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Data Article

Geospatial analysis of dissolved nutrients dataset in the surface water of Karayar reservoir, Southern India

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ABSTRACT

Spatial dataset representing the nutrient distribution in Karayar reservoir during pre and post-monsoon season is presented. Random sampling method was used for data collection and the sample location were fixed using a handheld global positioning system (Garmin GPSMAP-76). The nutrients were estimated using the standard techniques as described in the American Public Health Association (APHA) manual. Physical parameters were estimated using a Hanna portable multi water quality probe (HI-9828, USA). The spatial distribution of physical and nutrient content in surface water is carried out using an inverse distance weighted technique.

Specifications Table

Subject area	*Environmental Science*
More specific subject area	*Water quality*
Type of data	*Table, figure*
How data was acquired	Hanna portable multi water quality probe (HI-9828, USA), *UV–vis Spectrophotometer (DEEP VISION 1371), random sampling, GPS (*Garmin GPSMAP-76*)*

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Data format	*Raw, analyzed*
Experimental factors	*The water samples were collected in the first month of each season using an acid washed high-density polyethylene bottles of 1 l capacity.*
Experimental features	*Estimate the concentration of physical parameters and nutrients (temperature, pH, EC, TDS, Cl, NO_3, PO_4, SO_4, NH_3N, and DO) in the surface water of Karayar reservoir.*
Data source location	*Tirunelveli, India*
Data accessibility	*Data is within this article*

Value of the data

- It can sever as a baseline data for the available water-soluble nutrients in the surface water of Karayar reservoir.
- Data shown here can be used to understand the dynamics between forest land use and water quality.
- Data are georeferenced and it can be used in water quality modeling.
- Useful to researchers, policy makers, managers, government officials working in water quality and catchment related fields for protecting the environment.

1. Data

The water quality data representing the geographical information, physical and nutrient contents during pre and post-monsoon seasons from 17 locations within Karayar reservoir is shown in Tables 1 and 2. The location map of the study area is shown in Fig. 1. The spatial distribution of all the physical and nutrient contents for both the seasons is shown in Figs. 2 and 3 respectively.

2. Experimental design, materials and methods

2.1. Sample collections

The present study focused at specific water quality monitoring parameters in 17 sampling points in Karayar reservoir. The accurate geographic positions of the sampling points have been determined using a portable global position system—GPS (Garmin GPSMAP-76). The standard methods for analysis of water quality were done as per the guidelines of American Public Health Association [1]. The pre-monsoon water samples were collected in July 2009 and post-monsoon water samples were collected in the month of January 2010. During sampling procedure, the water was sufficiently mixed and remarkable turbulence did not appear. The sampling depth was approximately 30 cm [2]. The water samples were collected in 1-l high-density polyethylene (HDPE) bottles, stored at 4 °C, and further analysed for various chemical parameters in the laboratory. These parameters include temperature, pH, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Nitrate (NO_3) Phosphate (PO_4), Sulphate (SO_4), Ammoniacal Nitrogen (NH_3-N), Chloride (Cl^-) and Dissolved Oxygen (DO). The physical parameters such as temperature, pH, EC, TDS, and DO was measured on the spot with the help of Hanna portable multi parameter probe (HI-9828, USA). Chloride was determined by argentometric titration method [1]. NO_3, PO_4, NH_3–N, and SO_4 were determined by using a UV–vis spectrophotometer at a specified wavelength [1]. All the studied parameters are expressed in ppm except temperature