Student Handouts

The Maumee River Watershed and Algal Blooms in Lake Erie[1]

The following file contains materials that students will use during the course. Questions about this material should be asked directly to the instructor.

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Photo credit: NASA Earth Observatory

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By the end of this case study you will have a well-defined mental model outlining the relationships between social and environmental factors leading to toxic algal blooms in Lake Erie. The purpose of a mental model (also known as a conceptual map or conceptual model) is to help quickly communicate what we know about the problem or pose hypotheses of the relationships between factors leading to a phenomenon of interest. A mental model is a graphical representation of knowledge and understanding about a phenomenon of interest. The model consists of the phenomenon being studied and the factors/variables influencing that phenomenon.

Your task is to develop a mental model of the factors influencing the development of algal blooms in the Lake Erie Basin using the SES framework and articles provided to you. You should include the social, behavioral, and environmental factors that have an influence on the emergence of algal blooms or need to be considered to understand why blooms occur.

Instructions:

1. Go to http://www.mentalmodeler.org/ and download software to your computer.
2. Read Gray et al. (2012) and Mental Modeler Manual at:
   http://www.mentalmodeler.org/#resources
3. Using the readings provided to you, to the best of your ability develop a conceptual map using mental modeler software to describe the factors influencing the development of algal blooms.
4. Print a pdf of the conceptual map (you may need to right click to print) and submit it to the appropriate dropbox.

Criteria
Social Factors Affecting Algal Blooms. Scale from 0 to 10, where 0 means that the author has failed to identify most of the relevant social factors causing algal blooms and 10 means that the author has identified all relevant social factors causing algal blooms in Lake Erie.   1   2   3   4   5   6   7   8   9   10
Behavioral Factors Affecting Algal Blooms. Scale from 0 to 10, where 0 means that the author has failed to identify most of the relevant behavioral factors causing algal blooms and 10 means that the author has identified all relevant behavioral factors causing algal blooms in Lake Erie.   1   2   3   4   5   6   7   8   9   10
Environmental Factors Affecting Algal Blooms. Scale from 0 to 10, where 0 means that the author has failed to identify most of the relevant environmental factors causing algal blooms and 10 means that the author has identified all relevant environmental factors causing algal blooms in Lake Erie.   1   2   3   4   5   6   7   8   9   10

Your task is to develop a stakeholder analysis that clearly outlines the problem, the perspectives of different parties who have interests in algal blooms in Lake Erie, and discusses the points of conflict between those parties. The goal of a stakeholder analysis is to communicate whose actions are causing the problem, who is affected by those actions, the process for cause and effect, and gather needed information needed to make a decision on how to appropriately address the problem. Your job is to identify all stakeholders and describe their perspectives on the problem of algal blooms in Lake Erie.

Instructions:

1. Read materials provided to you by the instructor.
2. Conduct a search of news articles regarding algal blooms in Lake Erie.
3. Define the problem using peer-reviewed journal articles or government reports.
4. Identify stakeholders and describe their perspectives on the problem.
a. Define stakeholder and describe why parties you include can be considered a stakeholder in the Lake Erie case.
b. Make a list of stakeholders and how they are effected by algal blooms
c. Describe points of conflict between parties (if any)
5. Use compiled information to qualify or quantify impacts of algal blooms on stakeholders or potential solutions.
6. Include the mental model to help organize your description of the problem. Identify if the relationship has a positive or negative influence on reducing algal blooms in Lake Erie.
7. Outline what information remains to be collected about algal blooms in order to reduce conflict between stakeholders.

GRADING RUBRIC FOR ASSIGNMENT 2

Criteria
Search of relevant information. Scale from 0 to 10, where 0 means that the quality of the search is extremely low and 10 means that the search has been exhaustive, with the student identifying a wealth of relevant material on the topic of study. 1   2   3   4   5   6   7   8   9   10
Definition and identification of stakeholders. Scale from 0 to 10, where 0 means that the definition and identification of stakeholders is extremely poor, and 10 means that the definition of stakeholder is clear and all the main relevant stakeholders have been identified 1   2   3   4   5   6   7   8   9   10
Impacts of algal blooms on stakeholders. Scale from 0 to 10, where 0 means that impacts have not been identified and discussed at all, and 10 that the description of the impacts that algal blooms have on particular actors is well researched and exhaustive 1   2   3   4   5   6   7   8   9   10

A policy brief has many different purposes. We encourage you to read examples of policy briefs provided to you. One general purpose of a policy brief is to communicate to a person or persons who need to be knowledgeable about an issue, in this case algal blooms in Lake Erie. You job is to communicate what is known about the problem, including the social, economic, and environmental factors leading to the development of algal blooms as well as potential solutions. An additional purpose of the policy brief is to provide advice

Instructions:

The policy brief should be 6-8 pages of text _excluding_ figures, tables, title page, and references. Submit the paper in Microsoft Word using Times New Roman and 12 point font with 1" margins and single spaced. Citations should be in APA format.

Before you begin use the following questions to think about the structure and main messages contained in your brief

1. What is the problem that the brief addresses? Why is it important to pay attention to this problem?

2. Who is the audience this policy brief is communicating to?

3. Why is the problem important for the audience you choose?

4. What sort of background does your audience have? What is their technical knowledge about the issue, their legal knowledge about potential solutions?

5. How will your brief contribute to better understanding the problem and potential ways to solve it?

Required Sections:

Introduction (1 page): Briefly describe the problem and why it is important to society or a social group. Make an argument for why the problem should be addressed by a government or group of individuals, and if a policy is in place, why the policy is not adequate for addressing the problem.

Problem Statement (2-3 pages): Describe in depth why the problem is occurring. Give specific examples and summarize available data showing trends or patterns relating to the problem. Information should come from peer-reviewed journal articles or government reports. Describe who is responsible for causing the problem and who/what is affected by the problem. Describe those who are or should be involved in addressing the problem, including government agencies, industry, community groups, non-governmental organizations, and individuals.

Policy Recommendation (2-3 pages): Describe what regulations are in place that address the problem and how those regulations may or may not be adequate to address the problem. If additional measures are required describe those measures.

1. Describe the policy that has been developed, adopted, and implemented to address the environmental problem. What are the policy goals? What are the policy mechanisms which ensure that the problem is addressed? Who is responsible for implementing the policy? Is cooperation between multiple interests needed in order to ensure success? How are costs and benefits

distributed? Students should make an argument for whether the issue is adequately being addressed by a policy and provide evidence to illustrate the policy's effectiveness. If the policy does not adequately address the issue or solve the environmental problem, describe why you believe this to be true.

2. Make a determination if an existing policy does not adequately address the problem recommend changes/additions to the existing policy. If the policy has been implemented, is there information on how successful the policy has been? How did the agency or researchers evaluate the success or failure of the policy? How does the agency responsible for implementing the policy track success? What are the factors they measure (economic, ecological, social)? Is the manner in which the policy is implemented and monitored adequate in meeting the goals of the policy? Why or why not? Explain why the existing policy does not adequately address the issue **and use data and/or literature to support this claim**.

3. If no policy currently exists make a case for why there should be a policy and policy alternatives (it is highly recommended that you meet with the instruction team prior to suggesting policy alternatives). Write a policy that you think would address the environmental problem. Which laws would be applicable to this policy? Describe which institutions would be authorized for implementing and enforcing the policy. List out who would be effected by this policy and why (how are costs and benefits distributed). Also consider the political feasibility of suggested policies. What measures would you use to evaluate the success of this policy?

Conclusion (1 page): Summarize the problem, the policy that has been adopted and/or the policy alternative recommended and provide a brief discussion of the success (or failure) of the environmental policy. Restate the argument from the introductory section and describe how that argument was supported in the subsequent sections of the paper.

Draft Policy Brief Grading Sheet

Yes	Needs Work		Comments and suggestions:
		Aim is clear	
		Conclusion is clear at the outset	
		Problem is clearly stated and backed with evidence	
		Recommended actions are clear and specific	
		Recommendations flow logically from the evidence presented	
		All information is necessary for the development of the argument	

Content is Appropriate for the Audience

Yes	Needs Work		Comments and suggestions:
		Importance to the audience is clear	
		Recommendations are appropriate for the audience	
		Understandable without specialized knowledge	

Language is Clear, Concise, and Engaging

Yes	Needs Work		Comments and suggestions:
		Words are not unnecessarily complex	
		Jargon is not used	
		Sentences are not cluttered with unnecessary words or phrases	
		Text is engaging (e.g., active voice, varied sentence structure)	

Visual Cues Help the Reader Navigate and Digest Information

Yes	Needs Work		Comments and suggestions:
		White space and margins are sufficient	
		Text is broken into sections with identifiable focus	
		Headings cue the key points that follow	
		Key points are easy to find	

Data Are Presented Effectively

Yes	Needs Work		Comments and suggestions:
		All data are necessary for the argument	
		Data are easy to understand	
		Data are presented in the most appropriate format	
		Graphics are not redundant with text	

Beginning Your Policy Brief

Use the following questions to think about the structure and main messages contained in your brief

6. What is the problem that the brief addresses? Why is it important to pay attention to this problem?

7. Who is the audience?

8. Why is the problem important for the audience you choose?

9. What sort of background does your audience have? What is their technical knowledge about the issue, their legal knowledge about potential solutions?

10. How will your brief contribute to better understanding the problem and potential ways to solve it?

Final Grading Sheet for Policy Briefs

Today you will select the three best policy briefs on algal blooms in Lake Erie. Take your time to walk around and judge the policy briefs you see taped on the wall. You will rank the top-three briefs and provide a short rationale explaining your choice.

You are not allowed to grade your own brief!!

Brief title and author:

Policy Brief Title	Author	Explain why you picked the brief