

RESEARCH NEEDS WORKSHOP 3.02

Developing and Evaluating Dynamic Environment/Habitat Models for the Huron-Erie/St. Clair Corridor

Thursday April 14

Breakout Group Panel Questions

Session I Questions relating to hydrodynamic models reviewed on April 13

Models Reviewed: St. Clair River model 2-D model (Rob Nairn)
Lake St. Clair model (Scudder for Guy Meadows)
Detroit River 2-D model (Dave Holtschlag)
Detroit River 3-D model (Ken Drouillard)
Lake Erie circulation model (Dave Schwab)

1. What are the objectives and goals of the models presented yesterday, i.e.
 - **What are they trying to predict?**
 - **What are the underlying assumptions and hypotheses associated with each model?**
 - **What are the spatial and temporal scales and resolutions?**
2. For each major environmental zone of interest,
 - **Is there an appropriate hydrodynamic and/or ecological process/functional model available?**
 - **Is the spatial coverage adequate within the geographic boundaries of each model? Are the spatial and temporal scales and resolutions suitable for our needs?**
 - **What elements of these models are relevant from an environmental zone perspective?**
 - **Are there other critical elements that are missing?**
3. A long term goal of the HEC habitat managers is to develop a comprehensive habitat management plan that integrates the needs and biology of the entire Huron-Erie corridor and will permit delisting of the Habitat beneficial use impairment. To do this we have to recognize that the corridor functions as a unit.
 - **From a corridor perspective are the models compatible enough to provide complete coverage of the HEC? (Hydrodynamic model integration)**
 - **As biologists thinking about “habitat”, do we need a single integrated hydrodynamic model?**

5. The hydrodynamic models need to tell us
 - a) what is energy distribution through the system (flows and shear stress)
 - b) what is the distribution of substrate in the system
 - c) what are the water mass characteristics (water quality and temperature).
 - **Do all of the models we've heard about tell us this information?**
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Session II

1. To link habitat suitability to these hydrodynamic models, the 'habitat interpreters' need to have a list of the key variables that are necessary for them to estimate habitat quality. What are our data needs?
2. Based on what we've seen of the behaviour of yesterday's models, it should be possible to generate some hypotheses to test that relate specific physical characteristics of areas regulate the species/communities that one is interested in.

We would like to come up with a list at least one hypothesis for each of the major environmental zones that we described in the last workshop. For each example, please try to define:

- the hypothesis
 - the experimental design to test that hypothesis
 - the key variables and processes that would have to be measured
 - the expectations/findings that would
 - a) corroborate the hypothesis
 - b) falsify the hypothesis.
3. Other items to consider:
 - References that should be included in a compiled bibliography/reference reading list
 - Links to relevant web sites
 - Names of other people who should be invited to participate in the next workshop
 4. Are we ready to think about a collaborative proposal?
What would be the theme/topic?