This thesis deals with the problem of estimating the joint probability distribution of a marked process' parameters from a censored data. First, a Nelson-Aalen estimator of the cumulative hazard rate for one-dimensional case is constructed. This estimator is then smoothed by using a kernel function estimator. Then, a Kaplan-Meier estimator of the survival function is brought in. Further, a theory of set-indexed random processes is built up to be a base for the construction of a generalized Nelson-Aalen estimator of the cumulative hazard rate, which is then again smoothed. For a special case, a generalized Kaplan-Meier estimator of the multidimensional survival function is constructed. The application of the mentioned generalized estimators is shown on a particular case. These estimators are then used on simulated data.