We proposed a model determining the cropping calendar on rice cultivation in the Mekong River Delta, Vietnam (MRD) to investigate the environmental change impacts. In MRD, multiple rice cropping have been conducted under adverse water conditions such as flooding, salinity intrusion and irregular monsoon rains. The environment changes brings about changes in cropping calendar in terms of the duration of growing season and the number of cropping, resulting in changes of total harvested area. In this context, modeling the dynamic nature of rice cropping calendar in MRD is essential for evaluating rice productivity as well as water demand in the region under the current and the future environmental conditions. The model includes sub-models describing hydrological process in MRD, water budget in a paddy, rice growth and the crop management. The cropping calendar, that is the schedule of cultivation, is determined by crop management and rice growth status with the available water resources at daily time step provided by the sub-models. Particularly, for setting of starting time of a cultivation period, the model account for both the maximum land use and the minimum risk on harvest with the current environmental condition as well as the successful experiences of the cropping in the historical condition. The parameters of the decision criteria in the crop management in this model were given by empirical values according to the result of field survey in MRD. To validate the model performance, we compared the model estimation with the observation, which is derived from satellite imageries data (MODIS 8-days composite), with respect to the date of heading and time changes of leaf area index of rice plant for 10 selected sites during a period of 2002 to 2006. The estimations of the model agreed well with the observations except for the cases in the middle part of MRD where year-round irrigation is available due to free from flooding and salinity intrusion. Based on the model, we examined the impacts of changes in river water conditions on cropping calendars in MRD, assuming the actual status of water environments in 1998 (severe salinity intrusion occurred) and 2000 (severe flooding occurred). We further applied climate a change scenario projected by a Global Climate Model (MIROC high resolution version) under SRES A1B GHG emission scenario. The results elucidated the spatial changes of cropping calendar as well as vulnerable areas under future climate change by 2030.