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A Bibliography on Cycling of Trace Metals in Freshwater Ecosystems

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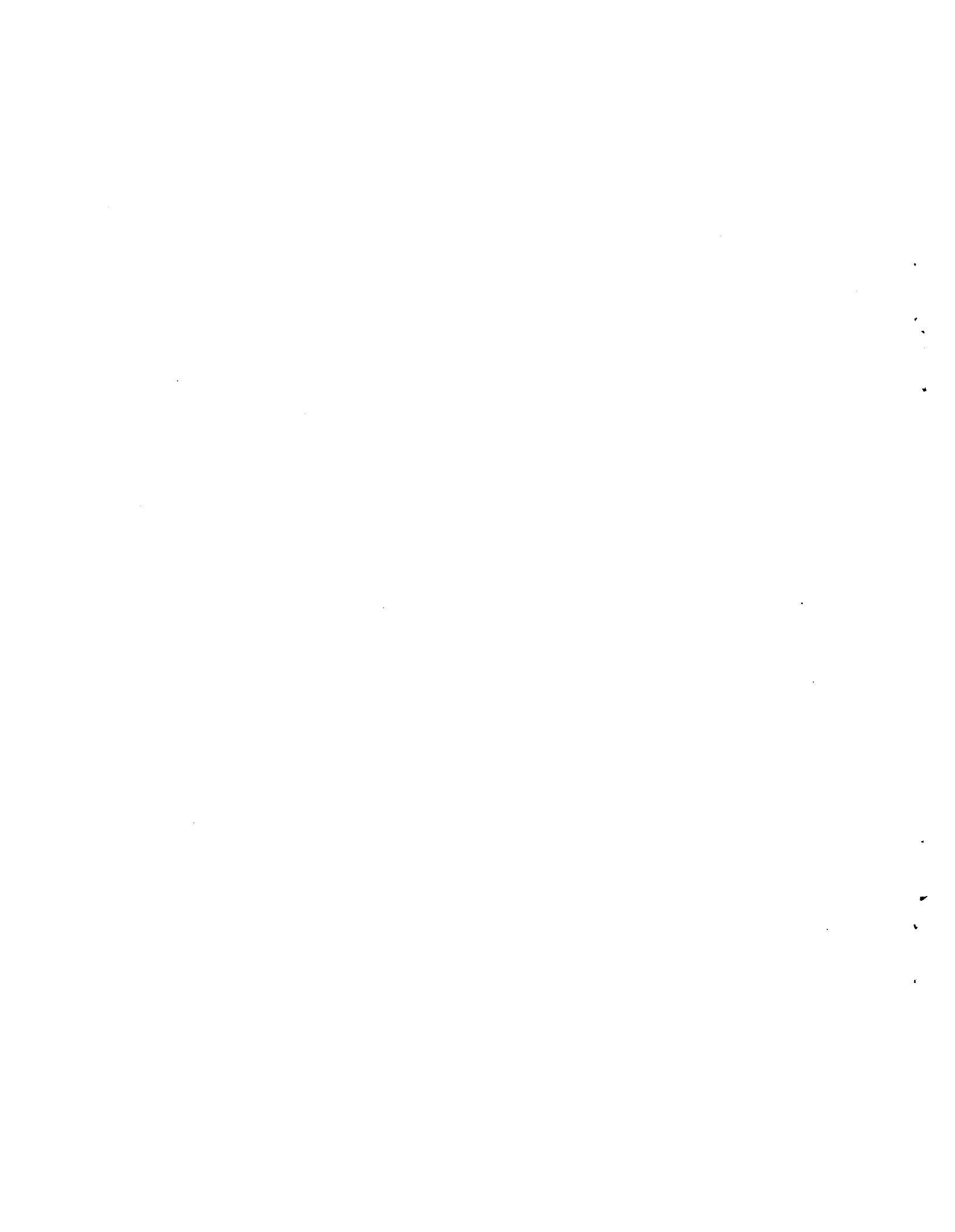
FOREWORD

In 1975 we began our studies of the cycling of trace metals in freshwater ecosystems. Concurrently, we began a literature search to determine the state-of-the-art in this field. We found that the topic of trace metals in the environment was, and still is, receiving a great deal of attention. It has been discussed at length in numerous recent symposia, and in open and in-house literature. Results of toxicity tests and data on environmental levels of trace metals are published most often. Interestingly enough, they seem to share the spotlight with studies on methods of measurement, indicating that there is some question about which methods are most reliable. One should therefore maintain a healthy skepticism toward published data in the field, giving attention to not only what is being measured and reported, but how it is being measured as well.

We were primarily interested in the literature directly addressing the cycling of trace metals in freshwater ecosystems. Data on cycling, including the influences of environmental mediators, are not nearly as abundant as the aforementioned information on environmental levels; there are, in fact, very few good papers on cycling.

This bibliography, then, is a listing of pertinent material we have found. Not all citations deal exclusively with cycling; some discuss environmental measurements which may aid in interpreting cycling research. We have intentionally left out the extensive literature on the cycling of the radioactive isotopes of certain trace metals (e.g., ^{210}Pb , ^{65}Zn , etc.) Several bibliographies, books, and symposia have already been published on the subject and are readily available.

Finally, this should be considered a working bibliography. It is not exhaustive because of the short time since its inception, but we hope that its content and the literature cited in these articles will be of use to others.



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1. The first step in the process is to identify the problem or goal that needs to be addressed. This involves a clear understanding of the situation and the specific objectives that need to be achieved.

2. Once the problem is identified, the next step is to gather relevant information and data. This may involve conducting research, consulting with experts, or collecting data from various sources.

3. After gathering the necessary information, the next step is to analyze the data and identify the key factors that are influencing the problem. This involves a thorough examination of the data and a search for patterns and trends.

4. Once the key factors are identified, the next step is to develop a plan or strategy to address the problem. This involves setting clear goals and objectives, identifying the resources needed, and determining the best course of action.

5. The final step in the process is to implement the plan and monitor the results. This involves putting the plan into action and tracking progress over time to ensure that the goals are being met.

6. It is important to note that the process of problem-solving is often iterative, meaning that it may be necessary to revisit previous steps as more information is gathered or as the situation evolves.

7. Additionally, it is important to involve all relevant stakeholders in the process, as their input and expertise can be invaluable in identifying the problem and developing a solution.

8. Finally, it is important to document the process and the results, as this can provide valuable insights for future problem-solving efforts.

1. The first step in the process is to identify the problem or goal that needs to be addressed. This involves a clear understanding of the situation and the specific objectives that need to be achieved.

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