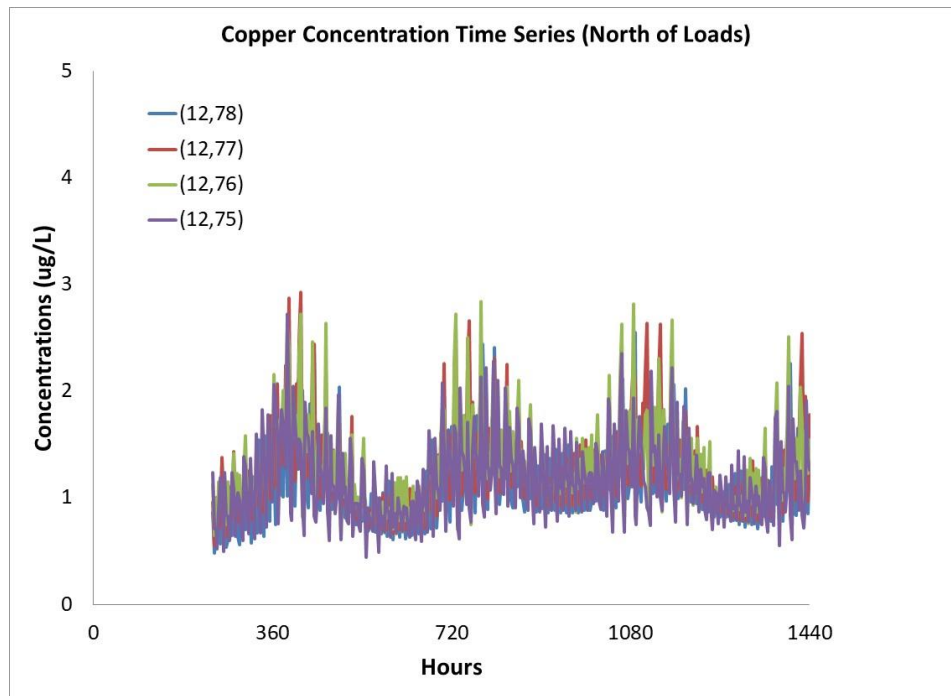
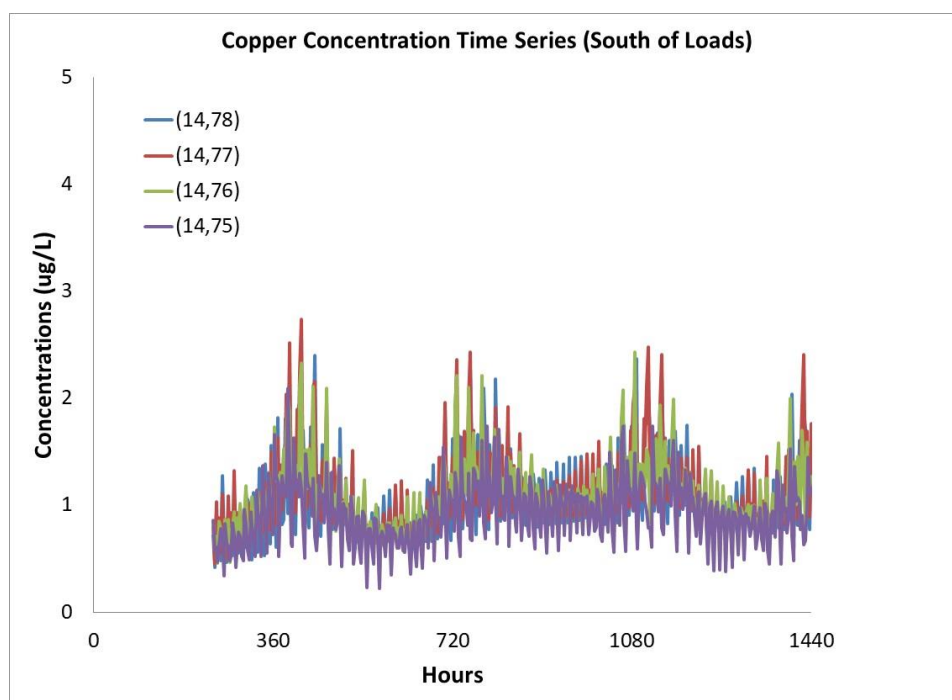


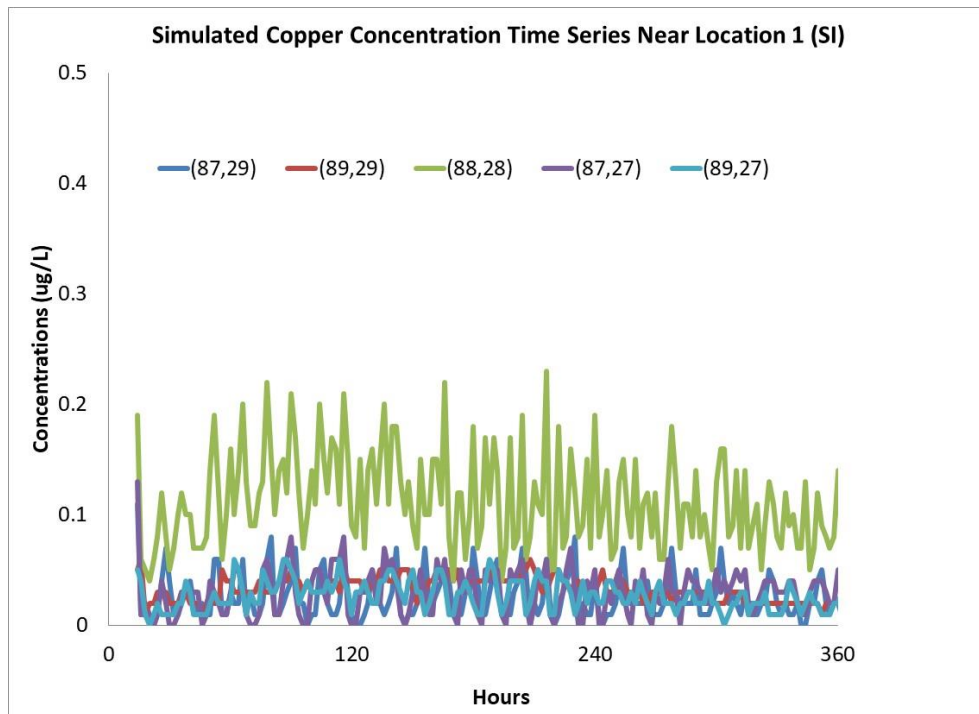
**Supplementary Figure 1.** Time series of simulated copper concentrations over 48 days at the four grid cells within the simulated fish pen locations for San Diego Bay. The (x,y) coordinates of model grid cells are denoted in the figure legend.



**Supplementary Figure 2.** Time series of simulated copper concentrations over 48 days at the four grid cells north of the simulated fish pen locations for San Diego Bay. The (x,y) coordinates of model grid cells are denoted in the figure legend.



**Supplementary Figure 3.** Time series of simulated copper concentrations over 48 days at the four grid cells south of the simulated fish pen locations for San Diego Bay. The (x,y) coordinates of model grid cells are denoted in the figure legend.



**Supplementary Figure 4.** Time series of simulated copper concentrations over one spring-neap tidal cycle at five representative grid cells in Sinclair Inlet. The same muted differences between spring and neap tides were observed for other grid cells. The (x,y) coordinates of model grid cells are denoted in the figure legend.