

Appendix A. Entity-relationship diagram for the SE Coastal Network Water Quality Inventory & Monitoring Program Database (version 3.1, 28-Aug-2012). The database model was implemented using Microsoft SQL Server 2005 on Windows Server 2003 R2 by Wade Sheldon, Dept. of Marine Sciences, University of Georgia.

Top-level table listing organizations that sponsor water quality monitoring programs

Column Name	Condensed Type	Allow Nulls	Description
OrgID	int		Organization id (key)
OrgName	varchar(250)		Organization name
Acronym	varchar(20)	✓	Organization Acronym/abbreviation
Description	varchar(4000)	✓	Organization description
WebsiteUrl	varchar(250)	✓	URL of the organization web site
LogoUrl	varchar(250)	✓	URL of the organization logo image
DateStart	datetime	✓	Starting date of the organization
DateEnd	datetime	✓	Ending date of the organization
DateUpdated	datetime	✓	Date of most recent record update

Generalized metadata tables for describing organizations

Column Name	Condensed Type	Allow Nulls	Description
OrgID	int		Organization id (key)
DescriptorName	varchar(50)		Descriptor field name
DescriptorValue	varchar(7900)		Descriptor field value (text contents)

Column Name	Condensed Type	Allow Nulls	Description
DescriptorName	varchar(50)		Descriptor name (key)
WebformInfo	varchar(1000)		Information to display on web forms
FieldType	varchar(50)		Type of web form field
FieldSize	int		Web form width for field
DisplayOnWeb	bit		Flag field to enable/disable web display
WebSort	tinyint		Order for field display on the web
IsSearchable	bit		Flag indicating field is searchable

Column Name	Condensed Type	Allow Nulls	Description
DescriptorName	varchar(50)		Descriptor field name
DescriptorValue	varchar(500)		Descriptor field value (text contents)

Primary table of monitoring programs linked to sponsoring organizations

Column Name	Condensed Type	Allow Nulls	Description
ProgramID	int		Program id (artificial key)
OrgID	int		Project id (foreign key)
ProgramName	varchar(250)		Program name
Acronym	varchar(20)	✓	Program acronym/abbreviation
Description	varchar(4000)	✓	Program description
WebsiteUrl	varchar(250)	✓	Web site URL
DateStart	datetime	✓	Date program started
DateEnd	datetime	✓	Date program ended
DateUpdated	datetime	✓	Date record last updated

Controlled vocabulary of field types for generation of metadata entry web form fields

Column Name	Condensed Type	Allow Nulls	Description
FieldType	varchar(50)		Web form field type (key)

Generalized metadata tables for describing monitoring programs

Column Name	Condensed Type	Allow Nulls	Description
ProgramID	int		Program id
DescriptorName	varchar(50)		Descriptor field name
DescriptorValue	varchar(7900)		Descriptor field value

Column Name	Condensed Type	Allow Nulls	Description
DescriptorName	varchar(50)		Descriptor field name (key)
WebformInfo	varchar(1000)		Information to display on web forms
FieldType	varchar(50)		Web form field type
FieldSize	int		Web form field size
DisplayOnWeb	bit		Flag for web display (0 = no, 1 = yes)
WebSort	tinyint		Order to display on web forms
IsSearchable	bit		Flag indicating field is searchable

Column Name	Condensed Type	Allow Nulls	Description
DescriptorName	varchar(50)		Descriptor name
DescriptorValue	varchar(500)		Allowed value from controlled vocabulary

1-1

Column Name	Condensed Type	Allow Nulls	Description
StationID	int		Station id (artificial key)
ProgramID	int		Monitoring program id (foreign key)
SiteCode	varchar(50)	✓	Station code used by the sponsoring program
SiteName	varchar(200)		Station name
Description	varchar(2000)	✓	Station long description
State	char(2)	✓	State the station is located in
County	varchar(50)	✓	County the station is located in
Location	varchar(250)	✓	Location description
Latitude	real		Geographic latitude
Longitude	real		Geographic longitude
HUC	char(8)	✓	Hydrologic Unit Code (8-digit HUC)
HUC12	char(12)	✓	Hydrologic Unit Code (12-digit HUC)
DateStart	datetime	✓	Date the station was established
DateEnd	datetime	✓	Date the station was decommissioned
DateUpdated	datetime	✓	Date the station record was updated
WebsiteUrl	varchar(250)	✓	Url for site description web page
DataUrl	varchar(250)	✓	Url for accessing station data

Lookup tables for states and counties

Column Name	Condensed Type	Allow Nulls	Description
StateCode	char(2)		State alphanumeric code
StateAbbreviation	char(2)		State name abbreviation
StateName	varchar(50)		State name (full text)

Column Name	Condensed Type	Allow Nulls	Description
StateCode	char(2)		State alphanumeric code
CountyCode	char(3)		County alphanumeric code
CountyName	varchar(50)		County name

Lookup tables for 8 and 12-digit Hydrologic Unit Codes (watersheds)

Column Name	Condensed Type	Allow Nulls	Description
HUC	char(8)		8-digit HUC code (primary key)
Region	varchar(200)		Region name
SubRegion	varchar(200)		Sub-region name
Basin	varchar(200)		Basin name
SubBasin	varchar(200)		Sub-basin name
Size_Hectares	real	✓	HUC size in hectares

Column Name	Condensed Type	Allow Nulls	Description
HUC12	char(12)		12-digit Hydrologic Unit Code (PK)
HUC	char(8)		8-digit HUC (FK)
Watershed	varchar(100)		HUC name
Subwatershed	varchar(100)		Sub-watershed name
Size_Hectares	real	✓	HUC size in hectares

Junction table linking monitoring programs to program types and measured parameters

Column Name	Condensed Type	Allow Nulls	Description
ProgramID	int		Monitoring program ID
TypeCode	varchar(20)		Monitoring program type code
ParameterID	int		Measured parameter ID
ParamLocalName	varchar(150)	✓	Local name or alias for parameter
DateStart	datetime	✓	Date monitoring for the parameter began
DateEnd	datetime	✓	Date monitoring for the parameter ended
DateUpdated	datetime		Date information was last updated
Probabilistic	bit	✓	Flag indicating probabilistic sampling design

Junction table linking monitoring stations to monitoring program types and measured parameters

Column Name	Condensed Type	Allow Nulls	Description
StationID	int		Station id
TypeCode	varchar(20)		Monitoring program type (from controlled vocabulary)
ParameterID	int		Parameter id
ParamLocalName	varchar(150)	✓	Parameter name used by the monitoring program
DateStart	datetime	✓	Date of first observation
DateEnd	datetime	✓	Date of last observation
DateUpdated	datetime		Date record was last updated
Probabilistic	bit		Probabilistic monitoring design flag

Controlled vocabulary of monitoring program types

Column Name	Condensed Type	Allow Nulls	Description
TypeCode	varchar(20)		Monitoring type code (key)
TypeName	varchar(50)		Monitoring type name
Description	varchar(500)	✓	Monitoring type description

2-1

Table of measurement parameters (expanded suite of EPA STORET codes with groups, categories and names parsed from parameter descriptions to support varying search granularity)

Column Name	Condensed Type	Allow Nulls	Description
ParameterID	int		Artificial key
StoretCode	char(5)	✓	US EPA Storet Code
ParameterGroup	varchar(50)		Parameter group
ParameterCategory	varchar(100)		General category of parameter
ParameterName	varchar(250)		Name of parameter
ParameterDesc	varchar(500)		Full description of parameter, with medium, units, methods
SampleMedium	varchar(250)	✓	Medium from which parameter measured, if applicable
ParameterUnits	varchar(250)	✓	Units of measure, if applicable
ParameterMethods	varchar(500)	✓	Measurement methodology, if applicable
SearchTags	varchar(500)	✓	Optional list of search tags for the parameter
Updater	varchar(50)		ID of person last updating the record

Lookup list of official US EPA STORET codes

Column Name	Condensed Type	Allow Nulls	Description
StoretCode	varchar(5)		U.S. EPA Storet Code
ParameterGroup	varchar(50)		Parameter grouping
ParameterDesc	varchar(200)		Parameter description

Controlled vocabulary of parameter groups with web display management fields

Column Name	Condensed Type	Allow Nulls	Description
ParameterGroup	varchar(50)		Group name (key)
WebDisplayName	varchar(200)	✓	Name for web display
NPS_Database	bit		Flag for inclusion in NPS database
StoretParameterGroup	bit		Flag indicating group drawn from Storet

Junction table linking database user information to organizations (used to manage access and update permissions on web forms)

Column Name	Condensed Type	Allow Nulls	Description
OrgID	int		Organization id
UserID	varchar(50)		User id (authorized user foreign key)

Database user contact information table

Column Name	Condensed Type	Allow Nulls	Description
UserID	varchar(50)		User id (key)
NamePrefix	varchar(5)	✓	Name prefix
GivenName	varchar(50)		Given (first) name
MiddleName	varchar(50)	✓	Middle name
Surname	varchar(50)		Surname (last name)
NameSuffix	varchar(5)	✓	Name suffix
Organization	varchar(250)	✓	Organizational affiliation
Address1	varchar(250)	✓	Mailing address line 1
Address2	varchar(250)	✓	Mailing address line 2
Address3	varchar(250)	✓	Mailing address line 3
City	varchar(100)	✓	City name
State	char(2)	✓	State Abbreviation
PostalCode	varchar(10)	✓	Zip code (+4)
Email	varchar(100)	✓	Email address
Phone1	varchar(50)	✓	Phone number
Phone2	varchar(50)	✓	Alternate phone number
WebsiteUrl	varchar(250)	✓	Web URL

Web site login information for database users

Column Name	Condensed Type	Allow Nulls	Description
UserID	varchar(50)		User id
Password	varchar(250)		Password
Role	varchar(50)		Database role
DateExpires	datetime	✓	Expiration date of password

Controlled vocabulary of database user roles (used to control access to web-based update forms)

Column Name	Condensed Type	Allow Nulls	Description
Role	varchar(50)		Database role
RoleDescription	varchar(250)		Role description

3-1