

Project Title: Nutrient Levels associated with ecological thresholds of impairment in reservoirs of Puerto Rico

PREQB contract no: 2012-000022

Revised TN thresholds:

A recalculation of the total nitrogen thresholds associated impairment conditions in reservoirs of Puerto Rico was conducted after a QA/QC check conducted by PREQB determined that the chemical analysis reports of four data sets for total kjeldahl nitrogen (TKN) and one set for nitrate (NO₃) exceeded the samples' holding time.

TN concentrations associated to the established Chl-a impairment threshold (i.e., 24 µg/L) were computed based on a change point analysis of the data. The recalculated value, **0.42 mgTN/L** is similar to the value originally reported (i.e. **0.43mgTN/L**). As stated this value (i.e., **0.42 mgTN/L**) is considered a nutrient threshold associated with impairment for reservoirs in the island. To protect against impairment we incorporated a margin of safety based on the concentrations defining the lower 5% confidence interval of the bootstrap distribution of values associated with our Chl-a impairment threshold (i.e., P(05)-one sided tail probability). The recalculated criteria, **0.40mgTN/L** is similar to the value originally reported (i.e., **0.41mg/L TN**). The latter is proposed as basis for establishing the nutrient standards for reservoirs of Puerto Rico.

Results:

Table 1. New computations for TN, based on the data analyzed on August 29, 2015

Stressor	Chl-a level (µg/L)	Changepoint	95% CI	
TN	24	0.4215	0.3878	0.4564

To protect against impairment we incorporated a margin of safety based on the concentrations defining the lower 5% confidence interval of the bootstrap distribution of values associated with our Chl-a impairment threshold (i.e., P(05)-one sided tail probability). The value of P(05)-one sided tail probability in this distribution is 0.4023 mgTN/L.