CREM Archive Data Dictionary

Please refer to associated metadata files for detailed methodology and additional information

Column attributes

Region – the broad scale location where sites were sites were surveyed

SubRegion – regional location where sites were surveyed within the overall region

StudyArea – fine-scale location within the subregion independent of stratified sample design

SurveyYear – the year the survey was done

BatchCode – an alphanumeric code that identifies the region, month and year of each mission: mmmm-yy00; *Example*: October 2007 = 1000-0700, if mission spans two months – August-September 2001 = 0809-0100

SurveyIndex – a numerical index that uniquely identifies each specific station done within a mission

SurveyDate – the date in which a specific survey is done; formatted as mm/dd/yyyy

Latitude – The latitude of a station recorded in decimal degrees. Precise to 5 decimal places.

Longitude – The longitude of a station recorded in decimal degrees. Precise to 5 decimal places.

Management – assigned if the survey site is within the boundary of an established managed zone or area.

Flower Garden Banks:

FGBNMS – sites sampled within the jurisdiction of Flower Garden Banks National Marine Sanctuary (NOAA's Office of National Marine Sanctuaries)

Puerto Rico:

NERR – sites sampled within the jurisdiction of the National Estuarine Research Reserve (NOAA's Office of Ocean and Coastal Resource Management and coastal states)

None – sites do not fall within any management zones

St. Croix, US Virgin Islands:

BUIS – sites sampled within the jurisdiction of the Buck Island Reef National Monument (National Park Service)

EEMP – sites sampled within the jurisdiction of the East End Marine Park (USVI Department of Planning and Natural Resources)

None – sites do not fall within any management zones

St. John, US Virgin Islands:

VICR – sites sampled within the jurisdiction of the Virgin Island Coral Reef National Monument (National Park Service)

VIIS – sites sampled within the jurisdiction of the Virgin Island National Park (National Park Service)

None – sites do not fall within any management zones

StructureType – Includes three possible structures: hard, soft or mangrove.

Fish Data Specific

Family – taxonomic family of fish species; updated 2014 (based on ITIS and WoRMS)

ScientificName – taxonomic species name of fish created from the genus and species of fish; updated 2014 (based on ITIS and WoRMS)

CommonName – common/general name of fish species

Trophic – trophic group of fish derived from http://www.fishbase.org (Froese and Pauly, 2011) and/or Randall (1965) and indicated by trophic codes based on majority in species diet. If more than one food type accounts for majority of diet then multiple codes are used.

P – Piscivore: main diet consists of fish
H – Herbivore: main diet consists of algae, seagrasses, organic detritus, etc.
I – Invertivore: main diet consists of invertebrates (mobile and sessile)
PL – Planktivore: main diet consists of plankton such as phytoplankton and/or zooplankton

FishLength – the number of individuals per species is tallied in 5cm size class increments up to 35cm using visual estimation of fork length. If an individual is greater than 35cm, then an estimate of the actual fork length is recorded. All fish sizes less than 35cm are displayed as ranges. Hence, a fish that is approximately 18 cm in length will be counted as 15–20cm. All ranges increase in increments of 5cm. Prior to 2002, divers were instructed to exclusively record count for fish greater than 35cm. Therefore, the sizes of fish observed over this duration have been input as 0. However, a small proportion of entries prior to 2002 include size values concurrently with fish counts. Beginning in 2002, divers were directed to record both size and count for fish greater than 35cm. However, a few select instances exist after 2002 where only fish count was recorded. Thus, in accordance with the pre-2002 methodology, a size value of 0 has been entered for these cases.

FishCount – the number of the individual species recorded of the same size.

Abundance – a sum of the total count of fish for a given species at a given site regardless of size; the abundance value is a single value grouped by species, site and batch code. Displayed as # individuals per $100m^2$

a – numeric value used to calculate biomass; taken from http://www.fishbase.org

b – numeric value used to calculate biomass; taken from http://www.fishbase.org

Biomass – biomass values are grouped by site, species and size and then summed. Thus, each individual fish size column will have a separate biomass value for each species seen, and sum column giving the total biomass for that species at that site. Displayed as grams per $100m^2$

- Biomass is calculated using the following formula: ∑(a_lw * average fish_size ^ b_lw). The constants a_lw and b_lw are taken from http://www.fishbase.org
- In the biomass query, the average size of animals within a size range is the midpoint of that interval. For example, animals within the 5-10 cm range have an average size of 7.5 cm, while animals within the 10-15 cm range average 12.5 cm. There are two exceptions to the aforementioned methodology. First, because animals <1 cm are typically not observed, the average size of the 0-5 cm range is designated as 3 cm, or the midpoint of 1-5 cm. Secondly, when an animal >35 cm is recorded, no size approximations are made. Rather, the singular recorded size value is incorporated into the biomass calculation.
- A size column of zero is in place to account for surveys in which no fish were seen and therefore the average size for the species is used for the biomass calculation

Diversity – value reported is Shannon Diversity, calculated using the following formula: r = ∑(pi * log pi). pi is the total number of fish of a given species in a site divided by the total number of fish in that same site; the diversity value is a single value grouped by site and batch code

Richness – a count of the total number of unique species in a given site; the richness value is a single value grouped by site and batch code. Displayed as number of species per $100m^2$

Habitat Data Specific

CoverCode – general grouping of abiotic substrates (hard, rubble, fine sediment, sand)

Taxon – general grouping of biotic elements; exception of scleractinian corals which are identified to species (updated 2014, based on ITIS and WoRMS)

PercentCover – as the percent cover (to the nearest 0.1 percent) of abiotic (hard, rubble, sand, and fine sediment) and biotic (living algae, seagrass, live corals, sponges, gorgonians, tunicates, anemones, zooanthids and hydroids) within a $1m^2$ quadrat

DiseasedCover – refers to coral skeleton that has recently lost living tissue because of disease or damage that is still visible, and has not yet been colonized by turf algae. Recorded to the nearest 0.1 percent

BleachedCover – When stony coral is noticeably bleached, the entire colony is considered affected and is recorded to the nearest 0.1 percent. Refer to metadata for complete methodology.

Height – a measurement (recorded in cm) of the height of the hardbottom from the substrate to get a sense of bottom relief

Individuals – for sponges, gorgonians and "other" biota type (non-encrusting anemones and non-encrusting hydroids) the number of individuals at the quadrat level is recorded

Benthic RHA Specific

Initiated in 2003 in St. John only*. This habitat survey type is modified from a detailed (microscale) habitat assessment used to characterize nearshore habitats and is utilized to characterize areas within and nearby the Virgin Islands Coral Reef National Monument (VICR) boundaries until 2010. The VICR consists of two geographic locations: the mid-shelf ridge and Coral Bay.

MaxDepth – the maximum depth at that site

MinDepth – the minimum depth at that site

Rugosity – based on the height of the tallest hardbottom structure: low (1), medium (2), high (3)

Hard/Sand/Rubble – an estimate of percent cover (within 5 percent) of hardbottom, sand and rubble in the 15-m cylinder. The sum of percent cover in the abiotic footprint must total 100 percent.

Coral/Gorgonian/Sponges/Algae – an estimate of the percent cover (within 1 percent) of live coral, gorgonians, sponges, macro algae in the 15-m cylinder. The sum of percent cover in the biotic footprint plus including uncolonized substrate must total 100 percent. Uncolonized substrate is obtained from subtracting biotic footprint from 100.

Macroinvertebrate Specific

SpeciesCount – the number of the individual recorded of that species

Maturity – Maturity of conch species as determined by the presence of a flared lip. This term references conch only.

Sources:

Randall, J.E., 1967. Food habits of reef fishes of the West Indies. Stud. Trop. Oceanogr. Miami 5: 665-847.

Froese, R. and D. Pauly. Editors. 2014. FishBase. World Wide Web electronic publication. http://www.fishbase.org, version (06/2014).

ITIS – Integrated Taxonomic Information System. http://www.itis.gov/

WoRMS – World Register of Marine Species http://www.marinespecies.org/

Notes

*In 2004, a mission from the RV Nancy Foster was conducted at both St. Croix and St. John. The benthic methodology used was RHA and where the habitat was soft (St. Croix), a full-scale benthic collection method was used (two sites)