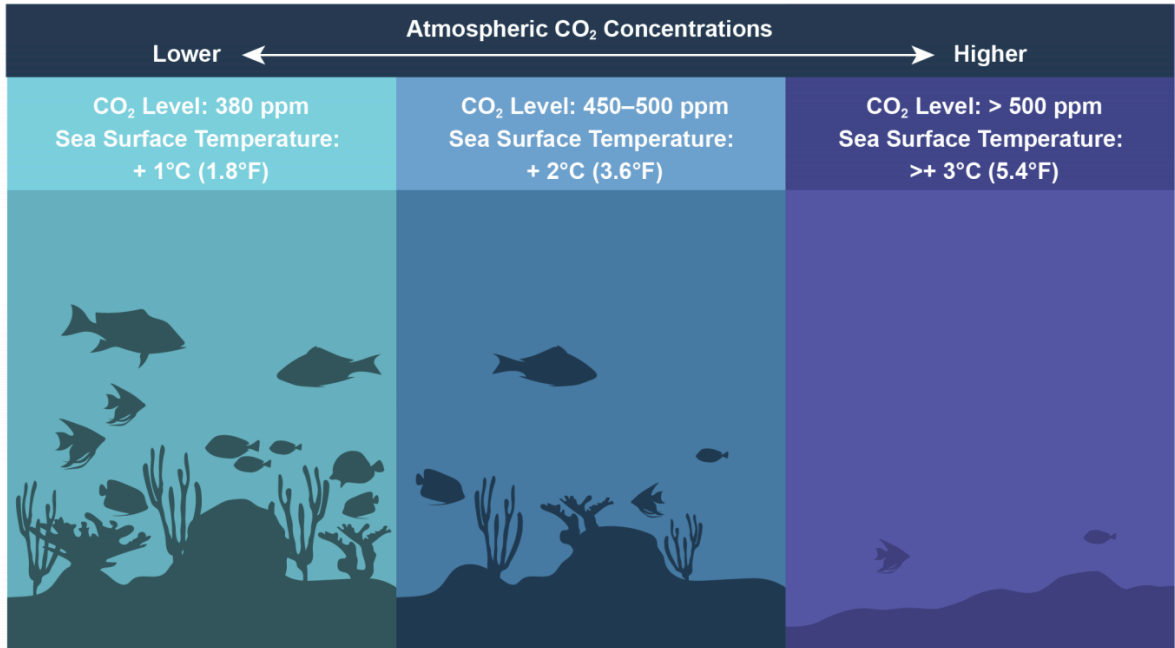


## Climate Change Effects on Coral Reefs



**Figure 20.9:** The diagram demonstrates how coral reef ecosystems in the U.S. Caribbean are likely to change in potentially warmer and more acidic waters caused by climate change, including elevated sea surface temperatures and elevated carbon dioxide (CO<sub>2</sub>) levels. The severity of these impacts increases as CO<sub>2</sub> levels and sea surface temperatures rise. If conditions stabilized with concentrations of atmospheric CO<sub>2</sub> at 380 ppm (parts per million), coral would continue to be carbonate accreting, meaning reefs would still form and have corals. At 450–500 ppm, reef erosion could exceed calcification, meaning that reef structure is likely to erode and coral cover is likely to decline dramatically. Beyond 500 ppm, corals are not expected to survive.<sup>77</sup> Sources: NOAA and USFS.