3. Scope and objectives of the present study

The coastal morphodynamics is concerned primarily with physical features and environmental in the coastal regions, which occurs over a broad range of time and length scale. Sambasiva Rao, M. and Vaidyanadhan, R., 1979a,b; Sastry et al., 1991; Rengamannar, V. and Pradhan, P. K., 1991 had made deliberate morphological changes around the Godavari delta region. Later, Ramkumar, 2000 and Ramkumar, 2003 had made an attempt to study morphological evolution off Kakinada bay. Several researchers had studied about sediment characteristics (Reddy et al., 1994 and 1996; Harsha Sundar et al., 2010; Murthy et al., 2014), using transport alongshore flow pattern (Raju et al., 2004) and multi data satellite sensor data (Tripathi and Rao, 2001; Hemamalini and Nageshwara Rao, 2004) with GIS technique (Padmakumari et al., 2012a,b,c and Padmakumari et al., 2015). Guru prasad and Gaddem Narasimha Rao 2014 had presented about the global warming effects on Uppada coast, a fishing village of Andhra Pradesh. Nageswara Rao et al., 2003 and Nageswara Rao, 2006 had studied the Holocene evolution and coastal morphodynamics of Godavari estuary. Satyaprasad, 1986 studied about the morphodynamics of the beaches and sand spit, Kakinada Bay. Recently, Sarika Jain et al., 2008 studied on Morphodynamics of Godavari Tidal Inlets and Kakinada spit using time series multi sensor satellite data for the period of 1987 to 2004. No such systematic approach had been made to study the Kakinada coast using modeling software.

The primary aim of this research is to simulate hydrodynamic, spectral wave and sediment transport modeling using dynamic coupling of waves and currents.
• To understand the hydrodynamic and sediment transport of the study area.
• To prepare a model representing the hydrodynamic conditions at the locations using MIKE 21 FM coupled model and evaluating the sediment transport pattern in that location.
• To identify the critical factor in hydrodynamic, spectral and sediment transport modeling in the study area and providing a sensitivity analysis for the parameter governing sediment transport.
• Finally to assess the model performance using statistical tools and techniques have been made by comparing the model derived parameters against the corresponding observed data.