Effects of a drought on the macroinvertebrate population

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ABSTRACT

Macroinvertebrates are great indicators of water quality. The abundance or absence of some species can help determine the state of the stream because of their sensibility to pollution. The word macro refers to organisms that are large enough to be seen without a microscope; invertebrate refers to an animal that does not have a backbone. Thus, a macroinvertebrate is a spineless organism that is big enough to be seen with the naked eye. Aquatic macroinvertebrates may include animals such as beetles, crayfish, leeches, mayflies, mosquitoes, mussels, shrimps, snails, and water bugs. The purpose of this research is to determine the change in the macroinvertebrate population by comparing our pre-drought results and the post-drought from two different streams. This investigation was done at the Maracuto stream, located in Carolina, PR, and in Río Sabana, in Luquillo, PR.

INTRODUCTION

- Macroinvertebrates are spineless organisms that can be seen with the naked eye.
- Macro organisms mostly inhabit aquatic ecosystems and are considered bio-indicators of water quality.
- A drought can be defined as the absence of rain on a determined place for a certain period of time.
  - ✓ A drought can cause strong, negative impacts in a community. These impacts can be either environmental, economical or social.

ACKNOWLEDGEMENT

METHODOLOGY

INSTRUMENTS TO RECOLLECT MACROINVERTEBRATES

PROCESS TO RECOLLECT MACROINVERTEBRATES

ANALYSIS OF MACROINVERTEBRATES

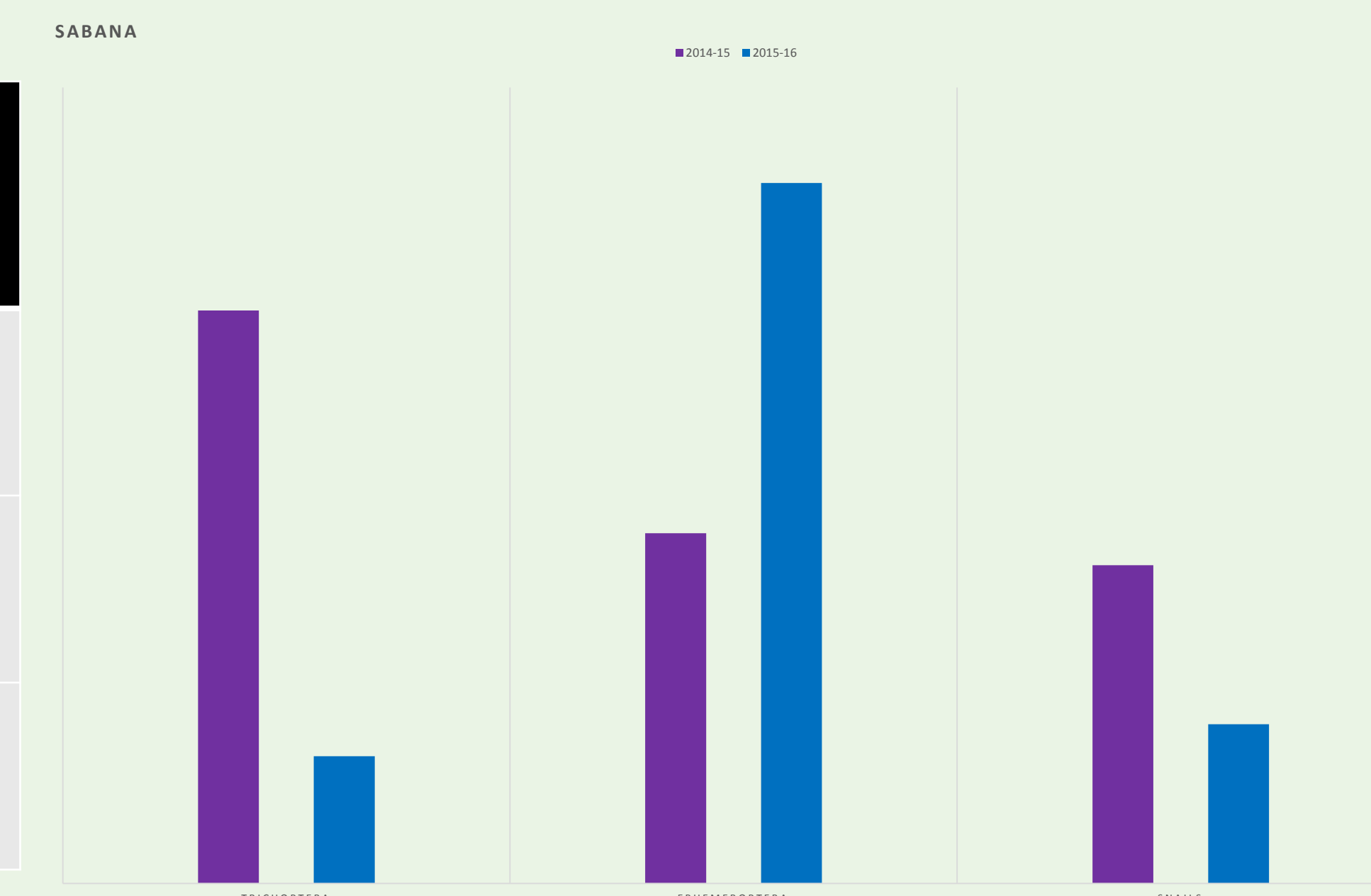MACROINVERTEBRATE FINDINGS

CONCLUSION

Comparing the years 2014-15 and 2015-16, the drought in Puerto Rico greatly affected the macroinvertebrate populations in the stream ecosystems that were studied. When comparing the macroinvertebrate populations over the two timespans, the populations greatly decreased after the drought that occurred during the year 2015. This event caused an extreme deficit of essential nutrients for the macroinvertebrate populations that live in these natural river ecosystems. With the absence of these essential nutrients in the river, the macroinvertebrate populations suffered a massive population decrease. After studying and comparing macroinvertebrate population trends in the Maracuto and Sabana rivers before and after the drought, we have concluded that extreme drought events have devastating effects on the macroinvertebrate population in delicate river ecosystems. Droughts, like the one that occurred in Puerto Rico, have catastrophic effects on the ecosystems that depend on natural water sources such as rain. Without this natural source of water, the river systems lose key nutrients that are essential for the survival of the macroinvertebrate populations that reside in them.

RESULTS

MARACUTO

	2014-15	2015-16
Ephemeroptera	80	12
Coleoptera	40	15
Diptera	20	1
Odonata	4	2

SABANA

	2014-15	2015-16
Trichoptera	18	4
Ephemeroptera	11	22
Snails	10	5

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