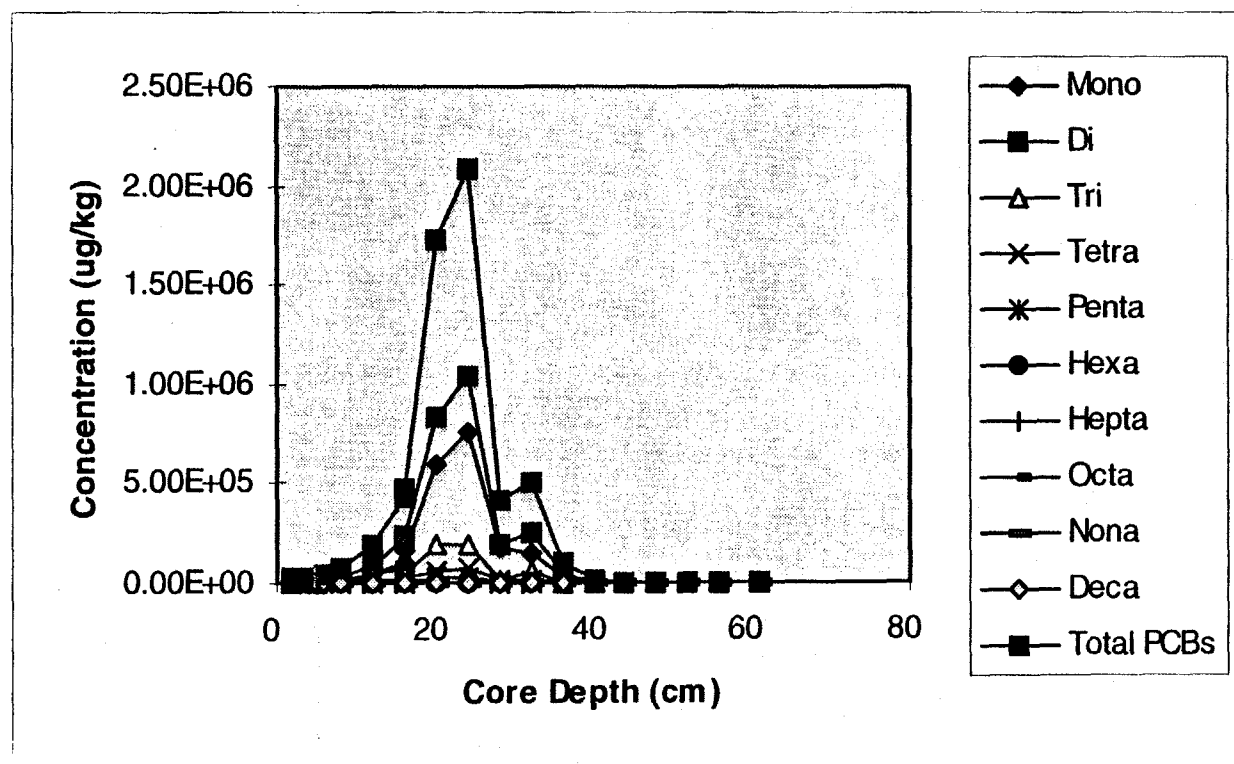
STATIONS Table

Station	TAMS ID	TAMS Type	Lower Depth (cm)	Upper Depth (cm)
HR-019	HR-019-0002	P	0	2
HR-019	HR-019-0204	P	2	4
HR-019	HR-019-0406	P	4	6

PCBS Table

TAMS ID	TAMS Type	Parameter	Units	Value2
HR-019-0002	P	Deca	ug/Kg DW	0
HR-019-0002	P	Di	ug/Kg DW	6653
HR-019-0002	P	Hepta	ug/Kg DW	122
HR-019-0204	P	Penta	ug/Kg DW	1857
HR-019-0204	P	Tetra	ug/Kg DW	5067
HR-019-0204	P	Total PCBs	ug/Kg DW	32208

EXAMPLE DATABASE QUERIES: SEDIMENT (cont)



EXAMPLE DATABASE QUERIES: WATER COLUMN DATA



How does the concentration
BZ#4 and BZ#10 change
moving down the river in
September of 1993?

EXAMPLE DATABASE QUERIES: WATER COLUMN DATA (cont)

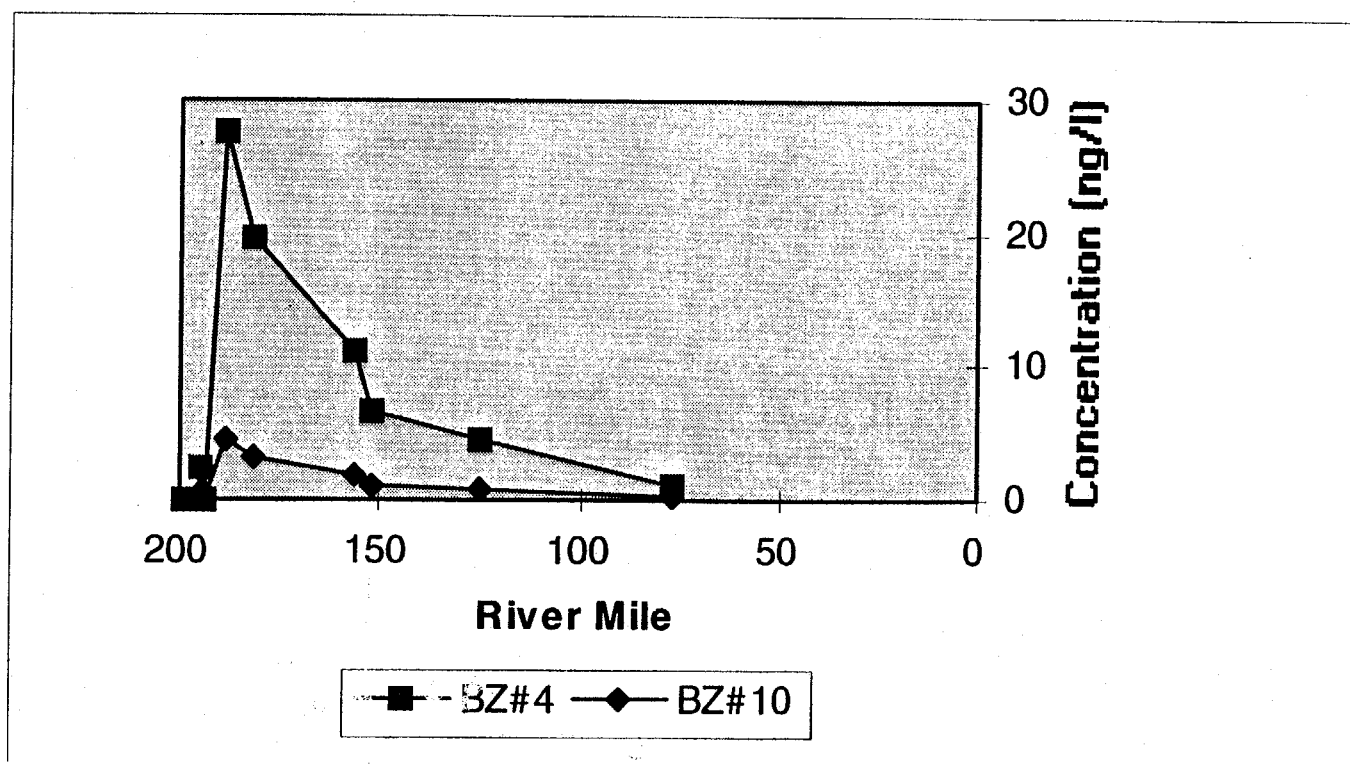
STATONS Table

Station	TAMS ID	TAMS Type	River Mile
0001	TW-006-0001		199.5
0002	TW-006-0002		197.6
0003	TW-006-0003	M	195.5
0004	TW-006-0004		194.6

PCBW Table

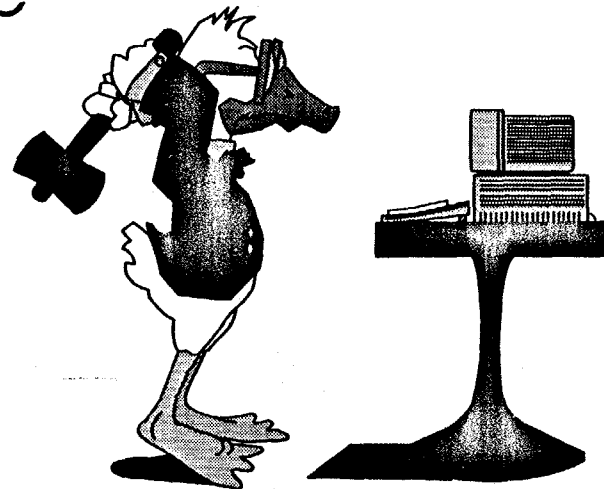
TAMS ID	TAMS Type	Parameter	Units	Value2	Qualifier
TW-006-0003	M	BZ#10	ng/L	0.0	U
TW-006-0003	M	BZ#4	ng/L	0.0	U
TW-006-0004		BZ#10	ng/L	0.4	J
TW-006-0004		BZ#4	ng/L	2.5	J
TW-006-0005		BZ#10	ng/L	4.4	J
TW-006-0005		BZ#4	ng/L	27.7	J
TW-006-0006		BZ#10	ng/L	3.1	
TW-006-0006		BZ#4	ng/L	19.5	
TW-006-0008		BZ#10	ng/L	1.8	J
TW-006-0008		BZ#4	ng/L	11.2	J

EXAMPLE DATABASE QUERIES: WATER COLUMN DATA (cont)



EXAMPLE DATABASE QUERIES: BIOTA DATA

How does the spectrum of congeners found in a Spot fish sample from station 2 compare with one from station 4?



EXAMPLE DATABASE QUERIES: BIOTA DATA (cont)

PCBFISH Table

TAMS ID	TAMS Type	Species	Parameter	Units	Value2	Qualifier
EC-F02-0001		SPOT	BZ#1	ug/Kg WW	96.5	
EC-F02-0001		SPOT	BZ#10	ug/Kg WW	32.6	J
EC-F02-0001		SPOT	BZ#100NT	ug/Kg WW	0	U
EC-F02-0002		SPOT	BZ#12	ug/Kg WW	0	U
EC-F02-0002		SPOT	BZ#123	ug/Kg WW	1.06	J
EC-F02-0003		SPOT	BZ#157	ug/Kg WW	3.64	J
EC-F02-0003		SPOT	BZ#158	ug/Kg WW	30.8	J
EC-F02-0003		SPOT	BZ#16	ug/Kg WW	8.06	J
EC-F04-0001		SPOT	BZ#123	ug/Kg WW	7.25	J
EC-F04-0001		SPOT	BZ#126	ug/Kg WW	0	U
EC-F04-0001		SPOT	BZ#128	ug/Kg WW	86.5	
EC-F04-0002		SPOT	BZ#156	ug/Kg WW	28.1	J
EC-F04-0002		SPOT	BZ#157	ug/Kg WW	0	U
EC-F04-0002		SPOT	BZ#158	ug/Kg WW	27.3	J
EC-F04-0003		SPOT	BZ#176	ug/Kg WW	0	U
EC-F04-0003		SPOT	BZ#177	ug/Kg WW	12.1	
EC-F04-0003		SPOT	BZ#178	ug/Kg WW	0	U
EC-F04-0003		SPOT	BZ#179	ug/Kg WW	4.68	J
EC-F04-0003		SPOT	BZ#18	ug/Kg WW	44.9	

EXAMPLE DATABASE QUERIES: BIOTA DATA (cont)

