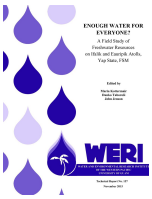

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IFALIK ATOLL

Water Quality Sampling 2015

by William Whitman and Blaž Miklavič
(assisted by Vivianna Bendixson and Maria Kottermair)

Methodology

Water Quality Sampling for various Parameters (by William Whitman)

As the data loggers were set-up in the different well locations collecting conductivity and water level readings at Wells T, P, and Q. More time became available for water quality sample collection. All water quality samples were collected on August 19, with the exception of the chloride sample at Well Q. In all, 20 *E. coli* samples were collected and nitrate and pH field tests were conducted at each of the 20 *E. coli* sample locations. 10 of these sample locations were catchments and were selected after being deemed significant based on the results of the household surveys. The other 10 samples were collected at wells, 3 of which were the primary investigation wells (Wells T, P, and Q) and the other 7 were selected based on the details provided by the household surveys.

E. coli samples were analyzed in the field using the Hach Presence/Absence Test kit with MUG using disposable sample containers. All water samples were collected from the water source using disposable Whirl-pak bags that were pre-disinfected and seal, and only opened immediately before each sample was collected. The sample collection bags were disposed of after use at each sample location. Nitrate samples were analyzed in the field using a Hach Model N1-11 Nitrate test kit. This method is based on the cadmium reduction process with a color disc for comparison readings. It has a range of 0 – 40 mg/L. The pH readings were determined using a more qualitative process of sample water application to pH strips.

In addition, chloride samples were collected at each of the primary well locations (Wells T, P, and Q). At Well Q, two samples were collected in an attempt to understand the consistent pattern of slightly lower field conductivity readings at the bottom of the well versus the surface of the well water. However, concurrent conductivity samples collected did not exhibit the unusual trend previously observed. Therefore, the sampling procedure used to collect the sample at-depth may not have been effective at isolating the water samples in the different depth zones. The chloride samples were packed and brought back to the WERI laboratory for analysis. Since the water sample size collected was enough to analyze lead (a contaminant some locals were concerned because of the decomposing batteries on the island), WERI laboratory analyzed these water samples collected for chloride for lead as well.