



Nutrient Study – South Fork Eel River (North Coast Region)

What is it?

At low to moderate concentrations, nutrients are an integral part of the health and integrity of a waterbody. Nutrients foster the growth of algae, which are important components of the aquatic ecosystem. Algae are an essential food source; they provide habitat for invertebrates and other aquatic organisms; and they are a key source of dissolved oxygen necessary for aquatic life survival. However, high nutrient levels can cause excessive algal growth and other problems that can negatively affect the ecological condition of a waterbody and the health of people and wildlife that rely on that waterbody.

The South Fork Eel River experiences algal blooms every year, yet little is known about current nutrient loading and cycling in the river. The purpose of this study is to evaluate the current nutrient conditions along the South Fork of the Eel River. This study will evaluate the spatial and temporal distribution of nutrients in the South Fork and it will investigate the relationship between nutrient concentrations and algae growth and species composition. Monitoring will be coordinated with Region 1's Trend Monitoring Program of the Eel River watershed (see North Coast Regional Trend Monitoring Program Achievement Report [link]).

Why is it important to the State?

Nutrient enrichment can lead to cases of excess algal growth or blooms which can negatively affect many beneficial uses which the State is mandated to protect. Some algal blooms have been found to be toxic to animals that drink the impacted waters and may have a similar effect on recreational users. The South Fork Eel River experiences excess algal blooms every year and in some years these blooms have been toxic. Several documented dog deaths have occurred as a direct result of the animals swimming in the river.

Furthermore, algal blooms can lead to lethal depressed oxygen conditions in overnight or pre-dawn hours which are detrimental to aquatic life. Nuisance algal blooms can affect the aesthetics and enjoyment of a waterbody, leading to limitations on recreational use, which may have a negative impact on a local economy.

Why is it important to me?

Excessive nutrients can cause adverse ecological effects and may create conditions that pose a health risk to both wildlife and humans. Toxicity from blue-algae, in particular, has become a considerable water quality concern in lakes and rivers throughout California. This study will increase our understanding of the relationships between nutrients and algae which will help with the effort to find solutions to this emerging environmental problem.

How will this information be used?

The results of this study will be used to improve efforts to control algal blooms in the South Fork Eel River and to inform the statewide initiative to investigate toxic blue-green algae blooms. Data collected as part of this study will also be used in combination with other available data to assess water quality impairment for the Clean Water Act Sections 305(b) and 303(d) Integrated Report, which assesses overall water quality within Region 1 watersheds and identifies impaired waterbodies (waterbodies not meeting their beneficial uses designations). In addition, the data will be used to help determine future monitoring program design by focusing resources toward identified concerns.