Puerto Rico Coral Reef Monitoring Program (PRCRMP) - Data Dictionary

Submitted to the Department of Natural and Environmental Resources (DNER) Puerto Rico Coastal Zone Management Program (PRCZMP) and the Coral Reef Conservation and Management Program (CRCMP)

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Puerto Rico Coral Reef Monitoring Program (PRCRMP) Data Abstract:

The Puerto Rico Coral Reef Monitoring Program data files include all raw data (by transect) for 86 stations where substrate cover by sessile-benthic categories and fish and motile megabenthic invertebrate taxonomic composition and densities have been characterized from 1999-2021. At present, 42 of these stations are permanent and are surveyed biannually. For the benthic characterization, at each reef station, a set of five 10 meters long permanent transects are surveyed. Sessile-benthic reef communities are characterized by the continuous intercept chain-link method, following the CARICOMP (1994) protocol. Demersal diurnal non-cryptic reef fish populations and motile megabenthic invertebrates are surveyed by sets of five 10 meters long by 3 meters wide (30 m^2) belt-transects centered along the reference line of transects used for sessile-benthic characterizations at each reef station. Upon completion of the 10 meters belt-transect survey the diver swims along the same depth and physiographic reef zone for an extra 10 meters to identify fishes and megabenthic invertebrates of commercial value (snappers, groupers, hogfishes, barracuda, mackerels, sharks, lobsters and queen conch) and/or fish species that are considered important reef herbivores (parrotfishes, doctorfishes). For each fish individual within belt-transects, a visual total length (TL) estimate in centimeters was recorded. The cephalothorax length (measurement from the tip of the rostrum to end of the thorax), also known as carapace length (CL) in centimeters was used to report the size of lobsters (*Panulirus* spp., *Scyllarides* sp) within belt-transects. Queen conch (*Strombus gigas*) length was reported as the total (diagonal) shell length in centimeters. With the length-weight relationship information available in FishBase.org, biomass estimates have been calculated for commercially and ecologically important species. The PRCRMP data files also include a site classification spreadsheet with descriptors for each monitoring station, some of which can be used as spatial and temporal factors for statistical analyses. These descriptors include information about depth, habitat type, distance from shore, marine protected areas attributes, coordinates, and other metadata.

Monitoring Design Factors, Site Classification Descriptors, and Indicators

Factors, Descriptors, and Indicators Description:

The PRCRMP factors and descriptors include categorical variables and other metadata to stratify and/or classify monitoring stations based on spatiotemporal characteristics, sampling effort, and other descriptors relevant to assess management and biological condition questions. These are essential in evaluating the publication of the PRCRMP Database Compilation in a Geographical Information System (GIS) based platform as it includes coordinates for each monitoring station and attributes for data visualization related to distance from shore gradients, habitat types, depths, proximity to watersheds, stations within Marine Protected Areas (MPAs), etc. References used for some labels are included in the references section.

In addition, the data files include a list of indicators that serve to classify or group species and categories. Indicators include the taxonomic classification of species to the lowest level possible (i.e, phylum, class, order, family, genus, and species) and other classifications like functional groups and/or targeted categories. Taxonomic classifications were obtained using the World Register of Marine Species (WoRMS) Taxon-Match Tool developed by Tony Rees, Michael Giddens, and Dmitry Mozzherin. These indicators allow for statistical analyses at the functional, community, and taxonomic levels.

The following list of label definitions apply to all PRCRMP datasets (sessile-benthic, fish and macroinvertebrates) and the PRCRMP Site Classification Database.

Factors, Descriptors, and Indicators Label Definitions:

Factors and Descriptors in PRCRMP data files and/or PRCRMP Site Classification Database	
SAMPLE CODE	A label that identifies each unique sample in the data files of the PRCRMP Database Compilation. It consists of the sample year, site name, and transect number.
Site Name	Name of monitoring stations. Each site name belongs to a specific coordinate. Specifications: Site names include a year in parenthesis if the station coordinates shifted over time because of transect re-establishment. Site names include depth (in meters) if there are multiple stations with the same site name at different depths. Site names include the location in parenthesis if there are stations with the same site name in different locations. The purpose of this site name nomenclature is to differentiate each monitoring station while being consistent with site names in PRCRMP reports. However, site names in PRCRMP reports do not make the specifications explained here.
Site Code	An abbreviation of site name. Specification: Site Code includes two letters representing the last 2 digits of the baseline year for the site, followed by four letters of the site name, followed by two numbers that represent station mean depth (standardized to CARICOMP depth intervals).
Transect	A spatial replicate within each site. From 2004-2013 Fish and Macroinvertebrate Size Frequency data was not replicated by transect because there was one Active Search Census (ASEC Survey) done per site.
Location	The geographical area where monitoring stations are located. Most locations are municipalities of Puerto Rico, others are oceanic islands of the Puerto Rican archipelago.
Region	The geographical area where monitoring stations cluster together considering potential bioregions in Puerto Rico (i.e. sites belonging to isolated oceanic islands, continuous reef systems of the insular platform isolated by a submarine canyon, etc.) as well as site replicates. Specification: There is a minimum of 2 current stations in the Southeast Region and a maximum of 14 current stations in the West Region, with an average of 6 (± 4) stations per Region.
Geographic Zone	The cardinal geographical area where monitoring stations are located. Specification: There are a minimum of 2 current stations in the North Geographic Zone and a maximum of 17 current stations in the West Geographic Zone, with an average of 8 (± 6) stations per Geographic Zone.
Latitude	Latitude of monitoring station in decimal degrees. Specification: Taken at the center (5m) of Transect 3.

Longitude	Longitude of monitoring station in decimal degrees. Specification: Taken at the center (5m) of Transect 3.
Status	Status of the monitoring station. Specification: Previous = monitoring station no longer visited; Current = monitoring station currently being monitored once every two years (biennial).
Baseline Year	Year when the station was first visited for a benthic characterization as part of PRCRMP surveys.
Most Recent Survey	Year of most recent PRCRMP survey. Specification: Latest revision in 2021.
# Surveyed Years	# of visits or PRCRMP surveys since the station was first visited as part of PRCRMP. Specification: Latest revision in 2021.
Surveyed Years	Specific years that the stations have been visited (separated by commas).
Insular Shelf Zone	Station position relative to the Puerto Rico insular shelf as seen in bathymetric features when projecting monitoring stations on Esri's Ocean Basemap (2012) * and NOAA's Office of Coast Survey's Electronic [Nautical] Charts (ENC) (2014-2019) *.
Reef Zonation	Station position relative to the reef structure as determined by PRCRMP fieldwork contractor in PRCRMP reports * and/or satellite imagery.
Mean Depth_(m)	All-years site average depth in meters. Specification: Mean depth is standardized to CARICOMP (2001) * fore reef depth intervals (0-5m, 5-10m, and >10m). For >10m mean depths, depth was standardized to 15, 20, and 30m depths ad hoc.
Z – true (m)	All-years site average depth in meters recorded in the field by DNER fieldwork contractor.
Depth Zone	Categorical depth range in meters selected based on the distribution of Z- true (m) across stations. Specification: Depth Zone levels were selected to have at least 24 stations level (except Mesophotic with n=5).
Habitat Type	Categorical station habitat description. Specification: Habitat Types are based on NCRMP habitat type definitions (Kendall et al., 2002; NCCOS, 2018) *, except "Spur and Groove", which is adapted from Morelock et al. (1977) * and Storlazzi et al. (2003) * to identify a [typical] shelf-sedge habitat in Puerto Rico. In addition, DNER fieldwork contractor provided the habitat type for some stations in the physical description narrative of PRCRMP reports *.
Mean Rugosity (m)	The all-years rugosity station average. It is an index or measure of topographic complexity for habitats intercepted by transects. It is estimated as the total length of the transect chain (each link is 1.4 cm) divided by the horizontal distance covered (10m). Specification: The method was adopted by DNER fieldwork contractor from the CARICOMP (2001) * protocol. The original reference for the method is Rogers et al. (1982) *.
Topographic Complexity	Categorical rugosity range for each station selected based on the distribution of Rugosity (m) across stations. Specification: Ranges were selected to have at least 20 stations per Topographic Complexity Level.

Coral Biotope	Categorical coral community site descriptor that incorporates before and after the 2005 coral bleaching event data, if available. The purpose of the all-years average in the rules is to identify what type of coral community can describe the station, not only in terms of recent data but considering historical data as well. To see the sites which Coral Biotope descriptor includes data from before and after 2005 bleaching event, verify column Surveyed Years. Specification: Coral Biotope levels are defined by the all-years (1999-2018) site average cover % of the following coral hierarchical rules: **O. annularis complex** = O. ann >16%; **A. palmata** = A. palmata >25%; **High-Moderate Hard Coral** = total hard coral >15% + O. ann <16% + A. palmata <25%; **Octocoral canopy** = >20 col/10m2 + <15%O.ann + <20% A.pal + <15 hard coral%; **Low Coral** = <15% hard coral + <20 col/10m2 octocoral. Definitions were established by contractor Miguel G. Figuerola Hernández during the creation of the PRCRMP Site Classification Database.
Coral cover % change since baseline	The site percent change in coral cover between the baseline survey and most recent survey per site. Specification: % Cover Change = [(most recent survey average cover %) - (baseline survey average cover %)] / baseline survey average cover %
Distance from PR Shoreline (km)	The minimum linear distance between site and shoreline of P.R. mainland. Specification: For stations located in oceanic islands (Mona, Desecheo, Caja de Muertos, Vieques, and Culebra) the distance from PR Shoreline is the minimum linear distance of the station to the P.R. "mainland".
Distance from PR Shoreline (km)[Binned]	The categorical minimum linear distance between station and shoreline of P.R. mainland.
Distance Nearest River Mouth (km)	The minimum linear distance between the station and the nearest river mouth. Specification: Nearest river mouth might be upstream or downstream from the station.
Distance Nearest River Mouth (km) [Binned]	The categorical minimum linear distance between the station and the nearest river mouth.
Nearest River Mouth Direction	Cardinal direction from the station to the nearest river mouth.
Nearest Main Watershed	Name of nearest main watershed associated with the monitoring station.
# of Waterways Inputs (<10km)	The # of "river mouths" or waterways inputs 10km or less from the station. Specification: Calculated using measurement tools of ArcGIS online and HOTOSM PRI Waterways shapefile (HOTOSM PRI, 2017) *.
# of Waterways Inputs (<10km) [Binned]	Categorical number of river mouths or waterways inputs 10km or less from the station. Specification: Calculated using measurement tools of ArcGIS online and HOTOSM PRI Waterways shapefile (HOTOSM PRI, 2017) *. w = waterways.
Watershed Region	The geographical descriptor of regions with monitoring stations with a higher number (#) of Waterways Inputs (<10km).
PRASA Wastewater Treatment Plant in Near Waterway Inputs	Presence/absence of a PRASA Wastewater Treatment Plant in one of the Near Waterways Inputs (<10km). Specification: Information retrieved from an Esri's ArcGIS online dataset compiled by Sarah Spalding,

	containing data on wastewater treatment plants, based on EPA's Facility Registry Service (FRS) (EPA, 2015) *.
Station Within MPA?	Identifies stations inside MPAs. Specification: Yes = station is located within MPA boundaries; No = station is outside MPA boundaries. MPA boundaries obtained from GIS file Natural Protected Areas of Puerto Rico (CLCC and DNER, 2016) * and NOAA's Marine Protected Areas Inventory [GIS Data] (revised in 2017) *.
Distance to nearest MPA (km)	The minimum linear distance between the station and the nearest MPA boundary. Specification: MPA boundaries obtained from GIS file Natural Protected Areas of Puerto Rico (CLCC and DNER, 2016) * and NOAA's Marine Protected Areas Inventory [GIS Data] (revised in 2017) *.
Nearest MPA Name	The name of MPA near monitoring station. Specification: In the case of monitoring station inside an MPA, the MPA name is provided.
MPA Designation Year	MPA designation year. Specification: Taken from Table 2 in Aguilar-Perera et al. (2006) *, DNER Office of Coastal Zone Management (2009) *, and the NOAA's Marine Protected Areas Inventory [GIS Data] (revised in 2017) *.
MPA Years Since Designation	Years since MPA designation year. Specification: Latest revision in 2021.
MPA Seafloor Surface Area (Km^2)	MPA Seafloor Surface Area in km^2. Specification: Taken from Table 2 in Aguilar-Perera et al. (2006) * and the NOAA's Marine Protected Areas Inventory [GIS Data] (revised in 2017) *.
MPA Fishing Restrictions	Fishing restrictions within MPA boundaries. Specification: Identified in NOAA's Marine Protected Areas Inventory [GIS Data] (revised in 2017) *
MPA Level of Protection	Level of Protection within MPA boundaries. Specification: Defined in NOAA's Definition & Classification System for U.S. Marine Protected Areas (2011) *
T1 (Lat''Lon)	Transect 1 coordinates. Specification: Taken at the center [5m] of the benthic transect
T2 (Lat''Lon)	Transect 2 coordinates. Specification: Taken at the center [5m] of the benthic transect
T3 (Lat''Lon)	Transect 3 coordinates. Specification: Taken at the center [5m] of the benthic transect
T4 (Lat''Lon)	Transect 4 coordinates. Specification: Taken at the center [5m] of the benthic transect
T5 (Lat''Lon)	Transect 5 coordinates. Specification: Taken at the center [5m] of the benthic transect
Indicators in PRCRMP data files (sessile-benthic, fish, and macroinvertebrates)	
Phylum	Phylum of benthic, fish, and macroinvertebrate individuals
Class	Class of benthic, fish, and macroinvertebrate individuals
Order	Order of benthic, fish, and macroinvertebrate individuals
Family	Family of benthic, fish, and macroinvertebrate individuals
Genus	Genus of benthic, fish, and macroinvertebrate individuals

Species	Species of benthic, fish, and macroinvertebrate individuals
Benthic Indicator	Classification of functional groups and the main category of benthic cover percentage or colony count measurements

*References

Sessile-Benthic Communities

Benthic Data Description:

The PRCRMP benthic data file includes 10-meter chain transect substrate cover percentage data of sessile-benthic reef communities for all surveyed stations. Data units are in cover percent, but some benthic categories and their species (octocorals and stony corals) are reported as the number of colonies as well. When the number of colonies is reported, the data label will include the "**#col.**" characters. Blank cells in this data file represent missing values. Missing values are present because since the beginning of the surveys in 1999 not all benthic categories have been identified to the species level. Also, some benthic categories and/or species have not been considered during benthic surveys at specific years, so the years when they were not considered, they will appear with missing values in the data file (blank cells). That is, this data file includes blank cells, representing species not considered during the survey and transects or stations not completed.

For data collection field methodologies see the Field Methodology of the Puerto Rico Coral Reef Monitoring Program (PRCRMP).

Benthic Data Label Definitions:

Rugosity (m)	It is an index or measure of topographic complexity for habitats intercepted by transects. It is estimated as the total length of the transect chain divided by the horizontal distance covered (10m). Specification: The method was adapted by DNER fieldwork contractor from the CARICOMP (2001) * protocol. The original reference for the method is Rogers et al. (1982) *.
Reef overhang	Substrate cover percentage by the abiotic subcategory Reef overhang. It is a reef space where the chain drops freely to the bottom without being in contact with any recognizable substrate category. Overhangs typically occur below a coral ledge, branch, or rock outcrop.
Rubble	Substrate cover percentage by the abiotic subcategory Rubble
Sand	Substrate cover percentage by the abiotic subcategory Sand
Sand and rubble	Substrate cover percentage by the abiotic subcategory Sand and rubble
Pavement	Substrate cover percentage by the abiotic subcategory Pavement

Gaps/Holes	Substrate cover percentage by the abiotic subcategory Gaps/Holes. It is a narrow open reef space between two other substrate categories. These gaps are typically narrow and deep enough such that the substrate below the chain is unrecognizable.
Abiotic (total)	Substrate cover percentage by all abiotic subcategories
Bartholomea annulata	Substrate cover percentage by the Anemone species Bartholomea annulata
Lebrunia neglecta	Substrate cover percentage by the Anemone species Lebrunia neglecta
Phymanthus crucifer	Substrate cover percentage by the Anemone species Phymanthus crucifer
Ricordea florida	Substrate cover percentage by the Anemone species Ricordea florida
Rhodactis osculifera	Substrate cover percentage by the Anemone species Rhodactis osculifera
Anemone spp.	Substrate cover percentage by the Anemone species Anemone spp. (unidentified)
Anemones (total)	Substrate cover percentage by all Anemone species
Eudistoma spp.	Substrate cover percentage by the Ascidian species Eudistoma spp. (unidentified)
Trididemnum solidum	Substrate cover percentage by the Ascidian species Trididemnum solidum
Ascidian spp.	Substrate cover percentage by the Ascidian species Ascidian spp. (unidentified)
Tunicata (total)	Substrate cover percentage by all Tunicata species
CCA (total)	Substrate cover percentage by all Crustose Coraline Algae, red algae in the Order Corallinales that secrete Mg-calcite skeletons. CCA excludes encrusting algae from the family Peyssonneliaceae.
Cyanobacteria (total)	Substrate cover percentage by Cyanobacteria. Microscopic free-living marine autotrophic (photosynthetic/oxygenic) bacteria in the Phylum Cyanophyta that grow together forming reddish mats or patches over reef surfaces. Also known as “blue-green algae”.
Thalassia testudinum	Substrate cover percentage by the Seagrass species Thalassia testudinum
Seagrass (total)	Substrate cover percentage by all Seagrass species
Amphiroa spp.	Substrate cover percentage by the Macroalgae species Amphiroa spp. (unidentified)
Asparagopsis taxiformis	Substrate cover percentage by the Macroalgae species Asparagopsis taxiformis
Asparagopsis taxiformis on Ramicrusta	Substrate cover percentage by the Macroalgae species Asparagopsis taxiformis on Ramicrusta

Caulerpa racemosa	Substrate cover percentage by the Macroalgae species Caulerpa racemosa
Caulerpa spp.	Substrate cover percentage by the Macroalgae species Caulerpa spp. (unidentified)
Caulerpa spp. on Ramicrusta	Substrate cover percentage by the Macroalgae species Caulerpa spp. (unidentified) on Ramicrusta
Dichotomaria marginata	Substrate cover percentage by the Macroalgae species Dichotomaria marginata
Dictyota spp.	Substrate cover percentage by the Macroalgae species Dictyota spp. (unidentified)
Dictyota spp. on Ramicrusta	Substrate cover percentage by the Macroalgae species Dictyota spp. (unidentified) on Ramicrusta
Galaxaura spp.	Substrate cover percentage by the Macroalgae species Galaxaura spp. (unidentified)
Galaxaura spp. on Ramicrusta	Substrate cover percentage by the Macroalgae species Galaxaura spp. (unidentified) on Ramicrusta
Gracilaria spp.	Substrate cover percentage by the Macroalgae species Gracilaria spp. (unidentified)
Halimeda discoidea	Substrate cover percentage by the Macroalgae species Halimeda discoidea
Halimeda spp.	Substrate cover percentage by the Macroalgae species Halimeda spp. (unidentified)
Halimeda spp. on Ramicrusta	Substrate cover percentage by the Macroalgae species Halimeda spp. (unidentified) on Ramicrusta
Halimeda tuna	Substrate cover percentage by the Macroalgae species Halimeda tuna
Jania spp.	Substrate cover percentage by the Macroalgae species Jania spp. (unidentified)
Lobophora spp.	Substrate cover percentage by the Macroalgae species Lobophora spp. (unidentified)
Lobophora variegata	Substrate cover percentage by the Macroalgae species Lobophora variegata
Lobophora variegatus on Ramicrusta	Substrate cover percentage by the Macroalgae species Lobophora variegatus on Ramicrusta
Martensia pavonia	Substrate cover percentage by the Macroalgae species Martensia pavonia
Padina spp.	Substrate cover percentage by the Macroalgae species Padina spp. (unidentified)
Sargassum hystrix	Substrate cover percentage by the Macroalgae species Sargassum hystrix
Sargassum natans	Substrate cover percentage by the Macroalgae species Sargassum natans

Stypopodium spp.	Substrate cover percentage by the Macroalgae species Stypopodium spp. (unidentified)
Stypopodium zonale	Substrate cover percentage by the Macroalgae species Stypopodium zonale
Udotea spp.	Substrate cover percentage by the Macroalgae species Udotea spp. (unidentified)
Valonia ventricosa	Substrate cover percentage by the Macroalgae species Valonia ventricosa
Wrangelia bicuspidata	Substrate cover percentage by the Macroalgae species Wrangelia bicuspidata
Macroalgae spp.	Substrate cover percentage by the Macroalgae species Macroalgae spp. (unidentified)
Macroalgae (total)	Substrate cover percentage by all Macroalgae species
Ramicrusta spp.	Substrate cover percentage by the Peyssonneliaceae species Ramicrusta spp. (unidentified)
Peyssonnelia spp.	Substrate cover percentage by the Peyssonneliaceae species Peyssonnelia spp. (unidentified)
Peyssonneliaceae (total)	Substrate cover percentage by all Peyssonneliaceae species
Turf (mixed) on Ramicrusta	Substrate cover percentage by Turf algae growing on Ramicrusta
Turf (mixed) with sediment	Substrate cover percentage by Turf algae with sediment
Turf (mixed)	Substrate cover percentage by a mixed assemblage of turf algae. It is a mixed assemblage of short algae (< 2cm) growing as a rug over reef hard bottom.
Turf Algae (total)	Substrate cover percentage by all Turf Algae subcategories
Antillogorgia acerosa	Substrate cover percentage by the Octocoral species Antillogorgia acerosa
Antillogorgia americana	Substrate cover percentage by the Octocoral species Antillogorgia americana
Antillogorgia bipinnata	Substrate cover percentage by the Octocoral species Antillogorgia bipinnata
Antillogorgia rigida	Substrate cover percentage by the Octocoral species Antillogorgia rigida
Eunicea calyculata	Substrate cover percentage by the Octocoral species Eunicea calyculata
Eunicea flexuosa	Substrate cover percentage by the Octocoral species Eunicea flexuosa
Eunicea mammosa	Substrate cover percentage by the Octocoral species Eunicea mammosa
Eunicea pallida	Substrate cover percentage by the Octocoral species Eunicea pallida
Eunicea spp.	Substrate cover percentage by the Octocoral species Eunicea spp. (unidentified)

Eunicea succinea	Substrate cover percentage by the Octocoral species Eunicea succinea
Eunicea tourneforti	Substrate cover percentage by the Octocoral species Eunicea tourneforti
Gorgonia mariae	Substrate cover percentage by the Octocoral species Gorgonia mariae
Gorgonia ventalina	Substrate cover percentage by the Octocoral species Gorgonia ventalina
Muricea atlantica	Substrate cover percentage by the Octocoral species Muricea atlantica
Muricea elongata	Substrate cover percentage by the Octocoral species Muricea elongata
Muricea muricata	Substrate cover percentage by the Octocoral species Muricea muricata
Muricea pinnata	Substrate cover percentage by the Octocoral species Muricea pinnata
Muriceopsis flavida	Substrate cover percentage by the Octocoral species Muriceopsis flavida
Plexaura homomalla	Substrate cover percentage by the Octocoral species Plexaura homomalla
Plexaura kukenthali	Substrate cover percentage by the Octocoral species Plexaura kukenthali
Plexaura spp.	Substrate cover percentage by the Octocoral species Plexaura spp. (unidentified)
Plexaurella nutans	Substrate cover percentage by the Octocoral species Plexaurella nutans
Plexaurella spp.	Substrate cover percentage by the Octocoral species Plexaurella spp. (unidentified)
Pseudoplexaura flagellosa	Substrate cover percentage by the Octocoral species Pseudoplexaura flagellosa
Pseudoplexaura spp.	Substrate cover percentage by the Octocoral species Pseudoplexaura spp. (unidentified)
Pseudoplexaura wagenaari	Substrate cover percentage by the Octocoral species Pseudoplexaura wagenaari
Pterogorgia guadalupensis	Substrate cover percentage by the Octocoral species Pterogorgia guadalupensis
Pterogorgia spp.	Substrate cover percentage by the Octocoral species Pterogorgia spp. (unidentified)
Octocoral spp.	Substrate cover percentage by the Octocoral species Octocoral (unidentified)
Octocorals (total erect)	Substrate cover percentage by all erect or branching Octocoral species

Briareum asbestinum	Substrate cover percentage by the Octocoral species Briareum asbestinum
Erythropodium caribaeorum	Substrate cover percentage by the Octocoral species Erythropodium caribaeorum
Octocoral spp. (encrusting)	Substrate cover percentage by the Octocoral species Octocorals (encrusting) unidentified
Octocorals (total encrusting)	Substrate cover percentage by all encrusting Octocoral species
Antillogorgia acerosa (# col.)	Number of colonies of the Octocoral species Antillogorgia acerosa
Antillogorgia americana (# col.)	Number of colonies of the Octocoral species Antillogorgia americana
Antillogorgia bipinnata (# col.)	Number of colonies of the Octocoral species Antillogorgia bipinnata
Antillogorgia spp. (# col.)	Number of colonies of the Octocoral species Antillogorgia spp. (unidentified)
Briareum asbestinum (# col.)	Number of colonies of the Octocoral species Briareum asbestinum
Erythropodium caribaeorum (# col.)	Number of colonies of the Octocoral species Erythropodium caribaeorum
Eunicea asperula (# col.)	Number of colonies of the Octocoral species Eunicea asperula
Eunicea calyculata (# col.)	Number of colonies of the Octocoral species Eunicea calyculata
Eunicea flexuosa (# col.)	Number of colonies of the Octocoral species Eunicea flexuosa
Eunicea lacinata (# col.)	Number of colonies of the Octocoral species Eunicea lacinata
Eunicea laxispica (# col.)	Number of colonies of the Octocoral species Eunicea laxispica
Eunicea mammosa (# col.)	Number of colonies of the Octocoral species Eunicea mammosa
Eunicea spp. (# col.)	Number of colonies of the Octocoral species Eunicea spp. (unidentified)
Eunicea succinea (# col.)	Number of colonies of the Octocoral species Eunicea succinea
Eunicea tourneforti (# col.)	Number of colonies of the Octocoral species Eunicea tourneforti
Gorgonia ventalina (# col.)	Number of colonies of the Octocoral species Gorgonia ventalina
Muricea atlantica (# col.)	Number of colonies of the Octocoral species Muricea atlantica
Muricea elongata (# col.)	Number of colonies of the Octocoral species Muricea elongata
Muricea laxa (# col.)	Number of colonies of the Octocoral species Muricea laxa

Muricea muricata (# col.)	Number of colonies of the Octocoral species Muricea muricata
Muricea spp. (# col).	Number of colonies of the Octocoral species Muricea spp. (unidentified) (# col).
Muriceopsis flavida (# col.)	Number of colonies of the Octocoral species Muriceopsis flavida
Plexaura homomalla (# col.)	Number of colonies of the Octocoral species Plexaura homomalla
Plexaura kukenthali (# col.)	Number of colonies of the Octocoral species Plexaura kukenthali
Plexaura kuna (# col.)	Number of colonies of the Octocoral species Plexaura kuna
Plexaura spp. (# col.)	Number of colonies of the Octocoral species Plexaura spp. (unidentified)
Plexaurella dichotoma (# col.)	Number of colonies of the Octocoral species Plexaurella dichotoma
Plexaurella nutans (# col.)	Number of colonies of the Octocoral species Plexaurella nutans
Plexaurella spp. (# col.)	Number of colonies of the Octocoral species Plexaurella spp. (unidentified)
Pseudoplexaura flagellosa (# col.)	Number of colonies of the Octocoral species Pseudoplexaura flagellosa
Pseudoplexaura porosa (# col.)	Number of colonies of the Octocoral species Pseudoplexaura porosa
Pterogorgia citrina (# col.)	Number of colonies of the Octocoral species Pterogorgia citrina
Pterogorgia guadalupensis (# col.)	Number of colonies of the Octocoral species Pterogorgia guadalupensis
Pterogorgia spp. (# col.)	Number of colonies of the Octocoral species Pterogorgia spp. (unidentified)
Octocoral (total # col.)	Total number of Octocoral colonies
Agelas citrina	Substrate cover percentage by the Sponge species Agelas citrina
Agelas clathrodes	Substrate cover percentage by the Sponge species Agelas clathrodes
Agelas conifera	Substrate cover percentage by the Sponge species Agelas conifera
Agelas dispar	Substrate cover percentage by the Sponge species Agelas dispar
Agelas sceptrum	Substrate cover percentage by the Sponge species Agelas sceptrum
Agelas spp.	Substrate cover percentage by the Sponge species Agelas spp. (unidentified)

Agelas sventres	Substrate cover percentage by the Sponge species Agelas sventres
Agelas tubulata	Substrate cover percentage by the Sponge species Agelas tubulata
Aiolochroia crassa	Substrate cover percentage by the Sponge species Aiolochroia crassa
Amphimedon caribica	Substrate cover percentage by the Sponge species Amphimedon caribica
Amphimedon compressa	Substrate cover percentage by the Sponge species Amphimedon compressa
Amphimedon viridis	Substrate cover percentage by the Sponge species Amphimedon viridis
Aplysina archeri	Substrate cover percentage by the Sponge species Aplysina archeri
Aplysina cauliformis	Substrate cover percentage by the Sponge species Aplysina cauliformis
Aplysina fistularis	Substrate cover percentage by the Sponge species Aplysina fistularis
Aplysina fulva	Substrate cover percentage by the Sponge species Aplysina fulva
Aplysina insularis	Substrate cover percentage by the Sponge species Aplysina insularis
Aplysina lacunosa	Substrate cover percentage by the Sponge species Aplysina lacunosa
Aplysina spp.	Substrate cover percentage by the Sponge species Aplysina spp. (unidentified)
Biemna caribea	Substrate cover percentage by the Sponge species Biemna caribea
Biemna spp.	Substrate cover percentage by the Sponge species Biemna spp. (unidentified)
Callyspongia armigera	Substrate cover percentage by the Sponge species Callyspongia armigera
Callyspongia fallax	Substrate cover percentage by the Sponge species Callyspongia fallax
Callyspongia plicifera	Substrate cover percentage by the Sponge species Callyspongia plicifera
Callyspongia spp.	Substrate cover percentage by the Sponge species Callyspongia spp. (unidentified)
Callyspongia tenerrima	Substrate cover percentage by the Sponge species Callyspongia tenerrima
Callyspongia vaginalis	Substrate cover percentage by the Sponge species Callyspongia vaginalis

Chondrilla caribensis	Substrate cover percentage by the Sponge species Chondrilla caribensis
Chondrosia collectrix	Substrate cover percentage by the Sponge species Chondrosia collectrix
Cinachyrella apion	Substrate cover percentage by the Sponge species Cinachyrella apion
Cinachyrella kuekenthali	Substrate cover percentage by the Sponge species Cinachyrella kuekenthali
Clathria spp.	Substrate cover percentage by the Sponge species Clathria spp. (unidentified)
Clathria venosa	Substrate cover percentage by the Sponge species Clathria venosa
Cliona aprica	Substrate cover percentage by the Sponge species Cliona aprica
Cliona caribbaea	Substrate cover percentage by the Sponge species Cliona caribbaea
Cliona delitrix	Substrate cover percentage by the Sponge species Cliona delitrix
Cliona laticavicola	Substrate cover percentage by the Sponge species Cliona laticavicola
Cliona spp.	Substrate cover percentage by the Sponge species Cliona spp. (unidentified)
Cliona tenuis	Substrate cover percentage by the Sponge species Cliona tenuis
Cliona varians	Substrate cover percentage by the Sponge species Cliona varians
Cribrochalina vasculum	Substrate cover percentage by the Sponge species Cribrochalina vasculum
Desmapsamma spp.	Substrate cover percentage by the Sponge species Desmapsamma spp. (unidentified)
Desmapsamma anchorata	Substrate cover percentage by the Sponge species Desmapsamma anchorata
Dictyonella funicularis	Substrate cover percentage by the Sponge species Dictyonella funicularis
Dictyonella spp.	Substrate cover percentage by the Sponge species Dictyonella spp. (unidentified)
Diplastrella spp.	Substrate cover percentage by the Sponge species Diplastrella spp. (unidentified)
Dragmacidon reticulatum	Substrate cover percentage by the Sponge species Dragmacidon reticulatum
Dysidea etheria	Substrate cover percentage by the Sponge species Dysidea etheria

Dysidea janiae	Substrate cover percentage by the Sponge species Dysidea janiae
Ectyoplasia ferox	Substrate cover percentage by the Sponge species Ectyoplasia ferox
Geodia neptuni	Substrate cover percentage by the Sponge species Geodia neptuni
Haliclona spp.	Substrate cover percentage by the Sponge species Haliclona spp. (unidentified)
Halisarca caerulea	Substrate cover percentage by the Sponge species Halisarca caerulea
Halisarca spp.	Substrate cover percentage by the Sponge species Halisarca spp. (unidentified)
Iotrochota arenosa	Substrate cover percentage by the Sponge species Iotrochota arenosa
Iotrochota birotulata	Substrate cover percentage by the Sponge species Iotrochota birotulata
Ircinia campana	Substrate cover percentage by the Sponge species Ircinia campana
Ircinia felix	Substrate cover percentage by the Sponge species Ircinia felix
Ircinia spp.	Substrate cover percentage by the Sponge species Ircinia spp. (unidentified)
Ircinia strobilina	Substrate cover percentage by the Sponge species Ircinia strobilina
Monanchora arbuscula	Substrate cover percentage by the Sponge species Monanchora arbuscula
Mycale laevis	Substrate cover percentage by the Sponge species Mycale laevis
Mycale laxissima	Substrate cover percentage by the Sponge species Mycale laxissima
Neofibularia nolitangere	Substrate cover percentage by the Sponge species Neofibularia nolitangere
Neopetrosia carbonaria	Substrate cover percentage by the Sponge species Neopetrosia carbonaria
Neopetrosia proxima	Substrate cover percentage by the Sponge species Neopetrosia proxima
Neopetrosia rosariensis	Substrate cover percentage by the Sponge species Neopetrosia rosariensis
Neopetrosia spp.	Substrate cover percentage by the Sponge species Neopetrosia spp. (unidentified)
Niphates alba	Substrate cover percentage by the Sponge species Niphates alba

Niphates caribica	Substrate cover percentage by the Sponge species Niphates caribica
Niphates caycedoi	Substrate cover percentage by the Sponge species Niphates caycedoi
Niphates digitalis	Substrate cover percentage by the Sponge species Niphates digitalis
Niphates erecta	Substrate cover percentage by the Sponge species Niphates erecta
Niphates spp.	Substrate cover percentage by the Sponge species Niphates spp. (unidentified)
Petrosia pellasarca	Substrate cover percentage by the Sponge species Petrosia pellasarca
Petrosia spp.	Substrate cover percentage by the Sponge species Petrosia spp. (unidentified)
Petrosia weinbergi	Substrate cover percentage by the Sponge species Petrosia weinbergi
Phorbas amaranthus	Substrate cover percentage by the Sponge species Phorbas amaranthus
Placospherastra micraster	Substrate cover percentage by the Sponge species Placospherastra micraster
Plakortis angulospiculatus	Substrate cover percentage by the Sponge species Plakortis angulospiculatus
Plakortis halichondrioides	Substrate cover percentage by the Sponge species Plakortis halichondrioides
Plakortis spp.	Substrate cover percentage by the Sponge species Plakortis spp. (unidentified)
Prosuberites laughlini	Substrate cover percentage by the Sponge species Prosuberites laughlini
Ptilocaulis walpersii	Substrate cover percentage by the Sponge species Ptilocaulis walpersii
Scopalina ruetzleri	Substrate cover percentage by the Sponge species Scopalina ruetzleri
Smenospongia aurea	Substrate cover percentage by the Sponge species Smenospongia aurea
Smenospongia conulosa	Substrate cover percentage by the Sponge species Smenospongia conulosa
Spheciospongia vesparium	Substrate cover percentage by the Sponge species Spheciospongia vesparium
Spirastrella coccinea	Substrate cover percentage by the Sponge species Spirastrella coccinea
Spirastrella hartmani	Substrate cover percentage by the Sponge species Spirastrella hartmani

Suberea spp.	Substrate cover percentage by the Sponge species Suberea spp. (unidentified)
Svenzea zeai	Substrate cover percentage by the Sponge species Svenzea zeai
Tedania klausi	Substrate cover percentage by the Sponge species Tedania klausi
Topsentia ophiraphidites	Substrate cover percentage by the Sponge species Topsentia ophiraphidites
Topsentia spp.	Substrate cover percentage by the Sponge species Topsentia spp. (unidentified)
Verongula reiswigi	Substrate cover percentage by the Sponge species Verongula reiswigi
Verongula rigida	Substrate cover percentage by the Sponge species Verongula rigida
Verongula spp.	Substrate cover percentage by the Sponge species Verongula spp. (unidentified)
Xestospongia muta	Substrate cover percentage by the Sponge species Xestospongia muta
Sponge spp.	Substrate cover percentage by the Sponge species Sponge spp. (unidentified)
Sponges (total)	Substrate cover percentage by all Sponge species
Acropora cervicornis	Substrate cover percentage by the Stony Coral species Acropora cervicornis
Acropora palmata	Substrate cover percentage by the Stony Coral species Acropora palmata
Acropora prolifera	Substrate cover percentage by the Stony Coral species Acropora prolifera
Agaricia agaricites	Substrate cover percentage by the Stony Coral species Agaricia agaricites
Agaricia fragilis	Substrate cover percentage by the Stony Coral species Agaricia fragilis
Agaricia grahamae	Substrate cover percentage by the Stony Coral species Agaricia grahamae
Agaricia humilis	Substrate cover percentage by the Stony Coral species Agaricia humilis
Agaricia lamarcki	Substrate cover percentage by the Stony Coral species Agaricia lamarcki
Agaricia spp.	Substrate cover percentage by the Stony Coral species Agaricia spp. (unidentified)
Colpophyllia natans	Substrate cover percentage by the Stony Coral species Colpophyllia natans

Dendrogyra cylindrus	Substrate cover percentage by the Stony Coral species Dendrogyra cylindrus
Dichocoenia stokesii	Substrate cover percentage by the Stony Coral species Dichocoenia stokesii
Diploria labyrinthiformis	Substrate cover percentage by the Stony Coral species Diploria labyrinthiformis
Eusmilia fastigiata	Substrate cover percentage by the Stony Coral species Eusmilia fastigiata
Helioseris cucullata	Substrate cover percentage by the Stony Coral species Helioseris cucullata
Isophyllia rigida	Substrate cover percentage by the Stony Coral species Isophyllia rigida
Isophyllia sinuosa	Substrate cover percentage by the Stony Coral species Isophyllia sinuosa
Madracis auretenra	Substrate cover percentage by the Stony Coral species Madracis auretenra
Madracis carmabi	Substrate cover percentage by the Stony Coral species Madracis carmabi
Madracis decactis	Substrate cover percentage by the Stony Coral species Madracis decactis
Madracis formosa	Substrate cover percentage by the Stony Coral species Madracis formosa
Madracis pharensis	Substrate cover percentage by the Stony Coral species Madracis pharensis
Madracis senaria	Substrate cover percentage by the Stony Coral species Madracis senaria
Madracis spp.	Substrate cover percentage by the Stony Coral species Madracis spp. (unidentified)
Manicina areolata	Substrate cover percentage by the Stony Coral species Manicina areolata
Meandrina jacksoni	Substrate cover percentage by the Stony Coral species Meandrina jacksoni
Meandrina meandrites	Substrate cover percentage by the Stony Coral species Meandrina meandrites
Montastraea cavernosa	Substrate cover percentage by the Stony Coral species Montastraea cavernosa
Mussa angulosa	Substrate cover percentage by the Stony Coral species Mussa angulosa
Mycetophyllia aliciae	Substrate cover percentage by the Stony Coral species Mycetophyllia aliciae
Mycetophyllia danaana	Substrate cover percentage by the Stony Coral species Mycetophyllia danaana

Mycetophyllia ferox	Substrate cover percentage by the Stony Coral species Mycetophyllia ferox
Mycetophyllia lamarckiana	Substrate cover percentage by the Stony Coral species Mycetophyllia lamarckiana
Mycetophyllia spp.	Substrate cover percentage by the Stony Coral species Mycetophyllia spp. (unidentified)
Oculina diffusa	Substrate cover percentage by the Stony Coral species Oculina diffusa
Orbicella annularis	Substrate cover percentage by the Stony Coral species Orbicella annularis. Orbicella species-specific data only available since 2018.
Orbicella annularis (complex)	Substrate cover percentage by all the Stony Coral species part of the Orbicella annularis (complex). Since 2018, when species of the complex are being identified, this is calculated as the aggregate of cover percentage of Orbicella species.
Orbicella faveolata	Substrate cover percentage by the Stony Coral species Orbicella faveolata. Orbicellid species-specific data only available since 2018.
Orbicella franksi	Substrate cover percentage by the Stony Coral species Orbicella franksi. Orbicellid species-specific data only available since 2018.
Porites astreoides	Substrate cover percentage by the Stony Coral species Porites astreoides
Porites colonensis	Substrate cover percentage by the Stony Coral species Porites colonensis
Porites divaricata	Substrate cover percentage by the Stony Coral species Porites divaricata
Porites furcata	Substrate cover percentage by the Stony Coral species Porites furcata
Porites porites	Substrate cover percentage by the Stony Coral species Porites porites
Pseudodiploria clivosa	Substrate cover percentage by the Stony Coral species Pseudodiploria clivosa
Pseudodiploria strigosa	Substrate cover percentage by the Stony Coral species Pseudodiploria strigosa
Scolymia cubensis	Substrate cover percentage by the Stony Coral species Scolymia cubensis
Scolymia spp.	Substrate cover percentage by the Stony Coral species Scolymia spp. (unidentified)
Siderastrea radians	Substrate cover percentage by the Stony Coral species Siderastrea radians

Siderastrea siderea	Substrate cover percentage by the Stony Coral species Siderastrea siderea
Solenastrea bournoni	Substrate cover percentage by the Stony Coral species Solenastrea bournoni
Stephanocoenia intersepta	Substrate cover percentage by the Stony Coral species Stephanocoenia intersepta
Stony Coral spp.	Substrate cover percentage by the Stony Coral species Stony Coral spp. (unidentified)
Millepora alcicornis	Substrate cover percentage by the Stony Coral species Millepora alcicornis
Millepora complanata	Substrate cover percentage by the Stony Coral species Millepora complanata
Millepora spp.	Substrate cover percentage by the Stony Coral species Millepora spp. (unidentified)
Millepora squarrosa	Substrate cover percentage by the Stony Coral species Millepora squarrosa
Stylaster roseus	Substrate cover percentage by the Stony Coral species Stylaster roseus
Stony Corals (total)	Substrate cover percentage by all Stony Coral species, including hyrocorals (Millepora)
Stony Corals (total # diseased col.)	Total number of diseased Stony Coral colonies
Stony Corals (total #col.)	Total number of [healthy and diseased] Stony Coral colonies
Stony Corals (total # bleached col.)	Total number of bleached Stony Coral colonies
Partially bleached coral (total)	Substrate cover percentage by Partially bleached coral
Recently dead coral (total)	Substrate cover percentage by Recently dead coral
Condominium spp.	Substrate cover percentage by the Zoanthid species Condominium spp. (unidentified)
Palythoa grandis	Substrate cover percentage by the Zoanthid species Palythoa grandis
Palythoa caribaeorum	Substrate cover percentage by the Zoanthid species Palythoa caribaeorum
Zoanthids (total)	Substrate cover percentage by all Zoanthid species

Fish and Macroinvertebrate Abundance

Fish and Macroinvertebrate Abundance Data Description:

This data file includes reef fish and macroinvertebrates counts in 30-meter squared band transects from 1999-2021. The data units are number (#) of individuals/30 m^2. This data file includes blank cells, representing species not considered during the survey and transects or stations not completed.

For data collection field methodologies see the Field Methodology of the Puerto Rico Coral Reef Monitoring Program (PRCRMP).

Fish and Macroinvertebrate Abundance Data Label Definitions:

Abudefduf saxatilis	# of Abudefduf saxatilis individuals / 30 m2
Abudefduf taurus	# of Abudefduf taurus individuals / 30 m2
Acanthemblemaria aspera	# of Acanthemblemaria aspera individuals / 30 m2
Acanthemblemaria chaplini	# of Acanthemblemaria chaplini individuals / 30 m2
Acanthemblemaria maria	# of Acanthemblemaria maria individuals / 30 m2
Acanthemblemaria spinosa	# of Acanthemblemaria spinosa individuals / 30 m2
Acanthocybium solandri	# of Acanthocybium solandri individuals / 30 m2
Acanthostracion polygonius	# of Acanthostracion polygonius individuals / 30 m2
Acanthostracion quadricornis	# of Acanthostracion quadricornis individuals / 30 m2
Acanthurus chirurgus	# of Acanthurus chirurgus individuals / 30 m2
Acanthurus coeruleus	# of Acanthurus coeruleus individuals / 30 m2
Acanthurus tractus (bahianus)	# of Acanthurus tractus and/or bahianus individuals / 30 m2
Aetobatus narinari	# of Aetobatus narinari individuals / 30 m2
Aliger gigas	# of Lobatus gigas individuals / 30 m2
Aluterus scriptus	# of Aluterus scriptus individuals / 30 m2
Aluterus spp.	# of Aluterus spp. (unidentified) individuals / 30 m2
Amblycirrhitus pinos	# of Amblycirrhitus pinos individuals / 30 m2
Ancylomenes pedersoni	# of Ancylomenes pedersoni individuals / 30 m2
Anguilla rostrata	# of Anguilla rostrata individuals / 30 m2
Anisotremus surinamensis	# of Anisotremus surinamensis individuals / 30 m2
Anisotremus virginicus	# of Anisotremus virginicus individuals / 30 m2
Anomura spp.	# of Anomura spp. (unidentified) individuals / 30 m2
Apogon binotatus	# of Apogon binotatus individuals / 30 m2
Apogon maculatus	# of Apogon maculatus individuals / 30 m2
Apogon robinsi	# of Apogon robinsi individuals / 30 m2
Apogon spp.	# of Apogon spp. (unidentified) individuals / 30 m2
Apogon townsendi	# of Apogon townsendi individuals / 30 m2
Astrophyton muricatum	# of Astrophyton muricatum individuals / 30 m2
Atherinomorus stipes	# of Atherinomorus stipes individuals / 30 m2
Aulostomus maculatus	# of Aulostomus maculatus individuals / 30 m2
Balistes vetula	# of Balistes vetula individuals / 30 m2
Blenniidae spp.	# of Blenniidae spp. (unidentified) individuals / 30 m2
Bodianus rufus	# of Bodianus rufus individuals / 30 m2
Bothus lunatus	# of Bothus lunatus individuals / 30 m2
Calamus calamus	# of Calamus calamus individuals / 30 m2
Calamus pennatula	# of Calamus pennatula individuals / 30 m2

Calamus spp.	# of Calamus spp. (unidentified) individuals / 30 m2
Cantherhines macrocerus	# of Cantherhines macrocerus individuals / 30 m2
Cantherhines pullus	# of Cantherhines pullus individuals / 30 m2
Canthidermis sufflamen	# of Canthidermis sufflamen individuals / 30 m2
Canthigaster rostrata	# of Canthigaster rostrata individuals / 30 m2
Carangoides bartholomaei	# of Carangoides bartholomaei individuals / 30 m2
Caranx crysos	# of Caranx crysos individuals / 30 m2
Caranx hippos	# of Caranx hippos individuals / 30 m2
Caranx latus	# of Caranx latus individuals / 30 m2
Caranx lugubris	# of Caranx lugubris individuals / 30 m2
Caranx ruber	# of Caranx ruber individuals / 30 m2
Carcharhinus perezii	# of Carcharhinus perezii individuals / 30 m2
Carpilius corallinus	# of Carpilius corallinus individuals / 30 m2
Centropyge argi	# of Centropyge argi individuals / 30 m2
Cephalopholis cruentata	# of Cephalopholis cruentata individuals / 30 m2
Cephalopholis fulva	# of Cephalopholis fulva individuals / 30 m2
Chaenopsis ocellata	# of Chaenopsis ocellata individuals / 30 m2
Chaetodipterus faber	# of Chaetodipterus faber individuals / 30 m2
Chaetodon capistratus	# of Chaetodon capistratus individuals / 30 m2
Chaetodon ocellatus	# of Chaetodon ocellatus individuals / 30 m2
Chaetodon sedentarius	# of Chaetodon sedentarius individuals / 30 m2
Chaetodon striatus	# of Chaetodon striatus individuals / 30 m2
Chromis cyanea	# of Chromis cyanea individuals / 30 m2
Chromis insolata	# of Chromis insolata individuals / 30 m2
Chromis multilineata	# of Chromis multilineata individuals / 30 m2
Chromis spp.	# of Chromis spp. (unidentified) individuals / 30 m2
Ciphoma gibbosum	# of Ciphoma gibbosum individuals / 30 m2
Clepticus parrae	# of Clepticus parrae individuals / 30 m2
Coralliophila caribaea	# of Coralliophila caribaea individuals / 30 m2
Coralliophila spp.	# of Coralliophila spp. (unidentified) individuals / 30 m2
Coryphopterus glaucofraenum	# of Coryphopterus glaucofraenum individuals / 30 m2
Coryphopterus hyalinus	# of Coryphopterus hyalinus individuals / 30 m2
Coryphopterus lipernes	# of Coryphopterus lipernes individuals / 30 m2
Coryphopterus personatus	# of Coryphopterus personatus individuals / 30 m2
Coryphopterus spp.	# of Coryphopterus spp. (unidentified) individuals / 30 m2
Cosmocampus albirostris	# of Cosmocampus albirostris individuals / 30 m2
Cryptotomus roseus	# of Cryptotomus roseus individuals / 30 m2
Ctenogobius saepepallens	# of Ctenogobius saepepallens individuals / 30 m2
Ctenoides scaber	# of Ctenoides scaber individuals / 30 m2
Cyphoma gibbosum	# of Cyphoma gibbosum individuals / 30 m2
Dactyloscopus crossotus	# of Dactyloscopus crossotus individuals / 30 m2

Damithrax spinosissimus	# of Damithrax spinosissimus individuals / 30 m2
Decapterus macarellus	# of Decapterus macarellus individuals / 30 m2
Derilissus altifrons	# of Derilissus altifrons individuals / 30 m2
Diadema antillarum	# of Diadema antillarum individuals / 30 m2
Diodon holocanthus	# of Diodon holocanthus individuals / 30 m2
Diodon hystrix	# of Diodon hystrix individuals / 30 m2
Doratonotus megalepis	# of Doratonotus megalepis individuals / 30 m2
Echeneis naucrates	# of Echeneis naucrates individuals / 30 m2
Echinometra lucunter	# of Echinometra lucunter individuals / 30 m2
Echinometra spp.	# of Echinometra spp. (unidentified) individuals / 30 m2
Echinometra viridis	# of Echinometra viridis individuals / 30 m2
Elacatinus dilepis	# of Elacatinus dilepis individuals / 30 m2
Elacatinus evelynae	# of Elacatinus evelynae individuals / 30 m2
Elacatinus horsti	# of Elacatinus horsti individuals / 30 m2
Elacatinus saucrus	# of Elacatinus saucrus individuals / 30 m2
Enneanectes atrorus	# of Enneanectes atrorus individuals / 30 m2
Epinephelus adscensionis	# of Epinephelus adscensionis individuals / 30 m2
Epinephelus guttatus	# of Epinephelus guttatus individuals / 30 m2
Epinephelus spp.	# of Epinephelus spp. (unidentified) individuals / 30 m2
Epinephelus striatus	# of Epinephelus striatus individuals / 30 m2
Equetus lanceolatus	# of Equetus lanceolatus individuals / 30 m2
Equetus punctatus	# of Equetus punctatus individuals / 30 m2
Eucidaris tribuloides	# of Eucidaris tribuloides individuals / 30 m2
Galeocerdo cuvier	# of Galeocerdo cuvier individuals / 30 m2
Gastropoda spp.	# of Gastropoda spp. (unidentified) individuals / 30 m2
Gerres cinereus	# of Gerres cinereus individuals / 30 m2
Gillelus greyae	# of Gillelus greyae individuals / 30 m2
Ginglymostoma cirratum	# of Ginglymostoma cirratum individuals / 30 m2
Gnatholepis thompsoni	# of Gnatholepis thompsoni individuals / 30 m2
Gobiosoma spp.	# of Gobiosoma spp. (unidentified) individuals / 30 m2
Gonioplectrus hispanus	# of Gonioplectrus hispanus individuals / 30 m2
Gramma linki	# of Gramma linki individuals / 30 m2
Gramma loreto	# of Gramma loreto individuals / 30 m2
Grapsus spp.	# of Grapsus spp. (unidentified) individuals / 30 m2
Gymnothorax funebris	# of Gymnothorax funebris individuals / 30 m2
Gymnothorax miliaris	# of Gymnothorax miliaris individuals / 30 m2
Gymnothorax moringa	# of Gymnothorax moringa individuals / 30 m2
Gymnothorax spp.	# of Gymnothorax spp. (unidentified) individuals / 30 m2
Gymnothorax vicinus	# of Gymnothorax vicinus individuals / 30 m2
Haemulon album	# of Haemulon album individuals / 30 m2
Haemulon aurolineatum	# of Haemulon aurolineatum individuals / 30 m2

Haemulon carbonarium	# of Haemulon carbonarium individuals / 30 m2
Haemulon chrysargyreum	# of Haemulon chrysargyreum individuals / 30 m2
Haemulon flavolineatum	# of Haemulon flavolineatum individuals / 30 m2
Haemulon macrostomum	# of Haemulon macrostomum individuals / 30 m2
Haemulon melanurum	# of Haemulon melanurum individuals / 30 m2
Haemulon parra	# of Haemulon parra individuals / 30 m2
Haemulon plumierii	# of Haemulon plumierii individuals / 30 m2
Haemulon sciurus	# of Haemulon sciurus individuals / 30 m2
Haemulon spp.	# of Haemulon spp. (unidentified) individuals / 30 m2
Haemulon squamipinna	# of Haemulon squamipinna individuals / 30 m2
Haemulon vittatum	# of Haemulon vittatum individuals / 30 m2
Halichoeres bivittatus	# of Halichoeres bivittatus individuals / 30 m2
Halichoeres cyanocephalus	# of Halichoeres cyanocephalus individuals / 30 m2
Halichoeres garnoti	# of Halichoeres garnoti individuals / 30 m2
Halichoeres maculipinna	# of Halichoeres maculipinna individuals / 30 m2
Halichoeres poeyi	# of Halichoeres poeyi individuals / 30 m2
Halichoeres radiatus	# of Halichoeres radiatus individuals / 30 m2
Halichoeres spp.	# of Halichoeres spp. (unidentified) individuals / 30 m2
Hemiramphus brasiliensis	# of Hemiramphus brasiliensis individuals / 30 m2
Hermodice carunculata	# of Hermodice carunculata individuals / 30 m2
Heteropriacanthus cruentatus	# of Heteropriacanthus cruentatus individuals / 30 m2
Holacanthus bermudensis	# of Holacanthus bermudensis individuals / 30 m2
Holacanthus ciliaris	# of Holacanthus ciliaris individuals / 30 m2
Holacanthus tricolor	# of Holacanthus tricolor individuals / 30 m2
Holocentrus adscensionis	# of Holocentrus adscensionis individuals / 30 m2
Holocentrus rufus	# of Holocentrus rufus individuals / 30 m2
Holothuria (Halodeima) mexicana	# of Holothuria (Halodeima) mexicana individuals / 30 m2
Hypleurochilus bermudensis	# of Hypleurochilus bermudensis individuals / 30 m2
Hypoatherina harringtonensis	# of Hypoatherina harringtonensis individuals / 30 m2
Hypoplectrus aberrans	# of Hypoplectrus aberrans individuals / 30 m2
Hypoplectrus chlorurus	# of Hypoplectrus chlorurus individuals / 30 m2
Hypoplectrus gummigutta	# of Hypoplectrus gummigutta individuals / 30 m2
Hypoplectrus guttavarius	# of Hypoplectrus guttavarius individuals / 30 m2
Hypoplectrus indigo	# of Hypoplectrus indigo individuals / 30 m2
Hypoplectrus nigricans	# of Hypoplectrus nigricans individuals / 30 m2
Hypoplectrus puella	# of Hypoplectrus puella individuals / 30 m2
Hypoplectrus spp.	# of Hypoplectrus spp. (unidentified) individuals / 30 m2
Hypoplectrus unicolor	# of Hypoplectrus unicolor individuals / 30 m2
Hypsoblennius exstochilus	# of Hypsoblennius exstochilus individuals / 30 m2
Isostichopus badionotus	# of Isostichopus badionotus individuals / 30 m2
Jenkinsia lamprotaenia	# of Jenkinsia lamprotaenia individuals / 30 m2

Kaupichthys nuchalis	# of Kaupichthys nuchalis individuals / 30 m2
Kyphosus sectatrix	# of Kyphosus sectatrix individuals / 30 m2
Kyphosus spp.	# of Kyphosus spp. (unidentified) individuals / 30 m2
Labrisomus kalisherae	# of Labrisomus kalisherae individuals / 30 m2
Labrisomus spp.	# of Labrisomus spp. (unidentified) individuals / 30 m2
Lachnolaimus maximus	# of Lachnolaimus maximus individuals / 30 m2
Lactophrys bicaudalis	# of Lactophrys bicaudalis individuals / 30 m2
Lactophrys trigonus	# of Lactophrys trigonus individuals / 30 m2
Lactophrys triqueter	# of Lactophrys triqueter individuals / 30 m2
Liopropoma mowbrayi	# of Liopropoma mowbrayi individuals / 30 m2
Liopropoma rubre	# of Liopropoma rubre individuals / 30 m2
Liopropoma spp.	# of Liopropoma spp. (unidentified) individuals / 30 m2
Lipogramma regia	# of Lipogramma regia individuals / 30 m2
Lutjanus analis	# of Lutjanus analis individuals / 30 m2
Lutjanus apodus	# of Lutjanus apodus individuals / 30 m2
Lutjanus buccanella	# of Lutjanus buccanella individuals / 30 m2
Lutjanus cyanopterus	# of Lutjanus cyanopterus individuals / 30 m2
Lutjanus griseus	# of Lutjanus griseus individuals / 30 m2
Lutjanus jocu	# of Lutjanus jocu individuals / 30 m2
Lutjanus mahogoni	# of Lutjanus mahogoni individuals / 30 m2
Lutjanus synagris	# of Lutjanus synagris individuals / 30 m2
Lythrypnus crocodilus	# of Lythrypnus crocodilus individuals / 30 m2
Malacanthus plumieri	# of Malacanthus plumieri individuals / 30 m2
Malacoctenus gilli	# of Malacoctenus gilli individuals / 30 m2
Malacoctenus spp.	# of Malacoctenus spp. (unidentified) individuals / 30 m2
Malacoctenus triangulatus	# of Malacoctenus triangulatus individuals / 30 m2
Malacoctenus versicolor	# of Malacoctenus versicolor individuals / 30 m2
Melichthys niger	# of Melichthys niger individuals / 30 m2
Microspathodon chrysurus	# of Microspathodon chrysurus individuals / 30 m2
Monacanthus spp.	# of Monacanthus spp. (unidentified) individuals / 30 m2
Monacanthus tuckeri	# of Monacanthus tuckeri individuals / 30 m2
Mugil curema	# of Mugil curema individuals / 30 m2
Mulloidichthys martinicus	# of Mulloidichthys martinicus individuals / 30 m2
Muraena robusta	# of Muraena robusta individuals / 30 m2
Muraena spp.	# of Muraena spp. (unidentified) individuals / 30 m2
Mycteroperca interstitialis	# of Mycteroperca interstitialis individuals / 30 m2
Mycteroperca spp.	# of Mycteroperca spp. (unidentified) individuals / 30 m2
Mycteroperca tigris	# of Mycteroperca tigris individuals / 30 m2
Mycteroperca venenosa	# of Mycteroperca venenosa individuals / 30 m2
Myrichthys breviceps	# of Myrichthys breviceps individuals / 30 m2
Myrichthys ocellatus	# of Myrichthys ocellatus individuals / 30 m2

Myripristis jacobus	# of Myripristis jacobus individuals / 30 m2
Myrophis platyrhynchus	# of Myrophis platyrhynchus individuals / 30 m2
Neoniphon marianus	# of Neoniphon marianus individuals / 30 m2
Octopus vulgaris	# of Octopus vulgaris individuals / 30 m2
Ocyurus chrysurus	# of Ocyurus chrysurus individuals / 30 m2
Odontoscion dentex	# of Odontoscion dentex individuals / 30 m2
Ogilbia spp.	# of Ogilbia spp. (unidentified) individuals / 30 m2
Ophidion lagochila	# of Ophidion lagochila individuals / 30 m2
Ophioblennius atlanticus	# of Ophioblennius atlanticus individuals / 30 m2
Ophioblennius macclurei	# of Ophioblennius macclurei individuals / 30 m2
Ophioderma spp.	# of Ophioderma spp. (unidentified) individuals / 30 m2
Ophiothrix (Acanthophiothrix) suensoni	# of Ophiothrix (Acanthophiothrix) suensoni individuals / 30 m2
Paguristes spp.	# of Paguristes spp. (unidentified) individuals / 30 m2
Pagurus spp.	# of Pagurus spp. (unidentified) individuals / 30 m2
Panulirus argus	# of Panulirus argus individuals / 30 m2
Panulirus guttatus	# of Panulirus guttatus individuals / 30 m2
Paraclinus cingulatus	# of Paraclinus cingulatus individuals / 30 m2
Paraclinus fasciatus	# of Paraclinus fasciatus individuals / 30 m2
Paralabrax dewegeri	# of Paralabrax dewegeri individuals / 30 m2
Paranthias furcifer	# of Paranthias furcifer individuals / 30 m2
Pareques acuminatus	# of Pareques acuminatus individuals / 30 m2
Pempheris schomburgkii	# of Pempheris schomburgkii individuals / 30 m2
Pempheris spp.	# of Pempheris spp. (unidentified) individuals / 30 m2
Percnon gibbesi	# of Percnon gibbesi individuals / 30 m2
Periclimenes pedersoni	# of Periclimenes pedersoni individuals / 30 m2
Periclimenes spp.	# of Periclimenes spp. (unidentified) individuals / 30 m2
Phaeoptyx conklini	# of Phaeoptyx conklini individuals / 30 m2
Plectrypops retrospinis	# of Plectrypops retrospinis individuals / 30 m2
Polydactylus oligodon	# of Polydactylus oligodon individuals / 30 m2
Polydactylus virginicus	# of Polydactylus virginicus individuals / 30 m2
Pomacanthus arcuatus	# of Pomacanthus arcuatus individuals / 30 m2
Pomacanthus paru	# of Pomacanthus paru individuals / 30 m2
Priacanthus arenatus	# of Priacanthus arenatus individuals / 30 m2
Priacanthus spp.	# of Priacanthus spp. (unidentified) individuals / 30 m2
Priolepis hipoliti	# of Priolepis hipoliti individuals / 30 m2
Prognathodes aculeatus	# of Prognathodes aculeatus individuals / 30 m2
Prognathodes aya	# of Prognathodes aya individuals / 30 m2
Pseudupeneus maculatus	# of Pseudupeneus maculatus individuals / 30 m2
Psilotris celsa	# of Psilotris celsa individuals / 30 m2
Pteria columbus	# of Pteria columbus individuals / 30 m2

Pterois volitans	# of Pterois volitans individuals / 30 m2
Remora remora	# of Remora remora individuals / 30 m2
Rypticus saponaceus	# of Rypticus saponaceus individuals / 30 m2
Sargocentron coruscum	# of Sargocentron coruscum individuals / 30 m2
Sargocentron vexillarium	# of Sargocentron vexillarium individuals / 30 m2
Scartella cristata	# of Scartella cristata individuals / 30 m2
Scarus coelestinus	# of Scarus coelestinus individuals / 30 m2
Scarus coeruleus	# of Scarus coeruleus individuals / 30 m2
Scarus guacamaia	# of Scarus guacamaia individuals / 30 m2
Scarus iseri	# of Scarus iseri individuals / 30 m2
Scarus spp.	# of Scarus spp. (unidentified) individuals / 30 m2
Scarus taeniopterus	# of Scarus taeniopterus individuals / 30 m2
Scarus vetula	# of Scarus vetula individuals / 30 m2
Scomberomorus cavalla	# of Scomberomorus cavalla individuals / 30 m2
Scomberomorus regalis	# of Scomberomorus regalis individuals / 30 m2
Scorpaena plumieri	# of Scorpaena plumieri individuals / 30 m2
Scyllarides spp.	# of Scyllarides spp. (unidentified) individuals / 30 m2
Seriola rivoliana	# of Seriola rivoliana individuals / 30 m2
Serranus baldwini	# of Serranus baldwini individuals / 30 m2
Serranus spp.	# of Serranus spp. (unidentified) individuals / 30 m2
Serranus tabacarius	# of Serranus tabacarius individuals / 30 m2
Serranus tigrinus	# of Serranus tigrinus individuals / 30 m2
Sparisoma atomarium	# of Sparisoma atomarium individuals / 30 m2
Sparisoma aurofrenatum	# of Sparisoma aurofrenatum individuals / 30 m2
Sparisoma chrysopterum	# of Sparisoma chrysopterum individuals / 30 m2
Sparisoma radians	# of Sparisoma radians individuals / 30 m2
Sparisoma rubripinne	# of Sparisoma rubripinne individuals / 30 m2
Sparisoma spp.	# of Sparisoma spp. (unidentified) individuals / 30 m2
Sparisoma viride	# of Sparisoma viride individuals / 30 m2
Sphoeroides greeleyi	# of Sphoeroides greeleyi individuals / 30 m2
Sphoeroides spp.	# of Sphaeroides spp. (unidentified) individuals / 30 m2
Sphoeroides testudineus	# of Sphoeroides testudineus individuals / 30 m2
Sphyraena barracuda	# of Sphyraena barracuda individuals / 30 m2
Starksia smithvanizi	# of Starksia smithvanizi individuals / 30 m2
Stathmonotus tekla	# of Stathmonotus tekla individuals / 30 m2
Stegastes adustus	# of Stegastes adustus individuals / 30 m2
Stegastes diencaeus	# of Stegastes diencaeus individuals / 30 m2
Stegastes fuscus	# of Stegastes fuscus individuals / 30 m2
Stegastes leucostictus	# of Stegastes leucostictus individuals / 30 m2
Stegastes partitus	# of Stegastes partitus individuals / 30 m2
Stegastes planifrons	# of Stegastes planifrons individuals / 30 m2

Stegastes variabilis	# of Stegastes variabilis individuals / 30 m2
Stenopus hispidus	# of Stenopus hispidus individuals / 30 m2
Stenorhynchus seticornis	# of Stenorhynchus seticornis individuals / 30 m2
Stephanolepis hispidus	# of Stephanolepis hispidus individuals / 30 m2
Stephanolepis setifer	# of Stephanolepis setifer individuals / 30 m2
Stramonita rustica	# of Stramonita rustica individuals / 30 m2
Syngnathus spp.	# of Syngnathus spp. (unidentified) individuals / 30 m2
Synodus intermedius	# of Synodus intermedius individuals / 30 m2
Synodus saurus	# of Synodus saurus individuals / 30 m2
Synodus synodus	# of Synodus synodus individuals / 30 m2
Thalassoma bifasciatum	# of Thalassoma bifasciatum individuals / 30 m2
Tomicodon rupestris	# of Tomicodon rupestris individuals / 30 m2
Trachinotus goodei	# of Trachinotus goodei individuals / 30 m2
Tripneustes ventricosus	# of Tripneustes ventricosus individuals / 30 m2
Unidentified spp.(fish)	# of Unidentified spp. (fish) individuals / 30 m2
Urobatis jamaicensis	# of Urobatis jamaicensis individuals / 30 m2
Xanthichthys ringens	# of Xanthichthys ringens individuals / 30 m2

Fish and Macroinvertebrate Size-Frequency Abundance

Fish and Macroinvertebrate Size-Frequency Abundance Data Description

This data file includes commercially, and ecologically important reef fish and macroinvertebrates counts per size class between 2004 - 2021. Between 2004 – 2013, these counts by size were annotated using the Active Search Census (ASEC) methodology, a time-sensitive visual fish census approach to target large elusive commercially important species for 30 minutes per monitoring station.. In 2015, the methodology was shifted from ASEC to an extended fish and macroinvertebrate abundance band transect. The data units between 2004 - 2013 are number (#) of individuals / 30 mins per site (collected using the Active Search Census - ASEC), and from 2015 - present are number (#) of individuals / 60 m^2. This data file includes blank cells, representing species not considered during the survey and transects or stations not completed. Each data label represents the scientific name of the species followed by a code idenitifying its size class interval.

For data collection field methodologies see the Field Methodology of the Puerto Rico Coral Reef Monitoring Program (PRCRMP).

Size class intervals and the size class size median in this data file are the following:

Classes	**Size (cm)**	***Median (cm)**
c1	1-5	3
c2	6-10	8

c3	11-15	13
c4	16-20	18
c5	21-25	23
c6	26-30	28
c7	31-35	33
c8	36-40	38
c9	41-45	43
c10	46-50	48
c11	51-55	53
c12	56-60	58
c13	61-65	63
c14	66-70	68
c15	71-75	73
c16	76-80	78
c17	81-85	83
c18	86-90	88
c19	91-95	93
c20	96-100	98
c21	101-105	103
c22	106-110	108
c23	111-115	113
c24	116-120	118
c25	121-125	123
c30	146-150	148
c31	151-155	153
c32	156-160	158
c33	161-165	163
c34	166-170	168
c35	171-175	173
c36	176-180	178
c41	201-205	203

*The size class median was used as the length value to estimate fish biomass using fishbase.org tools (see fish biomass data description).

Fish Biomass

Fish Biomass Data Description:

This data file includes commercially, and ecologically important reef fish biomass estimates between 2004 - 2021. Between 2004 - 2013 these estimates are based on size-frequency data annotated using the Active Search Census (ASEC) for 30 minutes per monitoring station and from 2015 – present estimates are based on five 60 m^2 band transects per station. The current (2015 - present) biomass data units are in grams per 60 meters squared (gr / 60 m^2), while previous data (2004-2013) units are in grams per 30 minutes per site. Data is presented per transect between 2015-present.

Biomass estimates where calculated using weight-length relationship coefficients and biomass calculator tools available in Fishbase.org. Fish species with no weight-length relationship information are not included in the biomass data file. The coefficients from fishbase.org used to obtain biomass estimates are those developed from fish samples geographically related to Puerto Rico, when available. The length values used [either as total length or fork length] to calculate the biomass of each species size class was the median size of the size class. First the estimated biomass of one individual of each species size class was calculated. Then, each individual biomass estimate was multiplied by the number of individuals observed per transect. Lastly, all biomass estimates per species size class are aggregated to report one biomass value per species. This data file includes blank cells, representing species not considered during the survey and transects or stations not completed.

For data collection field methodologies see the Field Methodology of the Puerto Rico Coral Reef Monitoring Program (PRCRMP).

Fish Biomass Data Label Definitions:

Acanthurus tractus (bahianus)	grams of Acanthurus tractus and/or bahianus
Acanthurus chirurgus	grams of Acanthurus chirurgus
Acanthurus coeruleus	grams of Acanthurus coeruleus
Aetobatus narinari	grams of Aetobatus narinari
Alectis ciliaris	grams of Alectis ciliaris
Balistes vetula	grams of Balistes vetula
Calamus pennatula	grams of Calamus pennatula
Canthidermis sufflamen	grams of Canthidermis sufflamen
Caranx crysos	grams of Caranx crysos
Caranx hippos	grams of Caranx hippos
Caranx latus	grams of Caranx latus
Caranx lugubris	grams of Caranx lugubris
Caranx ruber	grams of Caranx ruber
Carcharhinus limbatus	grams of Carcharhinus limbatus
Carcharhinus perezii	grams of Carcharhinus perezii

Cephalopholis cruentata	grams of Cephalopholis cruentata
Cephalopholis fulva	grams of Cephalopholis fulva
Chaetodon ocellatus	grams of Chaetodon ocellatus
Chaetodon sedentarius	grams of Chaetodon sedentarius
Chaetodon striatus	grams of Chaetodon striatus
Decapterus macarellus	grams of Decapterus macarellus
Elagatis bipinnulata	grams of Elagatis bipinnulata
Epinephelus adscensionis	grams of Epinephelus adscensionis
Epinephelus guttatus	grams of Epinephelus guttatus
Epinephelus itajara	grams of Epinephelus itajara
Epinephelus striatus	grams of Epinephelus striatus
Gerres cinereus	grams of Gerres cinereus
Ginglymostoma cirratum	grams of Ginglymostoma cirratum
Gymnothorax moringa	grams of Gymnothorax moringa
Haemulon plumierii	grams of Haemulon plumierii
Holacanthus ciliaris	grams of Holacanthus ciliaris
Holacanthus tricolor	grams of Holacanthus tricolor
Hypanus americanus	grams of Hypanus americanus
Istiophorus albicans	grams of Istiophorus albicans
Lachnolaimus maximus	grams of Lachnolaimus maximus
Lactophrys trigonus	grams of Lactophrys trigonus
Lactophrys triqueter	grams of Lactophrys triqueter
Lutjanus analis	grams of Lutjanus analis
Lutjanus apodus	grams of Lutjanus apodus
Lutjanus cyanopterus	grams of Lutjanus cyanopterus
Lutjanus griseus	grams of Lutjanus griseus
Lutjanus jocu	grams of Lutjanus jocu
Lutjanus mahogoni	grams of Lutjanus mahogoni
Lutjanus synagris	grams of Lutjanus synagris
Microspathodon chrysurus	grams of Microspathodon chrysurus
Mycteroperca interstitialis	grams of Mycteroperca interstitialis
Mycteroperca tigris	grams of Mycteroperca tigris
Mycteroperca venenosa	grams of Mycteroperca venenosa
Negaprion brevirostris	grams of Negaprion brevirostris
Ocyurus chrysurus	grams of Ocyurus chrysurus
Pomacanthus paru	grams of Pomacanthus paru
Pterois spp.	grams of Pterois spp.
Scarus coelestinus	grams of Scarus coelestinus
Scarus iseri	grams of Scarus iseri
Scarus taeniopterus	grams of Scarus taeniopterus
Scomberomorus regalis	grams of Scomberomorus regalis
Seriola rivoliana	grams of Seriola rivoliana

Sparisoma aurofrenatum	grams of Sparisoma aurofrenatum
Sparisoma chrysopterum	grams of Sparisoma chrysopterum
Sparisoma radians	grams of Sparisoma radians
Sparisoma rubripinne	grams of Sparisoma rubripinne
Sparisoma viride	grams of Sparisoma viride
Sphyraena barracuda	grams of Sphyraena barracuda
Trachinotus falcatus	grams of Trachinotus falcatus

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