

## **Appendix A**

### **Grasse River Project GIS Database**

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## START UP INSTRUCTIONS

Prior to viewing the Grasse River Project GIS Database, the user must perform the following tasks:

- mirror the drive letter of their CD drive to 'X' and
- add an open database connectivity interface (ODBC) Access driver.

Mirroring the letter of your CD drive to X may be done whenever the computer is rebooted.

The ODBC Access Driver comes with Microsoft Office. If this driver has not been installed during setup, you will have to install it from the MS Office software. Note that the ODBC driver only has to be added once.

### Change the drive letter of CD drive to X

1. Have ArcView v3.1 or higher installed on your computer (DO NOT execute the program yet)
2. Insert the GIS Database CD-ROM into your CD-ROM drive
3. Open a DOS window and execute the following command:  
*subst x: <cdrom letter>:\*  
where <cdrom letter> is the letter of your CD-ROM drive

### Add an ODBC Access driver (Needs to be done only once)

- 1) Go to SETTINGS, CONTROL PANEL, select ODBC
- 2) Go to USER DSN (first tab) and choose ADD, add an Access Driver
- 3) Enter the database file name (Grasse\_River\_3-1) in "Data Source Name" without the extension .mdb
- 4) Adding text under "Description" is optional
- 5) Choose SELECT under "Database" to locate your database file (grasse\_river\_3-1.mdb) in Data\_tables folder on the CD-ROM (now the X drive)
- 6) Click OK and close out of control panel

To access the Customized Project, execute ArcView and open the project “Grasse\_v3-1.apr” found on the CD-ROM (X drive) in the *Customized Project* folder. You will be asked to select a database to connect to, choose X:\Data\_tables\Grasse\_River\_3-1.mdb.

**VERY IMPORTANT:** The project must be opened from within ArcView. If you try to open it through Windows Explorer or any other application you will get an error “Segmentation Violation” due to read/write restrictions.

**NOTE:** To delete the x: drive from your Windows Explorer, open a DOS prompt and type the command: `subst x: /D`

## SECTION 1 INTRODUCTION

This Appendix summarizes Version 3.1 of the Geographic Information Systems (GIS) Database developed for the Grasse River Project. Data collected as part of the Supplemental Remedial Studies (SRS) Program, as well as appropriate data from previous investigations (including the River and Sediment Investigations [RSI] Phases I and II, and pre-, during- and post-Non-Time-Critical Removal Action [NTCRA] surveys), have been compiled into a single project database. All data were quality controlled for location and attribute data. Data generated after this release will be included in future updates. Data dictionary tables, which define the fields in each file on the CD-ROM, are included in Section 5.0.

Version 3.1 of the Grasse River Geographic Information System database includes updates from the previous April 2002 release, Version 2.1. These updates are listed in **Table A1-1**.



**Table A1-1  
Major Updates Included in Version 3.1**

Shapefile	Update	Notes
ADCP_pg_locat	Removal of shapefile since associated data tables moved to Capping Pilot Study CD-ROM	---
Gw_seepage_locat	1998 and 1999 groundwater seepage meter locations	From CDM
Resfish_bbul_smbbs_coords	Coordinates for adult brown bullhead and smallmouth bass collected in 2000 through 2002	From BBL
Resfish_RSI2_TMS_locat	New collection locations for smallmouth bass and brown bullhead in Power Canal and Mouth Stretch	From BBL
SPMD_locat	New sampling transect at sediment probing Transect T11	From BBL
Water_locat	New sampling transect in Power Canal and at sediment probing Transect T11	From BBL
Water_NTCRA_locat	New shapefile of local water stations (During-NTCRA)	From BBL

Data Table	Update	Notes
ADCP_velocity	Moved to Capping Pilot Study CD-ROM	---
Climate	2002 daily precipitation data through 12/31/02	From Alcoa
Gw_seepage	Fall 1998 and summer 1999 groundwater seepage measurements	From CDM
Pg_elev	Moved to Capping Pilot Study CD-ROM	---
Resfish_aro	2002 Trend Monitoring Survey; 2000-2002 coordinates	From NEA and BBL
Resfish_pk	2002 Trend Monitoring Survey; 2000-2002 coordinates	From NEA and BBL
Riverflow_hist	Daily river flow data (estimated) through 12/31/02	From USGS
Riverflow_tapedown	2002 tapedown and flow data	From BBL
Sediment_aro	Correction of 1991 Phase I data (# samples) -- aluminum (13), cadmium (122), total fluoride (6), furan (1), lead (56), total PCBs (6), soluble fluoride (2), TOC (18), and total organic matter (13). Added arsenic and cyanide data. Added Notes field to indicate lead and cadmium qualifiers	From Exponent
Spm�_bz	2002 SRS Routine Monitoring	From NEA
Water_aro	1995 PCB data (During-NTCRA)	From BBL
Water_field	2002 SRS Routine Monitoring	From BBL
Water_iupac	2002 SRS Routine Monitoring	From NEA

## SECTION 2

### CD-ROM CONTENTS

The Grasse River Project GIS Database exists in two formats: a GIS framework and a Microsoft Access database. A CD-ROM (included herein) contains both formats in two separate directories (**Figure A2-1**). The first directory (*Shapefiles*) contains all GIS coverages as shapefiles. A listing of these GIS shapefiles is provided in **Table A2-1**. The second directory (*Data\_tables*) contains the Microsoft Access database (“Grasse\_River\_3-1.mdb”) which holds all of the related data tables. Information regarding both the GIS and the Access data tables is provided in the data dictionary tables (Section 5.0).

#### 2.1 SPATIAL COVERAGES

##### 2.1.1 Map Projections

A map projection is a set of mathematical equations used to explain the earth's curvature in order to display spatial data in a Cartesian coordinate system. Many different types of projection equations (or systems) have been developed, such as Lambert, Mercator, Albers, and Transverse Mercator. Although it is possible to view spatial data in the earth's coordinate system of geographic, in most cases, it is best to project the data into a standard x-y coordinate system. However, the projection process can not always preserve all four of the maps' primary characteristics of shape, area, distance, and direction. As a result, all states have individually developed standards for mapping which minimize the distortion of these four parameters within the state. Most states have two versions of their projection system -- one based on the North American Datum of 1927 (NAD27) and one based on the datum measured in 1983 (NAD83). It is very important to note that data projected into different coordinate systems cannot be overlaid onto one another. In fact, even data that has been projected into a NAD27 stateplane coordinate system cannot be shown with data projected into the same stateplane coordinate system, using the NAD83 equations. For example, a map of the Grasse River in New York Stateplane East-

1927 would not be shown in the same view as the state of New York, projected into New York Stateplane East-1983.

The projection system for New York is entitled New York Stateplane and uses Lambert Conic Conformal based equations. This system is divided into three areas: East, Central, and West. The Grasse River Project has been projected using the 1983 New York Stateplane-East parameters and equations. The horizontal distance unit is feet.

### **2.1.2 Basemaps**

This section provides a brief overview of the available data in ArcView. The *Shapefiles/basemaps* directory contains the lower Grasse River shoreline, bridge crossings, dams and various other shapefiles. These shapefiles do not have corresponding data files in the *Data\_tables* directory. Two shapefiles for the shoreline of the lower Grasse River have been included. The first coverage, called “river.shp”, is the River outline provided by BBL<sup>1</sup> and the second coverage “river2.shp” is an older version that originated at HydroQual. The two shorelines match up relatively well, except in a few areas. This offset is noticeable when, for example, sediment sampling locations are overlain on the River. In this instance, some of the locations fall out of the second shoreline (“river2.shp”). Therefore, “river.shp” and “river\_shade.shp” (corresponding shading file) should be used when data is overlain within the extent. The shapefiles “river2.shp” and “river2\_shade.shp” (corresponding shading file) are included because the detail in the western portion of the River and the delineation of tributaries are more complete. All basemaps are included in the view “General Basemaps” in the customized project (see Section 3.0).

### **2.1.3 Data Coverages**

The *Shapefiles/data* subdirectory contains six main subdirectories: *climate*, *riverflow*, *outfalls\_tributaries*, *biota*, *water\_qual* and *sed\_qual*. Each subdirectory contains shapefiles

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<sup>1</sup>Basemap provided by BBL was taken from planimetric mapping prepared by Lockwood Mapping, Inc. using aerial photography (November 9, 1992).

which are linked to related data tables (found in the Access database located in the *Data\_tables* directory) through a “key item.” A “key item” is a unique identifier for each station or sample that exists in both the attribute table for the shapefile and a related data table (found in the *Data\_tables* directory). This key item is used when linking and joining information to the attribute table for data analysis and display (see Section 2.2.2). The attribute tables of the shapefiles contain only location information, except for the sediment data where additional information is included. The fields contained in the shapefiles are indicated with an asterisk in the data dictionary tables (Section 5.0).

Climate - This directory contains climate measurements taken at Alcoa Building 65 and a location near Outfall 007 between 1992 and 2002.

River Flow - Flow data from three sources are contained in this directory: 1) historic records developed from Oswegatchie River at Harrisville and Grasse River at Pyrites flow records, 2) Grasse River flows estimated from pressure transducer readings taken at the Main Street Bridge in Massena, and 3) paired flow measurements (water column Transect WC001) and tapedown readings (Main Street Bridge) used to develop relationships between stage height and River flow.

Outfalls and Tributaries - This directory contains PCB data collected from plant facility outfalls during six storm events in 1997.

Biota - This directory contains data collected from resident fish surveys conducted between 1991 and 2002, benthic community assessment surveys conducted in 1993, 1996 and 1998, and caged mussel surveys performed in 1998.

Water Quality - All data pertaining to the water column surveys are included in this directory. These data include: pre-, during- and post-NTCRA surveys conducted in 1995; routine monitoring surveys performed in 1996 through 2002; and special studies conducted in the lower Grasse River (1997 dye study, 1997-98 storm sampling surveys, 1997-98 solids monitoring studies at the Main Street Bridge, 1997-98 groundwater seepage

measurements, 1995-02 Semi-Permeable Membrane Device (SPMD) sampling, and 2000-01 Float Survey).

Sediment Quality - Sediment data collected in 1991 (RSI Phase I), 1993 (RSI Phase II), 1995 (pre- and post-NTCRA), 1997 (core and grab samples), and 2000-01 (core and grab samples) are contained in this directory. Soft sediment depth data collected in 1992 and 2001 are also included. In addition, sediment characterization data as part of the 2001 sediment probing survey are included.

## 2.2 ACCESS DATABASE

### 2.2.1 Data

Data collected as part of the SRS Program, as well as appropriate data from previous investigations (including RSI Phases I and II, pre-, during- and post- NTCRA surveys), have been compiled into a single Access database (“Grasse\_River\_3-1.mdb”). The database is located in the *Data\_tables* directory (**Figure A2-1, right column**) and contains data tables for all of the shapefiles included in the *Shapefiles/data* directory. A total of 28 data tables comprise the database. When applicable, data tables were separated by quantification method (i.e., Aroclor, BZ, IUPAC, etc.). For example, the sediment data exists in Aroclor and BZ format, so two data tables exist for these data (“sediment\_aro” and “sediment\_bz”). Additional details of the data contained in these tables can be found in **Section 5**.

### 2.2.2 Linking to Data Tables

The coverages contained in the *Shapefiles* directory (**Figure A2-1, left column**) can be viewed using ArcView and the data tables related to the coverages (found in *Data\_tables*) can be linked to them for data analysis within ArcView. The steps for linking to a data table are outlined below.

Linking to data tables (Access database) while in ArcView

- 1) Execute ArcView. In the project window go to PROJECT and select “SQL connect”. **Figure A2-2** shows what the user will see in the “SQL connect” window.
- 2) Under “Connection:” select a database to connect to (Grasse\_River\_3-1) and click on “Connect...”
- 3) The individual tables contained in the database will be listed under “Tables”. When a table is selected (double-click on the name), all of its fields will be listed under “Columns”. The user can choose to view any number or all of a table’s corresponding fields (just be sure to bring in the field which contains the key so that it can be linked to the corresponding attribute table later).
- 4) Double-clicking on the column names will select them and place them in the “Select” window.
- 5) Queries may be performed at this point to reduce the size of the table that is imported into ArcView. Double-click on the column name to query on and the name will appear in the “where” window. In the example in **Figure A2-2**, the data was queried so that only 1997 data will be in the new table.
- 6) The tables that result from the queries will be read-only tables and will exist only within the project, however, they can be exported from ArcView into a text file or dbf table. Be sure to name the table in “Output Table”. These tables also may now be linked to their corresponding attribute tables within the project using the key field.

Every time the main database is updated (and the name remains the same) all related tables and queries are automatically updated within the project. Unlike joining tables, linking tables simply defines a relationship between two tables, rather than appending the fields of the source table to those in the destination. When tables are linked, neither table is changed - they are just linked to one another. After a link is performed, selecting a record in the destination table will automatically select the record or records related to it in the source table. If the destination table is the feature attribute table of a theme, selecting one of the theme's features in the view selects that feature's record in the attribute table, and therefore automatically selects the records related to it in the source table. Tables are linked based on a field that is found in both tables. The name of the field does not have to be the same in both tables, but the data type has to

be the same. You can link numbers to numbers, strings to strings, booleans to booleans, and dates to dates.

**Table A2-1  
List of Shapefiles on the CD-ROM**

Shapefiles/Coverages located in <i>basemaps</i>				
Name	Description	Source	Key Item	
bridges	Location of bridges on the lower Grasse River	BBL	N/A	
buildings	Location of Alcoa buildings at the Grasse River site	BBL	N/A	
dams	Locations of dams on the lower Grasse River	BBL	N/A	
flow_dir	Flow direction arrows for the lower Grasse River	BBL	N/A	
NY83_locator	Locator Map of NY state (1:2 million scale)	ESRI	N/A	
potw	Location of the Massena water treatment plant on the lower Grasse River	BBL	N/A	
river	Outline of the lower Grasse River and tributaries	BBL	N/A	
river_shade	Area of the lower Grasse River	QEA	N/A	
river2	Outline of the lower Grasse River	HQI	N/A	
river2_shade	Area of the lower Grasse River	HQI	N/A	
road_labels	Road name labels for roads in the vicinity of the lower Grasse River	BBL	N/A	
roads	Roads in the vicinity of the lower Grasse River	BBL	N/A	
route_labels	Route number labels for rural routes in the vicinity of the lower Grasse River	BBL	N/A	
Seaway_outline	Outline of St. Lawrence Seaway in the vicinity of the lower Grasse River	BBL	N/A	
Seaway_shade	Area of St. Lawrence Seaway in the vicinity of the lower Grasse River	BBL	N/A	
WD_canal_outline	Outline of the Wiley Dondero Canal	BBL	N/A	
WD_canal_shade	Area of the Wiley Dondero Canal	BBL	N/A	

Shapefiles/Coverages located in <i>data/biota</i>				
Name	Description	Source	Key Item	
artsubs_locat	1993 RSI Phase II and 1996 SRS Artificial Substrate Study sampling locations	OEA	Transect	
benthic_locat	1993 RSI Phase II, 1996 SRS, and 1998 PBTS benthic community studies sampling locations	QEA	Transect	
habitat_areas	Fish habitat areas along the Grasse River shoreline	BBL	N/A	
mussel_locat	1998 SRS caged mussel survey sampling locations	OEA	Transect	
pelagic_locat	1998 PBTS pelagic community studies sampling locations	OEA	Transect	
resfish_bbul_smb_s_coords	2000-02 coordinates for brown bullhead and smallmouth bass samples	BBL	Key	
resfish_RSI1_locat	1991 RSI Phase I (Aroclor)	QEA	Location	
resfish_RSI2_TMS_locat	1993 RSI Phase II, 1995 Post-NTCRA, 1996-02 TMS (Aroclor); 1995 Post-NTCRA, 1996-98 TMS (BZ); and 1999-02 TMS (Peak)	QEA	Location	
resfish_RSI2_TMS_shiner_locat	1993 RSI Phase II, 1995 Post-NTCRA, 1996-02 TMS (Aroclor); 1995 Post-NTCRA, 1996-98 TMS (BZ); and 1999-02 TMS (Peak)	QEA	Location	
resfish_SRS_locat	1995 Pre-NCTRA and 1996 SRS resident fish sampling locations (Peak)	QEA	Location	
resfish_YOY_locat	1998-99 YOY (Aroclor and BZ) and 1999 (Peak) resident fish sampling locations	QEA	Location	

Shapefiles/Coverages located in <i>data/climate</i>				
Name	Description	Source	Key Item	
climate_locat	Daily climatic data measured at Alcoa Building 65 and near Outfall 007	QEA	Location	

Shapefiles/Coverages located in <i>data/outfall_tributaries</i>				
Name	Description	Source	Key Item	
outfall_locat	1997 storm event sampling locations	QEA	Location	

Shapefiles/Coverages located in <i>data/riverflow</i>				
Name	Description	Source	Key Item	
histflow_locat	Historical (estimated) flow records for the Grasse River at Massena	OEA	Location	
tapeflow_locat	Paired tapedown measurements from Main Street Bridge and measured flows (at water sampling transect WC001)	QEA	Location	
transflow_locat	Flows estimated from pressure transducer measurements taken at the Main St. Bridge in Massena	QEA	Location	



Shapefiles/Coverages located in <i>data\sed aul</i>			
Name	Description	Source	Key Item
probing_locat	Sediment probing transects from 1992 soft sediment samplng locations	BBL	Transect
sediment_char_locat	2001 sediment characterization locations	BBL	Sample ID
sed_aro_locat	1991 RSI Phase I, 1993 Rsi Phase II, 1995 Pre- and Post-NTCRA, 1997 SRS, and 2000-01 SSS Sediment Data (Aroclor)	BBL	Key
sed_bz_locat	1993 RSI Phase II, 1995 Pre- and Post-NTCRA, 1997-98 SRS, and 2000-01 SSS Sediment Data (BZ)	BBL	Key
sed_probe_locat	1992 and 2001 soft sediment depths and sampling locations	BBL	N/A

Shapefiles/Coverages located in <i>data\water aul</i>			
Name	Description	Source	Key Item
dvestudv_locat	1997 dve studv transects	OEA	Transect
float_survev_locat	2000-01 float survev samplng transects	OEA	Transect
gw_seepage_locat	1997-98 groundwater seepage meter locations	CDM	Key
somd_locat	SPMD transects for SPMD samplng studies	OEA	Transect
water_NTCRA_locat	1995 local water sampling locations during-NTCRA	BBL	Location
water_locat	Water column transects for water quality sampling studies	QEA	Transect

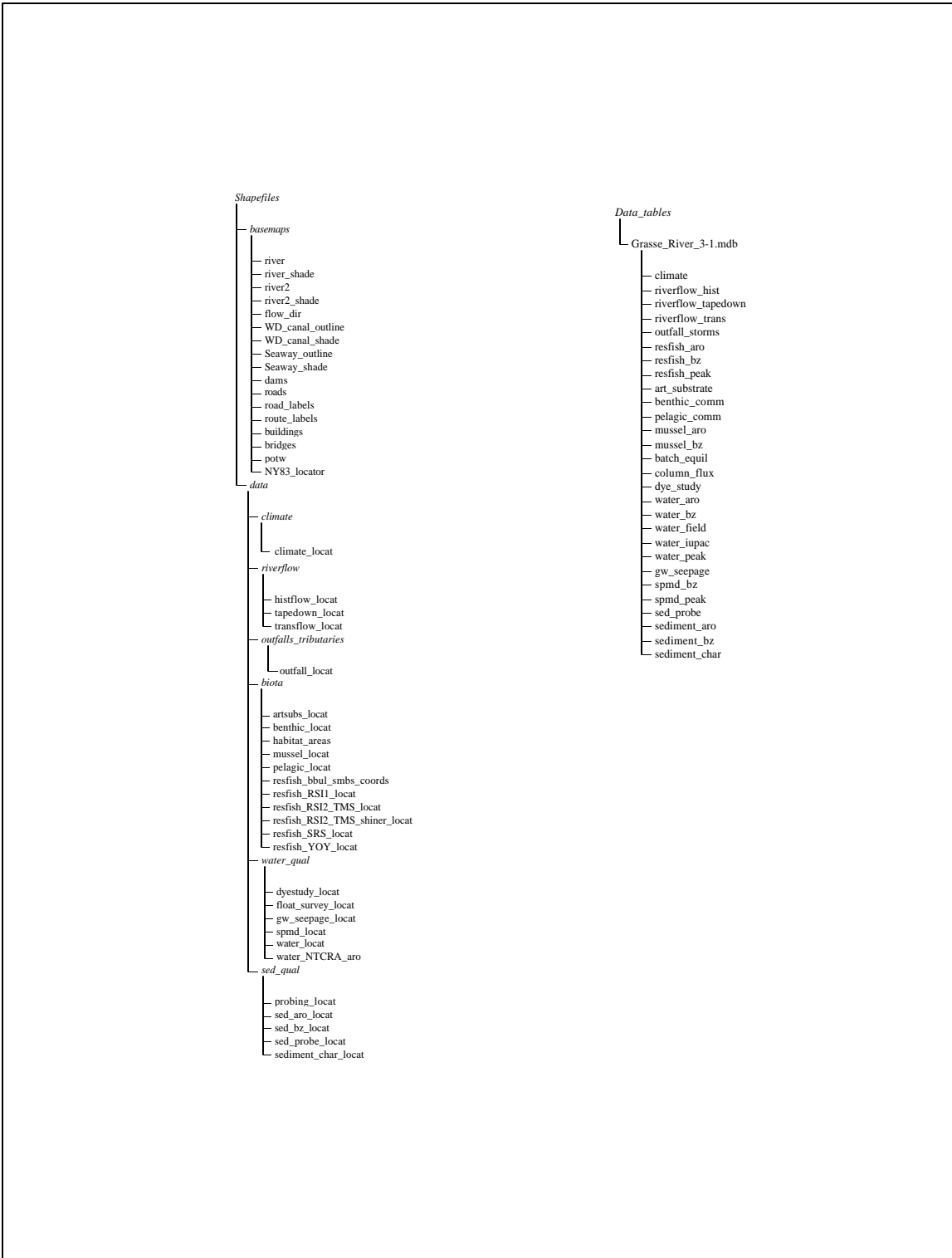


Figure A2-1. Directory Structure for GIS CD-ROM

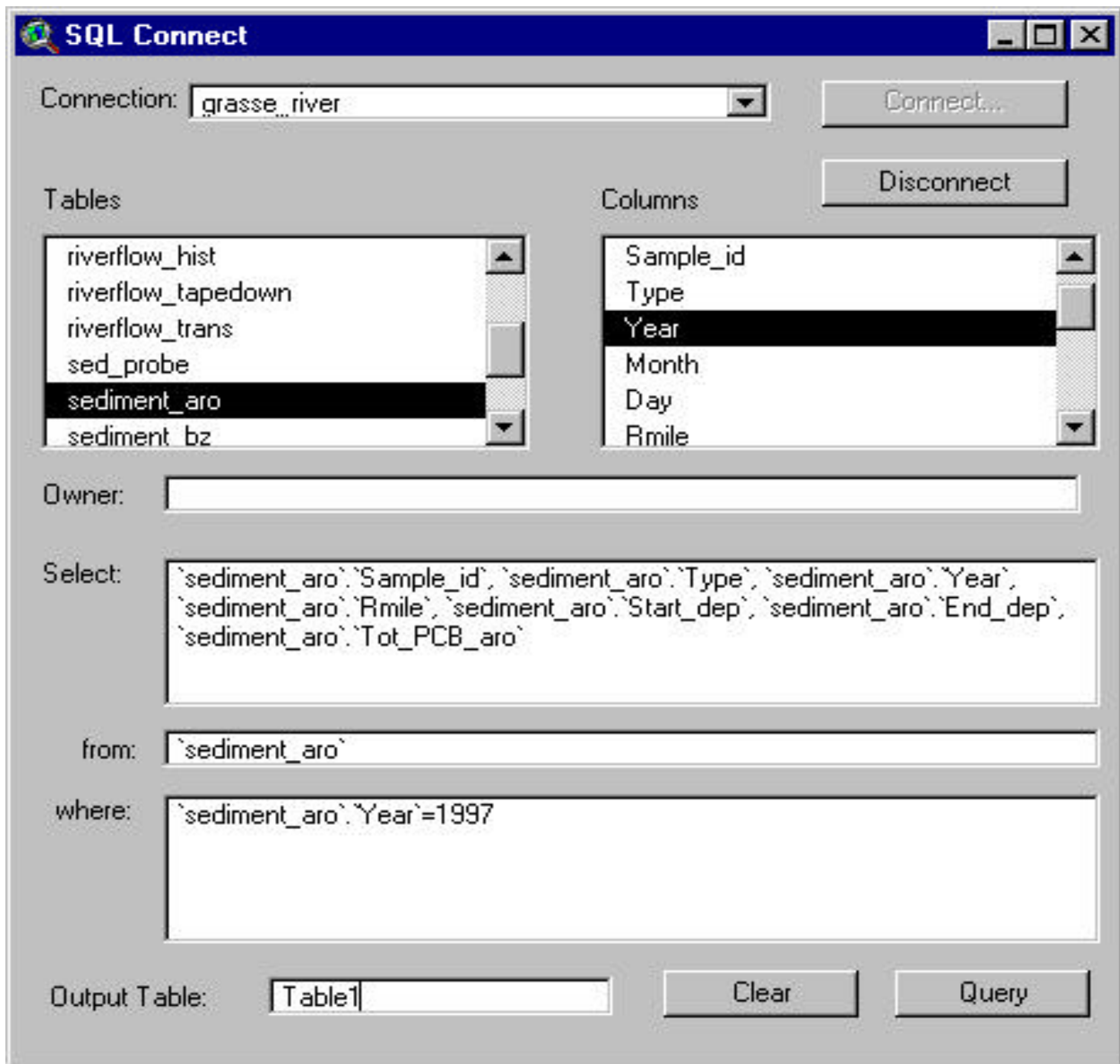


Figure A2-2. SQL Connect Window

## SECTION 3

### CUSTOMIZED PROJECT

Included on the CD-ROM is a customized ArcView project that is meant to give the user an overview of the available data. In addition, three macros have been developed to assist in navigating around the project.

A brief description of the views contained in the customized project are provided in **Table A3-1**. As part of this project, a number of the related tables have been imported into the project and linked to their corresponding spatial coverages. Linked tables for each spatial coverage are listed in the Comments window under the Theme:Properties menu item. All spatial coverages in the Customized Project have linked tables. Data not included in the project can be linked to their corresponding coverages using the key item listed in the data dictionary and the procedure discussed in Section 2.2.2. **Figure A3-1** shows an example window of one of the views, “Water Data”, in the project. The left side of the window shows the various coverages available for viewing. Clicking in the box next to the shapefile name will display it on the map

Within the customized project, there are three macros to assist the user in project navigation and data analysis. These macros are invoked by buttons on the far right-hand side of the toolbar. The first macro, zoom to reach, is executed by the blue diamond button on the top toolbar. This tool assists in viewing different reaches of the lower Grasse River. Five extents are available for viewing: upstream of the plant facility, in the vicinity of the plant facility, in the vicinity of the Unnamed Tributary, the lower portion of the River, or the full extent of the lower Grasse River.

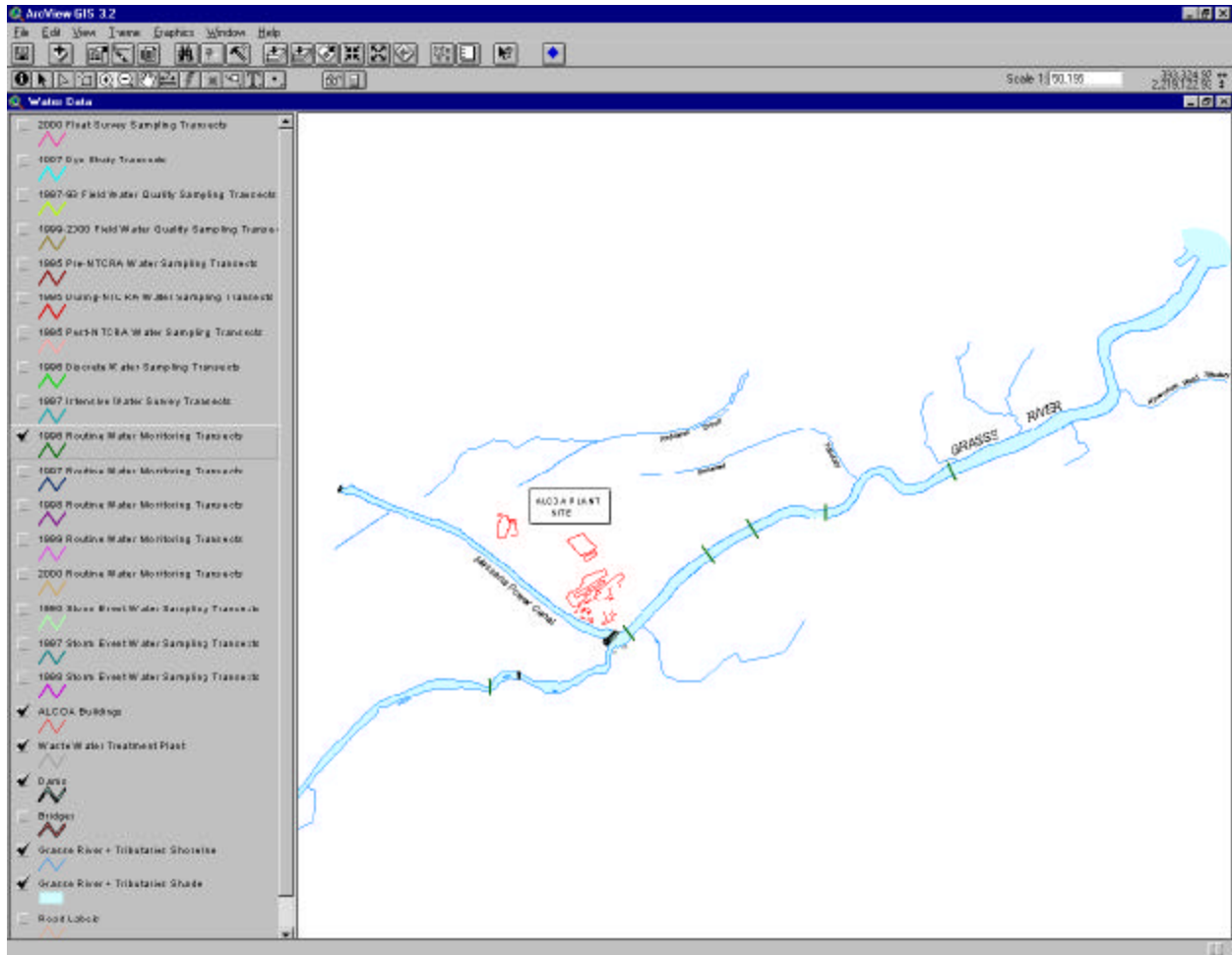
The second tool is meant to assist in viewing data tables which have been linked to themes within a view. A number of tables have already been linked to themes within the customized project. However, this tool will also work on additional tables that are imported and linked. This macro is invoked by clicking on the eyeglass icon on the far right-hand side of the bottom toolbar. Once activated, data tables may be viewed by making the theme being analyzed

active in the table of contents of the view and selecting the points or transects of interest. Upon selection, the points (or transects) will turn yellow and all the available linked tables will open, showing the related data (also in yellow). Multiple points and transects can be selected from the same theme by holding down the shift key and clicking or drawing a rectangle around the points within the view.

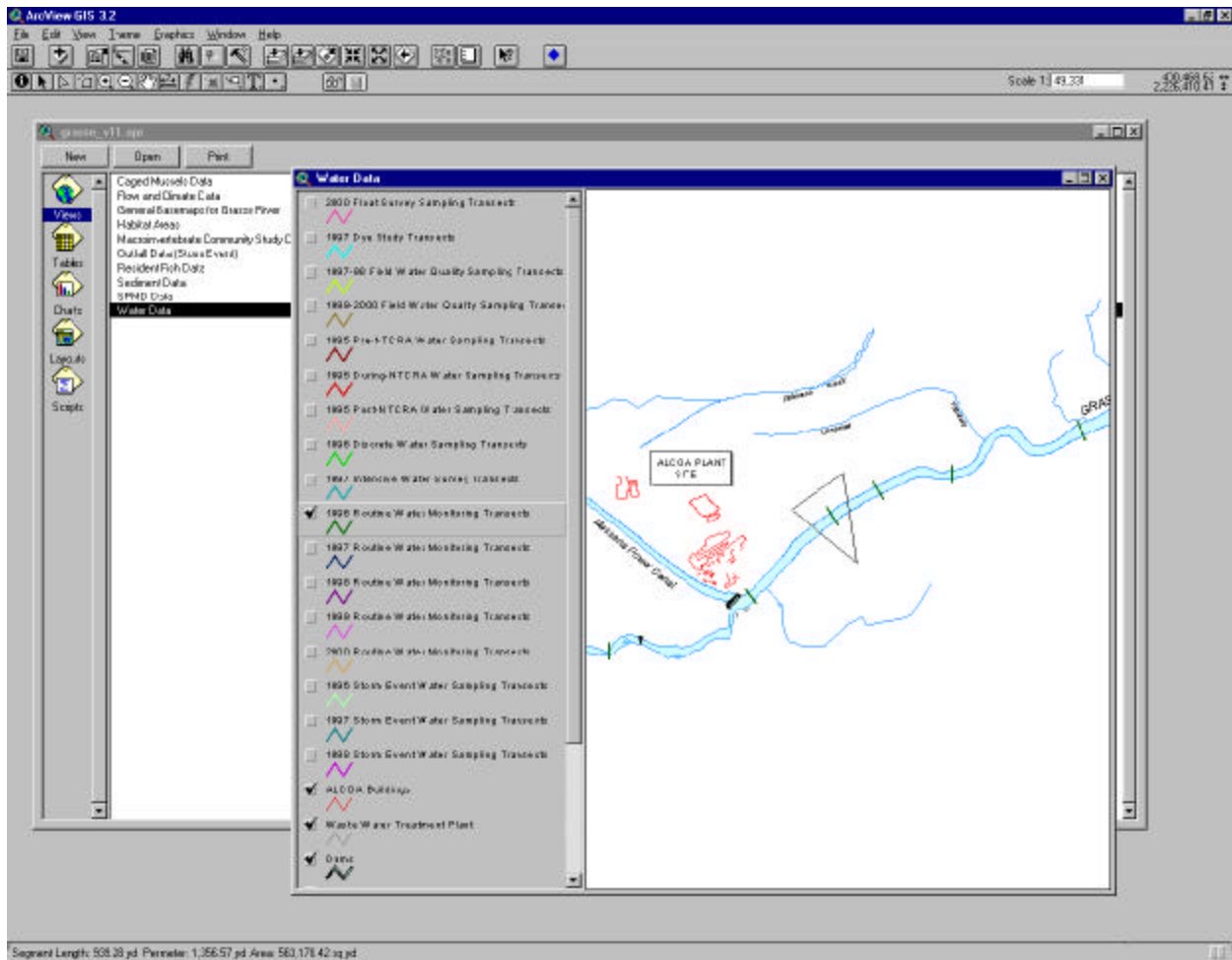
The third tool produces a simple statistical analysis of selected data from a chosen linked table. To activate this tool, select the calculator button from the right-hand side of the bottom toolbar, make active the theme within the table of contents and draw a polygon around the points to be analyzed (**Figure A3-2**). The macro will then step through a series of windows to determine how statistics should be performed. The first window (**Figure A3-3, panel a**) displays the available linked data tables – the table that contains the data to be analyzed should be chosen. The second window (**Figure A3-3, panel b**) displays the fields within that linked table that will narrow the choices for the statistics. For example, to compute statistics for a particular survey, choose the field ‘Survey’ in this window. Another example may be to choose the field ‘Year’ if statistics are to be performed for a single year. Once the field for sub-selection is chosen, select the criteria for sub-selection in the next window. In **Figure A3-3 (panel b)**, ‘Year’ was chosen, so that in **Figure A3-4 (panel a)**, either 1995 or 1997 can be selected for the analysis. After the data is narrowed down, the last step is to select the field on which to perform the statistics (**Figure A3-4, panel b**) – this field must be numeric and is typically a measured parameter such as TSS or total PCBs. The results of the calculation are displayed in a final window (**Figure A3-5**). Please note that this statistics tool is meant for general analysis. Although the macro does ignore data points designated as –999 (no data available), it does not account for below detection limits values that may be listed as negative in the database (i.e. TSS data). Currently, negative values are included in the statistical analysis. Advanced analyses should be performed with tools other than this statistical macro.

**Table A3-1**  
**List of Views in Customized Project**

View Title	Description
Caged Mussels Data	Data from survey conducted in 1998.
Flow and Climate Data	Climate measurements taken at Alcoa Bldg 65 and a location near Outfall 007 between 1992 and 2002. Flow data from 3 sources.
General Basemaps for Grasse River	Basemaps of shorelines, dams, canals, roads, and cities.
Habitat Areas	Aquatic/resident fish habitat showing littoral vegetation areas from 1997 surveys.
Macroinvertebrate Community Studies	Data from surveys conducted in 1993, 1996 and 1998.
Outfall Data (Storm Event)	PCB data collected from plant facility outfalls during 6 storm events in 1997.
Resident Fish Data	Data from surveys conducted between 1991 and 2002.
Sediment Characterization	Sediment characterization data collected during 2001 soft sediment probing survey.
Sediment Data	Data from surveys conducted in 1991 (RSI Phase I), 1993 (RSI Phase II), 1995 (pre- and post-NTCRA), 1997, and 2000-01.
Sediment Probing Data	Soft sediment data from surveys conducted in 1992 and 2001.
SPMD Data	PCB data collected during surveys in 1995 and 1997 through 2002.
Water Data	Data from pre-, during- and post-NTCRA surveys in 1995, routine monitoring and storm monitoring surveys in 1996 through 2002, groundwater seepage measurements from 1997-98, float surveys in 2000-01, and a dye study performed in 1997.



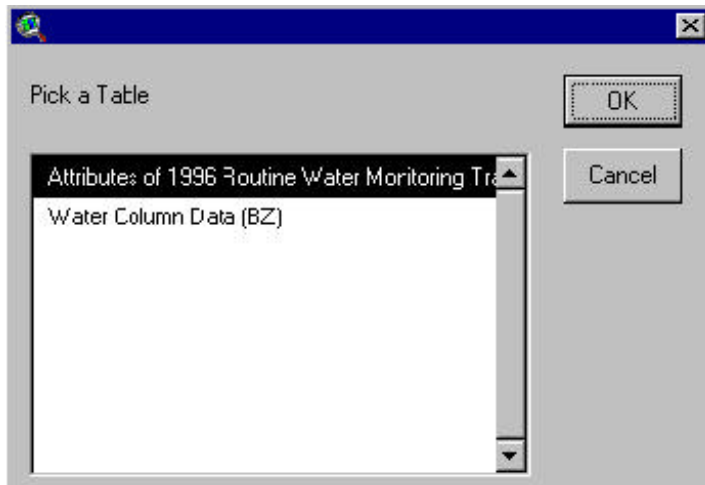
**Figure A3-1. Example View in Customized Project**



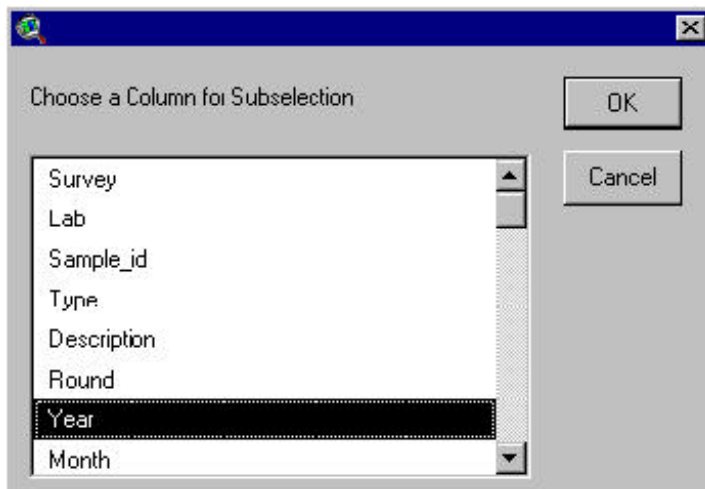
**Figure A3-2. Example of a Select Polygon for the 'Statistics by Polygon' Tool.**



a)

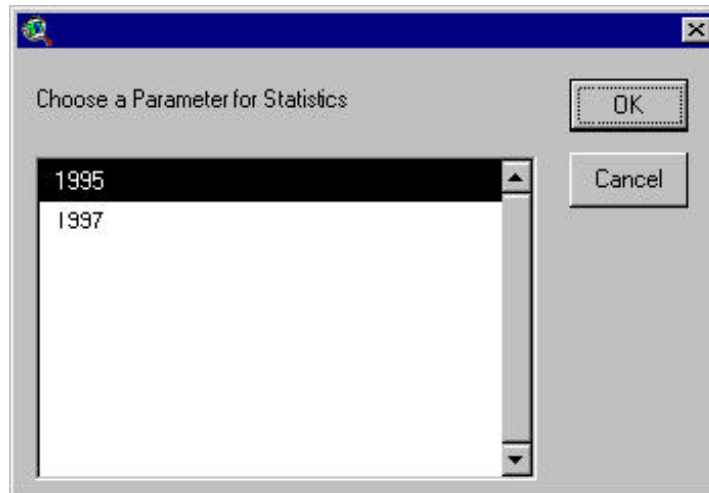


b)

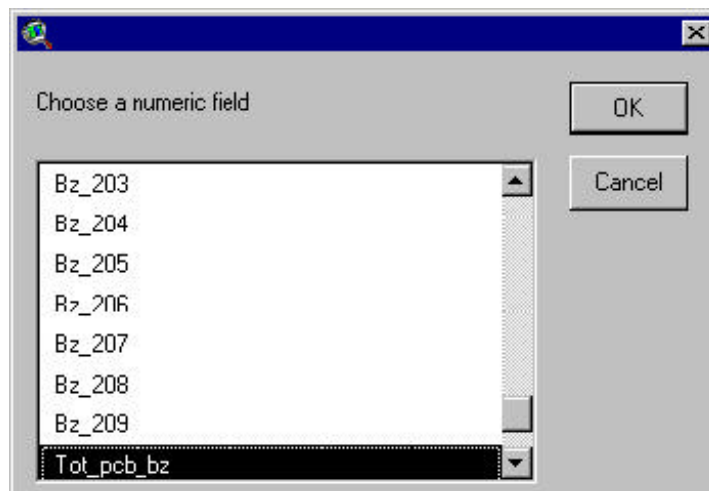


**Figure A3-3. Example Windows for the 'Statistics by Polygon' Tool where User is Queried for Related Table (a) and the Field on which to Perform the Sub-selection of Data for Analysis (b).**

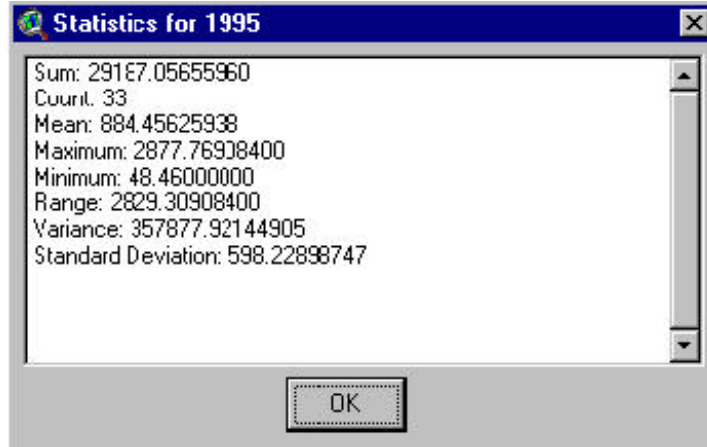
a)



b)



**Figure A3-4. Example Windows for the 'Statistics by Polygon' Tool where the User is Queried on the Criteria for Sub-selection (a) and the Field on which to Perform the Calculation (b).**



**Figure A3-5. Final Window Displaying Results of the 'Statistics by Polygon' Macro.**

## **SECTION 4**

### **DATABASE UPDATES AND FUTURE WORK**

The Grasse River Project GIS Database (v3.1) contains data collected in the lower Grasse River between 1991 and 2002. As monitoring programs in the lower Grasse River continue, additional data will be generated, checked for quality control and incorporated into the database. These updates will be transferred to Alcoa on a periodic basis, depending on the extent of the changes and the additions that occur. When revisions do occur, the version number for the database will be upgraded and an addendum to this report will be released. In most cases, a new CD-ROM also will be released. Future releases will contain the entire database, including all previous coverages and data, along with any new or updated information.

## SECTION 5

### DATA DICTIONARY TABLES

The data dictionary tables for the Grasse River Project Database are included in this section. **Tables A5-1 through A5-17** correspond to the shapefiles in the *Shapefiles/basemaps* directory and do not have related data tables. **Tables A5-18 through A5-45** correspond to individual data tables found in the Access Database “Grasse\_River\_3-1” located in the *Data\_tables* directory. The corresponding shapefiles are listed in the data dictionary tables.

**Table A5-1**  
**Data Dictionary for river**

**Shapefile Description:** Outline of the Lower Grasse River and tributaries

**Shapefile Name:** river.shp

**Related Tables:** N/A

**Shapefile Location:** \basemaps

**Shapefile Source:** CAD files from BBL

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Length	Length of line (feet)

**Comments:**

(1) This file is only provided in the GIS database, there is no corresponding data table.

**Table A5-2**  
**Data Dictionary for river\_shade**

**Shapefile Description:** Area shading for the lower Grasse River

**Shapefile Name:** river\_shade.shp

**Related Tables:** N/A

**Shapefile Location:** \basemaps

**Shapefile Source:** Polygon conversion of river.shp

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Area	Area of polygon (feet squared)
Perimeter	Perimeter of polygon (feet)

**Comments:**

(1) This file is only provided in the GIS database, there is no corresponding data table.

**Table A5-3**  
**Data Dictionary for river2**

**Shapefile Description:** Outline of the lower Grasse River

**Shapefile Name:** river2.shp

**Related Tables:** N/A

**Shapefile Location:** \basemaps

**Shapefile Source:** ArcView files from HQI

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Length	Length of line (feet)

**Comments:**

(1) This file is only provided in the GIS database, there is no corresponding data table.



**Table A5-4**  
**Data Dictionary for river2\_shade**

**Shapefile Description:** Area shading for the lower Grasse River

**Shapefile Name:** river2\_shade.shp                      **Related Tables:** N/A

**Shapefile Location:** \basemaps                      **Shapefile Source:** ArcView files from HQI

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Area	Area of polygon (feet squared)
Perimeter	Perimeter of polygon (feet)

**Comments:**

(1) This file is only provided in the GIS database, there is no corresponding data table.

**Table A5-5**  
**Data Dictionary for flow\_dir**

**Shapefile Description:** Flow direction arrows for the lower Grasse River

**Shapefile Name:** flow\_dir.shp

**Related Tables:** N/A

**Shapefile Location:** \basemaps

**Shapefile Source:** CAD files from BBL

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView Internal Field
Label	Arrow number, left to right

**Comments:**

(1) This file is provided only in the GIS database, there is no corresponding data table.

**Table A5-6**  
**Data Dictionary for WD\_canal\_outline**

**Shapefile Description:** Outline of the Wiley Dondero Canal

**Shapefile Name:** WD\_canal\_outline.shp      **Related Tables:** N/A

**Shapefile Location:** \basemaps                      **Shapefile Source:** CAD files from BBL

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Description	Canal description

**Comments:**

(1) This file is provided only in the GIS database, there is no corresponding data table.

**Table A5-7**  
**Data Dictionary for WD\_canal\_shade**

**Shapefile Description:** Area of the Wiley Dondero Canal

**Shapefile Name:** WD\_canal\_shade.shp      **Related Tables:** N/A

**Shapefile Location:** \basemaps      **Shapefile Source:** CAD files from BBL

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView Internal Field
Description	Canal description

**Comments:**

(1) This file is provided only in the GIS database, there is no corresponding data table.

**Table A5-8**  
**Data Dictionary for Seaway\_outline**

**Shapefile Description:** Outline of St. Lawrence Seaway in the vicinity of the lower Grasse River

**Shapefile Name:** Seaway\_outline.shp      **Related Tables:** N/A

**Shapefile Location:** \basemaps      **Shapefile Source:** CAD files from BBL

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Length	Length of line (feet)
Description	Canal description

**Comments:**

(1) This file is provided only in the GIS database, there is no corresponding data table.

**Table A5-9**  
**Data Dictionary for Seaway\_shade**

**Shapefile Description:** Area shading for the St. Lawrence Seaway in the vicinity of the lower Grasse River

**Shapefile Name:** Seaway\_shade.shp      **Related Tables:** N/A

**Shapefile Location:** \basemaps      **Shapefile Source:** CAD files from BBL

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Description	Polygon description (feet squared)
Area	Area of polygon (feet squared)
Perimeter	Perimeter of polygon (feet squared)

**Comments:**

(1) This file is provided only in the GIS database, there is no corresponding data table.

**Table A5-10**  
**Data Dictionary for dams**

**Shapefile Description:** Location of dams on the lower Grasse River

**Shapefile Name:** dams.shp

**Related Tables:** N/A

**Shapefile Location:** \basemaps

**Shapefile Source:** CAD files from BBL

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Length	Length of line (feet)
Name	Dam name

**Comments:**

(1) This file is provided only in the GIS database, there is no corresponding data table.

**Table A5-11**  
**Data Dictionary for roads**

**Shapefile Description:** Roads in the vicinity of the lower Grasse River

**Shapefile Name:** roads.shp

**Related Tables:** N/A

**Shapefile Location:** \basemaps

**Shapefile Source:** CAD files from BBL

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Length	Length of line (feet)

**Comments:**

(1) This file is provided only in the GIS database, there is no corresponding data table.



**Table A5-12**  
**Data Dictionary for road\_labels**

**Shapefile Description:** Road name labels in the vicinity of the lower Grasse River

**Shapefile Name:** road\_labels.shp

**Related Tables:** N/A

**Shapefile Location:** \basemaps

**Shapefile Source:** CAD files from BBL

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Name	Name of road

**Comments:**

(1) This file is provided only in the GIS database, there is no corresponding data table.

**Table A5-13**  
**Data Dictionary route\_labels**

**Shapefile Description:** Route labels for rural routes in the vicinity of the lower Grasse River

**Shapefile Name:** route\_labels.shp

**Related Tables:** N/A

**Shapefile Location:** \basemaps

**Shapefile Source:** CAD files from BBL

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Route	Route labels

**Comments:**

(1) This file is provided only in the GIS database, there is no corresponding data table.

**Table A5-14**  
**Data Dictionary for buildings**

**Shapefile Description:** Location of Alcoa buildings at the Grasse River site

**Shapefile Name:** buildings.shp

**Related Tables:** N/A

**Shapefile Location:** \basemaps

**Shapefile Source:** CAD files from BBL

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Length	Length of line (feet)

**Comments:**

(1) This file is provided only in the GIS database, there is no corresponding data table.

**Table A5-15**  
**Data Dictionary for bridges**

**Shapefile Description:** Location of bridges on the lower Grasse River

**Shapefile Name:** bridges.shp

**Related Tables:** N/A

**Shapefile Location:** \basemaps

**Shapefile Source:** CAD files from BBL

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Length	Length of line (feet)
Name	Name of bridge, where available

**Comments:**

(1) This file is provided in the GIS database only, there is no corresponding data table.

**Table A5-16**  
**Data Dictionary for potw**

**Shapefile Description:** Location of the Massena water treatment plant on the lower Grasse River

**Shapefile Name:** potw.shp

**Related Tables:** N/A

**Shapefile Location:** \basemaps

**Shapefile Source:** CAD files from BBL

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Length	Length of line (feet)
Name	Name of water treatment plant

**Comments:**

(1) This file is provided only in the GIS database, there is no corresponding data table.

**Table A5-17  
Data Dictionary for NY83\_locator**

**Shapefile Description:** Locator map of NY State (1:2 million scale)

**Shapefile Name:** NY83\_locator.shp      **Related Tables:** N/A

**Shapefile Location:** \basemaps      **Shapefile Source:** ESRI data

**Key Item:** N/A

<i>Field Name</i>	<i>Description</i>
Shape	ArcView internal field
Area	Area (feet squared)
State Name	Name (New York)
State Fips	FIPS zone (36)
Sub_region	Region within U.S. (Mid Atlantic)
State_abbrev	State abbreviation (NY)
Pop1990	Population in 1990
Pop1996	Population in 1996

**Comments:**

(1) This file is provided only in the GIS database, there is no corresponding data table.

**Table A5-18  
Data Dictionary for climate**

**Data Table Description:** Daily meteorological data measured at Alcoa Building 65 or near Outfall 007 (1/1/1992 – 12/31/2002)

**Data Table Name:** climate

**Related Shapefile:** climate\_locat.shp

**Shapefile Location:** \data\climate

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Location

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Location	*	Location identifier (BLD65 = Alcoa Building 65, OF007 = near Outfall 007)
Northing	*	Estimated 1983 NY State Plane Northing
Easting	*	Estimated 1983 NY State Plane Easting
Year		Sample year
Month		Sample month
Day		Sample day
Air_temp		Average air temperature (degrees Fahrenheit)
Rel_hum		Average relative humidity (%)
Bar_press		Average barometric pressure (inches Hg)
Wind_spd		Average wind speed (miles/hour)
Wind_dir		Average wind direction (degrees from North)
Precip		Precipitation (inches)

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile

**Table A5-19**  
**Data Dictionary for riverflow\_hist**

**Data Table Description:** Historic (estimated) flow records for the Grasse River at Massena (7/1/1916 – 12/31/2002)

**Data Table Name:** riverflow\_hist

**Related Shapefile:** histflow\_locat.shp

**Shapefile Location:** \data\riverflow

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Location

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Location	*	Location identifier (HIST = historic records)
Year		Sample year
Month		Sample month
Day		Sample day
Northing	*	Estimated 1983 NY State Plane Northing
Easting	*	Estimated 1983 NY State Plane Easting
Osw_flow		West Branch of Oswegatchie River flow at Harrisville (USGS Gage 04262500; cubic feet/second)
GRp_flow		Grasse River flow at Pyrites (USGS Gage 04265000; cubic feet/second)
GRm_flow		Estimated Grasse River flow at Massena (cubic feet/second)

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile
- (3) The Northing and Eastings given in the table are purely for display purposes; the actual flow gauges are located beyond the extent shown for the lower Grasse River.
- (4) Grasse River flow at Massena (GRm\_flow) estimated from Pyrites River flow, when available, otherwise estimated from Oswegatchie River flow.



**Table A5-20**  
**Data Dictionary for riverflow\_tapedown**

**Data Table Description:** Paired tapedown measurements from Main Street Bridge and measured flows at Transect WC001 (1997-1999, 2001-2002)

**Data Table Name:** tapeflow

**Related Shapefile:** tapeflow\_locat.shp

**Shapefile Location:** \data\riverflow

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Location

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (During NTCRA = During-Non-Time-Critical Removal Action, Post-NTCRA = Post-Non-Time-Critical Removal Action, SRS = Supplemental Remedial Studies, SRS/Capping = During Supplemental Remedial Studies and Capping Pilot Program)
Location	*	Location identifier (WC001 = water column transect WC001)
Year		Sample year
Month		Sample month
Day		Sample day
Hour		Sample hour
Northing	*	Estimated 1983 NY State Plane Northing
Easting	*	Estimated 1983 NY State Plane Easting
Tape_dep		Tapedown measurement from Main St. Bridge (feet)
Meas_flow		Measured flow at water column Transect WC001 (cubic feet/second)

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile

**Table A5-21  
Data Dictionary for riverflow\_trans**

**Data Table Description:** Flows estimated from pressure transducer measurements taken at the Main Street Bridge (1/1/1997 – 12/31/2000)

**Data Table Name:** riverflow\_trans

**Related Shapefile:** transflow\_locat.shp

**Shapefile Location:** \data\riverflow

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Location

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Location	*	Location identifier (MSB = Main St. Bridge)
Year		Sample year
Month		Sample month
Day		Sample day
Hour		Sample hour
Northing	*	Estimated 1983 NY State Plane Northing
Easting	*	Estimated 1983 NY State Plane Easting
Trans_dep		Pressure transducer reading (feet)
Temp		Water temperature (degrees Celsius)
Tape		Tapedown measurement (feet)
EQ		Estimated flow (cubic feet per second)

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile

**Table A5-22  
Data Dictionary for outfall\_storms**

**Data Table Description:** 1997 Storm event sampling

**Data Table Name:** outfall\_storms

**Related Shapefile:** outfall\_locat.shp

**Shapefile Location:** \data\outfalls\_tributaries

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Location

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (SRS = Supplemental Remedial Studies)
Lab		Laboratory where sample was analyzed (ATC =Alcoa Technical Center)
Lab_id		Laboratory identification number
Sample_id		Sample identification code
Dupe		Is there a duplicate sample? (DUP = yes, blank = no)
Type		Sample type (QA/QC = quality assurance/quality control, TOTAL = total unfiltered sample)
Description		Sample description (QA/QC = quality assurance/quality control, DISC = discrete)
Storm		Storm number
Year		Sample year
Month		Sample month
Day		Sample day
Hour		Sample hour
Location	*	Sample location (001 = Outfall 001, 004 = Outfall 004, 42I = 42-inch pipe, 30I = 30-inch pipe, UNT = Unnamed Tributary, 60A = 60-Acre Lagoon)
Northing	*	Estimated 1983 NY State Plane Northing (feet)
Easting	*	Estimated 1983 NY State Plane Easting (feet)
Flow		Flow (gallons/minute)
Temp		Water temperature (degrees Celsius)

*(continued)*

**Table A5-22**  
**Data Dictionary for outfall\_storms**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
TSS		Total Suspended Solids (milligrams/liter)
VSS		Volatile Suspended Solids (milligrams/liter)
POC		Particulate Organic Carbon (milligrams/liter)
Calib_corr		Calibration correction applied?
Bias_corr		Bias correction applied?
BZ_corr		BZ correction applied?
BZ_1 through BZ_209		BZ_# concentration, where # = numbers from 1 through 209 (nanograms/liter)
Tot_PCB_bz		BZ total PCB concentration (nanograms/liter)
Mono through Deca		#chlorinated biphenyl, where # = mono, di, tri, tetra, penta, hexa, hepta, octa, nona, and deca (weight percent)
Ortho		Ortho-chlorines per biphenyl
Meta		Meta-chlorines per biphenyl
Para		Para-chlorines per biphenyl
Clbp		Chlorines per biphenyl

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile

**Table A5-23  
Data Dictionary for resfish\_aro**

**Data Table Description:** 1991 RSI Phase I, 1993 RSI Phase II, 1995 Post-NTCRA, 1996-2002 TMS, and 1998-1999 YOY resident fish data (Aroclor)

**Data Table Name:** resfish\_aro

**Related Shapefiles:** resfish\_RSI1\_locat.shp,  
resfish\_RSI2\_TMS\_locat.shp,  
resfish\_RSI2\_TMS\_shiner\_locat.shp,  
resfish\_SRS\_locat.shp, resfish\_yoy\_locat.shp,  
resfish\_bbul\_smbs\_coords.shp

**Shapefile Location:** \data\biota

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Key (resfish\_bbul\_smbs\_coords.shp)  
Location (all other shapefiles)

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Key	*	Key identification for linking to Access database (Key = Year, Sample ID)
Survey		Survey name (RSI Phase I and Phase II = River and Sediment Investigation Phase I and II, Post-NTCRA = Post-Non-Time-Critical Removal Action, TMS = Trend Monitoring Survey, YOY = Young-of-the-Year Monitoring Program)
Year		Sample year
Month		Sample month
Day		Sample day
Lab_id		Laboratory identification code
Sample_id		Sample identification code (“_YOY” indicates young-of-year fish)
Lab		Lab where samples were analyzed (EEASC = Ecology and Environment Analytical Services Center, EnChem, HES = Hazelton Environmental Services, NEA = Northeast Analytical, Inc.)
Species		Species being analyzed (BBUL = Brown Bullhead, PKSD = Pumpkinseed, SHIN = Spottail Shiner, SMBS = Smallmouth Bass )
Tissue		Fish portion being analyzed (CARC = carcass, FILL = fillet, VISC = viscera, WHOL = whole fish)
Location	*	Location (BACK = Background, DS-ENA = Further downstream of Outfall 001, ENA = Downstream of Outfall 001, GR_UT = Unnamed Tributary, LOWR = Lower Stretch, MIDL = Middle Stretch, MOUTH = River Mouth for spottail shiner or Mouth Stretch for smallmouth bass and brown bullhead, OF001 = Near Outfall 001, PC = Power Canal, UPPR = Upper Stretch, RCH# = Reach Number)

*(continued)*

**Table A5-23**  
**Data Dictionary for resfish\_aro**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Northing		Estimated 1983 NY State Plane Northing (feet)
Easting		Estimated 1983 NY State Plane Easting (feet)
No_fish		Number of fish in composite
Min_length		Minimum length of fish (centimeters; applies to composite samples only)
Max_length		Maximum length of fish (centimeters; applies to composite samples only)
Length		Length of fish (centimeters)
Tiss_weight		Weight of tissue analyzed (grams)
Tot_weight		Total weight of fish (grams)
Per_lip		Percent lipids (%)
Calib_corr		Calibration correction applied?
Bias_corr		Bias correction applied?
BZ_corr		BZ correction applied?
A_1216 through A_1260		Aroclor_# concentration, where # = 1216, 1221, 1232, 1242, 1248, 1254, 1260 (milligrams/kilogram wet weight)
Tot_PCB_aro		Aroclor total PCB concentration (milligrams/kilogram wet weight)
Col_type		Column type used for analysis (DB1_cap = capillary, PCK_col = packed column)
Per_rec		Laboratory spike percent recovery (%)

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile
- (3) Negative numbers (other than -999) indicate the concentration was below the detection limit (DL), i.e. -124 means the concentration was less than the DL of 124 milligrams per kilogram wet-weight

**Table A5-24  
Data Dictionary for resfish\_bz**

**Data Table Description:** 1995 Post-NTCRA, 1996-1998 TMS, and 1999 YOY resident fish data (BZ)

**Data Table Name:** resfish\_bz

**Related Shapefiles:** resfish\_RSI1\_locat.shp,  
resfish\_RSI2\_TMS\_locat.shp,  
resfish\_RSI2\_TMS\_shiner\_locat.shp,  
resfish\_SRS\_locat.shp, resfish\_yoy\_locat.shp

**Shapefile Location:** \data\biota

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Location

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (Post-NTCRA = Post-Non-Time-Critical Removal Action, TMS = Trend Monitoring Surveys, YOY = Young-of-the-Year Monitoring Program)
Year		Sample year
Month		Sample month
Day		Sample day
Lab_id		Laboratory identification number
Sample_id		Sample identification number
Lab		Lab where sample was analyzed (ATC = Alcoa Technical Center)
Species		Species being analyzed (BBUL = Brown Bullhead, PKSD = Pumpkinseed, SHIN = Spottail Shiner, SMBS = Smallmouth Bass )
Tissue		Fish tissue being analyzed (CARC = carcass, FILL = fillet, WHOL = whole fish)
Location	*	Location (BACK = Background, DS-ENA = Further downstream of Outfall 001, ENA = Downstream of Outfall 001, LOWR = Lower Stretch, MIDL = Middle Stretch, MOUTH = River Mouth, UPPR = Upper Stretch)
Size		Fish size (HIGH = high, MED = medium, LOW = low)
No_fish		Number of fish in composite
Min_length		Minimum length of fish (centimeters; applies to composite samples only)
Max_length		Maximum length of fish (centimeters; applies to composite samples only)

*(continued)*

**Table A5-24**  
**Data Dictionary for resfish\_bz**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Length		Length of fish (centimeters)
Tiss_weight		Weight of tissue analyzed (grams)
Tot_weight		Total weight of fish (grams)
Per_lip		Percent lipids (%)
Calib_corr		Calibration correction applied?
Bias_corr		Bias correction applied?
BZ_corr		BZ correction applied?
BZ_1 through BZ_209		BZ_# concentration, where # = numbers 1 through 209 (milligrams/kilogram wet weight)
Tot_PCB_bz		BZ total PCB concentration (milligrams/kilogram wet weight)
Mono through Deca		#chlorinated biphenyl, where # = mono, di, tri, tetra, penta, hexa, hepta, octa, nona, deca (weight percent)
Ortho		Ortho-chlorines per biphenyl
Meta		Meta-chlorines per biphenyl
Para		Para-chlorines per biphenyl
Clbp		Chlorines per biphenyl

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile



**Table A5-25  
Data Dictionary for resfish\_peak**

**Data Table Description:** 1995 Pre-NTCRA, 1996 SRS, 1999-2002 TMS, and 1999 YOY resident fish data (peak)

**Data Table Name:** resfish\_peak

**Related Shapefiles:** resfish\_SRS\_locat.shp, resfish\_TMS\_locat.shp, resfish\_yoy\_locat.shp, resfish\_bbul\_smbs\_coords.shp

**Shapefile Location:** \data\biota

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Key (resfish\_bbul\_smbs\_coords.shp)  
Location (all other shapefiles)

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Key	*	Key identification for linking to Access database (Key = Year, Sample ID)
Survey		Survey name (Pre-NTCRA = Pre-Non-Time-Critical Removal Action , SRS = Supplemental Remedial Studies, TMS = Trend Monitoring Survey, YOY = Young-of-the-Year Monitoring Program)
Year		Sample year
Month		Sample month
Day		Sample day
Lab_id		Laboratory identification code
Sample_id		Sample identification number
Lab		Laboratory where sample was analyzed (NEA = Northeast Analytical, Inc.)
Species		Species being analyzed (BBUL = Brown Bullhead, SHIN = Spottail Shiner, SMBS = Smallmouth Bass)
Tissue		Fish portion being analyzed (CARC = carcass, FILL = fillet, WHOL = whole fish)
Location	*	Location (BACK = Background , DS001 = Downstream of Outfall 001, DS-ENA = Further downstream of Outfall 001, DSUT = Downstream of Unnamed Tributary, ENA = Downstream of Outfall 001, GR_UT = Unnamed Tributary, LOWR = Lower Stretch, MIDL = Middle Stretch, MOUTH = River Mouth for spottail shiner or Mouth Stretch for smallmouth bass and brown bullhead, OF001 = Near Outfall 001, PC = Power Canal, UPPR = Upper Stretch, US001 = Upstream of Outfall 001 , USUT = Upstream of Unnamed Tributary)

*(continued)*

**Table A5-25**  
**Data Dictionary for resfish\_peak**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Northing		Estimated 1983 NY State Plane Northing (feet)
Easting		Estimated 1983 NY State Plane Easting (feet)
Size		Fish size (LRG = large, MED = medium , SML = small)
No_fish		Number of fish in composite
Min_length		Minimum length of fish (centimeters; applies to composite samples only)
Max_length		Maximum length of fish (centimeters; applies to composite samples only)
Length		Length of fish (centimeters)
Tiss_weight		Weight of tissue analyzed (grams)
Tot_weight		Total weight of fish (grams)
Per_lip		Percent lipids (%)
Calib_corr		Calibration correction applied?
Bias_corr		Bias correction applied?
BZ_corr		BZ correction applied?
PK_1 through PK_118		PK_# concentration, where # = numbers 1 through 118 (milligrams/kilogram wet weight)
Tot_PCB_pk		Peak total PCB concentration (milligrams/kilogram wet weight)
Mono through Deca		#chlorinated biphenyl, where # = mono, di, tri, tetra, penta, hexa, hepta, octa, nona, deca (weight percent)
Ortho		Ortho-chlorines per biphenyl
Meta_Para		Sum of Meta-chlorines per biphenyl and Para-chlorines per biphenyl
Clbp		Chlorines per biphenyl

Comments:

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile

**Table A5-26  
Data Dictionary for art\_substrate**

**Data Table Description:** 1993 RSI Phase II and 1996 SRS Artificial Substrate Studies

**Data Table Name:** art\_substrate

**Related Shapefile:** artsubs\_locat.shp

**Shapefile Location:** \data\biota

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Transect

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (RSI Phase II = River and Sediment Investigation Phase II, SRS = Supplemental Remedial Studies)
Year		Sample year
Month		Sample month
Day		Sample day
Transect	*	Transect number
Location		Location (A, B, total)
Chironomidae through Acari		Number of species identified <sup>3, 4</sup>
Tot_indiv		Total number of individuals identified
Tot_taxa		Total number of taxa identified

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile
- (3) Species listed (50): Chironomidae, Athericidae, Ceratopogenidae, Molannidae, Polycentropodidae, Leptoceridae, Hydroptilidae, Brachycentridae, Hydropsychidae, Ephemeridae, Heptagenidae, Caenidae, Baetidae, Baetiscidae, Leptophlebiidae, Oligoneuriidae, Tricorythidae, Zygoptera\_coen, Anisoptera\_mac, Anisoptera\_cord, Slalidae, Elmidae\_larva, Elmidae\_adult, Taeniopterygidae, Pyralidae, Asellidae, Gammaridae, Crangonyctidae, Sididae, Daphniidae, Collembola, Hydracarina, Oligochaeta\_misc, Tubificidae, Naididae, Hirudinea, Hirudinoidinea, Tubellaria, Dugesidae, Pelecypoda, Planorbidae, Physidae, Lynnaeidae, Ancyliidae, Dreissenacea, Sphaeriidae, Unionacea, Valvatidae, Nematoda, Acari.
- (4) Note: inconsistencies between species name on file and species name listed here are due to an 11 character maximum field limit. Species names on file have been shortened to 11 characters long.

**Table A5-27  
Data Dictionary for benthic\_comm**

**Data Table Description:** 1993 RSI Phase II, 1996 SRS and 1998 PBTS benthic community studies

**Data Table Name:** benthic\_comm

**Related Shapefile:** benthic\_locat.shp

**Shapefile Location:** \data\biota

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Transect

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (PBTS = Particle Broadcasting Treatability Study, RSI Phase II = River and Sediment Investigation Phase II, SRS= Supplemental Remedial Studies)
Year		Sample year
Month		Sample month
Day		Sample day
Transect	*	Transect number
Location		Location (A1-3, B1-3, C1-5, N1-5, S1-5, total)
Chironomidae through Acari		Number of species identified <sup>3, 4</sup>
Tot_indiv		Total number of individuals identified
Tot_taxa		Total number of taxa identified

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile
- (3) Species listed (51): Chironomidae, Athericidae, Ceratopogenidae, Molannidae, Polycentropodidae, Leptoceridae, Hydroptilidae, Brachycentridae, Hydropsychidae, Ephemeridae, Heptagenidae, Caenidae, Baetidae, Baetiscidae, Leptophlebiidae, Oligoneuriidae, Tricorythidae, Zygoptera\_coen, Anisoptera\_mac, Anisoptera\_cord, Slalidae, Elmidae\_larva, Elmidae\_adult, Elmidae, Taeniopterygidae, Pyralidae, Asellidae, Gammaridae, Crangonyctidae, Sididae, Daphniidae, Collembola, Hydracarina, Oligochaeta\_misc, Tubificidae, Naididae, Hirudinea, Hirudinoidinea, Tubellaria, Dugesidae, Pelecypoda, Planorbidae, Physidae, Lynnaeidae, Ancyliidae, Dreissenacea, Sphaeriidae, Unionacea, Valvatidae, Nematoda, Acari.
- (4) Note: inconsistencies between species name on file and species name listed here are due to an 11 character maximum field limit. Species names on file have been shortened to 11 characters long.

**Table A5-28**  
**Data Dictionary for pelagic\_comm**

**Data Table Description:** 1998 PBTS Pelagic Community Study

**Data Table Name:** pelagic\_comm

**Related Shapefile:** pelagic\_locat.shp

**Shapefile Location:** \data\biota

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Transect

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (PBTS = Particle Broadcasting Treatability Study)
Year		Sample year
Month		Sample month
Day		Sample day
Transect	*	Transect number
Location		Sample location across transect (north, center, south, total)
Chironomidae through Acari		Number of species identified <sup>3, 4</sup>
Tot_indiv		Total number of individuals identified
Tot_taxa		Total number of taxa identified

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile
- (3) Species listed (51): Chironomidae, Athericidae, Ceratopogenidae, Molannidae, Polycentropodidae, Leptoceridae, Hydroptilidae, Brachycentridae, Hydropsychidae, Ephemeridae, Heptagenidae, Caenidae, Baetidae, Baetiscidae, Leptophlebiidae, Oligoneuriidae, Tricorythidae, Zygoptera\_coen, Anisoptera\_mac, Anisoptera\_cord, Slalidae, Elmidae\_larva, Elmidae\_adult, Elmidae, Taeniopterygidae, Pyralidae, Asellidae, Gammaridae, Crangonyctidae, Sididae, Daphniidae, Collembola, Hydracarina, Oligochaeta\_misc, Tubificidae, Naididae, Hirudinea, Hirudinoidinea, Tubellaria, Dugesiiidae, Pelecypoda, Planorbidae, Physidae, Lynnaeidae, Ancyliidae, Dreissenacea, Sphaeriidae, Unionacea, Valvatidae, Nematoda, Acari.
- (4) Note: inconsistencies between species name on file and species name listed here are due to an 11 character maximum field limit. Species names on file have been shortened to 11 characters long.

**Table A5-29  
Data Dictionary for mussel\_aro**

**Data Table Description:** 1998 SRS caged mussel data (Aroclor)

**Data Table Name:** mussel\_aro

**Related Shapefile:** mussel\_locat.shp

**Shapefile Location:** \data\biota

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Transect

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (SRS = Supplemental Remedial Studies)
Lab		Laboratory where samples were analyzed (NEA = Northeast Analytical, Inc.)
Lab_id		Laboratory identification code
Sample_id		Sample identification code
Year		Sample year
Month_depl		Month sample was deployed
Day_depl		Day sample was deployed
Month_retr		Month sample was retrieved
Day_retr		Day sample was retrieved
Duration		Number of days mussels remained in River
Transect	*	Transect number
Wc_dep		Water depth (feet)
Cage_dep		Cage depth (feet)
No_mussel		Number of mussels in composite
Weight		Total weight (grams)
Tissue		Mussel tissue analyzed

*(continued)*

**Table A5-29**  
**Data Dictionary for mussel\_aro**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Per_lipid		Percent lipids (%)
A_1016 through A_1260		Aroclor_# concentration, where # = 1016, 1221, 1232, 1242, 1248, 1254, 1260 (nanograms/gram dry weight)
Tot_PCB_aro		Aroclor total PCB concentration (nanograms/gram dry weight)

***Comments:***

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile
- (3) Negative numbers (other than -999) indicate the concentration was below the detection limit (DL), i.e. -124 means the concentration was less than the DL of 124 nanograms/gram dry weight

**Table A5-30**  
**Data Dictionary for mussel\_bz**

**Data Table Description:** 1998 SRS caged mussel data (BZ)

**Data Table Name:** mussel\_bz

**Related Shapefile:** mussel\_locat.shp

**Shapefile Location:** \data\biota

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Transect

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (SRS = Supplemental Remedial Studies)
Lab		Laboratory where samples were analyzed (ATC = Alcoa Technical Center)
Lab_id		Laboratory identification code
Sample_id		Sample identification code
Year		Sample year
Month_depl		Month sample was deployed
Day_depl		Day sample was deployed
Month_retr		Month sample was retrieved
Day_retr		Day sample was retrieved
Duration		Number of days mussel remained in River
Transect	*	Transect number
Wc_dep		Water depth (feet)
Cage_dep		Cage depth (feet)
Tissue		Mussel tissue analyzed
Weight		Total weight (grams)
Per_lipid		Percent lipids (%)
BZ_1 through BZ_209		BZ_# concentration, where # = numbers 1 through 209 (nanograms/gram dry weight)

*(continued)*



**Table A5-30**  
**Data Dictionary for mussel\_bz**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Tot_PCB_bz		BZ total PCB concentration (nanograms/gram dry weight)
Mono through Deca		#chlorinated biphenyl, where # = mono, di, tri, tetra, penta, hexa, hepta, octa, nona, deca (weight percent)
Ortho		Ortho-chlorines per biphenyl
Meta		Meta-chlorines per biphenyl
Para		Para-chlorines per biphenyl
Clbp		Chlorines per biphenyl

***Comments:***

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile

**Table A5-31  
Data Dictionary batch\_equil**

**Data Table Description:** Batch equilibrium study performed by Carnegie Mellon University

**Data Table Name:** batch\_equil

**Related Shapefile:** N/A

**Shapefile Location:** N/A

**Shapefile Source:** N/A

**Key Item:** N/A

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (SRS = Supplemental Remedial Studies)
PInv		Principal Investigator (CMU = Carnegie Mellon University)
Lab		Laboratory where sample was analyzed (ATC = Alcoa Technical Center)
Month		Sample month
Day		Sample day
Year		Sample year
Column		Column number
Sample_id		Sample identification code
Sed_mix		Sediment mixture (BS2, BS3, BS2:BS1, BS3:BS1,BS3:GAC)
Drywt_ratio		Dry weight ratio of sediment mixture
Type		Sample type (water, blank)
BZ_corr		BZ correction applied?
BZ_1 through BZ_209		BZ_# concentration, where # = numbers 1 through 209 (nanograms/liter)
Tot_PCB_bz		BZ total PCB concentration (nanograms/liter)
Mono through Deca		#chlorinated biphenyl, where # = mono, di, tri, tetra, penta, hexa, hepta, octa, nona, and deca (weight percent)
Ortho		Ortho-chlorines per biphenyl

*(continued)*

**Table A5-31**  
**Data Dictionary batch\_equil**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Meta		Meta-chlorines per biphenyl
Para		Para-chlorines per biphenyl
Clbp		Chlorines per biphenyl

***Comments:***

(1) -999 indicates parameter not measured

**Table A5-32**  
**Data Dictionary for column\_flux**

**Data Table Description:** Column flux studies performed at Carnegie Mellon University

**Data Table Name:** column\_flux

**Related Shapefile:** N/A

**Shapefile Location:** N/A

**Shapefile Source:** N/A

**Key Item:** N/A

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (SRS = Supplemental Remedial Studies)
PInv		Principal Investigator (CMU = Carnegie Mellon University)
Lab		Laboratory where sample was analyzed (ATC = Alcoa Technical Center)
Month		Sample month
Day		Sample day
Year		Sample year
Column		Column identification number
Sed_mix		Sediment mixture (BS1, BS2, BS3, BS2:BS1, BS3:BS1, BS3:GSC)
Drywt_ratio		Dry weight ratio of sediment mixture
Type		Sample type (blank, water)
BZ_corr		BZ correction applied?
BZ_1 through BZ_209		BZ_# concentration, where # = numbers 1 through 209 (nanograms/liter)
Tot_PCB_bz		BZ total PCB concentration (nanograms/liter)
Mono through Deca		#chlorinated biphenyl, where # = mono, di, tri, tetra, penta, hexa, hepta, octa, nona, deca. (weight percent)
Ortho		Ortho-chlorines per biphenyl
Meta		Meta-chlorines per biphenyl

*(continued)*

**Table A5-32**  
**Data Dictionary for column\_flux**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Para		Para-chlorines per biphenyl
Clbp		Chlorines per biphenyl

***Comments:***

(1) -999 indicates parameter not measured

**Table A5-33  
Data Dictionary for dye\_study**

**Data Table Description:** 1997 SRS dye study

**Data Table Name:** dye\_study

**Related Shapefile:** dyestudy\_locat.shp

**Shapefile Location:** \data\water\_qual

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Transect

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Name of Survey (SRS = Supplemental Remedial Studies)
Year		Sample year
Month		Sample month
Day		Sample day
Hour		Sample hour
Transect	*	Transect number (D5A = outfall 001 mixing basin)
Station		Station identifier, N = north, M = middle, S = south, INCURT = inside outfall 001 curtain, SHPILE = inside outfall 001 sheet piling)
Wc_dep		Water column depth (feet)
Type		Sample type (DISC = discrete, GRAB = grab)
Sample_dep		Sample depth (feet)
Cond		Specific conductivity (milliSiemens/centimeter)
Temp		Water temperature (degrees Celsius)
Dye		Dye concentration (micrograms/liter)

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile

**Table A5-34  
Data Dictionary for water\_aro**

**Data Table Description:** 1995 during-NTCRA water data (Aroclor)

**Data Table Name:** water\_aro

**Related Shapefiles:** water\_NTCRA\_locat.shp

**Shapefiles Location:** \data\water\_qual

**Shapefile Source:** BBL

**Key Item:** Location

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (During-NTCRA = During-Non-Time-Critical Removal Action)
Lab		Laboratory where samples were analyzed (Alcoa = Alcoa Technical Center.)
Type		Sample type (TOTAL = total, unfiltered)
Description		Sample description (DISC = Discrete
Year		Sample year
Month		Sample month
Day		Sample day
Hour		Sample hour
Location	*	Sample collection location
TSS		Total Suspended Solids (milligrams/liter)
Turb		Turbidity (nephelometric turbidity units)
Tot_PCB_aro		Aroclor total PCB concentration (nanograms/liter)
Comments		Comments from field or laboratory

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile
- (3) Negative numbers (other than -999) indicate the concentration was below the detection limit (DL), i.e. -65 means the concentration was less than the DL of 65 nanograms per liter
- (4) All local water samples were collected at 0.8 times the total water depth.
- (5) At WC006.5 on 8/16, turbidity was reported as 2-3 NTU; it is listed as 2.5 in the database.  
At WC006.5 on 8/18, turbidity was reported as 3-4 NTU; it is listed as 3.5 in the database.

**Table A5-35  
Data Dictionary for water\_bz**

**Data Table Description:** 1995 Pre-, During-, and Post- NTCRA and 1997 Supplemental Remedial Studies water column data (BZ)

**Data Table Name:** water\_bz

**Related Shapefile:** water\_locat.shp

**Shapefile Location:** \data\water\_qual

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Transect

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (Pre-NTCRA = Pre-Non-Time-Critical Removal Action, SRS = Supplemental Remedial Studies)
Lab		Lab where sample was analyzed (ATC = Alcoa Technical Center)
Sample_id		Sample identification number
Type		Sample type (QAQC = quality assurance/quality control, DISS = dissolved, TOTAL = total, unfiltered)
Description		Sample description (QAQC = quality assurance/quality control, COMP = composite)
Round		Sampling round (PRE = Pre-Non-Time-Critical Removal Action, DURING = During-Non-Time-Critical Removal Action, POST = Post-Non-Time-Critical Removal Action, RM = Routine Monitoring, STORM = Storm Sampling)
Year		Sample year
Month		Sample month
Day		Sample day
Transect	*	Transect number
Rmile		River mile estimated from confluence of Grasse and St. Lawrence Rivers
Temp		Water temperature (degrees Celsius)
Turb		Turbidity (nephelometric turbidity units)
PH		pH (standard units)
Cond		Specific conductivity (milliSiemens/centimeter)

*(continued)*



**Table A5-35**  
**Data Dictionary for water\_bz**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
TSS		Total Suspended Solids (milligrams/liter)
TOC		Total Organic Carbon (milligrams/liter)
DOC		Dissolved Organic Carbon (milligrams/liter)
POC		Particulate Organic Carbon (milligrams/liter)
Chl_a		Chlorophyll a (micrograms/liter)
DO		Dissolved Oxygen (milligrams/liter)
BZ_corr		BZ correction applied?
BZ_1 through BZ_209		BZ_# concentration, where # = numbers 1 through 209 (nanograms/liter)
Tot_PCB_bz		BZ total PCB concentration (nanograms/liter)
Mono through Deca		#chlorinated biphenyl, where # = mono, di, tri, tetra, penta, hexa, hepta, octa, nona, and deca (weight percent)
Ortho		Ortho-chlorines per biphenyl
Meta		Meta-chlorines per biphenyl
Para		Para-chlorines per biphenyl
Clbp		Chlorines per biphenyl

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile

**Table A5-36  
Data Dictionary for water\_field**

**Data Table Description:** 1997-2002 Field Water Quality Measurements

**Data Table Name:** water\_field

**Related Shapefile:** water\_locat.shp

**Shapefile Location:** \data\water\_qual

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Transect

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Year		Sample year
Month		Sample month
Day		Sample day
Start_hour		Hour sampling started
End_hour		Hour sampling ended (applicable only to composited samples collected during solids monitoring)
Survey		Survey name (FLOAT = Float Survey, SRS = Supplemental Remedial Studies)
Type		Sample type (COMP = composite, DISC = discrete, FIELD = field)
Round		Sampling round (FLOAT = Float Survey, RM = Routine Monitoring, STORM = Storm sampling, INT = Intensive Survey, TSS = Solids Monitoring)
Transect	*	Transect number
Rmile		River mile estimated from confluence of Grasse and St. Lawrence Rivers
Wc_dep		Depth of water (feet)
Sample_dep		Depth of sample (feet)
Temp		Temperature (degrees Celsius)
Cond		Specific conductivity (milliSiemens/centimeter)
PH		pH (standard units)
Turb		Turbidity (nephelometric turbidity units)

*(continued)*

**Table A5-36**  
**Data Dictionary for water\_field**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
DO		Dissolved Oxygen (milligrams/liter)
TSS		Total Suspended Solids (milligrams/liter)

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile
- (3) Descriptions of transects are as follows:

<b>Transect</b>	<b>Description</b>
WC-<transect #>	Water column sampling transect (with designation of 0.2 or 0.8 times water depth if applicable)
<transect #>M	Sediment probing transect - middle (1/2 of river width from north shore)
<transect #>N	Sediment probing transect - north (1/4 of river width from north shore)
<transect #>S	Sediment probing transect - south (3/4 of river width from north shore)

- (4) During some SRS rounds in 2001 and all rounds in 2002, field data were collected at water column Transect WC001 instead of water column Transect WCMSB due to safety issues.

**Table A5-37**  
**Data Dictionary for water\_iupac**

**Data Table Description:** 1998-2002 SRS water column samples (IUPAC)

**Data Table Name:** water\_iupac

**Related Shapefile:** water\_locat.shp

**Shapefile Location:** \data\water\_qual

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Transect

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Year		Sample year
Month		Sample month
Day		Sample day
Hour		Sample hour
Survey		Survey name (FLOAT = Float Survey, SRS = Supplemental Remedial Studies)
Lab		Laboratory where sample was analyzed (NEA = Northeast Analytical, Inc.)
Lab_id		Laboratory identification code
Sample_id		Sample identification code
Type		Sample type (QAQC = quality assurance/quality control, TOTAL = total, unfiltered)
Description		Sample description (COMP = composite, DISC = Discrete, QAQC = quality assurance/quality control)
Round		Sampling round (FLOAT = Float Survey, RM = Routine Monitoring, STORM = Storm Sampling, INT = Intensive Survey)
Transect	*	Transect number
Rmile		River mile estimated from confluence of Grasse and St. Lawrence Rivers
Wc_depth		Water column depth (feet)
Sample_dep		Sample depth (feet)
Temp		Water temperature (degrees Celsius)
Cond		Specific conductivity (milliSiemens/centimeter)
PH		PH (standard units)

*(continued)*

**Table A5-37**  
**Data Dictionary for water\_iupac**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Turb		Turbidity (nephelometric turbidity units)
DO		Dissolved Oxygen (milligrams/liter)
POC		Particulate Organic Carbon (milligrams/liter)
TSS		Total Suspended Solids (milligrams/liter)
Iupac_1 through Iupac_209		Iupac_# concentration, where # = numbers 1 through 209 (nanograms/liter)
Tot_PCB_iupac		Iupac total PCB concentration (nanograms/liter)
Mono through Deca		#chlorinated biphenyl, where # = mono, di, tri, tetra, penta, hexa, hepta, octa, nona, and deca (weight percent)
Ortho		Ortho-chlorines per biphenyl
Meta		Meta-chlorines per biphenyl
Para		Para-chlorines per biphenyl
Clbp		Chlorines per biphenyl
Surr_per		Percent surrogate recovered (%)

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile
- (3) Descriptions of transects are as follows:

<b>Transect</b>	<b>Description</b>
WC-<transect #>	Water column sampling transect (with designation of 0.2 or 0.8 times water depth if applicable)
<transect #>M	Sediment probing transect - middle (1/2 of river width from north shore)
<transect #>N	Sediment probing transect - north (1/4 of river width from north shore)
<transect #>S	Sediment probing transect - south (3/4 of river width from north shore)

*(continued)*

**Table A5-37**  
**Data Dictionary for water\_iupac**  
**(continued)**

- (4) Float survey samples from 2001 are depth integrated composites.
- (5) During 2001, field data were collected at water column Transect WC001 and PCB samples were collected at water column Transect WCMSB during most odd numbered sampling round due to safety issues. The field data listed with the MSB sample are those from water column Transect WC001.
- (6) During 2002, field data were collected at water column Transect WC001 and PCB samples were collected at water column Transect WCMSB due to safety issues. The field data listed with the MSB sample are those from water column Transect WC001.

**Table A5-38  
Data Dictionary for water\_peak**

**Data Table Description:** 1996 SRS Water Column Samples (peak)

**Data Table Name:** water\_peak

**Related Shapefile:** water\_locat.shp

**Shapefile Location:** \data\water\_qual

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Transect

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (SRS = Supplemental Remedial Studies)
Lab		Laboratory where sample was analyzed (NEA = Northeast Analytical Inc.)
Lab_id		Laboratory identification code
Sample_id		Sample identification code
Dupe		Is there a duplicate sample? (DUP = yes, blank = no)
Type		Sample type (QAQC = quality assurance/quality control, DISS = dissolved, TOTAL = total, unfiltered)
Description		Sample type (QAQC = quality assurance/quality control, COMP = composite, DISC = discrete)
Round		Sample round (STORM = Storm Sampling, RM = Routine Monitoring)
Year		Sample year
Month		Sample month
Day		Sample day
Transect	*	Transect number
Rmile		River mile estimated from confluence of Grasse and St. Lawrence Rivers
Temp		Water temperature (degrees Celsius)
Turb		Turbidity (nephelometric turbidity units)
PH		pH (standard units)
Cond		Specific conductivity (milliSiemens/centimeter)

*(continued)*

**Table A5-38**  
**Data Dictionary for water\_peak**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
TSS		Total Suspended Solids (milligrams/liter)
VSS		Volatile Suspended Solids (milligrams/liter)
TOC		Total Organic Carbon (milligrams/liter)
DOC		Dissolved Organic Carbon (milligrams/liter)
POC		Particulate Organic Carbon (milligrams/liter)
Chl_a		Chlorophyll a (micrograms/liter)
Calib_corr		Calibration correction applied?
Bias_corr		Bias correction applied?
BZ_corr		BZ correction applied?
PK_1 through PK_118		PK_# concentration, where # = numbers 1 through 118 (nanograms/liter)
Tot_PCB_pk		Peak total PCB concentration (nanograms/liter)
Mono through Deca		#chlorinated biphenyl where # = mono, di, tri, tetra, penta, hexa, hepta, octa, nona, deca (weight percent)
Ortho		Ortho-chlorines per biphenyl
Meta_Para		Meta-chlorines per biphenyl and Para-chlorines per biphenyl
Clbp		Chlorines per biphenyl

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile



**Table A5-39  
Data Dictionary for gw\_seepage**

**Data Table Description:** Fall 1998 and Spring 1999 groundwater seepage measurements

**Data Table Name:** gw\_seepage

**Related Shapefile:** gw\_seepage\_locat.shp

**Shapefile Location:** \data\water\_qual

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Key

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Year		Sample year
Month_depl		Month water collection bag was deployed
Day_depl		Day water collection bag was deployed
Month_retr		Month water collection bag was retrieved
Day_retr		Day water collection bag was retrieved
Duration		Number of days water collection bag remained in River
Round		Round number
Transect	*	Transect
Location		Location along transect
Meter		Meter identification for paired groundwater seepage meters
Gw_flux		Groundwater flux (liter per square meter per day)

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile

**Table A5-40  
Data Dictionary for spmd\_bz**

**Data Table Description:** 1995 Pre-/Post-NTCRA, 1997-99 SRS, and 2001-02 SRS SPMD samples (BZ)

**Data Table Name:** spmd\_bz

**Related Shapefile:** spmd\_locat.shp

**Shapefile Location:** \data\water\_qual

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Transect

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Name of survey (Pre-/Post-NTCRA = Pre-/Post- Non-Time-Critical Removal Action, SRS = Supplemental Remedial Studies)
Lab		Laboratory where sample was analyzed (ATC = Alcoa Technical Center)
Lab_id		Laboratory identification number
Sample_id		Sample identification code
Dupe		Is there a duplicate? (DUP = yes, blank = no)
Transect	*	Transect (DS-FAR/NEAR = downstream farshore/nearshore, US-FAR/NEAR = upstream farshore/nearshore)
Set		Sampling set (Pre-Non-Time-Critical Removal Action, POST = Post-Non-Time-Critical Removal Action, RM = Routine Monitoring)
Rmile		River mile estimated from confluence of Grasse and St. Lawrence Rivers
Wc_dep		Water column depth (feet)
Sample_dep		Sample depth (feet)
Year		Sample year
Month_depl		Month sample was deployed
Day_depl		Day sample was deployed
Month_retr		Month sample was retrieved
Day_retr		Day sample was retrieved
Duration		Number of days SPMDs remained in River
Calib_corr		Calibration correction applied?

*(continued)*

**Table A5-40**  
**Data Dictionary for spmd\_bz**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Bias_corr		Bias correction applied?
BZ_corr		BZ correction applied?
BZ_1 through BZ_209		BZ_# mass, where # = numbers 1 through 209 (nanograms/SPMD)
Tot_PCB_bz		BZ total PCB mass (nanograms/SPMD)
Mono through Deca		#chlorinated biphenyl, where # = mono, di, tri, tetra, penta, hexa, hepta, octa, nona, deca (weight percent)
Ortho		Ortho-chlorines per biphenyl
Meta		Meta-chlorines per biphenyl
Para		Para-chlorines per biphenyl
Clbp		Chlorines per biphenyl
Surr_spk		Surrogate spike (nanograms)
Surr_rec		Surrogate recovered (nanograms)
Surr_per		Percent surrogate recovered (%)

**Comments:**

- (3) -999 indicates parameter not measured
- (4) \* designates fields included within attribute table of shapefile

**Table A5-41  
Data Dictionary for spmd\_peak**

**Data Table Description:** 1996 SRS SPMD samples (peak)

**Data Table Name:** spmd\_peak

**Related Shapefile:** spmd\_locat.shp

**Shapefile Location:** \data\water\_qual

**Shapefile Source:** Imported by hand at QEA

**Key Item:** Transect

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey		Survey name (SRS = Supplemental Remedial Studies)
Lab		Laboratory where sample was analyzed (NEA = Northeast Analytical, Inc.)
Lab_id		Laboratory identification number
Sample_id		Sample identification code
Transect	*	Transect number (DS-FAR/NEAR = downstream farshore/nearshore, US-FAR/NEAR =upstream farshore/nearshore)
Rmile		River mile estimated from confluence of Grasse and St. Lawrence Rivers
Set		Sampling set (RM = Routine Monitoring)
Year		Sample year
Month_depl		Month sample was deployed
Day_depl		Day sample was deployed
Month_retr		Month sample was retrieved
Day_retr		Day sample was retrieved
Duration		Number of days SPMDs remained in River
Wc_dep		Water column depth (feet)
Sample_dep		Depth of sample (feet)
Calib_corr		Calibration correction applied?
Bias_corr		Bias correction applied?

*(continued)*

**Table A5-41**  
**Data Dictionary for spmd\_peak**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
BZ_corr		BZ correction applied?
PK_1 through PK_118		PK_# mass, where # = numbers 1 through 118 (nanograms/SPMD)
Tot_PCB_peak		Peak total PCB mass (nanograms/SPMD)
Mono through Deca		#chlorinated biphenyl, where # = mono, di, tri, tetra, penta, hexa, hepta, octa, nona, deca (weight percent)
Ortho		Ortho-chlorines per biphenyl
Meta_Para		Sum of Meta-chlorines per biphenyl and Para-chlorines per biphenyl
Clbp		Chlorines per biphenyl

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile

**Table A5-42  
Data Dictionary for sed\_probe**

**Data Table Description:** 1992 and 2001 sediment probing data

**Data Table Name:** sed\_probe      **Related Shapefile:** sed\_probe\_locat.shp

**Shapefile Location:** \data\sed\_qual      **Shapefile Source:** BBL

**Key Item:** Point\_ID

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Survey	*	Survey name
Point_id	*	Sample identification code to link data with characterization data in sediment_char
Year	*	Sample year
Transect	*	Sediment probing transect number (Transect = transect # + distance downstream of transect in feet)
Northing	*	1983 NY State Plane Northing (feet)
Easting	*	1983 NY State Plane Easting (feet)
Water_elev	*	Water elevation (feet)
Sed_elev	*	Sediment elevation (feet)
Dist_from_NS	*	Distance from north shore (feet)
Water_dep	*	Depth of water (feet)
SS_dep	*	Depth of soft sediment (feet)
Comments	*	Notes reported by field crew

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile
- (3) Sample endings for the "Point\_id" indicate the following:
  - "A"** –northern shore
  - "B"** –southern shore
  - "EWA"** – edge of water
  - "BB"** – southern bank
  - "(SAMPLE)"** – core collected for grain size, % solids, and bulk density analyses; see sediment\_char
- (4) Water and sediment elevations based on USLS 35

**Table A5-43**  
**Data Dictionary for sediment\_aro**

**Data Table Description:** 1991 RSI Phase I, 1993 RSI Phase II, 1995 Pre-NTCRA, 1997 SRS, 2000-2001 SSS, and 2001 Pre-Capping sediment data (Aroclor)

**Data Table Name:** sediment\_aro                      **Related Shapefiles:** sediment\_aro\_locat.shp

**Shapefiles Location:** \data\sed\_qual                      **Shapefile Source:** BBL

**Key Item:** Key

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Year	*	Sample year
Month	*	Sample month
Day	*	Sample day
Key	*	Key identification for linking to Access database (Key = Sample_id, Start_dep, End_dep)
Survey	*	Survey name (SRS = Supplemental Remedial Studies, RSI Phase I/ RSI Phase II = River and Sediment Investigation Phase I/Phase II, Pre-NTCRA = Pre-Non-Time-Critical Removal Action, SSS = Supplemental Sediment Sampling, Pre-Capping = prior to Capping Pilot Study)
Lab		Laboratory where samples were analyzed (EEASC = Ecology and Environment Analytical Services Center, ITAS =IT Analytical Services, NEA = Northeast Analytical, Inc.)
Lab_id		Laboratory identification number
Sample_id	*	Sample identification code
Type	*	Sample type (core or grab)
Rmile		River mile estimated from confluence of Grasse and St. Lawrence Rivers
Northing	*	1983 NY State Plane Northing (feet)
Easting	*	1983 NY State Plane Easting (feet)
Loc_est		Northing and Easting estimated? (EST = estimated, REC = recorded)
Start_dep	*	Starting depth of sample

*(continued)*

**Table A5-43**  
**Data Dictionary for sediment\_aro**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
End_dep	*	Ending depth of sample
Dep_units	*	Units of depth of measured sample
A_1016 through A_1260		Aroclor_# concentration, where # = 1016, 1221, 1232, 1242, 1248, 1254, 1260 (milligrams/kilogram dry weight)
Tot_PCB_aro		Aroclor total PCB concentration (milligrams/kilogram dry weight)
Ar		Arsenic (milligrams/kilogram dry weight)
Cyn		Cyanide (milligrams/kilogram dry weight)
Tot_Fl		Total Fluoride (milligram/kilogram dry weight)
Sol_Fl		Soluble Fluoride (milligram/kilogram dry weight)
Al		Aluminum (milligram/kilogram dry weight)
Cd		Cadmium (milligram/kilogram dry weight)
Pb		Lead (milligram/kilogram dry weight)
Diox		Dioxins (milligram/kilogram dry weight)
Fur		Furans (milligram/kilogram dry weight)
TEF		Toxicity Equivalence Factors
PAH		Polycyclic Aromatic Hydrocarbons (milligram/kilogram dry weight)
Benz		Benzenes (milligram/kilogram dry weight)
Org_matter		Organic matter (milligram/kilogram dry weight)
TOC		Total Organic Carbon (milligram/kilogram dry weight)
Soil_type		Physical description of sediment sample
Oil_gr		Oil and grease (milligram/kilogram dry weight)

*(continued)*



**Table A5-43**  
**Data Dictionary for sediment\_aro**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
PH		pH (standard units)
Spec_grav		Specific gravity
Per_solids		Percent solids (%)
Cs_137		Cesium-137 (picoCurie/gram dry weight)
Be_7		Berillium-7 (picoCurie/gram dry weight)
B_dens		Bulk density (grams/milliliter)
Per_moist		Percent moisture (%)
Per_rec		Laboratory spike percent recovery (%)
Notes		Notation of data qualifiers, if applicable

**Comments:**

- (1) -999 indicates parameter not measured
- (5) \* designates fields included within attribute table of shapefile
- (6) Negative numbers (other than -999) indicate the concentration was below the detection limit (DL), i.e. -124 means the concentration was less than the DL of 124 milligrams per kilogram dry-weight

**Table A5-44  
Data Dictionary for sediment\_bz**

**Data Table Description:** 1993 RSI Phase II, 1995 Pre- and Post-NTCRA, 1997-98 SRS, 2000-2001 SSS, and 2001 Pre-Capping sediment data (BZ)

**Data Table Name:** sediment\_bz

**Related Shapefile:** sediment\_bz\_locat.shp

**Shapefile Location:** \data\sed\_qual

**Shapefile Source:** BBL

**Key Item:** Key

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Year	*	Sample year
Month	*	Sample month
Day	*	Sample day
Key	*	Key identification for linking to Access database (Key = Sample_id, Start_dep, End_dep)
Survey	*	Name of survey (NTCRA = Non-Time-Critical Removal Action, RSI Phase II = River and Sediment Investigation Phase II, SRS = Supplemental Remedial Studies, SSS = Supplemental Sediment Sampling, Pre-Capping = prior to Capping Pilot Study)
Lab		Laboratory where samples were analyzed (ATC = Alcoa Technical Center, NEA = Northeast Analytical, Inc., TBE = Teledyne-Brown Engineering)
Sample_id	*	Sample identification code
Type	*	Sample type (QA/QC = quality assurance/quality control, core, grab)
Rmile		River mile estimated from confluence of Grasse and St. Lawrence Rivers
Northing	*	1983 NY State Plane Northing (feet)
Easting	*	1983 NY State Plane Easting (feet)
Loc_est		Northing and Easting estimated? (EST = estimated, REC = recorded)
Start_dep	*	Starting depth of sample
End_dep	*	Ending depth of sample
Dep_units	*	Units of depth of sample

*(continued)*

**Table A5-44**  
**Data Dictionary for sediment\_bz**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
TOC		Total organic carbon (milligrams/kilogram dry weight)
B_dens		Bulk density (grams/milliliter)
Per_moist		Percent moisture (%)
Per_solids		Percent solids (%)
BZ_corr		BZ correlation applied?
BZ_1 through BZ_209		BZ_# concentration, where # = numbers 1 through 209 (milligrams/kilogram dry weight)
Tot_PCB_bz		BZ total PCB concentration (milligrams/kilogram dry weight)
Mono through Nona		#chlorinated biphenyl, where # = mono, di, tri, tetra, penta, hexa, hepta, octa, nona (weight percent)
Meta		Meta-chlorines per biphenyl
Para		Para-chlorines per biphenyl
Clbp		Chlorines per biphenyl
Biphenyl		Biphenyl concentration (milligram/kilogram dry weight)
Cs_137		Cesium-137 (picoCurie/gram dry weight)
Be_7		Berillium-7 (picoCurie/gram dry weight)
Pb_210		Lead-210 (picoCurie/gram dry weight)
Per_rec		Laboratory spike percent recovery (%)

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile

**Table B5-45  
Data Dictionary for sediment\_char**

**Data Table Description:** 2001 sediment physical characterization

**Data Table Name:** sediment\_char                      **Related Shapefiles:** sediment\_char\_locat.shp

**Shapefiles Location:** \data\sed\_qual                      **Shapefile Source:** BBL

**Key Item:** Sample\_id

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Year		Sample year
Month		Sample month
Day		Sample day
Survey		Survey name
Lab		Laboratory where samples were analyzed (CDM/NEA = Camp, Dresser & McKee, Inc. for grain size and Northeast Analytical, Inc. for % solids and bulk density)
Lab_id		Laboratory identification number used by NEA
Sample_id	*	Sample identification code
Dupe		Indication of sample duplicate (DUP = yes, blank = no)
Type		Sample type
Northing	*	1983 NY State Plane Northing (feet)
Easting	*	1983 NY State Plane Easting (feet)
Start_dep		Starting depth of sample
End_dep		Ending depth of sample
Dep_units		Units of depth of measured sample
Per_solids		Percent solids (%)
B_dens		Bulk density (grams/milliliter)

*(continued)*

**Table B5-45**  
**Data Dictionary for sediment\_char**  
**(continued)**

<i>Field Name</i>	<i>GIS</i>	<i>Description</i>
Per_pass_4pt75_mm		Percent of sample passing 4.75 mm sieve (%)
Per_pass_0pt425_mm		Percent of sample passing 0.425 mm sieve (%)
Per_pass_0pt075_mm		Percent of sample passing 0.075 mm sieve (%)
Per_pass_0pt005_mm		Percent of sample passing 0.005 mm sieve (%)
Point_id	*	Sample identification code to link data with probing data in sed_probe

**Comments:**

- (1) -999 indicates parameter not measured
- (2) \* designates fields included within attribute table of shapefile
- (3) Sample id refers to original sample name (<Transect#>-A<ft\_downstream>-<ft\_from\_north\_shore>). The data sometimes may be referred to by the following equivalent ids:

<u>Original ID</u>	<u>Equivalent ID</u>
T-25-A600	T-26-A100
T-25-A800	T-26-A300
T-27-A600	T-28-A100
T-27-A800	T-28-A300
T-29-A600	T-30-A100
T-29-A800	T-30-A300
T-31-A600	T-32-A100
T-31-A800	T-32-A300

In other words, for example, 100 ft downstream of T-26 is the same as 600 ft downstream of T-25.