

Source:

Moffatt & Nichol 2009. Capitol Lake Alternatives Analysis Dredging and Disposal Addendum. Section 5.3.3, page 25

this way. The result of this is that this Addendum uses sedimentation volumes in the marinas and Port facilities that are lower than those given in USGS (2008).

### 5.3.3 Extrapolation to 50-Year Timeframe

The extrapolation to a 50-year timeframe is based on the length of time it takes the estuary to reach approximate equilibrium after the estuary construction is completed. Estuaries are intrinsically dynamic systems: the concept of a final estuary equilibrium – particularly in the presence of ongoing sea level rise – is questionable at best. Nevertheless, the modeling results do predict that the majority of the morphological changes in the restored estuary will occur in the first few years after restoration. The estuary appears to be approaching a near-equilibrium condition within the first 10 years: the predicted erosion and accumulation in different basins is still changing from year to year, but only slightly.

For the purposes of estimating likely dredging quantities over a 50-year time-frame, this Addendum assumes that full equilibrium is reached 15 years after the estuary is restored. At this stage, for the *No Net Export* case, 100 percent of the sediment load from the Deschutes Estuary – 35,000 cubic yards annually – bypasses the Capitol Lake basins. 70 percent of this load, or 24,500 cubic yards annually, settles in the marinas and the Port facilities. A smooth curve is drawn to connect the sedimentation rates predicted for the first three years with the fixed rate after 15 years. Figure 8 illustrates the extrapolated annual sediment load. The partition between the different basis is typical of that given by the USGS results: 20 percent to each of the Olympia Yacht Club and the Percival Landing marinas, and 60 percent to the Port of Olympia facilities. The sedimentation rates are assumed steady for the remainder of the 50-year project lifetime. Figure 9 illustrates the sediment accumulation for the different basins.

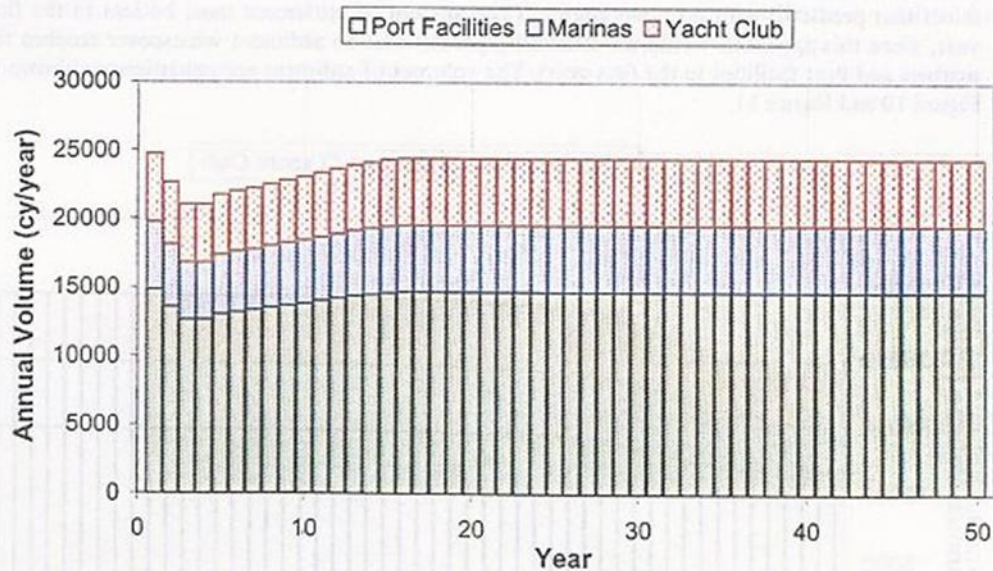


Figure 8. Extrapolated Annual Sedimentation in the Marinas and Port Facilities for the No Net Export Case