# Data Dictionary for Late Pleistocene coral reef relative composition data

The table below describes the attributes (data columns) for all Late Pleistocene coral reef composition data from the Florida Keys reef tract including samples from Marine Isotope Stage (MIS) 5d-a aged intervals (from ~116 to ~74 thousand years before present) in coral-reef cores and from surveys of the MIS5e reef (from ~130–116 thousand years before present) at Windley Key Fossil Reef Geological Park.

## Late\_Pleistocene\_coral\_reef\_relative\_composition\_data

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| Attribute\_Label | Attribute\_Definition |
| Subregion | The subregion of the Florida Keys reef tract where the core containing the sample was collected as defined in Toth and others (2018). Subregions included in this study are: Dry Tortugas, Lower Keys, Middle Keys, Upper Keys, and Biscayne. |
| Site | The name of the reef or site where a core was collected. |
| Core ID | A unique identifier for each core as defined in Toth and others (2018). Core IDs were generated using abbreviated information about the subregion, site, and core number and are formatted as: Subregion abbreviation-Site abbreviation-Core number. |
| Latitude | The latitude, in decimal degrees, where the core was collected. |
| Longitude | The longitude, in decimal degrees, where the core was collected. |
| Interval ID | A unique identifier for each interval in the cores analyzed in this study. Intervals IDs were generated by abbreviating information about the subregion, site, core number, and the range of depths in the core that the interval spans. Interval IDs are formatted as: Subregion abbreviation-Site abbreviation-Core number\_starting depth in core-ending depth in core. The depth ranges in the cores are in feet, except where specifically indicated with the “m” identifier for meters in the Interval ID. |
| Length of interval (m) | The total length of the interval in meters (m). |
| Water depth of core (m MSL) | The water depth in meters relative to modern mean sea level (m MSL) where a core was collected (as in, at the reef surface or core top). |
| Starting water depth of interval (m MSL) | The starting, upper water depth range of the interval relative to modern mean sea level in meters (m MSL). Calculated by subtracting the starting depth of the interval in the core (in meters) from the Water depth of core (m MSL). |
| Ending water depth of interval (m MSL) | The ending, lower water depth range of the interval relative to modern mean sea level in meters (m MSL). Calculated by subtracting the ending depth of the interval in the core (in meters) from the Water depth of core (m MSL). |
| Average water depth of interval (m MSL) | The average water depth of the interval relative to modern mean sea level in meters (m MSL). Calculated by averaging the Starting and Ending water depths of the interval. |
| MIS | The Marine Isotope Stage (MIS) during which each interval in the cores was deposited based on U-series ages from previous studies (summarized in Hsia and others, 2024). The MIS of the other intervals were either listed with a putative MIS followed by a question mark, if their age could be estimated based on ages of adjacent intervals, or as Unknown, if there was no direct data on their age. See Toth and others (in prep) for additional information. |
| Evidence of MIS | Description of what evidence was used to identify the likely MIS of the interval. The highest confidence of MIS assignment is for intervals assigned based on closed-system U-series ages from that interval. Intervals identified based on their stratigraphic position or open-system ages have lower confidence but are still considered likely to belong to the assigned MIS. Explanations are also given intervals that could not be confidently assigned to a MIS (those listed with a question mark after the MIS for the MIS attribute). |
| % Recovery | The percent (%) recovery of reef substrate within a particular interval of the core. Calculated by dividing the measured surface area of core constituents in an interval by the theoretical surface area of that interval based on the interval length and width (see Process Steps of the associated metadata file). Note that because of uncertainties in the surface area measurements, it is possible several percentages are erroneously higher than 100%. |
| % Coral Recovery | The relative percent (%) of corals (versus other carbonates) recovered within an interval. |
| *Orbicella* spp. | The relative percent (%) of all recovered material within the interval composed of *Orbicella* spp. coral skeletons. *Orbicella* spp. includes *O. annularis*, *O. faveolata*, and *O. franksi* were all classified as “*Orbicella* spp.” because of difficulty in distinguishing fine-scale differences in the morphology of this group. |
| *Acropora palmata* | The relative percent (%) of all recovered material within the interval composed of *Acropora palmata* coral skeletons. |
| *Acropora cervicornis* | The relative percent (%) of all recovered material within the interval composed of *Acropora cervicornis* coral skeletons. |
| *Pseudodiploria strigosa* | The relative percent (%) of all recovered material within the interval composed of *Pseudodiploria strigosa* coral skeletons. |
| *Pseudodiploria clivosa* | The relative percent (%) of all recovered material within the interval composed of *Pseudodiploria clivosa* coral skeletons. |
| *Diploria labyrinthiformis* | The relative percent (%) of all recovered material within the interval composed of *Diploria labyrinthiformis* coral skeletons. |
| *Colpophyllia natans* | The relative percent (%) of all recovered material within the interval composed of *Colpophyllia natans* coral skeletons. |
| *Porites astreoides* | The relative percent (%) of all recovered material within the interval composed of *Porites astreoides* coral skeletons. |
| branching *Porites* spp. | The relative percent (%) of all recovered material within the interval composed of branching *Porites* spp. coral skeletons. Includes *P. porites*, *P. divaricata*, and *P. furcata*. |
| *Siderastrea siderea* | The relative percent (%) of all recovered material within the interval composed of *Siderastrea siderea* coral skeletons. |
| *Millepora* spp. | The relative percent (%) of all recovered material within the interval composed of *Millepora* spp. coral skeletons. |
| *Montastraea cavernosa* | The relative percent (%) of all recovered material within the interval composed of *Montastraea cavernosa* coral skeletons. |
| *Stephanocoenia intersepta* | The relative percent (%) of all recovered material within the interval composed of *Stephanocoenia intersepta* coral skeletons. |
| *Eusmilia fastigiata* | The relative percent (%) of all recovered material within the interval composed of *Eusmilia fastigiata* coral skeletons. |
| *Agaricia* spp. | The relative percent (%) of all recovered material within the interval composed of *Agaricia* spp. coral skeletons. |
| *Dendrogyra cylindrus* | The relative percent (%) of all recovered material within the interval composed of *Dendrogyra cylindrus* coral skeletons. |
| Unidentified coral | The relative percent (%) of all recovered material within the interval composed of coral skeletons that could not be identified to the genus or species level with confidence. |
| Carbonate reef rock | The relative percent (%) of all recovered material within the interval composed of non-coral carbonate material. |

**Note: Values of “0” for a coral taxa indicate that the taxa was not observed in that interval. Coral taxon names are based on the taxonomy provided at** <http://www.coralsoftheworld.org/> **(accessed: October 18, 2024). Values of “NA” indicate attributes that were not applicable to Windley Key (MIS5e) reef survey data.**

Hsia, S., Toth, L.T., Mortlock, R., and Kerans, C., 2024, Re-evaluating Marine Isotope Stage 5a paleo-sea-level trends from across the Florida Keys Reef Tract, Florida: Quaternary Science Advances, <https://doi.org/10.1016/j.qsa.2024.100222>.

Toth, L.T., Kuffner, I.B., Stathakopoulos, A., 2018, Descriptive core logs, core photographs, radiocarbon ages, and data on reef development for cores of Holocene reef framework from the Florida Keys Reef Tract: U.S. Geological Survey data release, <https://doi.org/10.5066/F7NV9HJX>.

Toth, L.T., Stathakopoulos, A., Hsia, S., and Weinstein, D., 2025, Shifting baselines of coral-reef species composition from the Late Pleistocene to the present in the Florida Keys: The Depositional Record (Shinn Special Issue), <https://doi.org/10.1002/dep2.70009>.