

Questionnaire from: NOAA National Ocean Service, National Centers for Coastal Ocean Science
OMB Control No. 0648-xxxx Expiration Date: xx/xx/xxxx

Responding to this questionnaire is entirely voluntary.

This questionnaire is meant to gather information and assess the need for scenario-based ecosystem models within US coastal waters and the Great Lakes.

The questionnaire is actually divided into two parts - one for agency directors/managers to assess the need for models used in developing scenarios and/or current use of such models and one for agency staff who may be applying existing models in-house or who may be directing or overseeing outside consultants or vendors who are applying models for the agency.

If you are a director/manager we would appreciate it if you could take the time to fill-out this questionnaire. If your agency is currently using models or has used models in the past, we would appreciate it if you would also forward this questionnaire to the appropriate staff member who is or has applied the model(s) and/or who has managed outside consultants or vendors in the application of the model(s) for your agency.

1. Please enter your name and the agency/organization that you work for

Name:

Agency/Organization:

State:

2. Please respond if you are a director/manager or staff member

- Director/Manager
- Staff

3. Is your role or the role of your agency to make regulatory/policy decisions or to provide or to make recommendations to other regulatory or policy making groups, i.e., would you consider yourself a regulatory/policy manager or a natural resources manager?

- Regulatory/Policy Manager
- Natural Resources Manager

4. What is your spatial domain (i.e., specific estuary(ies), coastal regions or Great Lakes) of decisions?

5. What issues (eutrophication, toxics, fisheries, etc.) are you concerned with? (Please check as many Issues as are appropriate and rank order of importance)

- | | |
|---|---|
| <input type="checkbox"/> Eutrophication | <input type="checkbox"/> Seagrasses |
| <input type="checkbox"/> Hypoxia/Anoxia | <input type="checkbox"/> Wetlands |
| <input type="checkbox"/> HABs | <input type="checkbox"/> Benthic Habitat |
| <input type="checkbox"/> Fisheries | <input type="checkbox"/> Pathogens/Shellfish |
| <input type="checkbox"/> Toxics | <input type="checkbox"/> Pathogens/Recreational Contact |

Other (please specify)

6. What indicators or end-points (HABs, hypoxia, fish body burden, regulatory drivers, etc.) tend to inform or drive your decisions? (Please fill-in as many indicators/end-points that correspond to Question 3 as appropriate)

- | | |
|---|---|
| <input type="checkbox"/> Regulatory drivers (ex. WQ standards, TMDLs, etc.) | <input type="checkbox"/> Submerged aquatic vegetation or seagrasses |
| <input type="checkbox"/> Summer average chlorophyll-a | <input type="checkbox"/> Benthic abundance/diversity |
| <input type="checkbox"/> Annual average chlorophyll-a | <input type="checkbox"/> Fisheries yield/catch |
| <input type="checkbox"/> HAB biomass | <input type="checkbox"/> Fish body burden |
| <input type="checkbox"/> Hypoxia/anoxia | <input type="checkbox"/> Beach closure days |

Others (please specify as many as appropriate)

7. Who is influenced by your decision? (Please check all appropriate boxes)

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> Other Government regulators and planners | <input type="checkbox"/> Landowners |
| <input type="checkbox"/> Municipalities/Counties (NPDES) | <input type="checkbox"/> Farmers |
| <input type="checkbox"/> Municipal Dischargers | <input type="checkbox"/> Fishermen |
| <input type="checkbox"/> Industrial Dischargers | |

Other(s) (please specify)

8. How are these different people or groups affected by the decisions you make? For example, Does the decision result in the development of a TMDL? Does it influence permit limits for a discharger? (Please check boxes as appropriate)

- | | |
|--|---|
| <input type="checkbox"/> TMDL | <input type="checkbox"/> Shellfish harvesting |
| <input type="checkbox"/> Permitting or permit limits | <input type="checkbox"/> Beach closures |
| <input type="checkbox"/> Fisheries catch limitations | |

Other (please specify)

9. Now that I have a better understanding of how you make decisions, what is the time frame that is assessed under the decision making process, i.e., Is the time frame annual or seasonal as might be used when considering fisheries yield -or- might it be daily as might be used when considering attainment of a dissolved oxygen water quality standard?

- Annual
- Seasonal
- Monthly
- Weekly
- Daily

10. What is the spatial scale of your decisions? Is it local, statewide, regional or multi-jurisdictional? (Check all that apply)

- Regional
- State-wide
- Local
- Multi-jurisdictional

11. Are there other agencies or team members that assist in making the decision?

- Yes No

If "Yes" would you please specify who

12. What factors/variables (examples: monitoring data, compliance with water quality standards, fisheries yield, demographics, climate change, etc.) do you consider or evaluate when you are making a decision about XYZ? (Please check all that apply)

- Monitoring data
- Compliance with WQS
- Fisheries yield
- Climate change
- Demographic trends

Other (please specify)

18. Second, the costs of the expected cost for implementing the scenario(s) being considered.

	Don't know	Less than \$500k	\$500k - \$1M	\$1M-\$10M	\$10M-\$50M	\$50M-\$100M	>\$100M
One time implementation costs, e.g., construction, remediation, BMP implementation (Total \$)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If appropriate: Annual costs for O&M, compliance monitoring, etc. (assuming 20-year service life) (\$/year)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. Is the model or are the models still continuing to be run or used?

- Yes
- No

If Yes, briefly explain

20. What level of annual funding is required to support the execution of the model for scenarios vs. funding for data collection?

	Don't know	Less than \$10k	\$10k - \$50k	\$50k - \$100k	\$100k - \$250k	>\$250k
Funding for model execution (\$/year)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Funding for data collection (\$/year)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. What type of infrastructure or computer platform (ex. in-house server farm, desktop or laptop PC, external IT-service, etc.) is in place to run the model?

22. Do you have a need for a model(s) used to develop and evaluate scenarios?

- Yes
- No

23. What are the issues or variables of interest are important to your region or spatial domain that such a model would need to address (hypoxia vs. fisheries vs. toxic contaminants, etc.)? (Please identify issues/variables)

- | | |
|---|---|
| <input type="checkbox"/> Eutrophication | <input type="checkbox"/> Submerged aquatic vegetation or seagrasses |
| <input type="checkbox"/> Hypoxia/Anoxia | <input type="checkbox"/> Benthic habitat |
| <input type="checkbox"/> HABs | <input type="checkbox"/> Pathogens/Shellfish |
| <input type="checkbox"/> Fisheries | <input type="checkbox"/> Pathogens/Recreational Contact |
| <input type="checkbox"/> Toxics | |

Others (please specify)

24. Please describe your assessment of how such a model would or would not benefit your scenario-based management goals.

25. Are there funds and/or resources available for process-based/mechanistic modeling versus empirically-based models?

- Yes No

26. Do you have an interest in in-house capabilities versus external providers such as consultants / NOAA / USGS / USEPA / etc.?

- Interest in In-house capabilities Interest in external providers

27. Was the existing model developed, calibrated/confirmed and/or implemented in-house or by an outside consultant/vendor?

- In-house Outside consultant/vendor

28. Is the model being run or exercised internally or by a consultant/vendor?

- Internally Consultant/Vendor

29. What type of infrastructure/budget is available to run or exercise the model?

Infrastructure

Budget

Infrastructure / Budget (\$/yr)

30. What level of total funding was required for data collection to calibrate/validate the model?

- Don't know
- Less than \$50k
- \$50k-\$100k
- \$100k-\$250k
- \$250k-\$500k
- \$500k-\$1M
- >\$1M

31. Over how many years did this expenditure take place (i.e., how many years of data were collected)?

- 1 year or less
- 1-2 years
- 3-5 years
- 5-10 years
- > 10 years

32. Are additional data collection efforts being conducted to support the model?

- Yes
- No

33. Are these data collection efforts being conducted to support additional model confirmation?

- Yes
- No

34. Are these additional data collection efforts being used to support a model being used in adaptive management mode?

- Yes
- No

35. What is the level of funding being provided to support the additional data collection?

- Don't know
- Less than \$10k/yr
- \$10k-50k/yr
- \$50k-\$100k/yr
- >\$100k/yr

36. Is the model proprietary?

- Yes
- No

37. Will the model be used in an adaptive management process?

Yes

No

38. How often and over what time period might you need to use or exercise the model in the adaptive management process?

How often (times/year)

Time period (e.g., 1year, 2 years, etc.)

39. Was the model developed and used for more than one round of management application (e.g., adaptive management mode)?

One round only

Adaptive Management

40. Do you think that the model could be easily transferred or applied to another similar waterbody within your region or geographic area?

Yes

No

41. Has the model been applied to another waterbody within your region or geographic area?

Yes

No

42. How successful was the new application?

Not successful

Limited success

Moderately successful

Very successful

Degree of success

43. What are the expected management actions or controlling factors (load reductions, physical alterations to the system, climate change, etc.) that the current model considers? (Please check all appropriate boxes)

Load reductions

Fisheries restrictions

Physical alterations

Climate change

Other (please specify)

44. What are the expected management actions or controlling factors (load reductions, physical alterations to the system, climate change, etc.) that a future model (if needed) will need to consider? (If a future model is not envisioned, please check N/A, otherwise, please check boxes as appropriate)

- N/A
- Load reductions
- Physical alterations
- Fisheries restrictions
- Climate change

Other (please specify)

45. What are the key model outputs (variables) that are needed and how do they need to be summarized and presented (graphical, tabular) to your management team?

Key model outputs (variables)

Presentation materials (graphical, tabular, etc.)

46. If presentations are to be made to the public, what are the key model outputs (variables) that are needed and how do they need to be summarized and presented (graphical, tabular) to the public?

Key model outputs (variables)

Presentation materials (graphical, tabular, etc.)

47. What are the relevant spatial (small tributary, estuary, coastal waters) and temporal scales (daily, seasonal, yearly, etc.) of interest?

Spatial scale

Temporal scale

48. What is the uncertainty or error tolerance required of a model (e.g., for DO, is acceptable error 10%, 20% or 50%?) before deciding whether to implement a management action or not?

- Don't know
- <10%
- 10-20%
- 20-30%
- 30-40%
- 40-50%
- Not important - model being used in a weight of evidence approach

49. What types of tools (post-processing, graphical presentations) are available or being used?

- Post-processing capabilities self-contained within the model GUI
- Model prepares NetCDF compatible output files
- Model prepares Matlab compatible output files
- Model prepares ArcGIS Explorer (or TatumGIS) compatible files
- Modeling package contains appropriate post-processing tools
- Internally developed post-processing tools

Other (please specify)

50. Do you have more or equal confidence in empirical/statistical models vs. process-based/mechanistic models? What about a combination of empirical/statistical and process-based/mechanistic models?

- Empirical/statistical models
- process-based/mechanistic models
- Equal confidence in both empirical/statistical and process-based/mechanistic models
- A combination of empirical/statistical and process-based/mechanistic models approach

51. Do you see a value in model hindcasting as a means of improving confidence in the model? By this we mean testing the model's ability to simulate previously observed system responses to changing conditions (e.g., nutrient load reductions, extreme storm events, protracted droughts).

- Yes
- No

52. Are there any other thoughts or comments that you might wish to provide at this time?

53. We very much appreciate your taking the time to participate in this data gathering effort as well as the time that you spent in filling out our questionnaire. This information will be compiled and used to develop a "white paper" on national needs for scenario-based ecosystem models for the nation's coastal waters and the Great Lakes and will also be used to inform a future workshop focusing on this issue.

We now have one final question for you ...

Would you like to be kept informed as to the progress of this study? If so, would you be interested in participating in the national workshop if it is convenient to your schedule?

Yes

No

Confidentiality and PRA Statements:

Responses will not be reported individually, only in aggregate. Individual names will not be placed on completed surveys or subsequent reports. A summary of results will be used by the Project Team in the development of their recommendations. A summary of the aggregate results will also be made available to participants at a workshop in FY14.

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