20-mm Database Readme.txt

Created by L.Damon on 11/27/2017

Since 1995 the CDFW has annually conducted the 20-mm Survey for larval and juvenile Delta Smelt. The raw data collected from this survey is housed in an Access database and is publicly released via an FTP site. The database structure changed prior to the start of data collection in 2017, and all subsequent data will be stored in the new format (20-mm_New.mdb).

This readme.txt file summarizes the 2017 structure changes and provides guidance for accessing data. Data for all years (1995-2017) is now in the new structure. For convenience with transition, the 1995-2016 data will be available in the old format through the end of 2018. Starting in 2019, data will only be available in the new format.

The intent of changing the database structure was to reduce redundant data and thus reduce the size of the database. Much of the data was repeated throughout the tables (e.g., Date, Station, Tow) and after two decades these repeated fields made the database unnecessarily large. Removing these redundant fields results in a database of a more manageable size and allows more efficient querying.

The 20-mm environmental, fish, and zooplankton data was previously housed in 6 main data tables: Water Info, Tow Info, Catch, Lengths, Zooplankton, and Zoo Catch (Figure 1). These tables were linked via a unique Date/Station/Tow combination, which forced the primary key to be 3 fields. The other tables in the previous version of the database are lookup tables: 20mm Stations, Fish Codes, Meter Corrections, and Zoo Codes.

In the new 20-mm database, environmental, fish, and zooplankton data are housed in 9 main data tables: Survey, Station, Tow, Gear, LabSample, FishSample, FishLength, ZooSample, ZooCount (Figure 2). The lookup tables are the same, except for two added tables: GearCodes, which is used to differentiate between fish and zooplankton tows in the Gear table, and SampleCode, which flags records from the LabSample table that are erroneous due to sampling or processing (Valid vs. Invalid).

The new tables, fields and associated descriptions are all included in the DataFileFormat_New.doc document, available on the FTP site. The field names of all the new tables are in Figure 3. The old field names are listed in Table 1 along with their new name and location.

Please contact Trishelle Tempel (trishelle.tempel@wildlife.ca.gov) if you have questions about the new database or if you want to provide feedback on ways we can make the transition easier.

Table 1. Names of fields and tables from 20-mm Database format prior to 2017, and their new names and associated tables.

Old Field Name	Old Table	New Field Name	New Table	Notes
Survey	Water Info	Survey	Survey	
Date	Water Info	SampleDate	Survey	
Station	Water Info	Station	Station	
Temp	Water Info	Temp	Station	
Top EC	Water Info	TopEC	Station	
Bottom EC	Water Info	BottomEC	Station	
Secchi	Water Info	Secchi	Station	
Turbidity	Water Info	Turbidity	Station	
Latitude	Water Info	LatDeg, LatMin, LatSec	Station	Split into 3 fields: LatDeg, LatMin, LatSec
Longitude	Water Info	LonDeg, LonMin, LonSec	Station	Split into 3 fields: LonDeg, LonMin, LonSec
Comments	Water Info	Comments	Survey	
Date	Tow Info			Redundant field removed from multiple tables
Station	Tow Info			Redundant field removed from multiple tables
Tow	Tow Info	TowNum	Tow	
Time	Tow Info	TowTime	Tow	
Tide	Tow Info	Tide	Tow	
Bottom Depth	Tow Info	BottomDepth	Tow	
Cable Out	Tow Info	CableOut	Tow	
Duration	Tow Info	Duration	Tow	
Net Meter Serial	Tow Info	MeterSerial	Tow	GearCode used to differentiate between net or CB value
Net Meter Start	Tow Info	MeterStart	Tow	GearCode used to differentiate between net or CB value
Net Meter End	Tow Info	MeterEnd	Tow	GearCode used to differentiate between net or CB value
Net Meter Check	Tow Info	MeterCheck	Tow	GearCode used to differentiate between net or CB value
CB Meter Serial	Tow Info	MeterSerial	Tow	GearCode used to differentiate between net or CB value
CB Meter Start	Tow Info	MeterStart	Tow	GearCode used to differentiate between net or CB value
CB Meter End	Tow Info	MeterEnd	Tow	GearCode used to differentiate between net or CB value
CB Meter Check	Tow Info	MeterCheck	Tow	GearCode used to differentiate between net or CB value
Comments	Tow Info	Comments	Station	
Date	Catch			Redundant field removed from multiple tables
Station	Catch			Redundant field removed from multiple tables
Tow	Catch			Redundant field removed from multiple tables
Fish Code	Catch	FishCode	FishSample	
Catch	Catch	Catch	FishSample	
1/4 Subsampled	Catch			Removed
1/2 Subsampled	Catch			Removed
Date	Length			Redundant field removed from multiple tables
Station	Length			Redundant field removed from multiple tables
Tow	Length			Redundant field removed from multiple tables
Fish Code	Length			Redundant field removed from multiple tables
Length	Length	Length	FishLength	
entry order	Length			Removed
Date	Zooplankton			Redundant field removed from multiple tables
Station	Zooplankton			Redundant field removed from multiple tables
CellNumber	Zooplankton	CellNumber	ZooCount	
Dilution	Zooplankton	Dilution	ZooSample	
Cells	Zooplankton	CellNumber	ZooCount	Combined into one field with CellNumber
Total	Zooplankton			Calculated field; removed
Zoo Comments	Zooplankton	Comments	LabSample	
Ider	Zooplankton	Processor	LabSample	
Scope No	Zooplankton			Removed
Proc Date	Zooplankton			Removed
Date	Zoo Catch			Redundant field removed from multiple tables
Station	Zoo Catch			Redundant field removed from multiple tables
CellNumber	Zoo Catch			Redundant field removed from multiple tables
ZooCode	Zoo Catch	ZooCode	ZooCount	
Count	Zoo Catch	ZooCount	ZooCount	

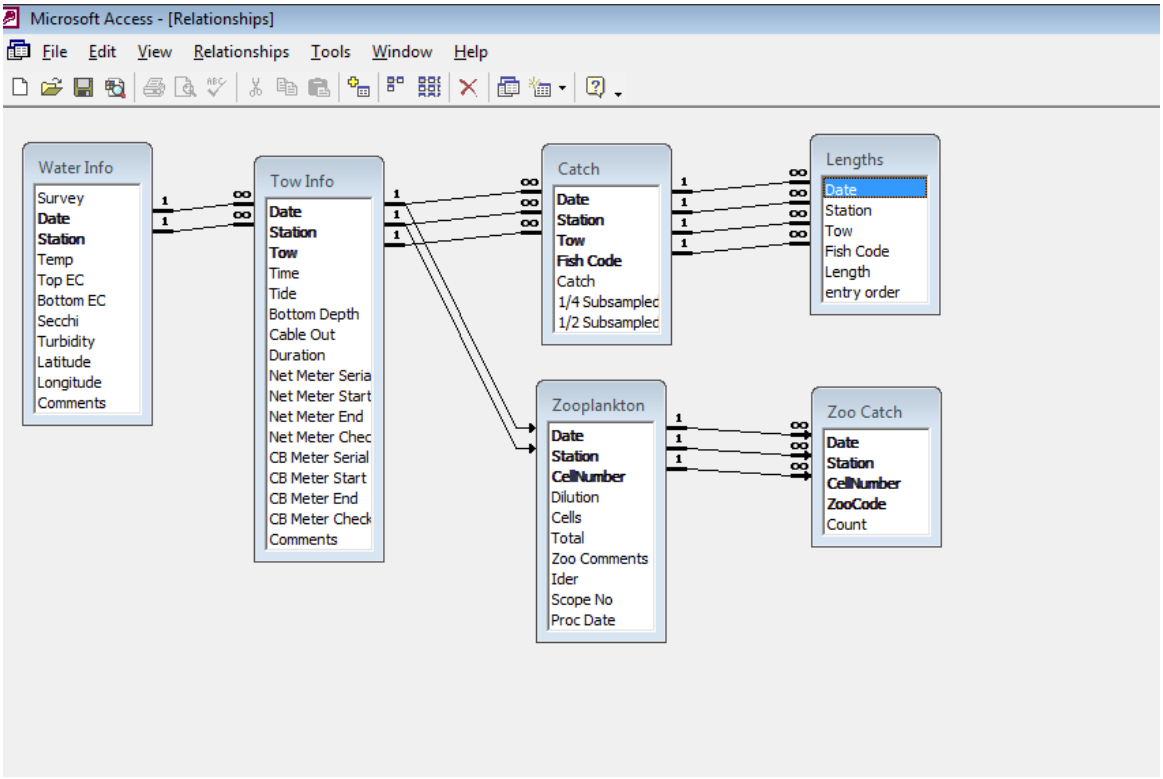


Figure 1. Structure of the 1995-2016 database.

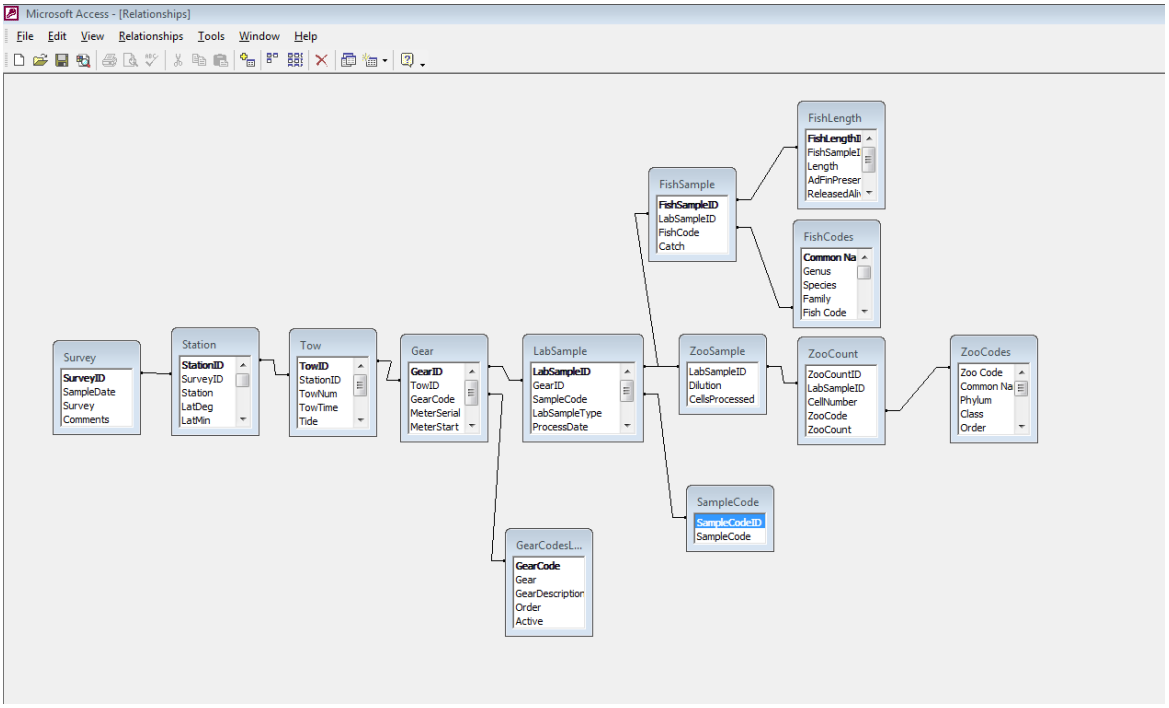
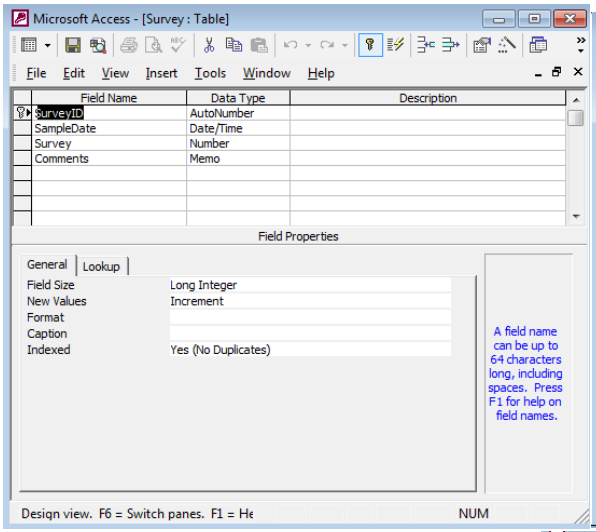
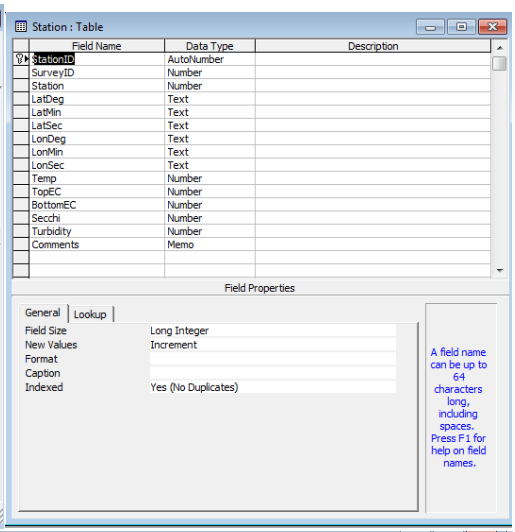
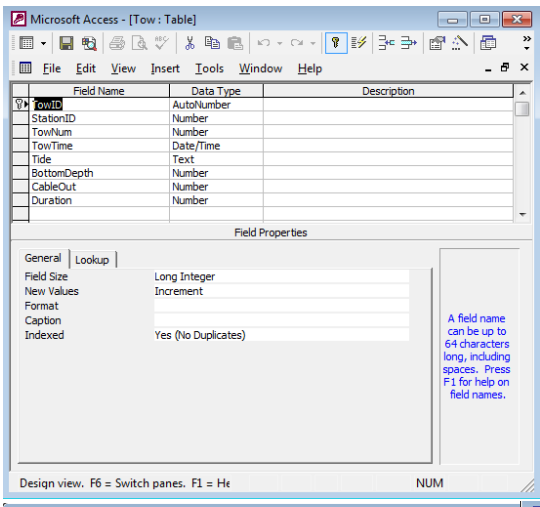
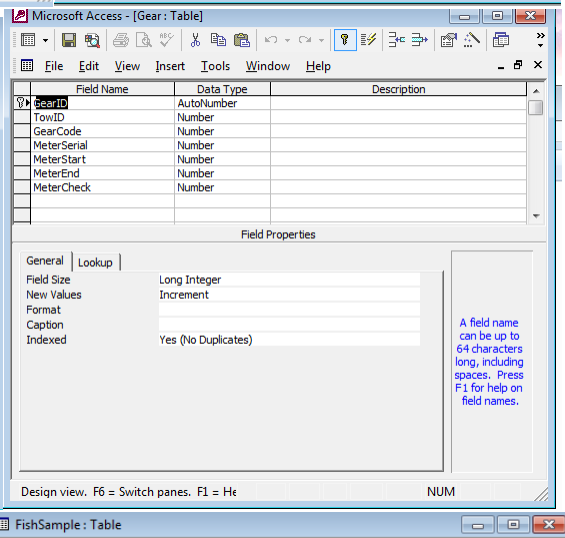


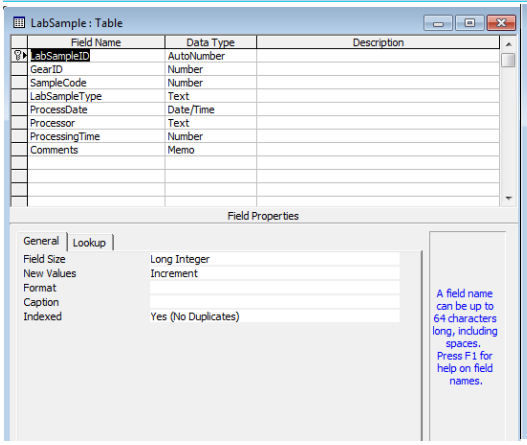
Figure 2. Structure of the post-2016 database.

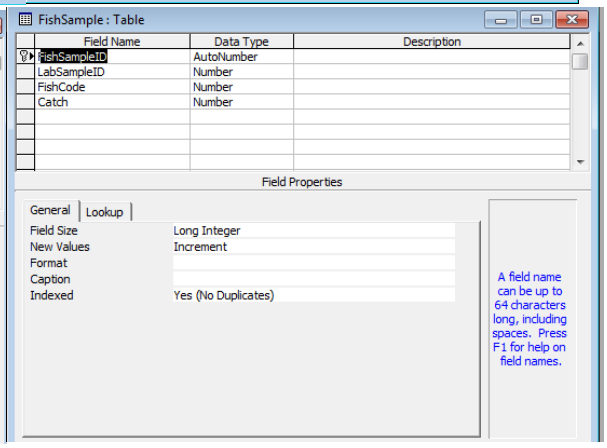

Microsoft Access - [Survey : Table]
File Edit View Insert Tools Window Help
Field Name | Data Type | Description
SurveyID | AutoNumber
SampleDate | Date/Time
Survey | Number
Comments | Memo
Field Properties
General | Lookup
Field Size | Long Integer
New Values | Increment
Format
Caption
Indexed | Yes (No Duplicates)
A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.
Design view. F6 = Switch panes. F1 = He
NUM


Station : Table
Field Name | Data Type | Description
StationID | AutoNumber
SurveyID | Number
Station | Number
LatDeg | Text
LatMin | Text
LatSec | Text
LonDeg | Text
LonMin | Text
LonSec | Text
Temp | Number
TopEC | Number
BottomEC | Number
Secchi | Number
Turbidity | Number
Comments | Memo
Field Properties
General | Lookup
Field Size | Long Integer
New Values | Increment
Format
Caption
Indexed | Yes (No Duplicates)
A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.


Microsoft Access - [Tow : Table]
File Edit View Insert Tools Window Help
Field Name | Data Type | Description
TowID | AutoNumber
StationID | Number
TowNum | Number
TowTime | Date/Time
Tide | Text
BottomDepth | Number
CableOut | Number
Duration | Number
Field Properties
General | Lookup
Field Size | Long Integer
New Values | Increment
Format
Caption
Indexed | Yes (No Duplicates)
A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.
Design view. F6 = Switch panes. F1 = He
NUM


Microsoft Access - [Gear : Table]
File Edit View Insert Tools Window Help
Field Name | Data Type | Description
GearID | AutoNumber
TowID | Number
GearCode | Number
MeterSerial | Number
MeterStart | Number
MeterEnd | Number
MeterCheck | Number
Field Properties
General | Lookup
Field Size | Long Integer
New Values | Increment
Format
Caption
Indexed | Yes (No Duplicates)
A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.
Design view. F6 = Switch panes. F1 = He
NUM


LabSample : Table
Field Name | Data Type | Description
LabSampleID | AutoNumber
GearID | Number
SampleCode | Number
LabSampleType | Text
ProcessDate | Date/Time
Processor | Text
ProcessingTime | Number
Comments | Memo
Field Properties
General | Lookup
Field Size | Long Integer
New Values | Increment
Format
Caption
Indexed | Yes (No Duplicates)
A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.


FishSample : Table
Field Name | Data Type | Description
FishSampleID | AutoNumber
LabSampleID | Number
FishCode | Number
Catch | Number
Field Properties
General | Lookup
Field Size | Long Integer
New Values | Increment
Format
Caption
Indexed | Yes (No Duplicates)
A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

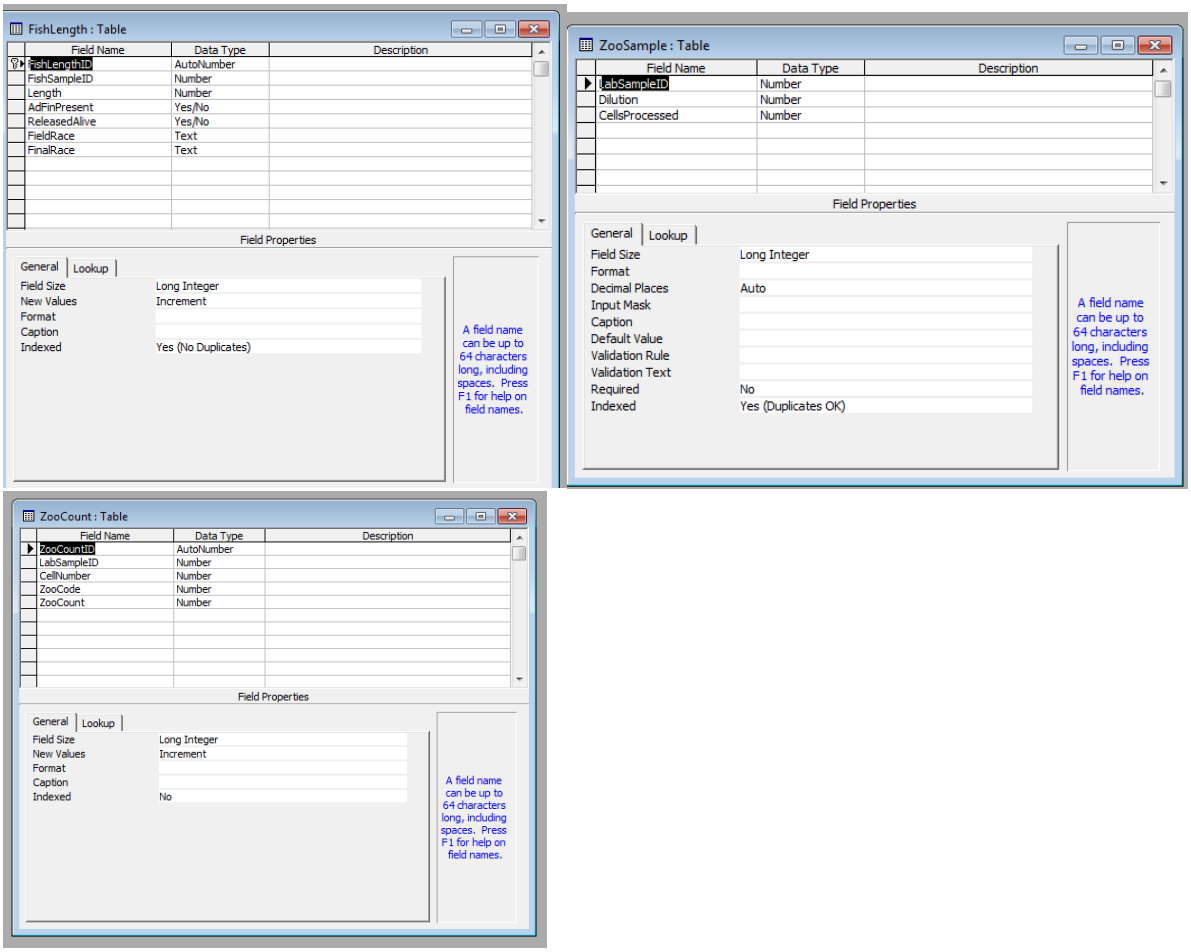


Figure 3. Design view of all the main data tables from the new (post-2016) 20-mm database.