

Quick Start Guide: EASYINDEX-Agua Calculator

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EASYINDEX-Agua includes a calculator that summarizes water quality data and provides a single, more understandable value for water quality. The calculator determines an index value between 0 and 100, using key water quality factors. An index of 100 is excellent water quality, and 0 is very bad water quality. With this tool, you can:

- Input difficult to understand water quality data to get a simple interpretation of how good the water quality of your sample is,
- Combine many different indicators into one overall composite measure of water quality, and
- See how the different factors included in the index affect the total value of the index.

Getting Started: EASYINDEX-Agua calculator

The calculator is accessed via <https://www.agry.purdue.edu/hydrology/projects/nexus-swm/es/Tools/WaterQualityCalculator.php>. Currently, the calculator uses the Simplified Water Quality Index (ISQA) to determine water quality. The ISQA uses five water quality variables to calculate a single value index.

The screenshot shows the calculator interface with three main columns: 'Parametro', 'Entrada del valor', and 'Rango del Parametro'. The 'Parametro' column lists five factors: Temperatura (°C), DBO (mg/L), SST (mg/L), OD (mg/L), and Conductividad (µS/cm). The 'Entrada del valor' column contains input boxes with the values 20, 2, 100, 9, and 1000. The 'Rango del Parametro' column shows color-coded arrows indicating good (green) or bad (red) ranges for each factor. Below the input fields are buttons for 'Reajustar' and 'Calcular'. A score of 70 is displayed, along with a legend for water quality categories: Buena (71-90), Media (51-70), Mala (26-50), and Muy mala (0-25). Instructional callouts with arrows point to various parts of the interface: 'Place the mouse over each factor to reveal its description' points to the parameter list; 'Place sampled values in these boxes' points to the input fields; 'The arrows indicate values of when each factor is good or bad. Red is bad.' points to the range arrows; 'Click here to delete all entries' points to the 'Reajustar' button; and 'Click here to use the calculator' points to the 'Calcular' button.

| Parametro | Entrada del valor | Rango del Parametro |
|-----------------------|-------------------|--------------------------------|
| Temperatura (°C) | 20 | 0°C (green) to 40°C (red) |
| DBO (mg/L) | 2 | 0mg/L (green) to 12mg/L (red) |
| SST (mg/L) | 100 | 0mg/L (green) to 250mg/L (red) |
| OD (mg/L) | 9 | 0mg/L (red) to 10mg/L (green) |
| Conductividad (µS/cm) | 1000 | 1µS (green) to 4000µS (red) |

70 = Media calidad de agua

Media (51-70)
Mala (26-50)
Muy mala (0-25)

Reajustar Calcular

Calculator outputs

After inputting values for each one of the five variables, and clicking 'Calculate', a value appears in the box, which is the ISQA value. You can identify how good water quality is using the scale on the right.

The screenshot shows a web-based calculator for the Simplified Index of Water Quality (ISQA). On the left, there are input fields for SST (mg/L), OD (mg/L), and Conductividad (µS/cm). A 'Reajustar' button is below these fields. In the center, a yellow box displays the result: '70 = Media calidad de agua'. To the right, a vertical legend shows five categories: Excelente (91-100) in green, Buena (71-90) in light green, Media (51-70) in yellow, Mala (26-50) in orange, and Muy mala (0-25) in red. A 'Calcular' button is at the bottom right. Annotations with arrows point to the result box and the legend, explaining that the color of the result box matches the water quality category and that the legend explains the index values.

How the calculator works

If you want to see details of the water quality factors or see how the index is calculated, you can scroll down on the webpage to read more information. The five variables included in the calculation of the ISQA are:

- Temperature – maintaining values within a certain range is important for the survival of many aquatic organisms
- Biological oxygen demand – indicates how much oxygen bacteria need to break down organic matter in water
- Total suspended solids – a measure of the mass of particles suspended in the water, which can come from erosion of land surfaces and be washed away from urban areas
- Dissolved oxygen - a measure of the oxygen available in the water for fish and other organisms
- Conductivity - related to the amount of dissolved salt that is present in the water

More information

To learn more about this tool and water quality data in Arequipa, you can see the following resources:

- The EASYINDEX-Agua Map
- The EASYINDEX-Agua Map Quick Start Guide
- The EASYINDEX-Agua User's Manual
- The *Water Quality Data Available in Arequipa* factsheet

All these resources, our tools, and other information about of the SWM team can be accessed on our website: https://purdue.ag/nexus_tools.

CONTACT

For more information about the developers, this and other tools developed by the Sustainable Water Management team of the Nexus Institute of Arequipa, contact us at nexus-swm@purdue.edu.