Key onshore plays across the margin of the northern Gulf of Mexico are investigated on a new and unique mega-regional, PSDM seismic dataset that for the first time illustrates the full scope of play configuration and offers new approaches for the explorationist. The onshore dataset is unique as no other dataset like it exists on any margin in the world today. The seismic data consists of onshore strike and dip lines composited from over 470 segments of legacy onshore data that were reprocessed from field tapes, and connects to offshore, long offset, seismic surveys providing a view of the whole Gulf basin. The widely-spaced onshore seismic grid extends from the updip limit of the Louann Salt to the present-day shoreline, and from the South Texas/Mexico border to the Florida Panhandle. The grid clarifies the configuration and later Mesozoic structuring of the onshore basins and uplifts, the extent of older salt gravity sliding, and paleo-shelf edges in the Cotton Valley. New onshore strike lines show the Eagle Ford/Tuscaloosa onlap transgressive wedge in its entirety, and highlight the west to east chronostratigraphic relationships. The Cenomanian/Woodbine lowstand wedges and deeper water facies of fans filled into accommodation space created by a major collapse of the Mesozoic margins creating possible play areas that have been inadequately imaged due to the limited scope of previous datasets. The strike view shows 100 km wide, collapse fault complexes breaking apart the Cretaceous margins, and due to the size of these features, the mega-regional grid may provide new insight into Wilcox play opportunities as these sediments expanded to fill the faulted topography. Onshore tilted fault blocks involving Wilcox and Mesozoic sediments are numerous under a regional onshore allochthonous salt weld and provide prospective leads with overburden thicknesses and drilling depths comparable to the Wilcox deep water fold belt discoveries. Paleocene to Wilcox-age incised canyons occur around the margin and could provide plays against the canyon incisions into older rock, as well as new play ideas as these features could provide downdip conduits for lowstand fan sediments.