

An Alternative Futures Analysis (AFA) was conducted to evaluate tradeoffs between landscape design scenarios and ecological services for Farmington Bay, Great Salt Lake (GSL), wetlands. Model scenarios included plan trend and conservation "futures" scenarios projected to 2030. Scenarios were evaluated with respect to GSL average water level (AWL) and high water level (HWL) (elevation 4,200 feet and 4,212 feet, respectively). Results of the future scenarios were compared to current conditions. Four ecological modeling approaches were used: A Geographic Information System (GIS) based spatial wetland profile, to track changes in abundance, by class and scenario; a (GIS) based avian wetland habitat assessment (AWHA) to assess suitable avian habitat; an ArcView Generalized Watershed Loading Function (AVGWLF) model to assess nutrient loads; and a Wetland Cellular Water Quality (WCWQ) model to evaluate nutrient retention by impounded wetlands. The models predict a loss of wetlands for both Plan Trend and Conservation scenarios at GSL HWL of 4,212 ft. The greatest decline in the highest avian habitat category was observed for the Plan Trend scenarios. The Conservation 4,200 scenario protected the most wetland acreage and highest category of avian habitat. A substantial increase in watershed nutrient loading was observed for all future scenarios. Modeled watershed nutrient loads were dominated by two major point sources. Modeled removal efficiencies of 74% for phosphorus and -11% for sediment were observed for impounded wetlands. The AFA approach developed and applied is a transparent method for organizing and communicating complex scientific information to stakeholders and improving watershed management decision making.