Upper Jurassic Smackover carbonate petroleum reservoirs in the Eastern Gulf Coastal Plain are principally carbonate shoal and reef deposits. From core studies, these reservoirs are known to consist of shoal peloidal/ooid packstones and grainstones and reef microbial bindstones and bafflestones and coral-microbial boundstones that have undergone porosity and permeability enhancement through diagenesis. The reef facies generally were deposited under early highstand systems tract conditions, and the shoal facies accumulated as part of the late highstand systems tract deposits. Knowledge of reservoir succession and development is critical in prospecting for and developing Smackover hydrocarbons. However, because the Smackover strata are not exposed at the surface in this region, determination of reservoir succession and development is difficult. The use of Upper Jurassic carbonate shoal and reef outcrops in Western Europe to characterize the Smackover shoal and reef reservoirs in the subsurface of the Eastern Gulf Coastal Plain facilitates the design of strategies for Smackover hydrocarbon exploration and development. Upper Jurassic carbonate shoal and reef buildups are exposed in France and Portugal where they are generally associated with highstand systems tract deposits. In France, the reefs are primarily coral and microbial, and in Portugal these buildups are principally microbial. In both areas, shoal deposits usually overlie the reef buildups. Study of the vertical and lateral variabilities and geometries of these deposits in outcrop greatly assists with the visualization of the changes in Smackover carbonate shoal and reef reservoirs in the subsurface.