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Watercraft impact on the Lake Mead National Recreational Area

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**Watercraft Impact On The Lake Mead
National Recreational Area**

by

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Env 499A

Dr. Gerstenberger

04/12/98

Watercraft Impact On The Lake Mead National Recreational Area

"Lake Mead National Recreational Area exhibits a startling contrast of desert and water, mountains and canyons, primitive backcountry and modern technology. Two powerful, uncompromising forces created this fantastic place. Nature, working slowly over millions of years, built the foundation. Man, working feverishly over just the last few decades, remodeled and built a landscape that better suited his needs, desires, and senses. In one of the hottest, driest regions on Earth, two huge lakes were created. Lake Mead and Lake Mojave emerged as the center of the country's first national recreational area. Suddenly people were flocking to the desert for boating, fishing, swimming, and water - skiing. Today, thousands of visitors share in enjoying the cool, refreshing man-made lakes" (Lake Mead National Recreational Area Brochure, 1996).

The Lake Mead National Recreational Area is home to a variety of outdoor recreational activities, and is also a major tourist attraction for the Las Vegas Valley. In 1997, around 10 million people visited the recreational area, 3 million visitors more than in 1996 (K. Rohde, personal interview, March 18, 1998). Lake Mead NRA encompasses 1.5 million acres, that accommodate three of the most prominent desert ecosystems in the United States, the Mojave, the Great Basin, and the Sonoran Desert. Moreover, the recreational area also encloses the 110 mile long Lake Mead. The entire recreational area is home to a variety of desert vegetation, as well as big-horn sheep, deer, coyotes, foxes, bobcats, ring tail cats, lizards, snakes, birds, and several threatened and endangered species such as the desert tortoise, the peregrine falcon and the Colorado River fish species: the razorback sucker, the largemouth bass, the striped bass, blue gill,

the rainbow trout and the threadfin shad. In respect to being a national recreational area, the region accommodates many recreational activities in the lake, or on the surrounding land. Some of these activities include hiking, back packing, camping, picnicking, swimming, boating, fishing and sight seeing.

The Lake Mead National Recreational Area was established on October 8, 1964. Within the Lake Mead NRA is the country's second largest man-made lake, Lake Mead. Lake Mead, which contains about 28 million acre feet of water, was named after Dr. Elwood Mead, the U.S. Reclamation Commissioner between 1924 and 1936. This giant lake was created as Hoover Dam, established in 1928, impeded the southern flow of the Colorado River. Lake Mead stretches 110 miles before the dam, and creates a the huge body of water that is home to a number of aquatic animals, such as the snapping turtle, the freshwater sponge, the freshwater clam, and the fresh water jellyfish.

Lake Mead is not only home to a wealth of aquatic life, but is also the water resource for southern Nevada. Of the 28 million acre feet of water in the lake, southern Nevada allocates about 300,000 acre feet per year for consumption. The lake also serves as a discharge area for treated water, as treated water is returned to the lake via the Las Vegas Wash. Currently, about 200,000 acre feet of treated water is returned to the lake, and around 21,800 acre feet of the treated water is kept by the Southern Nevada Water Authority for reuse (Southern Nevada Water Authority, 1998).

Of all the uses of Lake Mead, the lake is mostly known as a recreational resource for park visitors. Because of the lake's size, it is an ideal place for boaters and jet skiers. Many of the boaters on the lake can steer into the secluded coves and beaches, or carefully maneuver in the

canyons of the lake.

As the popularity of the Lake Mead National Recreational Area increases, so do the impacts from recreation in the area. The park is considered a multi - recreational area by the Department of the Interior, and allows many forms of outdoor activities within park boundaries. One portion of the park that should be of concern to park management is Lake Mead. Many boaters and jet skiers use the water for their recreational purposes, but what are the impacts associated with these recreational activities? The lake is already known for contamination problems, whether it is from sewage or from runoff. Because many watercraft vehicles, such as jet skis and older boats use two stroke engines, fuel contamination is imminent. Two stroke engines use an oil and gasoline mixture, in which the motor burns. In this kind of engine, as much as one - third of the fuel mixture is left unburned and is discharged into the air and water. According to the Earth Island Journal, the unburned fuels contaminate sensitive ecosystems, such as those in a lake. Fuel and oil float on the water and can be carried further into the lake or perhaps onto a nearby beach. Jet skis have the greatest ability to float onto shallow waters, where boats cannot reach. This increases the chance for shoreline contamination and the disruption of the shallow water ecosystem. Refueling on the lake can also be blamed for fuel contamination in a lake. According to the book Recreation Management Of Water Resources, fueling docks are usually located close to boat launches and wet slips (74). The location of this equipment increases the likelihood of water contamination; because fueling takes place on the water, fuel can over flow into the water from overfilling a tank or from a dripping pump nozzle after fueling. Because the possibility of water contamination in lake waters, watercraft in the Lake Mead National Recreational Area should be of great concern to park management.

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Lake Mead

I. Introduction

A. History of the Lake Mead National Recreational Area

1. Recognizing the importance of the lake
2. Visitors perception of the lake

B. Perceived outlook of the lake

1. Lake Mead in the future
2. Continued uses of the lake

II. Lake Mead as a resource

A. The lake and its uses

1. Boating
2. Jet Skiing
3. Fishing
4. Swimming

B. The lake as a water resource

1. Drinking water
2. Treated water discharge

III. Problems resulting from increased use of watercraft on Lake Mead

A. Contamination from different engines

1. Two - stroke engines
2. Four - stroke engines

B. Effects of human activities

1. Algae blooms
2. Bacterial / Microorganism infestations
3. Fuel Contamination

IV. Findings from research

A. Correlation of outboard motors and water pollution

1. Problems in other lake systems
2. Possible water pollution occurrence in Lake Mead

B. Remediating the problem of water pollution

1. Increasing fees for watercraft on the lake
2. Using fees to improve water quality

VI. Conclusion

Materials and Methods

Research will be done through upcoming research on watercraft and water pollution in Lake Mead. This study is currently in the planning stages, and according to Jim Holland of the Lake Mead National Recreational Area, research will hopefully begin in the Summer of 1998.

Currently, the Lake Mead National Recreational Area is observing the research that is currently going on in Lake Tahoe. No documents are yet available on the correlation between watercraft and water pollution in the Lake Mead area.

The current research of this thesis is being accomplished through articles found in journals and on the world wide web. Other research includes book searches, personal interviews, and video searches. Materials found have been useful in determining the effects of watercraft on lakes, and what is being done about this problem. Moreover, several journal articles explained new innovations occurring in outboard motors, that can actually make two - stroke engines more efficient and less polluting. Theses articles will help establish the remedying portion of this paper.

Annotated Bibliography

Alger, A. (1996, June 3). Here they come again. Forbes, pp. 182 - 183.

This article provides information on why people want jet skis to be banned.. Some of the problems included safety reasons, environmental reasons, and nuisance reasons. The article will help in formulating an argument in the introduction of the thesis.

Bluewater. (1998, April). A demonstration: 2 vs. 4 stroke [www document]. URL <http://www.earthisland.org/ei/bw/tanks/htm>.

This site demonstrates pollution effects between 2 stroke engines and 4 stroke engines. The site will help in why some engines are more environmentally friendly than others, and why 2 stroke engines need to be innovated or done away with.

Heinrich, K.M. (1997, March - April). PWC's: out of place in parks. National Parks, pp. 17 - 18.

This article refers to the controversial issues of personal watercraft (PWC) in Lake Crescent within the Olympic National Park. The article can be used to compare and contrast the effects of watercraft on Lake Crescent and Lake Mead.

Long, R. (1997, Spring). Two - strokes and you're out. Earth Island Journal, p. 11.

This article refers to Bluewater Network's plea for more protection from water craft. This organization is taking the EPA before the Court of Appeals for failing to protect marine environments from watercraft. This will help contribute to the reasons for improving 2 stroke engines.

Malone, L.A. & Tabb, W.M. (1992). Environmental Law. Charlottesville, Va: The Michie Co.

This book provides the complete statutes and regulations of the Clean Water Act. It will provide the guidelines that certain motor must adhere to before being used.

Morgan, K. (1997, Fall). Jet skis hit bumpy water. Earth Island Journal, p. 9.

This article talks about jet ski related issues occurring from the use of these vehicles. The issues include wildlife harassment, pollution and safety. The article will help in formulating remedies to the watercraft problems.

National Park Service (1995). Lake Mead National Recreational Area [Brochure]. Department of Interior.

This brochure provides the map of the entire recreational area. It also provides information on the various recreational activities occurring on the lake, and includes information on the aquatic life found there.

Southern Nevada Water Authority (1998, April). Water resources [www document] URL <http://www.snwa.com>

This site gives information on the amount of water we discharge into Lake Mead, and how much water we utilize from the lake. This site will help in the development of the introduction.

Teague, P.E. (1995). Environmental concerns drive powerboat design; direct - injection two - stroke engines could cut emission and boost fuel economy. Design News, pp. 25 -26.

this article speaks about engines having to meet tougher environmental standards. It will help in talking about remedying the problems of outboard motors.

Waren, R. & Rea, P. (1996). Recreation management of water resources. Columbus, OH: Publishing Horizons.

This book will help in understanding the effects of fueling stations on lakes, and what can be done to improve the management of this equipment.

Whiteman, L. (1997, July - August). Making waves: loud, dirty, and dangerous watercraft are the latest motorized use to invade the parks. *National Parks*, pp. 22 - 26.

This article strengthens the argument that watercraft not only impacts the water, but also the entire park.

Zinser, C. (1995). *Outdoor recreation*. New York: John Wiley and Sons.

This reference contains background information of the Lake Mead National Recreational Area. It will help in discussing the history, the wildlife and land area in the introduction.

Timeline

First and Second Month of the Semester (August and September '98)

- finish research
- complete thesis writing
- review thesis with advisor
- edit thesis
- submit first draft (by the end of Sept.)

Third Month of the Semester (October '98)

- review thesis with advisor
- final edit
- submit final draft (by the end of Oct.)

Fourth Month of the Semester (November ' 98)

- organize presentation
- present thesis