**New England Fishery Management Council**

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### MEMORANDUM

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| **DATE:** | August 2, 2010 |
| **TO:** | Scientific and Statistical Committee (SSC) |
| **FROM:** | Council |
| **SUBJECT:** | Update on SASI applications at August 25 SSC meeting |

The Council is currently developing Essential Fish Habitat (EFH) Omnibus Amendment 2. Phase 1 of this Amendment described and identified EFH for each managed species, reviewed the prey species consumed by each managed species, and reviewed non-fishing impacts to EFH. Phase 2 (currently in development) includes alternatives to minimize, to the extent practicable, the adverse impacts of fishing on EFH.  In order to better inform the alternatives development process and more objectively and analytically compare between alternatives, the Council's Habitat Plan Development Team (PDT) created the Swept Area Seabed Impact (SASI) model.

The SSC reviewed the structure and data inputs of the SASI model at two meetings on 18 March 2009 and 9 December 2009 (see documents 2 and 3 for details).  In their report following the December review, the SSC concluded that:

"The Swept Area Seabed Impact model is a technically sound basis for evaluating relative effects of alternative management decisions on habitat impact.  However, the data used by the model does not currently have adequate resolution for the model to detect subtle differences in habitat impact among different types of fishing gear."

It was also noted in this report that:

"Given the SSC's involvement in providing the Council with recommendations on ecosystem-approaches to fishery management, it would be appropriate for the SSC to review applications of the SASI model for management decisions."

Since the December review, the PDT has focused on finalizing vulnerability assessment parameters, finalizing fishing effort input datasets, and producing basic model outputs for all gear types.  The PDT has also completed a series of tests to examine model sensitivity to susceptibility and recovery scoring, terminal recovery year, etc.  In addition, two types of spatial analyses have been developed to (1) evaluate status quo management areas (Equal Area Permutation or EAP analysis) and (2) determine which grid cells within the model domain have significantly higher than average $Z_{\infty}$ scores (Local Indicators of Spatial Association or LISA

analysis).  (Note that $Z\infty$ is an estimate of the magnitude of adverse effect that would result from a uniform application of area swept fishing effort data across the model domain.)  Finally, a variation of the model was developed to assess the practicability of spatial management measures.  This tool, called the Z Net Stock model, incorporates value data in addition to area swept data and vulnerability estimates.  At the August 25 meeting, the Council is seeking SSC feedback on the LISA and Z Net Stock methods and results, and their ongoing application to alternatives development.

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<div align="center">**Terms of Reference for SSC review:**</div>

Evaluate the application(s) of the SASI model for use in developing management alternatives for Phase 2 of Omnibus Habitat Amendment 2.

1. Evaluate the appropriateness of the LISA spatial analysis methods for defining clusters of high $Z\infty$.
2. Evaluate the appropriateness of the Z Net Stock model for comparing practicability among management alternatives.

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Documents:

1. Memo

2. SASI Model document Part 1

3. SASI Model document Part 2

4. Sensitivity analyses

5. Spatial analyses

6. Z Net Stock