Increasing environmental stress on planktic foraminifera leads to the extinction of large, specialized species, while smaller, adaptable species thrive, exhibiting dwarfism and high abundance. Specific diversity, best measured by the relationship between species and individual counts (ideally 100–300 specimens), is represented by the alpha (α) value in Fisher plots. α5 suggests brackish or hypersaline environments, while α7 indicates normal marine or hypersaline shelf conditions. Shell structure also reflects environment: porcelaneous components >20% are found in normal marine and hypersaline settings, while agglutinated forms dominate brackish and abyssal zones. Benthic and planktonic foraminifera abundance changes with depth and salinity, and sediment oxygenation is inferred from epifaunal/infaunal ratios. Foraminifera are crucial in micropaleontology, aiding oil and gas exploration through sequence stratigraphy, paleogeography, facies analysis, and source-rock maturation determination. Micropaleontological analysis of ditch cuttings provides age determination, well correlation, unconformity evaluation, and paleoenvironmental interpretation, improving drilling accuracy. Post-drilling, microfossil evaluation helps in stratigraphic subdivision and reservoir connectivity modeling. Foraminifera, evolving since the Precambrian, are valuable for biostratigraphic zonation, particularly in the Mesozoic and Cenozoic. Biostratigraphic units are defined using index species abundance, FADs (first appearances), LADs (last appearances), and concurrent ranges, with fossil tops being more reliably determined than bases in ditch cuttings due to “caving.” Quantitative biostratigraphy, employing computer-assisted techniques, refines zone definition and sequence boundary identification, as well as burial history modeling.