History of contaminant inputs into Lake Mead derived from sediment cores

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Abstract

Understanding the changes in contaminant inputs into lakes and reservoirs is important in determining sources and rates of organic and inorganic pollutants. In this study, 56 sediment cores were collected from 56 U.S. lakes and reservoirs across the United States to determine the occurrence and trends in contaminant inputs. The data presented in this paper were collected as part of the MILES Project, which aimed to provide age dates and contaminant concentrations for lakes and reservoirs across the United States.

Introduction

The history of contaminant inputs into Lake Mead is important for understanding the environmental impacts of human activities on the lake. Over the years, various contaminants, including radionuclides and organic compounds, have been introduced into Lake Mead, affecting its water quality and ecosystem health. This study aims to analyze sediment cores collected from Lake Mead to determine the history of contaminant inputs and to understand the impact of human activities on the lake.

Previous work and setting

Lake Mead, located on the Colorado River in southern Nevada and northern Arizona, is the largest reservoir in the United States. It has been in operation since the construction of Hoover Dam in 1935. The lake has been subject to various human activities, including mining, manufacturing, and urban development, which have had an impact on its water quality and ecosystem health.

Objectives of this Study

The objectives of this study are to determine the history of contaminant inputs into Lake Mead and to understand the impact of human activities on the lake. The study aims to analyze sediment cores collected from Lake Mead to determine the occurrence and trends in contaminant inputs.

Methods

The study involved the collection of sediment cores from Lake Mead, followed by chemical analysis of organics and inorganics in the cores. The cores were extruded vertically and sliced into samples for chemical analyses of organics and inorganics. The data were then interpreted using radionuclide profiles to determine the age and contaminants present in the cores.

Results and Discussion

The results of the study showed a significant increase in contaminant inputs into Lake Mead, particularly in the 1960s and 1970s, due to increased industrial activities and population growth. The study also showed a decrease in contaminant inputs in the 1980s and 1990s, possibly due to decreased industrial activities and a decrease in population growth.

Conclusions

The study showed that the history of contaminant inputs into Lake Mead is important for understanding the environmental impacts of human activities on the lake. The study also showed that the occurrence and trends in contaminant inputs can be determined using radionuclide profiles to determine the age and contaminants present in the cores.

References