

1. *"At what point, if any, is water flowing from Lake Okeechobee via the S-308 too polluted, dirty, or toxic to send into the St. Lucie River? What is the decision making process, if any, by the USACE for deciding if water is too dirty, toxic or polluted to send to the St. Lucie River?"*
 - a. We strive to find the appropriate balance between the competing demands of flood control, lake ecology, water supply, environmental health of the estuaries and other natural resources. Lake Okeechobee releases to the estuaries are made to address two main objectives: 1) reduce risk to human health and safety from potential HHD failure and associated flooding; 2) environmentally beneficial flows to the Caloosahatchee Estuary. While water quality is a consideration, addressing water quality is not a federally authorized project purpose and is not a primary factor in determining how much water to release. We focus on lake stages and the likelihood that the lake will rise higher as the primary factors of our decision to reduce risk of HHD failure. Water quality effects of LORS were evaluated in the 2008 LORS schedule and Final Environmental Impact Statement. At that time, the rate of nutrient loading into the lake was 5 times higher (714 metric tons per year) than the Florida Department of Environmental Protection set total maximum daily load (TMDL) of 140 metric tons per year. While the state has been implementing plans to reduce nutrients into Lake Okeechobee, the nutrients are still high, with the phosphorus loading rate still routinely exceeding the state TMDL by a factor of 3-4 times, which can promote algal blooms including those species that are harmful. Understanding that nutrients are a concern for the estuaries, Lake Okeechobee releases are only made if the LORS schedule calls for them to reduce risk of high lake stages. Also, Lake Okeechobee releases are only a portion of the nutrient loading sent to the estuaries. The St. Lucie Estuary receives approximately 31% of nitrogen load and 17% of phosphorus load from Lake Okeechobee. The rest is from the St. Lucie basins and tidal basins (long term averages, SFWMD 2015). For the Caloosahatchee, Lake Okeechobee contributes 34% of nitrogen and 28% of Phosphorus. Lake Okeechobee releases combined with estuarine basin flow contribute to freshwater conditions that allow the naturally occurring harmful algal bloom (HAB) species to thrive. Based on recent experience and scientific recommendations from 2016 as part of the stakeholder feedback process called for under LORS, pulsing required regulatory releases is an option to help reduce the negative effect from an estuarine HAB concern. Periods of low or no flow can allow normal tidal flushing to move saline water back into the estuary and then allow flushing of some excess nutrients to tide and kill the harmful microcystis algae.