This presentation will give an overview of real-time ocean circulation nowcast/forecast systems that have been developed or are under development at the Naval Research Laboratory, Stennis Space Center, MS. The two models that will be discussed are the Navy Coastal Ocean Model (NCOM) and the Hybrid Coordinate Ocean Model (HYCOM). The basic design difference between the two is the implementation of the vertical coordinate, although differences in the treatment of data assimilation between the two will also be discussed. NCOM uses a fixed sigma(shallow)/z-level(deep) approach, and HYCOM uses a generalized vertical coordinate that is isopycnal in the deep ocean, sigma (terrain-following) in shallow water, and z-level in unstratified regions. With this approach there is a dynamically smooth transition between coordinate surfaces via the layered continuity equation, which enables the coordinate choice to vary in space and time. The current operational global forecast system that is run at the Naval Oceanographic Office is based on NCOM and has equatorial resolution of ~14 km. Global HYCOM runs pre-operationally in real time and has equatorial resolution of ~9 km. Results from a real-time Gulf of Mexico forecast system based on HYCOM will also be presented. This model takes lateral boundary conditions from global HYCOM and has horizontal resolution of ~3.5 km. Although not operational, this is a real-time system that produces a 7-day forecast once per day. Model forecast fields are compared to unassimilated observations are presented. Statistical properties of Loop Current Eddy shedding and propagation from a 7-year reanalysis simulation are also discussed. Finally, results from a regional model in the western Pacific Ocean based on NCOM with ~3 km resolution are discussed. In addition to the standard forecasts this system also produces ensembles by perturbing the surface wind forcing and initial state. The ensembles are used to describe the uncertainty in the forecast states. The uncertainty varies as a function of space and time with contributions from surface and lateral boundary forcing, imperfect model physics, and sub mesoscale variability that is insufficiently constrained by observations.