The unique signature of the cold SST anomaly found in the wake of a propagating TC has received less attention from the atmospheric TC community due to the limitation of current generation uncoupled TC models. Compared to the lack of studies on the atmospheric side, there were considerably more results about the ocean response to the moving hurricane. However, these results were mostly obtained from one-way coupled ocean models. The role of air-sea-wave interaction to the development of the ocean cold wake and its feedback to the TC intensity and structure change thus remains to be fully established. In this presentation, a recently developed two-way coupled COAMPS-TC model is used to investigate the TC and its induced wake interaction in three Western North Pacific typhoons - Sinlaku, Hagupit, and Janmi that were observed during the TCS-08 field campaign. Past modeling studies and a recent coupled COAMPS hurricane Katrina hindcast have suggested, in the absence of the ocean surface wave effect, the TC translation speed, pre-storm ocean mixed layer depth and thermodynamic stratification, maximum wind stress radius, and the TC rotation rate are important factors that influence the size and strength of the induced ocean cold wake. Less understood is how the cold wake modulates the TC structure and intensity. The coupled Katrina study showed an increased asymmetry in horizontal and vertical wind structure compared with the uncoupled run. This finding is also noted by other studies. The similarities and differences of the wake characteristics between the three Western North Pacific typhoons and the Gulf hurricane Katrina will be discussed. Results from idealized Ranken vortex simulations that are used to investigate possible wake feedback mechanisms will be presented.