Wetlands are well recognized for their potential for providing a wide range of important ecological services including their ability to provide water quality protection. Watershed-scale water quality trading could create market driven incentives to restore and construct wetlands while improving water quality. An important first step to evaluating the feasibility of including wetlands in water quality trading programs is to quantify the water quality services provided by wetlands. In this study we present a case study of the Halfway Creek Wetland Complex (HCWC) in Holmen, WI, managed by the USFWS primarily for waterfowl feeding and is adjacent to the Mississippi River (MSR). We used both a watershed approach and process level studies in an effort to quantify the water quality services provided by a restored wetland (RW) that was reclaimed from agricultural use and a degraded but native wetland (NW). In this paper, we present results of four years of work quantifying suspended sediment (SS), nitrogen (N) and phosphorus (P) loads from two surburbanizing watersheds associated with the HCWC and the role of the wetlands in attenuating these loads to the MSR. Estimates of sediment and nutrient loads will be described by season and annually. Overall the wetland complex attenuated ~71%, 21%, and 13% of the annual loads of SS, TP and TN respectively. During late summer of 2005, ~2500 cubic yards of sediment were removed from the restored wetland, at no cost, by a landscape company. Approximately 6741 kg of N and 2667 kg P were removed and recycled with the sediment. Removing and recycling the sediment may be one way of avoiding diminished rates of P removal over the life of the wetland, while providing a beneficial use of the material. The water quality services provided by the degraded native wetland appear to be "short circuited" as a consequence past channelization and land use activities. It is likely that removal of the historical overbank sediment in HWC, which is a large source of sediment and nutrients, will ultimately be required to improve floodplain storage, restore channel/floodplain connectivity and improve wetland functions.