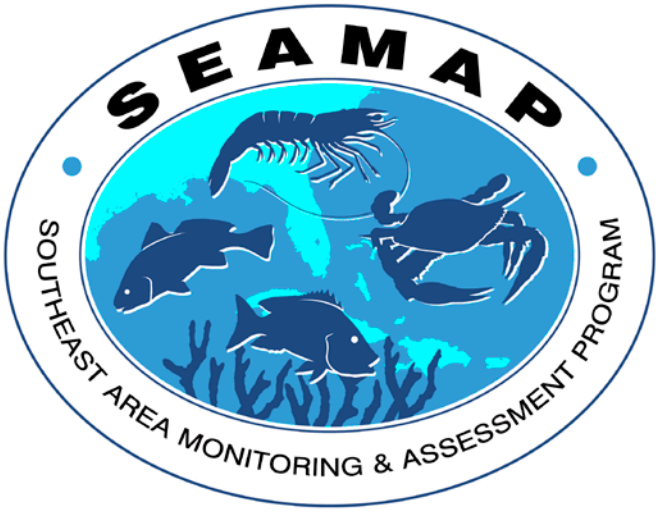
SEAMAP

Data Structures
Version 2



Gulf States Marine Fisheries Commission
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Ocean Springs, MS 39564

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Introduction

The SEAMAP Data Management System (DMS) is a relational database of survey data containing information from the five Gulf States and National Marine Fisheries Service (NMFS). The surveys are conducted throughout the year following established protocols and methods.

This document provides detailed information on the data structures used to store survey results.

List of Tables

1. VESSELS - Information on ships utilized for a survey.
2. CRUISES - Specific information on a survey. Type of survey and dates.
3. STAREC - Information on sampling locations during a survey.
4. ENVREC - Environmental data at specific sample locations.
5. BGSREC - Count totals and weight totals of specific biological catch at a sample location.
6. GLFREC - Length frequency record for individual weights and lengths of the catch.
7. INVREC - Total counts and weights of finfish, crustaceans and other organisms at specific sample locations.
8. ISTREC - Plankton station data, type of gear used, start and stop times, depths and location data.
9. CTDREC - Location and times of CTD sample location.
10. CTDCASTREC - Water column data as measured by CTD. Values measured include temperature, salinity and dissolved oxygen.
11. SHRREC - Shrimp records. Provides detailed information on pink, brown and white Shrimp.
12. NEWBIOCODESBIG -Describes the taxonomic data and biocodes used to identify biologic catch data.

Detailed Table descriptions.

VESSELS

Vessel Record

Field Name	Field Type
VESSELID	INTEGER Primary Key
NAME	CHAR(50)

Field Descriptions – Vessel Codes:

--VESSELID is a numeric code assigned to each vessel performing SEAMAP surveys.

--NAME is the vessel name. Maximum of 50 characters.

CRUISES

Cruise Record

Field Name	Field Type
CRUISEID	INTEGER Primary Key
YR	CHAR(4)
SOURCE	CHAR(2)
VESSEL	INTEGER
CRUISE_NO	CHAR(4)
START_CRU	Date (YYYY-MM-DD)
END_CRU	Date (YYYY-MM-DD)
TITLE	CHAR(50)
NOTE	INTEGER
INGEST_SOURCE	CHAR(50)
INGEST_PROGRAM_VER	CHAR(50)

Field Descriptions – CRUISES:

--CRUISEID is a unique integer assigned for each entry.

--YR is a 4 digit string containing the year of the survey.

--SOURCE is a two digit code for the source (SEAMAP Partner) that collected the data.

--CRUISE_NO is a 4 digit value provided by the source indicating the number of the survey for the year. Typically is in the format of YYXX. Example - 1304 (Fourth survey of 2013).

--STARTCRU contains the date the first station for that survey was sampled.

--ENDCRU contains the date the last station for that survey was sampled.

--TITLE contains a descriptive title for the survey

--NOTE contains a numeric code indicating the status of the survey data. May be null.

--INGEST_SOURCE contains the program version (if any) used to export the survey data into a standardized format for importation.

--INGEST_PROGRAM_VER contains the program version (if any) of the software utilized to import survey data.

STAREC

Field Name	Field Type
STATIONID	INTEGER Primary Key
CRUISEID	INTEGER
VESSEL	INTEGER
CRUISE_NO	CHAR(4)
P_STA_NO	CHAR(5)
TIME_ZN	CHAR(1)
TIME_MIL	CHAR(4)
S_LATD	INTEGER(2)
S_LATM	DECIMAL(5,2)
S_LATH	CHAR(1)
S_LOND	INTEGER(3)
S_LONM	DECIMAL(5,2)
S_LONH	CHAR(1)
DEPTH_SSTA	DECIMAL(6,1)
S_STA_NO	CHAR(5)
MO_DAY_YR	DATE
TIME_EMIL	CHAR(4)
E_LATD	INTEGER(2)
E_LATM	DECIMAL(5,2)
E_LATH	CHAR(1)
E_LOND	INTEGER(3)
E_LONM	DECIMAL(5,2)
E_LONH	CHAR(1)
DEPTH_ESTA	DECIMAL(6,1)
GEARS	CHAR(30)
TEMP_SSURF	DOUBLE
TEMP_BOT	DOUBLE
TEMP_SAIR	DOUBLE
B_PRSSR	DOUBLE
WIND_SPD	DOUBLE
WIND_DIR	DOUBLE
WAVE_HT	DOUBLE
SEA_COND	CHAR(1)
DBTYPE	CHAR(1)
DATA_CODE	CHAR(2)
VESSEL_SPD	DECIMAL(6,1)
FAUN_ZONE	DOUBLE
STAT_ZONE	DOUBLE
TOW_NO	CHAR(1)
NET_NO	CHAR(1)
COMSTAT	CHAR(250)
DECSLAT	DECIMAL(6,3)
DECSLON	DECIMAL(6,3)
DECELAT	DECIMAL(6,3)
DECELON	DECIMAL(6,3)
START_DATE	DATETIME (YYYY-MM-DD HH:MM:SS)
END_DATE	DATETIME (YYYY-MM-DD HH:MM:SS)
HAULVALUE	CHAR(1)

Field Descriptions – STAREC:

--STATIONID is a unique integer assigned for each entry in STAREC table.

--CRUISEID is a unique integer assigned for each entry in CRUISES table.

--VESSEL is a unique integer representing the vessel name, from VESSELS table.

--CRUISE_NO is a four character string usually in the format YYXX. Such as 1304 for year 2013, fourth survey.

--P_STA_NO is the Pascagoula Station Number. A five character string, using in the format of VVSSSS where VV is the vessel number and SSSS is a sequential count of the stations processed for that survey. The P_STA_NO entry should be unique for each STAREC entry per Cruise. P_STA_NO may repeat for different CRUISEIDS.

--TIME_ZN is a one character field which is a code which represents the time zone of the station.

--TIME_MIL is a four character field which must be numeric. This field represents station start time and should be in military format, HHMM, where HH represents hours and MM represents minutes.

--S_LATD is a two character field which is a numeric positive integer and represents latitude degrees.

--S_LATM is a five character field which is numeric and represents latitude minutes. Field format is MM.HH; Where MM represents minutes and HH represents hundreds of minutes.

--S_LATH is a one character field which is a code which represents the latitude hemisphere. Valid codes are “N” and “X”.

--S_LOND is a three character field which is numeric positive integer and represents starting longitude degrees.

--S_LONM is a five character field which is numeric and represents starting longitude minutes. Field format is MM.HH; MM represents minutes and HH represents hundreds of minutes.

--S_LONH is a one character field which is a code which represents the longitude hemisphere. Valid codes are “W” and “X”.

--DEPTH_SSTA is a six character field which must be numeric. This field represents the starting depth of the station in meters.

--S_STA_NO is a five character field labeling the station as a SEAMAP sampled station.

--MO_DAY_YR is a date field, which in MM-DD-YYYY format, MM represents Months; DD represents days; and YYYY represents year. Values should be zero padded, that is, January would be 01.

--TIME_EMIL is a four character field which must be numeric. This field represents station ending time and should be in military format, HHMM, where HH represents hours and MM represents minutes.

--E_LATD is a two character field which is a numeric positive integer and represents ending latitude degrees.

--E_LATM is a five character field which is numeric and represents latitude minutes. Field format is MM.HH; MM represents minutes and HH represents hundreds of minutes.

--E_LATH is a one character field which is a code which represents the latitude hemisphere. Valid codes are "N" and "X".

--E_LOND is a three character field which is numeric positive integer and represents ending longitude degrees.

--E_LONM is a five character field which is numeric and represents ending longitude minutes. Field format is MM.HH; MM represents minutes and HH represents hundreds of minutes.

--E_LONH is a one character field which is a code which represents the longitude hemisphere. Valid codes are "W" and "X".

--DEPTH_ESTA is a field that represents the ending depth of the station in meters.

--GEARS is a thirty character field which represents up to 15 two character gear codes.

--TEMP_SSURF represents the surface temperature at the station and represents degrees of centigrade.

--TEMP_BOT represents the bottom temperature at the station and represents degrees of centigrade.

--TEMP_SAIR represents the air temperature at the station. The field format is XX.X and represents degrees of centigrade.

--B_PRSSR represents the barometric pressure at the station. The field format is XXX.X and represents millibars.

--WIND_SPD represents the wind speed. The field format is XX and represents knots.

--WIND_DIR has the field format of XXX and represents compass degrees.

--WAVE_HT represents the wave height. The field format is XX.X and represents meters.

--SEA_COND is a one character field which represents a valid sea condition. This field represent a code which corresponds to the Beaufort Wind Force Scale.

--DBTYPE represents a valid database type code.

--DATA_CODE represents a data source code.

--VESSEL_SPD is in the field format XX.X and represents the speed of the vessel in knots.

--FAUN_ZONE represents the faunal zone based on start of the station.

--STAT_ZONE is a five character field which represents the shrimp statistical zone.

--TOW_NO is a one character field which must be numeric. This field represents the tow number and may be blank. If present valid values are 1,2,3,4,5,6,7,8,9.

--NET_NO is a one character field which must be numeric. This field represents the net number and may be blank. If present, valid values are 1, 2, or 3.

--COMSTAT is a text comment field, up to 250 characters.

--DECSLAT is the latitude of the start of the station. Format DD.XXX where DD is degrees of latitude, and XXX is hundredths of a degree.

--DECSLON is the longitude of the start of the station. Format DDD.XXX where DDD is degrees of longitude and XXX is hundredths of a degree. May be a negative value indicating western hemisphere.

--DECELAT is the latitude of the end of the station. Format DD.XXX where DD is degrees of latitude, and XXX is hundredths of a degree.

--DECELON is the longitude of the end of the station. Format DDD.XXX where DDD is degrees of longitude and XXX is hundredths of a degree. May be a negative value indicating western hemisphere.

--START_DATE is a time/date field of the start of the station. Format – YYYY-MM-DD HH:MM:SS.

--END_DATE is a time/date field of the end of the station. Format – YYYY-MM-DD HH:MM:SS.

--HAULVALUE is a one character field which may be blank. Valid values are “G”,”B”. G indicates a good trawl while B indicates a bad trawl.

ENVREC

Environmental Record

Field Name	Field Type
ENVRECID	INTEGER Primary Key
CRUISEID	INTEGER
STATIONID	INTEGER
VESSEL	INTEGER
CRUISE_NO	CHAR(4)
P_STA_NO	CHAR(5)
CLD_TYPE	CHAR(1)
CLD_COVER	INTEGER(3)
SECCHI_DSK	DECIMAL(4,1)
WECOLOR	INTEGER(2)
STA_LOC	CHAR(1)
PRECIP	INTEGER(1)
DEPTH_ESRF	DECIMAL(5,1)
DEPTH_EMID	DECIMAL(5,1)
DEPTH_EMAX	DECIMAL(5,1)
DEPTH_EWTR	DECIMAL(5,1)
TEMPSURF	DECIMAL(5,2)
TEMPMID	DECIMAL(5,2)
TEMPMAX	DECIMAL(5,2)
SALSURF	DECIMAL(6,2)
SALMID	DECIMAL(6,2)
SALMAX	DECIMAL(6,2)
CHLORSURF	DECIMAL(7,3)
CHLORMID	DECIMAL(7,3)
CHLORMAX	DECIMAL(7,3)
OXYSURF	DECIMAL(4,1)
OXYMID	DECIMAL(4,1)
OXYMAX	DECIMAL(4,1)
TURBSURF	DECIMAL(8,4)
TURBMID	DECIMAL(8,4)
TURBMAX	DECIMAL(8,4)
COMENV	CHAR(250)
CTDFILE	CHAR(30)
LIGHT_CODE	CHAR(1)
LATITUDE	DECIMAL(6,3)
LONGITUDE	DECIMAL(6,3)

Field Descriptions – ENVREC:

--ENVRECID is a unique integer assigned for each entry in the ENVREC table.

--STATIONID is a unique integer assigned for each entry in the STAREC table.

--CRUISEID is a unique integer assigned for each entry in the CRUISES table.

--VESSEL represents the vessel name, from the VESSELS table.

--CRUISE_NO is a four character string usually in the format YYXX. Such as 1304 for year 2013, fourth survey.

--P_STA_NO is the Pascagoula Station Number. A five character string, using in the format of VVSSSS where VV is the vessel number and SSSS is a sequential count of the stations processed for that survey. The P_STA_NO entry should be unique for each STAREC entry per Cruise. P_STA_NO may repeat for different CRUISEIDS.

--CLOUD_TYPE is a one character field which represents a valid cloud type. Valid codes are 0,1,2,3,4,5,6,7,8,9,X. It may be blank.

--CLOUD_COVER is a three character field which must be an integer (Numeric). This value represents percent of cloud cover at the time of the station. Valid range is 0 – 100. It may be blank.

--SECCHI_DSK is a numeric value ranging from 0 – 70.1. Representing meters. It may be blank

--WECOLOR is a two character field for water color which must be numeric. This field represents Forel-Ule water color readings. Values may be 0 and less than or equal to 25. It may be blank or null.

--STA_LOC is a one character field which is a station location code. This code represents when the environmental values were taken; valid codes are “S” and “N”. “S” indicates that environmental gears were performed at the start of the station and are associated with station start time. “N” indicates that environmental gears were performed at the end of the station and are associated with station end time. May NOT be blank.

--PRECIP is a one character field which is a code. This field may be blank. Valid codes are 0,1,2,3,4,5,6,7,8,9.

--DEPTH_ESRF is a five character field which must be numeric. This field represents the surface depth of the station in meters. Valid range of values is 0 to 9999.9. It may be blank or null.

--DEPTH_EMID is a five character field which must be numeric. This field represents the mid-water depth of the station in meters. Valid range of values is 0 to 9999.9. It may be blank or null.

--DEPTH_EMAX is a five character field which must be numeric. This field represents the maximum depth of the station in meters. Valid range of values is 0 to 9999.9. It may be blank or null.

--DEPTH_EWTR is a five character field which must be numeric. This field represents the water depth of the station in meters. Valid range of values is 0 to 9999.9. It may be blank or null.

--TEMPSURF is a five character field which must be numeric. This field represents the surface depth temperature at the station. The field format is XX.XX and represents degrees of centigrade. Valid range of values is -1.1 to 34. It may be blank or null.

--TEMPMID is a five character field which must be numeric. This field represents the mid-water depth temperature at the station. The field format is XX.XX and represents degrees of centigrade. Valid range of values is -1.1 to 34. It may be blank or null.

--TEMPMAX is a five character field which must be numeric. This field represents the maximum depth temperature at the station. The field format is XX.XX and represents degrees of centigrade. Valid range of values is -1.1 to 34. It may be blank or null.

--SALSURF is a six character field which must be numeric. This field represents the surface depth salinity which is in parts per thousand. The field format is XXX.XX. It may be blank or null.

--SALMID is a six character field which must be numeric. This field represents the mid-water depth salinity which is in parts per thousand. The field format is XXX.XX. It may be blank or null.

--SALMAX is a six character field which must be numeric. This field represents the maximum depth salinity which is in parts per thousand. The field format is XXX.XX. It may be blank or null.

--CHLORSURF is a seven character field which must be numeric. This field represents the surface depth chlorophyll which is in mg/cubic meters. The field format is XXX.XXX. Valid range of values is 0 to 100. It may be blank or null.

--CHLORMID is a seven character field which must be numeric. This field represents the mid-water depth chlorophyll which is in mg/cubic meters. The field format is XXX.XXX. Valid range of values is 0 to 100. It may be blank or null.

--CHLORMAX is a seven character field which must be numeric. This field represents the maximum depth chlorophyll which is in mg/cubic meters. The field format is XXX.XXX. Valid range of values is 0 to 100. It may be blank or null.

--OXYSURF is a four character field which must be numeric. This field represents the surface depth oxygen which is in parts per million. The field format is XX.X. Valid range of values is 0.0 to 20.0. It may be blank or null.

--OXYMID is a four character field which must be numeric. This field represents the mid-water depth oxygen which is in parts per million. The field format is XX.X. Valid range of values is 0.0 to 20.0. It may be blank or null.

--OXYMAX is a four character field which must be numeric. This field represents the maximum depth oxygen which is in parts per million. The field format is XX.X. Valid range of values is 0.0 to 20.0. It may be blank or null.

--TURBSURF is an eight character field which must be numeric. This field represents the surface depth turbidity value which is a percent. The field format is XXX.XXXX. Valid range of values is 10 to 1000. It may be blank or null.

--TURBMID is an eight character field which must be numeric. This field represents the mid-water depth turbidity value which is a percent. The field format is XXX.XXXX. Valid range of values is 10 to 1000. It may be blank or null.

--TURBMAX is an eight character field which must be numeric. This field represents the mid-water depth turbidity value which is a percent. The field format is XXX.XXXX. Valid range of values is 10 to 1000. It may be blank or null.

--COMENV is a text field of up to 250 characters. It may be blank or null.

--CTDFILE is a thirty character field which may be blank or null. Not implemented.

--LIGHT_CODE is a one character text field. Not implemented. It may be blank or null.

--LATITUDE is the latitude of the location where environmental data are collected. Format DD.XXX where DD is degrees of latitude, and XXX is hundredths of a degree.

--LONGITUDE is the longitude of location where environmental data are collected. Format DD.XXX where DD is degrees of latitude, and XXX is hundredths of a degree.

BGSREC

Biological Catch Record

Field Name	Field Type
BGSID	INTEGER Primary Key
CRUISEID	INTEGER
STATIONID	INTEGER
VESSEL	INTEGER(2)
CRUISE_NO	CHAR(4)
P_STA_NO	CHAR(5)
CATEGORY	INTEGER(1)
GENUS_BGS	CHAR(7)
SPEC_BGS	CHAR(6)
BGSCODE	CHAR(1)
CNT	INTEGER(6)
CNTEXP	INTEGER(8)
SAMPLE_BGS	DECIMAL(7,3)
SELECT_BGS	DECIMAL(7,3)
BIO_BGS	CHAR(9)
NODC_BGS	CHAR(12)
IS_SAMPLE	CHAR(1)
TAXONID	DOUBLE

--BGSID is a unique integer assigned for each entry in the BGSREC table.

--CRUISEID is a unique integer assigned for each entry in the CRUISES table.

--STATIONID is a unique integer assigned for each entry in the STAREC table.

--VESSEL is a unique integer representing the Vessel name, from the VESSELS table.

--CRUISE_NO is a four character string usually in the format YYXX. Such as 1304 for year 2013, fourth survey.

--P_STA_NO is the Pascagoula Station Number. A five character string, using in the format of VVSSSS where VV is the vessel number and SSSS is a sequential count of the stations processed for that survey. The P_STA_NO entry should be unique for each STAREC entry per Cruise. P_STA_NO may repeat for different CRUISEIDS.

--CATEGORY is a one character field which is a code. The program assigns a code to this field based on the first character value of the biocode number. A first position biocode digit which is '1' is assigned a category code of '3'. A first position biocode digit which is '2' is assigned a category code of '1'. All other first position biocode digits are assigned a category code of '2'. It may NOT be blank or null.

--GENUS_BGS is a seven character field which contains the genus part of the genus/species name. This field may not be blank and should contain a valid genus name. It may NOT be blank or null.

--SPEC_BGS is a six character field which contains the species part of the genus/species name. It may be blank or null.

--BGSCODE is a one character field which contains a bgs code. Valid values are T,E,C,S,I. It may be blank or null.

--CNT is a six digit numeric field which represents the number of genus/species sampled. This is an integer field. Value may be blank only when the genus/species was select. It must contain a value > 0 when genus/species was 'sample'.

--CNTEXP is an eight digit numeric field which represents one of two possible values. If the genus/species is sampled, this value is the extrapolated count of the genus/species. If the genus/species is a select, this value is the actual number of the genus/species that was selected. It may not be blank or null.

--SAMPLE_BGS is a seven character field which must be numeric. This field contains a number which must be in XXX.XXX format and represents weight in kilograms.

--SELECT_BGS is a seven character field which must be numeric. This field contains a number which must be in XXX.XXX format and represents select weight in kilograms. It may be blank or null.

--BIO_BGS is a 9 digit field containing a number (*biocode*) which is based on the genus/species name.

--NODC_BGS is a numeric field. This field contains a number which is based on the genus/species name. (Not Implemented/or used currently).

--IS_SAMPLE is a one character field which is a code. A 'Y' indicates when the genus/species is sampled. Sample records have a value in the count field and the sample field. An 'N' indicates the genus/species is select. Select records should have a value in the count expanded field and the select weight field. It may NOT be blank or null. It should contain either 'Y' or 'N'.

--TAXONID is a numeric field. Not currently utilized.

GLFREC

General Length Frequency Record

Field Name	Field Type
GLFID	INTEGER Primary Key
CRUISEID	INTEGER
BGSID	INTEGER
STATIONID	INTEGER
VESSEL	INTEGER
CRUISE_NO	CHAR(4)
P_STA_NO	CHAR(5)
BIO_GLF	CHAR(9)
NODC_GLF	CHAR(12)
GENUS_GLF	CHAR(7)
SPEC_GLF	CHAR(6)
INDVL_WT	DECIMAL(4,3)
MEASCD_GLF	CHAR(2)
LEN_GLF	DOUBLE
SEX_GLF	CHAR(1)
MAT_GLF	CHAR(1)

Field Descriptions – GLFREC:

--GLFID is a unique integer assigned for each entry in GLFREC table.

--CRUISEID is a unique integer assigned for each entry in CRUISES table.

--BGSID is a unique integer assigned for each entry in BGSREC table. There may be many GLFREC associated with a specific BGSREC (BGSID) per species.

--STATIONID is a unique integer assigned for each entry in STAREC table.

--VESSEL is a unique integer representing the Vessel name, from VESSELS table.

--CRUISE_NO is a four character string usually in the format YYXX. Such as 1304 for year 2013, fourth survey.

--P_STA_NO is the Pascagoula Station Number. A five character string, using in the format of VVSSSS where VV is the vessel number and SSSS is a sequential count of the stations

processed for that survey. The P_STA_NO entry should be unique for each STAREC entry per Cruise. P_STA_NO may repeat for different CRUISEIDS.

--BIO_GLF is a 9 digit field containing a number (biocode) which is based on the genus/species name.

--NODC_GLF is not currently utilized.

--GENUS_GLF is a seven character field which contains the genus part of the genus/species name. This field may not be blank and should contain a valid genus name.

--SPEC_GLF is a six character field which contains the species part of the genus/species name. This field may be blank or may contain a valid species name.

--INDVL_WT is a 4 digit numeric field format XXX.X of the weight in kg of the genus/species measured. It may be blank depending on the genus/species or season of the trawl in accordance with current SEAMAP protocols.

--MEASCD_GLF is a two character field which contains a measurement code which defines the type of measurement used.

--LEN_GLF is a four character field which must be numeric. This value represents millimeters and is the millimeter length of the genus/species measured. It may NOT be blank or null. Valid range of values is 0 to 2000.

--SEX_GLF is a one character field which contains a code. This code represents the sex.
Valid values are 'M','F' or 'U'. It may be blank or null.

--MAT_GLF is a one character field which contains a code. This code represents the maturity. Valid values are '1','2','3','4','5','6','7'. It may be blank or null.

INVREC

Field Name	Field Type
INVRECID	INTEGER Primary Key
STATIONID	INTEGER
CRUISEID	INTEGER
VESSEL	INTEGER
CRUISE_NO	CHAR(4)
P_STA_NO	CHAR(5)
GEAR_SIZE	INTEGER(3)
GEAR_TYPE	CHAR(2)
MESH_SIZE	DOUBLE
OP	CHAR(1)
MIN_FISH	INTEGER
WBCOLOR	CHAR(1)
BOT_TYPE	CHAR(2)
BOT_REG	CHAR(1)
TOT_LIVE	DOUBLE
FIN_CATCH	DOUBLE
CRUS_CATCH	DOUBLE
OTHR_CATCH	DOUBLE
T_SAMPLEWT	DOUBLE
T_SELECTWT	DOUBLE
FIN_SMP_WT	DOUBLE
FIN_SEL_WT	DOUBLE
CRU_SMP_WT	DOUBLE
CRU_SEL_WT	DOUBLE
OTH_SMP_WT	DOUBLE
OTH_SEL_WT	DOUBLE
COMBI	CHAR(100)

Field Descriptions – INVREC:

--INVRECID is a unique integer assigned for each entry in the INVREC table.

--CRUISEID is a unique integer assigned for each entry in the CRUISES table.

--STATIONID is a unique integer assigned for each entry in the STAREC table.

--VESSEL is a unique integer representing the Vessel name, from the VESSELS table.

--CRUISE_NO is a four character string usually in the format YYXX. Such as 1304 for year 2013, fourth survey.

--P_STA_NO is the Pascagoula Station Number. A five character string, using in the format of VVSSSS where VV is the vessel number and SSSS is a sequential count of the stations processed for that survey. The P_STA_NO entry should be unique for each STAREC entry per Cruise. P_STA_NO may repeat for different CRUISEIDS.

--GEAR_SIZE is a three character field which is numeric. This field represents the net of feet or the number of hooks on the line. Valid range is 0 to 999. It may be blank or null.

--GEAR_TYPE is a two character field which represents a gear code. It may be blank or null.

--MESH_SIZE is a five character field which must be numeric. The field format is XX.XX and represents the inches or stretch of the net or the number of hooks. Valid range is 0 to 10. It may be blank or null.

--OP is a one character field which is a code. This code may be blank.

--MIN_FISHED is a four character field which is numeric and integer. The field format is XXXX and represents minutes. Value should represent difference between the Station start and end times.

--WBCOLOR is a one character field which may be blank. This field represents the gross code for water color. Valid values are 'B','G','T','Y', or 'M'. It may be blank or null.

--BOT_TYPE is a two character field which may be blank. Valid values are: 'B','CL','CO','G','GR','M','ML','OZ','RK','S','SH', or 'SP'.

--BOT_REG is a two character field which may be blank. Valid values are: 'S','L','O','P','E','M'.

--TOT_LIVE is a seven character field which must be numeric. This field contains a number which must be in XXXXX.X format and represents total live catch in kilograms. Value must be between 0 and less than 100000. It may be blank or null.

--FIN_CATCH is a seven character field which must be numeric. This field contains a number which must be in XXXXX.X format and represents finfish catch in kilograms. Value must be between 0 and less than 100000. It may be blank or null.

--CRUS_CATCH is a seven character field which must be numeric. This field contains a number which must be in XXXXX.X format and represents the crustacean catch in kilograms. Value must be between 0 and less than 100000. It may be blank or null.

--OTHR_CATCH is a seven character field which must be numeric. This field contains a number which must be in XXXXX.X format and represents other catch in kilograms. Value must be between 0 and less than 100000. It may be blank or null.

--T_SAMPLEWT is an eight character field which must be numeric. This field contains a number which must be in XXXX.XXX format and represents sample weight in kilograms. Value must lie between 0 and less than 10000. Value should equal the summed total of the biological detail sample weights.

--T_SELECTWT is an eight character field which must be numeric. This field contains a number which must be in XXXX.XXX format and represents select weight in kilograms. Value must lie between 0 and less than 10000.

--FIN_SMP_WT is an eight character field which must be numeric. This field contains a number which must be in XXXX.XXX format and represents finfish sample weight in kilograms. Value must lie between 0 and less than 10000. Value should equal the summed total of the biological detail sampled finfish weights.

--FIN_SEL_WT is an eight character field which must be numeric. This field contains a number which must be in XXXX.XXX format and represents finfish select weight in kilograms. Value must lie between 0 and less than 10000.

--CRU_SMP_WT is an eight character field which must be numeric. This field contains a number which must be in XXXX.XXX format and represents the crustacean sample weight in kilograms. Value must lie between 0 and less than 10000. Value should equal the summed total of the biological detail sampled crustacean weights.

--CRU_SEL_WT is an eight character field which must be numeric. This field contains a number which must be in XXXX.XXX format and represents the crustacean select weight in kilograms. Value must lie between 0 and less than 10000.

--OTH_SMP_WT is an eight character field which must be numeric. This field contains a number which must be in XXXX.XXX format and represents other sample weight in kilograms. Value must lie between 0 and less than 10000. Value should equal the summed total of the biological detail sampled other weights.

--OTH_SEL_WT is an eight character field which must be numeric. This field contains a number which must be in XXXX.XXX format and represents other select weight in kilograms. Value must lie between 0 and less than 10000.

--COMBI is a two hundred character field used for comments, which may be blank.

ISTREC

Field Name	Field Type
ISTRECID	INTEGER Primary Key
STATIONID	INTEGER
CRUISEID	INTEGER
VESSEL	INTEGER
CRUISE_NO	CHAR(4)
P_STA_NO	CHAR(5)
SAMPLE_NO	CHAR(5)
SIPC_CODE	CHAR(1)
DATA_SRC	CHAR(2)
AREA_ICH	CHAR(2)
PROJ_ICH	CHAR(2)
GEAR_LOC	CHAR(1)
WIREOUT	INTEGER(4)
ANGLE	INTEGER(3)
DEPTH_ICD	CHAR(1)
DEPTH_IMAX	DOUBLE
GEAR_ICD	CHAR(2)
MESH_ICD	CHAR(2)
TIME_S_ICH	CHAR(6)
TIME_E_ICH	CHAR(6)
FLOW_START	DOUBLE
FLOW_END	DOUBLE
DEPTH_IBEG	DOUBLE
DEPTH_IEND	DOUBLE
VOL_FILT	DOUBLE
ROTOR	DOUBLE
SORT_ISA	CHAR(1)
VOL_DISP	DOUBLE
ALIQUOT	CHAR(3)
S_LAT	DECIMAL(6,3)
S_LON	DECIMAL(6,3)
E_LAT	DECIMAL(6,3)
E_LON	DECIMAL(6,3)
TIME_MAX_DEPTH	CHAR(6)
OPCODE	CHAR(2)
COMMENTS	CHAR(255)

Field Descriptions – ISTREC:

--ISTRECID is a unique integer assigned for each entry in the ISTREC table.

--CRUISEID is a unique integer assigned for each entry in the CRUISES table.

--STATIONID is a unique integer assigned for each entry in the STAREC table.

--VESSEL is a unique integer representing the Vessel name, from the VESSELS table.

--CRUISE_NO is a four character string usually in the format YYXX. Such as 1304 for year 2013, fourth survey.

--P_STA_NO is the Pascagoula Station Number. A five character string, using in the format of VVSSSS where VV is the vessel number and SSSS is a sequential count of the stations processed for that survey. The P_STA_NO entry should be unique for each STAREC entry per Cruise. P_STA_NO may repeat for different CRUISEIDS.

--SAMPLE_NO is a five character field which is numeric. This field should be the SEAMAP Sample Number for this ichthyoplankton station and is unique. It is recommended that the value be right justified and zero filled. Should NOT be blank or null.

--SIPC_CODE is a two character field which represents a preservation code.

--DATA_SRC is a two character field which represents a data source code. Value may NOT be blank or null.

--AREA_ICH is a two character field which represents an Area Project code. Value may NOT be blank or null.

--PROJ_ICH is a two character field which represents a project code. Value may NOT be blank or null.

--GEAR_LOC is a one character field which represents a gear location code. Value may NOT be blank.

--WIREOUT is a four character field which is numeric. This field represents meters of wire.

--ANGLE is a three character field which is numeric. This field represents degrees.

--DEPTH_ICD is a one character field which represents depth code. Valid codes are ‘O’ and ‘C’. ‘O’ represents observed; the depth reading was observed on ichthyoplankton gear. ‘C’ represents calculated; the depth reading was calculated based on wire out and angle. Value may not be blank or null.

--DEPTH_IMAX is a six character field which must be numeric. This field represents the maximum depth of the ichthyoplankton station in meters. Value may be blank or null.

--GEAR_ICD is a two character field which represents an ichthyoplankton gear code. Value may NOT be blank or null.

--MESH_ICD is a two character field which represents an ichthyoplankton mesh code. Value may NOT be blank or null.

--TIME_S_ICH is a six character field which must be numeric. This field represents the start time of the ichthyoplankton gear. This field represent time and should be in military format, HHMMSS; HH represents hours; MM represents minutes; and SS represents seconds.

--TIME_E_ICH is a six character field which must be numeric. This field represents the end time of the ichthyoplankton gear. This field represents time and should be in military format, HHMMSS; HH represents hours; MM represents minutes; and SS represents seconds.

--FLOW_START is a six character field which is numeric. This field is the starting ichthyoplankton flow meter reading. This field is not required for all ichthyoplankton gears.

--FLOW_END is a six character field which is numeric. This field is the ending ichthyoplankton flow meter reading. This field is not required for all ichthyoplankton gears.

--DEPTH_IBEG is a four character field which must be numeric. This field represents the beginning depth of the ichthyoplankton gear in meters. This may be a required field based on ichthyoplankton gear.

--DEPT_IEND is a four character field which must be numeric. This field represents the beginning depth of the ichthyoplankton gear in meters. This may be a required field based on ichthyoplankton gear.

--VOL_FILT is a four digit field which is the volume filtered.

--ROTOR is a five character field which is numeric. This field defines the rotor constant used with the ichthyoplankton gear. This field is not required for all ichthyoplankton gears.

--SORT_ISA is a one character field which is a code which represents the sorting status of the sample.

--VOL_DISP is a three character field which is numeric. This field is integer and is milliliters. It may be null or blank.

--ALIQUOT is a three character field which is a code.

--S_LAT is a 6 digit field which is numeric. Starting latitude in degrees. Format is DD.XXX where DD is Degrees and XXX is hundredths of a degree.

--S_LON is a 6 digit field which is numeric. Starting longitude in degrees. Format is DD.XXX where DD is Degrees and XXX is hundredths of a degree.

--E_LAT is a 6 digit field which is numeric. Ending latitude in degrees. Format is DD.XXX where DD is Degrees and XXX is hundredths of a degree.

--E_LON is a 6 digit field which is numeric. Ending longitude in degrees. Format is DD.XXX where DD is Degrees and XXX is hundredths of a degree.

--TIME_MAX_DEPTH is a six character field which must be numeric. This field represents the time of the arrival at max depth of the ichthyoplankton gear. Format is HHMMSS.

--OPCODE is a two character field which is a code. It may be blank or null.

--COMMENTS is a two hundred fifty five (255) character text field. It may be blank or null.

CTDREC

Field Name	Field Type
CTDID	INTEGER Primary Key
CRUISEID	INTEGER
BOT_DEPTH	DECIMAL(6,1)
STATIONID	INTEGER
LATITUDE	DECIMAL(6,3)
LONGITUDE	DECIMAL(6,3)
TIME_START	CHAR(4)
TIME_END	CHAR(4)
COMMENT	CHAR(100)

Field Descriptions – CTDREC:

--CTDID is a unique integer assigned for each entry in the CTDREC table.

--CRUISEID is a unique integer assigned for each entry in the CRUISES table.

--BOT_DEPTH is a a 6 character numeric field of the bottom depth. Format is XXXXX.Y. Where XXXXX is meters and .Y is tenths of a meter.

--STATIONID is a unique integer assigned for each entry in the STAREC table.

--LATITUDE is the latitude of the CTD deployment in degrees and hundreds of a degree. Format is DDD.HHH. Where DDD is the degrees of latitude. No leading zeros required.

--LONGITUDE is the longitude of the CTD deployment in degrees and hundredths of a degree. Format is DDD.HHH. Where DDD is the degrees of longitude. No leading zeros required.

--TIME_START is a four character field representing the start time of the CTD. (24 hour format) HHMM.

--TIME_END is a four character field representing the ending time of the CTD. (24 hour format) HHMM.

--COMMENT is a 100 character text field.

CTDCASTREC

Field Name	Field Type
CTDCAST_ID	INTEGER Primary Key
CTDID	INTEGER
STATIONID	INTEGER
CRUISEID	INTEGER
DEPTH	DECIMAL(6,1)
TEMP	DOUBLE
FLOURO	DOUBLE
XMISS	DOUBLE
OXY_MG	DOUBLE
DENSITY	DOUBLE
SALINITY	DOUBLE
NBIN	DOUBLE
OXSAT	DOUBLE

Field Descriptions – CTDCASTREC:

--CTDCAST_ID is a unique integer assigned for each entry in CTDCASTREC table.

--CTDID is a unique integer assigned for each entry in CTDREC table. There will be many CTDCASTREC for each CTDREC.

--CRUISEID is a unique integer assigned for each entry in CRUISES table.

--BOT_DEPTH is a 6 character numeric field of the bottom depth. Format is XXXXX.Y. Where XXXXX is meters and .Y is tenths of a meter.

--STATIONID is a unique integer assigned for each entry in STAREC table.

--DEPTH is the depth of measurement in meters to the tenth of a meter. Format is XXXXX.Y. Where XXXXX is meters and .Y is tenths of a meter.

--TEMP is the temperature measurement in Centigrade.

--FLUORO is a numeric field which represents a measurement of chlorophyll-A.

--XMISS represents the percentage of transmissivity. This is the amount of suspended material in the water.

--OXY_MG is the dissolved oxygen measurement in parts per million.

Field Descriptions –CTDCASTREC continued.

--DENSITY kg/m^3

--SALINITY is the salinity value in parts per thousand.

--NBIN is the number of individual readings at the given depth meter which were then averaged to create the reading for this depth.

--OXSAT is the percentage of oxygen contained within the water sample.

SHRREC

Field Name	Field Type
SHRRECID	INTEGER Primary Key
STATIONID	INTEGER
CRUISEID	INTEGER
VESSEL	INTEGER
CRUISE_NO	CHAR(4)
P_STA_NO	CHAR(5)
SAMPLE_BM	DOUBLE
SAMPLE_BF	DOUBLE
SAMPLE_PM	DOUBLE
SAMPLE_PF	DOUBLE
SAMPLE_WM	DOUBLE
SAMPLE_WF	DOUBLE
CNT_BM	INTEGER(3)
CNT_BF	INTEGER(3)
CNT_PM	INTEGER(3)
CNT_PF	INTEGER(3)
CNT_WM	INTEGER(3)
CNT_WF	INTEGER(3)

Field Descriptions – SHRREC:

--SHRRECID is a unique integer assigned for each entry in SHRREC table.

--STATIONID is a unique integer assigned for each entry in STAREC table.

--CRUISEID is a unique integer assigned for each entry in CRUISES table.

--VESSEL is a unique integer representing the vessel name, from VESSELS table.

--CRUISE_NO is a four character string usually in the format YYXX. Such as 1304 for year 2013, fourth survey.

--P_STA_NO is the Pascagoula Station Number. A five character string, using in the format of VVSSSS where VV is the vessel number and SSSS is a sequential count of the stations processed for that survey. The P_STA_NO entry should be unique for each STAREC entry per Cruise. P_STA_NO may repeat for different CRUISEIDS.

--SAMPLE_BM is a six character field which must be numeric. This field contains a number which must be in XX.XXX format and represents brown male weight in kilograms. Valid range is 0 to 100. It may be blank or null.

--SAMPLE_BF is a six character field which must be numeric. This field contains a number which must be in XX.XXX format and represents brown female weight in kilograms. Valid range is 0 to 100. It may be blank or null.

--SAMPLE_PM is a six character field which must be numeric. This field contains a number which must be in XX.XXX format and represents pink male weight in kilograms. Valid range is 0 to 100. It may be blank or null.

--SAMPLE_PF is a six character field which must be numeric. This field contains a number which must be in XX.XXX format and represents pink female weight in kilograms. Valid range is 0 to 100. It may be blank or null.

--SAMPLE_WM is a six character field which must be numeric. This field contains a number which must be in XX.XXX format and represents white male weight in kilograms. Valid range is 0 to 100. It may be blank or null.

--SAMPLE_WF is a six character field which must be numeric. This field contains a number which must be in XX.XXX format and represents white female weight in kilograms. Valid range is 0 to 100. It may be blank or null.

--CNT_BM is a three digit field which represents the number of brown male shrimp sampled. This is an integer field.

--CNT_BF is a three digit field which represents the number of brown male shrimp sampled. This is an integer field.

--CNT_PM is a three digit field which represents the number of brown male shrimp sampled. This is an integer field.

--CNT_PF is a three digit field which represents the number of brown male shrimp sampled. This is an integer field.

--CNT_WM is a three digit field which represents the number of brown male shrimp sampled. This is an integer field.

--CNT_WF is a three digit field which represents the number of brown male shrimp sampled. This is an integer field.

NEWBIOCODESBIG

Field Name	Field Type
Key1	INTEGER
TAXONOMIC	CHAR(50)
CODE	CHAR(50)
TAXONSIZECODE	CHAR(50)
Isactive	CHAR(50)
Common_name	CHAR(80)
Tsn	INTEGER

Field Descriptions – NEWBIOCODESBIG:

NEWBIOCODEBIG is a table that contains all taxonomic information used in the SEAMAP dataset. It contains the Genus /Species names, Biocodes and may contain commonly used names to refer to a species. It also may contain the Integrated Taxonomic Information System TSN number.

--Key1 is a unique integer assigned for each entry in NEWBIOCODES table.

--TAXONOMIC is the taxonomic or scientific name for each entry.

--CODE is the NMFS assigned unique value for each entry. Referred to as "BIOCODE".

--TAXONSIZECODE may be empty. Possible measurement code to be used when taking measurements. Not utilized.

--Isactive is not used.

--Common_Name contains the common name of an entry

--Tsn is the (I.T.I.S) TSN value for an entry if available.

Table Relationships

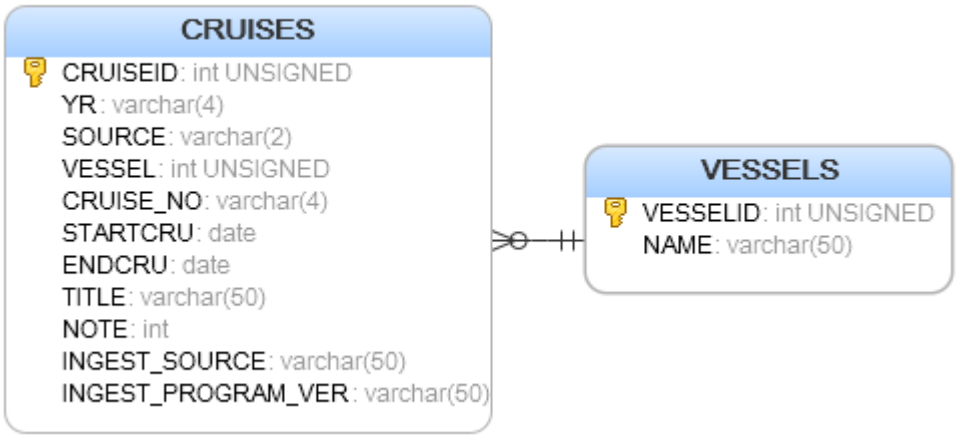
The following show some basic relationships which will allow extraction or grouping of data by individual surveys, or by stations. This is not an exhaustive list of all relationships.

VESSELS -> CRUISES

The field VESSELS.VESSELID is a unique number for each vessel entered.

The field CRUISES.VESSEL has VESSELS.VESSELID as a foreign key with a one to many relationship.

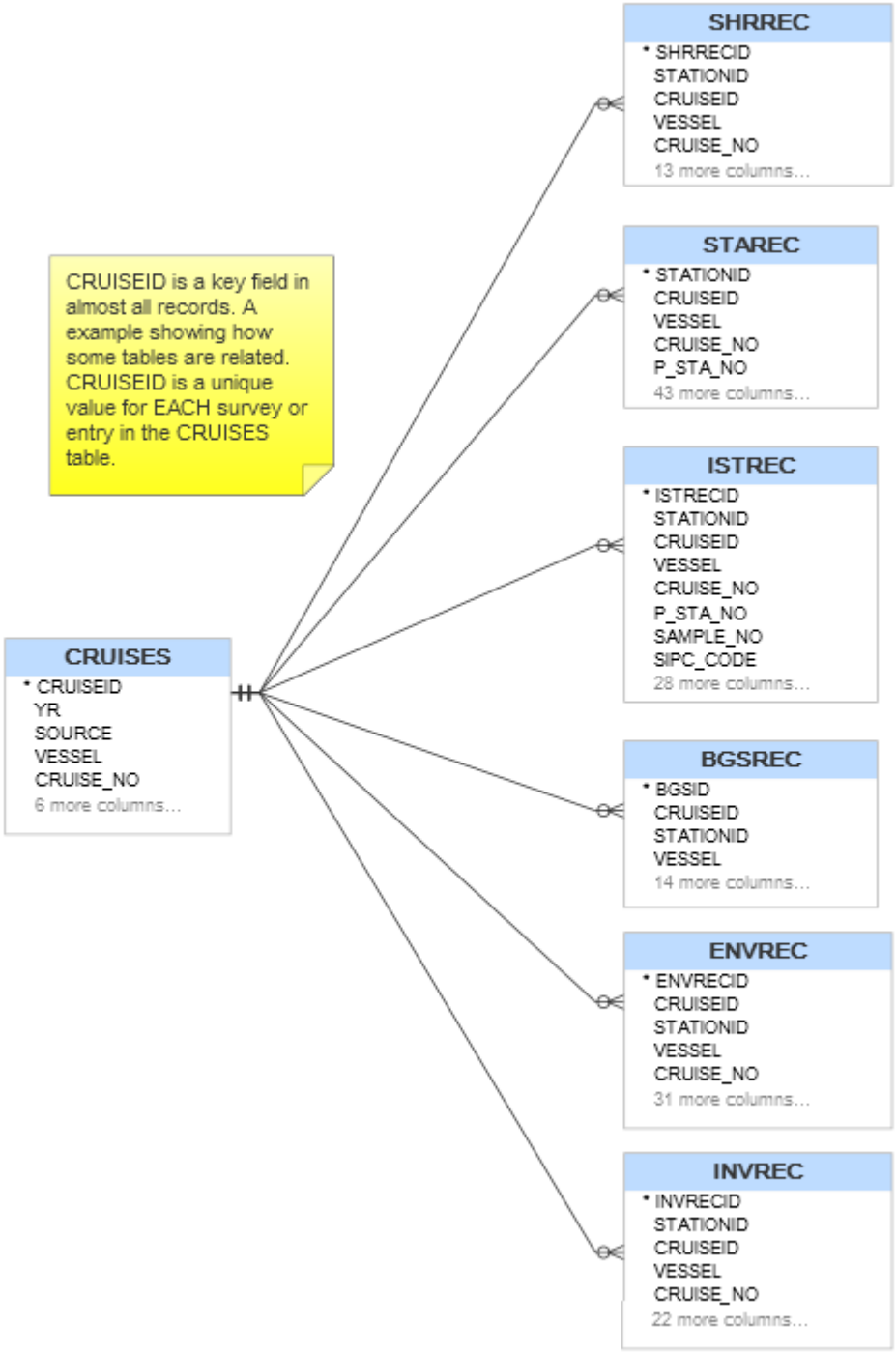
The value stored in the CRUISES.VESSEL field MUST exist in the VESSELS.VESSELID field.



CRUISES.CRUISEID → Many tables

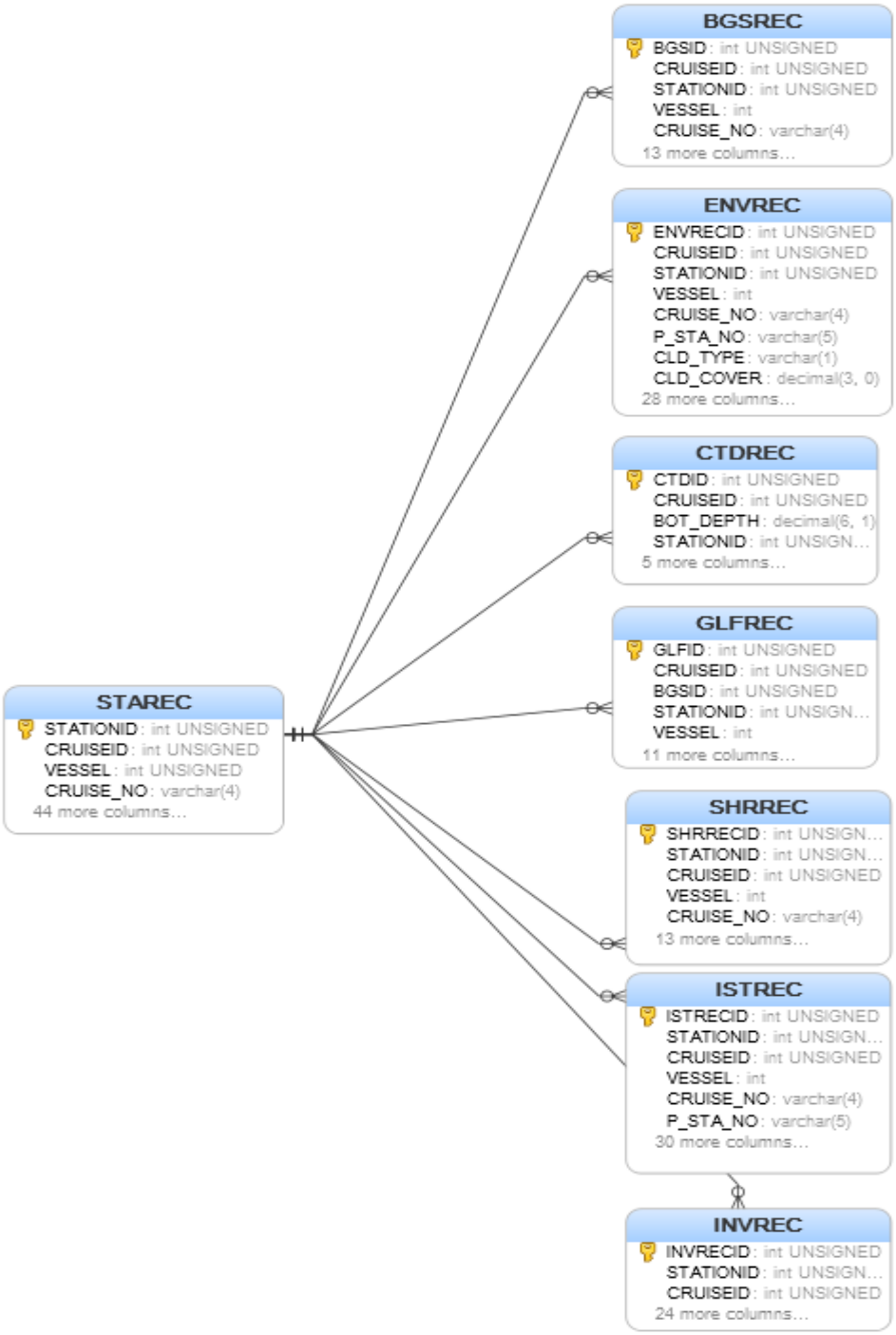
The field CRUISES.CRUISEID is used to associate almost all other records to a specific survey or cruise. It is automatically generated by the ingest system.

The specific value of CRUISES.CRUISEID may change between SEAMAP dataset releases.



STAREC.STATIONID → Many tables

The field STAREC.STATIONID is used to associate almost all other records to a specific survey station. It is automatically generated by the ingest system. It is unique for each STAREC.
The specific value of STAREC.STATIONID may change between SEAMAP dataset releases.



Validation of Data

SEAMAP data is validated during ingest from source data provide by the six SEAMAP partners. Additionally legacy SEAMAP data is validated using custom software.

Generally most values if required, are compared to fixed constants. For example a temperature can be expected to fall within a specific range normally. Certain items such as specific codes are checked to be sure they are included in a list of valid codes.

Longitude and latitude are expected to be within certain values.

Other types of validation are calculated values.

State Codes / Source

AL Alabama
FL Florida
GA Georgia
LA Louisiana
MS Mississippi
NC North Carolina
SC South Carolina
TX Texas
US Federal Vessel
99 Other
PR Puerto Rico
VI Virgin Islands

Time Zones

1 Eastern Standard Time
2 Eastern Daylight Savings Time
3 Central Standard Time
4 Central Daylight Savings Time
8 Greenwich Mean Time
9 Other - Explain in Comments Section
5 Atlantic Standard Time
6 Atlantic Daylight Savings Time

Vessel Codes

VESSEL	NAME	VESSEL	NAME	VESSEL	NAME
01	OREGON	41	PERSISTANCE	90	SABINE
02	SILVER BAY	42	CAPTAIN GRUMPY	91	R/V WALTON SMITH
03	GEORGE M. BOWERS	43	GULF STREAM	92	COPONO BAY
04	OREGON II	44	KELCY ANN	93	ACADIANA
05	COMBAT	45	MR.JUG	99	OTHER VESSELS
06	PELICAN	46	CALANUS		
07	FRIGATA	47	A.NEEDLER		
08	KINGFISHER	48	B.I.P		
09	HERNAN CORTEZ	49	ALBATROSS IV		
10	GERONIMO	50	MOLLY M.		
11	UNDAUNTED	51	LADY LISA		
12	ANTILLAS	52	MISS CARRIE		
13	CALAMAR	53	CSS HUDSON		
14	ALCYON	54	CORAL SEA		
15	GULF RANGER	55	CARETTA		
16	WESTERN GULF	56	R/V ABREU		
17	TOMMY MUNRO	57	R/V GUAYANILLA		
18	TANYA & JOE	58	SEAHORSE		
19	ONJUKO	59	LINDSAY		
20	JEFF & TINA	60	TEDDY'S SCOW		
21	DELEWARE II	61	RELENTLESS		
22	OSV ANTELOPE	62	RATFIELD VESSELS		
23	ALABAMA INSHORE VESSELS	63	GORDON GUNTER		
24	FLORENCE MAY	64	FERREL		
25	LOUISIANA INSHORE VESSELS	65	TRINITY BAY		
26	SUNCOASTER	66	ALABAMA 38ft BERTRAM		
27	MISSISSIPPI INSHORE VESSELS	67	NUECES BAY		
28	CHAPMAN	68	MCARTHUR		
29	NISSING MARU #201	69	SAN JACINTO		
30	R/V BELLOWS	70	R/V SARINNA		
31	R.J.KEMP	71	HARVESTING SYSTEM TECH		
32	MATAGORDA BAY	72	GANDY		
33	LAGUNA MADRE	73	E.O.WILSON		
34	GALVESTON BAY	74	The MCILWAIN		
35	LUMCON PELICAN	75	WEATHERBIRD II		
36	HERNAN CORTEZ II	76	PISCES		
37	OLD COLONY	77	ALABAMA DISCOVERY		
38	SEAWOLF	87	SAN ANTONIO BAY		
39	ATLANTIC HARVESTER	88	BLAZING SEVEN		
40	SABINE LAKE	89	NANCY FOSTER		

Station Gear Codes

A	ASSORTED
C	BIOSONICS ACOUSTIC SYSTEM
BG	BATHYTHERMOGRAPH (CTD, STD)
BC	BOTTLE CAST
GR	BOTTOM GRAB OR CORE SAMPLER
MC	CAMERA, MOVIE
SC	CAMERA, STILL
VC	CAMERA, VIDEO
CS	CONTINUOUS FLOW SYSTEM
CM	CURRENT DOPPLER
DL	DEEP LINE
DV	DIVING
CD	DREDGE, CLAM
QD	DREDGE, QUAHOG
SD	DREDGE, SCALLOP
TD	DREDGE, TUMBLER
XB	EXPENDABLE BATHYTHERMOGRAPH (XB
FP	FISH PUMP
GN	GILLNET
BL	LONGLINE, BOTTOM
KP	LONGLINE, KALI POLE
OB	LONGLINE, OFF-BOTTOM
LL	LONGLINE, SURFACE
MQ	MARQUESETTE
MN	MICROPEKTON
ML	MISCELLANEOUS
NS	NETSONDE
LT	NIGHT LIGHT
OD	ODOMETER
OF	OVERFLIGHT
OX	OXYGEN, SENSOR, CTD
OY	OXYGEN, SENSOR, YSI
OH	OXYGEN, TITRATION, HACHKIT
OW	OXYGEN, TITRATION, WINKLER
OR	OYSTER RAKE
PN	PLANKTON, GENERAL (BONGO, ETC.)
MO	PLANKTON, MOCNESS
NN	PLANKTON, SINGLE NEUSTON OR NEK
DN	PLANKTON, DOUBLE NEUSTON OR NEK
RG	PLANKTON, RING NET
TU	PLANKTON, TUCKER TRAWL
RF	RECORDING FATHOMETER
RV	REMOTELY OPERATED VEHICLE (ROV)
RT	ROTENONE
RN	ROUND NET
SA	SALINITY, AUTOSAL
SB	SALINITY, BECKMAN RS5
SF	SALINITY, CONTINUOUS FLOW SYSTE

SX	SALINITY, CTD
RE	SALINITY, REFRACTOMETER
BS	SEINE, BEACH
LP	SEINE, LAMPARA
PS	SEINE, PURSE
TS	SEINE, PURSE, TURTLE
SO	SONAR
SJ	SQUID JIG
DR	SURFACE DRIFTER
RL	TAG RELEASE
TA	TEMPERATURE, CONTINUOUS FLOW SY
TC	TEMPERATURE, CTD
TB	TEMPERATURE, BECKMAN RS5
TM	TEMPERATURE, BUCKET
TF	TEMPERATURE, FLUKE
TY	TEMPERATURE, YSI
CT	TRAP, CRAB
TR	TRAP, FISH
LR	TRAP, LOBSTER, REED
LW	TRAP, LOBSTER, WIRE
WT	TRAP, LOBSTER, WOOD
TV	TRAP VIDEO
BT	TRAWL, BEAM
BB	TRAWL, BIB
FT	TRAWL, FISH
EF	TRAWL, FISH, EXPERIMENTAL
FD	TRAWL, FISH DEFLECTOR
FE	TRAWL, FISH EXCLUDER
HO	TRAWL, HIGH OPENING BOTTOM
MT	TRAWL, MIDWATER
PT	TRAWL, SCALLOP
SN	TRAWL, SEPARATOR
SH	TRAWL, SHUMAN
ST	TRAWL, SHRIMP
ES	TRAWL, SHRIMP, EXPERIMENTAL
SM	TRAWL, STANDARD MONGOOSE
*T	TRAWL, STAR
TN	TRAWL, TRYNET
TE	TRAWL, TURTLE EXCLUDER
TT	TRAWL, TWIN
KT	TRAWL, WING
TG	TROLLING GEAR
VD	VERTICAL DRIFTLINE
CC	CAMERA, CLOSED CIRCUIT TELEVISI

01	COMBINATION--SS+CC
02	COMBINATION--SS+PR
03	COMBINATION--CC+PR
04	COMBINATION--SS+CC+PR
05	COMBINATION--FM+SS

06	COMBINATION--FM+SS+PR
07	COMBINATION--FM+PR
FM	FATHOMETER
FL	FLUORESCENCE, CONTINUOUS FLOW S
FX	FLUORESCENCE, CTD
PR	PROFILER, 3.5 KHZ SUB-BOTTOM
SS	SONAR, SIDE SCAN
IT	TRAP, ICHTHYOPLANKTON, ILLUMINAT

Bottom Type/Regularity Codes

BOTTOM REGULARITY	CODE DESCRIPTION
E	IRREGULAR
L	SLIGHT
M	LUMP
O	MODERATE
P	STEEP
S	SMOOTH

BOTTOM TYPE	CODE DESCRIPTION
BD	BOULDERS
CL	CLAY
CO	CORAL
G	GRAVEL
GR	GRASS
M	MUD
ML	MARL
OZ	OOZE
RK	ROCK
S	SAND
SH	SHELL
SP	SPONGE

Measurement Codes

GLFREC->MEASCD_GLF

As of 2014 sources are transistioning to new compressed measurement codes. Data may contain values from either column.

MEASUREMENT TYPE	Prior to 2013	2013 and later
Fork Length	01	51
Standard Length	02	52
Total Length	03,04,06,08,11,12,17,18,21,25,29	53
Width	05,10,14,16,22,24,26,30,31	54
Mantle Length	13	55
Total Radial Diameter	15	56
Other	20	57
Snout-Anal	23	58
CURVILINEAR CARAPACE TOTAL LENGTH	27	59
CURVILINEAR CARAPACE WIDTH	28	60

Plankton Gear Codes

ISTREC->GEAR_ICH

Code	Description
01	61 cm Bongo
02	1m Ring
03	1X2m Neuston
04	1/2m Ring
05	20 cm Bongo
06	Other/Unknown
07	1m**2 Tucker Trawl
08	Double 1X2 Neuston
09	1m**2 Mocness
10	4m**2 Mocness
11	60 cm o/c Bongo
12	20 cm 0/c Bongo
13	60 cm BNF1
14	70 cm Bongo
15	Spanish Bongo
16	2.32 x 2.24 m Methot