In the analysis of structures subjected to stationary stochastic load processes the mean out-crossing rate plays an important role as it can be used to determine the extreme value distribution of any response, usually assuming that the sequence of mean out-crossings can be modelled as a Poisson process. The mean out-crossing rate of a response level $r$ can be expressed in terms of the reliability index, which for linear systems is $r$ divided by the standard deviation of the response in question. For non-linear processes the reliability index depends non-linearly on $r$ and a good estimate can be found using the First Order Reliability Method (FORM). The FORM analysis also shows that the reliability index is strictly inversely proportional to the square root of the magnitude of the load spectrum, irrespectively of the non-linearity in the system. However, the FORM analysis only gives an approximation to the mean outcrossing rate. Better accuracy can be obtained by Monte Carlo simulations, but the necessary length of the time domain simulations for very low out-crossing rates might be prohibitively long. In such cases the property mentioned above for the FORM reliability index might be assumed to be valid in the Monte Carlo simulations, making it possible to increase the out-crossing rates and thus reduce the necessary length of the time domain simulations by applying a larger load spectrum than relevant from a design point of view. The mean out-crossing rate thus obtained can then afterwards be scaled down to its actual value. In the present paper the usefulness of this approach is investigated, considering problems related to wave loads on marine structures. Here the load scale parameter is conveniently taken as the square of the significant wave height.