The Federal and Queensland Governments have allocated considerable resources to reduce sediment and other pollutant loads under the Reef Plan 2003/2009. Catchment modelling framework will be used to assess sediment loads and the improvement in water quality as a result of management actions. Validating the outputs of these models using field data is essential to quantify and where possible, reduce associated uncertainties. While data based model validation is possible for monitored catchments, there are a large number of Great Barrier Reef (GBR) catchments with insufficient field data. For these unmonitored catchments, the total suspended sediment (TSS) loads have to be estimated based on the regional relationships and some readily available physical parameters.

Recently, intensive field data were collected in high priority GBR catchments under the GBR15 Event Monitoring program during high flows to enable the estimation of mean annual TSS loads for 12 sites in 10 catchments.

For these monitored catchments, mean annual TSS loads and concentrations were calculated. For catchments with relatively low runoff in the dry tropics and south-east Queensland), the mean TSS concentrations were found to be relatively high, whereas in high runoff catchments in the wet tropics these were relatively low.

Relationships between the mean annual loads and catchment area, and mean annual concentration and runoff depth were found to be highly correlated. These relationships were then used to estimate long term sediment loads for unmonitored Queensland catchments so that the sediment load and mean sediment concentration can be estimated for the entire GBR region in Queensland.