There are five data tables in Rigbase: tbl_DIVE, tbl_TRANSECT, tbl_FISH, tbl_HABITAT, and tbl_depth. There are also data value lookup tables: names_transect_type,names_bottom_type, names_fishcodes, names_region, and names_sites which list and describe the possible values for some fields. The first four data tables, and the names_fishcodes table have defined relationships, which be viewed in the database relationships view:

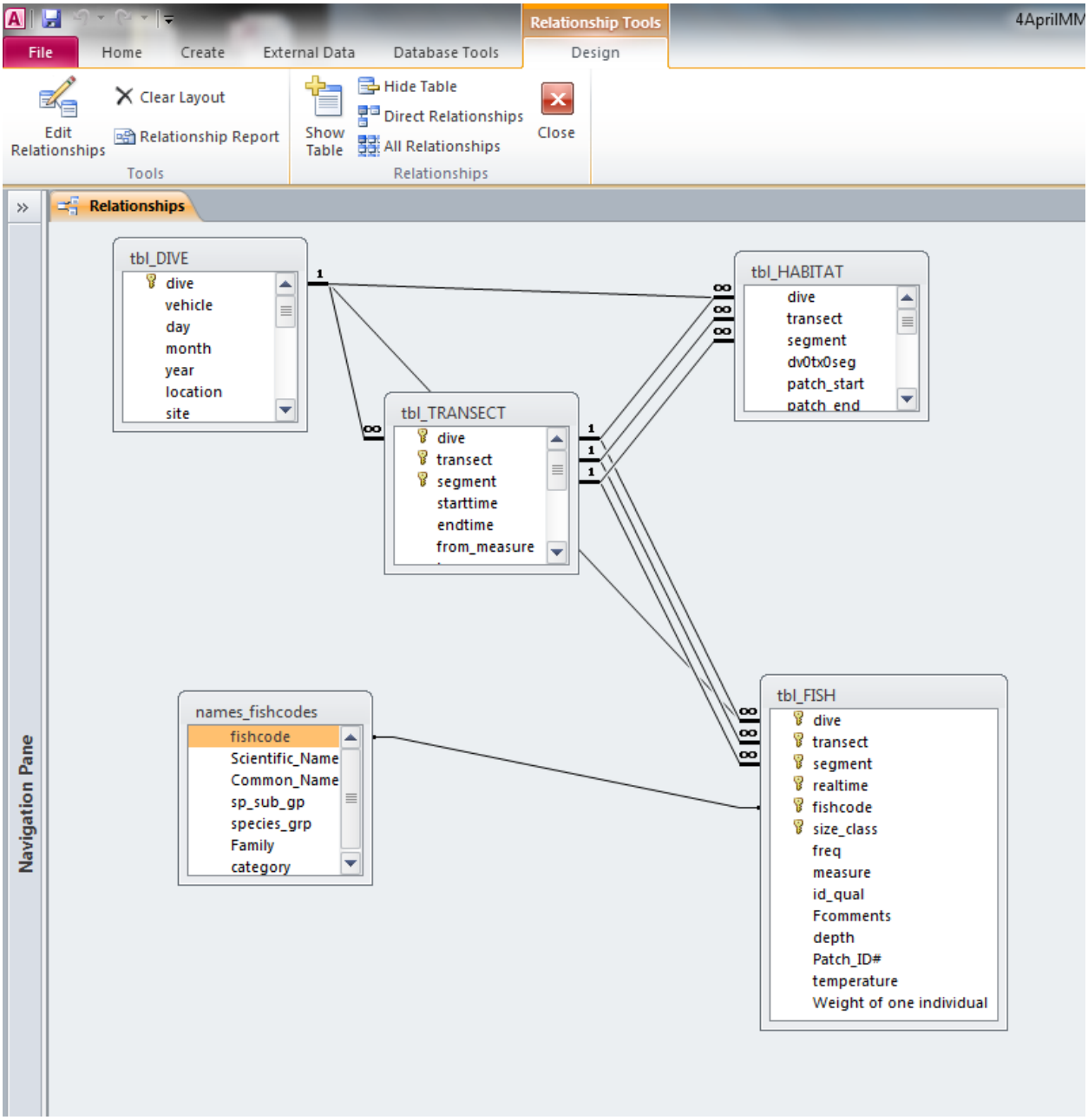
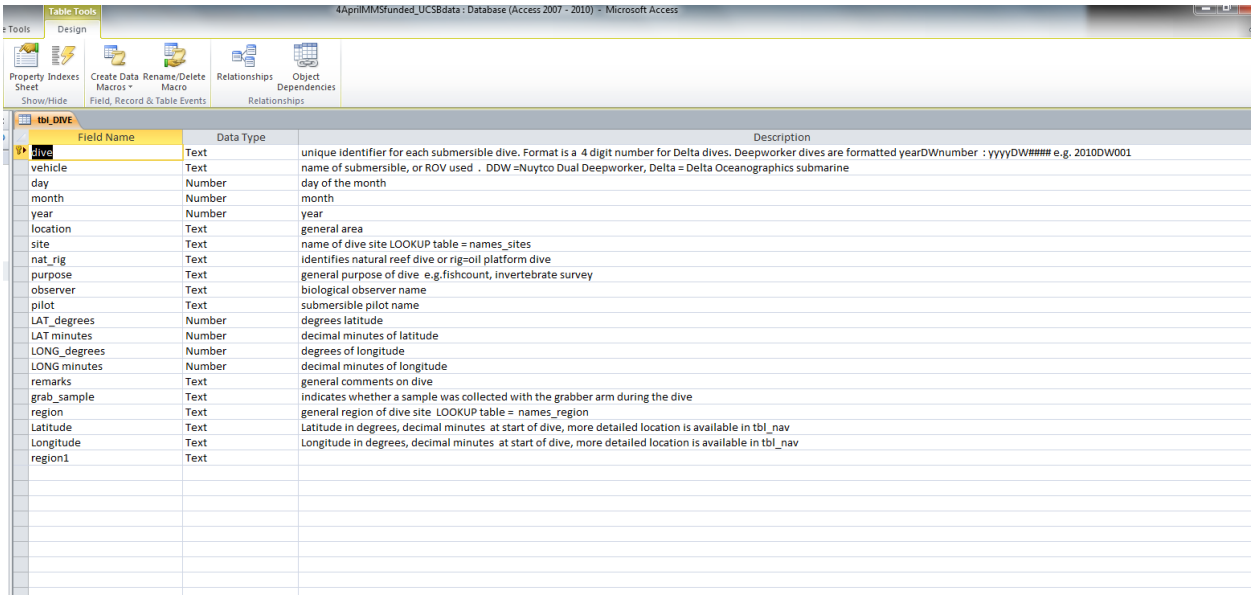


Table Descriptions:

1. tbl_DIVE

   Each record represents one submersible dive, and is identified by a unique number called “dive.” The remaining fields contain information which applies to an entire dive, such as vehicle, observer, general location, etc. .Detailed descriptions can be seen in the design view of the table:

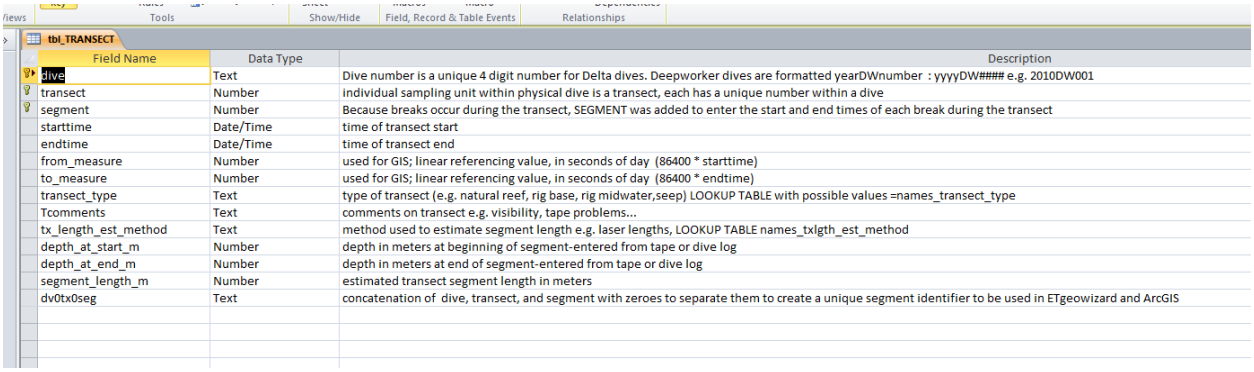


Field Name	Data Type	Description
dive	Text	unique identifier for each submersible dive. Format is a 4 digit number for Delta dives. Deepworker dives are formatted yearDWnumber : yyyyDW#### e.g. 2010DW001
vehicle	Text	name of submersible, or ROV used . DDW =Nuytco Dual Deepworker, Delta = Delta Oceanographics submarine
day	Number	day of the month
month	Number	month
year	Number	year
location	Text	general area
site	Text	name of dive site LOOKUP table = names_sites
nat_rig	Text	identifies natural reef dive or rig=oil platform dive
purpose	Text	general purpose of dive e.g.fishcount, invertebrate survey
observer	Text	biological observer name
pilot	Text	submersible pilot name
LAT_degrees	Number	degrees latitude
LAT minutes	Number	decimal minutes of latitude
LONG_degrees	Number	degrees of longitude
LONG minutes	Number	decimal minutes of longitude
remarks	Text	general comments on dive
grab_sample	Text	indicates whether a sample was collected with the grabber arm during the dive
region	Text	general region of dive site LOOKUP table = names_region
Latitude	Text	Latitude in degrees, decimal minutes at start of dive, more detailed location is available in tbl_nav
Longitude	Text	Longitude in degrees, decimal minutes at start of dive, more detailed location is available in tbl_nav
region1	Text	

2. tbl_TRANSECT

   This table is related to tbl_DIVE in a one-to-many relationship based on the field “dive.” So, for every dive number in tbl_TRANSECT there is a corresponding record in tbl_DIVE containing general dive information. During each submersible dive, from zero to many transects were conducted. Occasionally there were interruptions in a transect, and so multiple segments were created. Each record in tbl_TRANSECT has a unique combination of “dive” “transect” and “segment” and the records in the

table contain general information pertaining to that segment. Fields include start and stop times, segment length and transect type. If there is only one segment, then “segment length” would equal the length of the entire transect. Details describing fields can be found in the design view of the table:

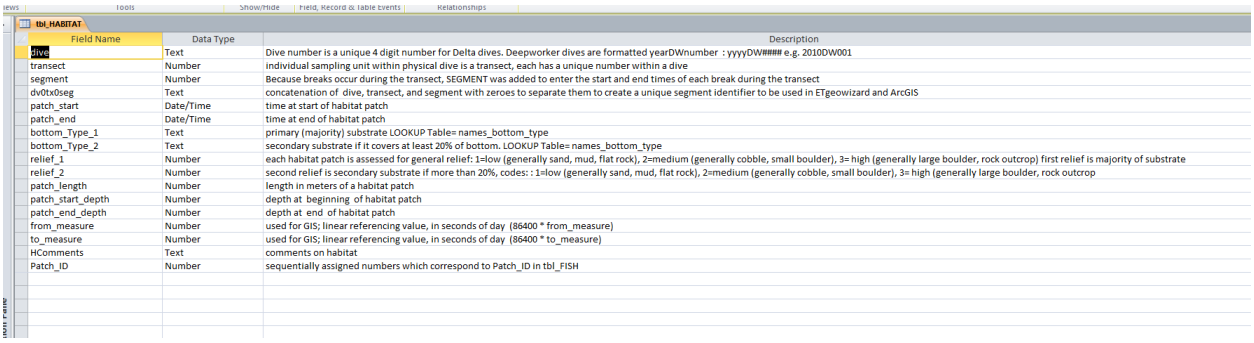


tbl_TRANSECT

Field Name	Data Type	Description
dive	Text	Dive number is a unique 4 digit number for Delta dives. Deepworker dives are formatted yearDWnumber : yyyyDW#### e.g. 2010DW001
transect	Number	individual sampling unit within physical dive is a transect, each has a unique number within a dive
segment	Number	Because breaks occur during the transect, SEGMENT was added to enter the start and end times of each break during the transect
starttime	Date/Time	time of transect start
endtime	Date/Time	time of transect end
from_measure	Number	used for GIS; linear referencing value, in seconds of day (86400 * starttime)
to_measure	Number	used for GIS; linear referencing value, in seconds of day (86400 * endtime)
transect_type	Text	type of transect (e.g. natural reef, rig base, rig midwater,seep) LOOKUP TABLE with possible values =names_transect_type
Tcomments	Text	comments on transect e.g. visibility, tape problems…
tx_length_est_method	Text	method used to estimate segment length e.g. laser lengths, LOOKUP TABLE names_txlgth_est_method
depth_at_start_m	Number	depth in meters at beginning of segment-entered from tape or dive log
depth_at_end_m	Number	depth in meters at end of segment-entered from tape or dive log
segment_length_m	Number	estimated transect segment length in meters
dv0tx0seg	Text	concatenation of dive, transect, and segment with zeroes to separate them to create a unique segment identifier to be used in ETgeowizard and ArcGIS

3. tbl_HABITAT

   This table is related to tbl_TRANSECT based on the fields “dive” “transect” and “segment,” and related to tbl_DIVE based on “dive.” For each natural reef transect segment, habitat was assessed, and data entered. Each record in the table is one habitat patch with start and stop times, bottom types, patch length, and depth information. The field Patch_ID has been set up to facilitate connection with tbl_FISH, but measures* may be used as well to find out which habitat a fish was seen in. More detail can be seen in the design view of the table:

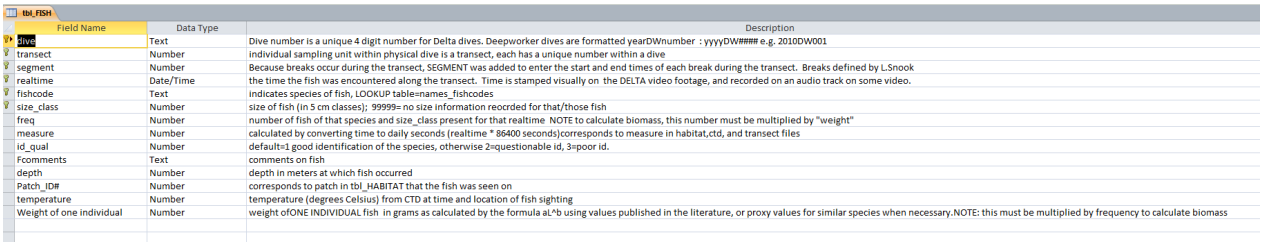


tbl_HABITAT

Field Name	Data Type	Description
dive	Text	Dive number is a unique 4 digit number for Delta dives. Deepworker dives are formatted yearDWnumber : yyyyDW#### e.g. 2010DW001
transect	Number	individual sampling unit within physical dive is a transect, each has a unique number within a dive
segment	Number	Because breaks occur during the transect, SEGMENT was added to enter the start and end times of each break during the transect
dv0tx0seg	Text	concatenation of dive, transect, and segment with zeroes to separate them to create a unique segment identifier to be used in ETgeowizard and ArcGIS
patch_start	Date/Time	time at start of habitat patch
patch_end	Date/Time	time at end of habitat patch
bottom_Type_1	Text	primary (majority) substrate LOOKUP Table= names_bottom_type
bottom_Type_2	Text	secondary substrate if it covers at least 20% of bottom. LOOKUP Table= names_bottom_type
relief_1	Number	each habitat patch is assessed for general relief: 1=low (generally sand, mud, flat rock), 2=medium (generally cobble, small boulder), 3= high (generally large boulder, rock outcrop) first relief is majority of substrate
relief_2	Number	second relief is secondary substrate if more than 20%, codes: : 1=low (generally sand, mud, flat rock), 2=medium (generally cobble, small boulder), 3= high (generally large boulder, rock outcrop
patch_length	Number	length in meters of a habitat patch
patch_start_depth	Number	depth at beginning of habitat patch
patch_end_depth	Number	depth at end of habitat patch
from_measure	Number	used for GIS; linear referencing value, in seconds of day (86400 * from_measure)
to_measure	Number	used for GIS; linear referencing value, in seconds of day (86400 * to_measure)
HComments	Text	comments on habitat
Patch_ID	Number	sequentially assigned numbers which correspond to Patch_ID in tbl_FISH

4. tbl_FISH

   This table is related to tbl_TRANSECT based on fields “dive” “transect” and “segment,” and related to tbl_DIVE based on “dive.,” It contains records of individual sightings of fish or groups of fish. Each record has a unique “dive”, “transect”, “segment”,”real time”, “fishcode” and “size_class”. If different species, and/or different sized individuals of a species were seen in a group, they were entered in different records. The variable “frequency” indicates how many of an individual were sighted. Just as “size_class” describes the size of an individual, “weight” describes the weight of an individual, and thus would need to be multiplied by “frequency” to obtain biomass. More detail can be seen in the design view of the table:



tbl_FISH

Field Name	Data Type	Description
dive	Text	Dive number is a unique 4 digit number for Delta dives. Deepworker dives are formatted yearDWnumber : yyyyDW#### e.g. 2010DW001
transect	Number	individual sampling unit within physical dive is a transect, each has a unique number within a dive
segment	Number	Because breaks occur during the transect, SEGMENT was added to enter the start and end times of each break during the transect. Breaks defined by L.Snook
realtime	Date/Time	the time the fish was encountered along the transect. Time is stamped visually on the DELTA video footage, and recorded on an audio track on some video.
fishcode	Text	indicates species of fish, LOOKUP table=names_fishcodes
size_class	Number	size of fish (in 5 cm classes); 99999= no size information reocrded for that/those fish
freq	Number	number of fish of that species and size_class present for that realtime NOTE to calculate biomass, this number must be multiplied by "weight"
measure	Number	calculated by converting time to daily seconds (realtime * 86400 seconds)corresponds to measure in habitat,ctd, and transect files
id_qual	Number	default=1 good identification of the species, otherwise 2=questionable id, 3=poor id.
Fcomments	Text	comments on fish
depth	Number	depth in meters at which fish occurred
Patch_ID#	Number	corresponds to patch in tbl_HABITAT that the fish was seen on
temperature	Number	temperature (degrees Celsius) from CTD at time and location of fish sighting
Weight of one individual	Number	weight ofONE INDIVIDUAL fish in grams as calculated by the formula aL^b using values published in the literature, or proxy values for similar species when necessary.NOTE: this must be multiplied by frequency to calculate biomass

5. tbl_depth

   Although depth information has been incorporated into tbl_FISH and tbl_HABITAT, depth information for all transects can be found in this table as well. Although there is no relationship established in the database between this and other tables, values such as dive, transect, segment, and measure* correspond to similarly named values in other tables, and so relationships may be set up for query purposes.

*It has been our experience that because of the format in which the Microsoft Office products store time of day values, it is much more reliable to use the integer field we have created, “measure” to make time based queries.

LOOKUP tables:

names_fishcodes--lists species codes used for variable “fishcodes” in tbl_FISH, and gives corresponding species information
names_regions—lists names of general dive “region” listed in tbl_DIVE
names_bottom_types—lists and describes codes used for “bottom_type_1” and “bottom_type_2” in tbl_HABITAT.
_names_sites—lists dive site names for “site” in tbl_DIVE.
names_transect_type –lists types of survey transects for “transect type” in tbl_TRANSECT.