The Integrated Ecosystem Assessment Initiative
Enabling the Assessment of Impacts on Large Marine Ecosystems: Informatics to the Forefront of Science Based Decision Support

**Software Design**

Here, we show a simplified schematic of our software design, starting with a source dataset and ending with a final product for the Northeast Shelf Report. A key feature is that metadata are acquired during the processing and plotting of the data, and metadata are embedded in the final product. In this way, we are able to record the provenance needed to reproduce the data products.

**Python Notebook Example**
The Python Notebook is a web application capable to provide the ability to work on very diverse and heterogeneous data and information sources, providing an effective way to share the source code used in the analysis and associated metadata as well as save and take track of the workflows provenance.

**Use Case**

Software development, a use case describes the sequence of interactions between a primary actor and a system, such that the primary actor's objective is successfully achieved. Use cases are about describing system behavior from the primary actor's perspective and define the meaning of that data by providing language to the primary actor. Use cases shift the perspective of requirements development to discussing what users need to accomplish, in contrast to the traditional elicitation approach of asking users what they want the system to do.

We developed a Use Case for the Ecosystem Status Report (ESR) for the Northeast Shelf (NES) Large Marine Ecosystem (LME) that will be presented during this symposium, and are iterating through the cycle above to evaluate our software tools.

**Activity Diagram**

Here, we show the use cases and basic workflow for our ESR Use Case. This workflow tool that we present here provides the box outlining the interactive and iterative processing and visualization of the data, indicators, and information products.

**Schematic Web Methodology & Technology Development Process**

Use Case - Efficient generation of figures and tables represented ecosystem data and information products for the Ecosystem Status Report (ESR) for the Northeast Shelf (NES) Large Marine Ecosystem (LME). The primary objective is successfully achieved. Use cases are about describing system behavior from the primary actor's perspective and define the meaning of that data by providing language to the primary actor. Use cases shift the perspective of requirements development to discussing what users need to accomplish, in contrast to the traditional elicitation approach of asking users what they want the system to do.

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**Use Case Goal** - Efficient generation of figures and tables representing ecosystem data and information products for the ESR for the Northeast Shelf (NES) Large Marine Ecosystem (LME). The primary objective is successfully achieved. Use cases are about describing system behavior from the primary actor's perspective and define the meaning of that data by providing language to the primary actor. Use cases shift the perspective of requirements development to discussing what users need to accomplish, in contrast to the traditional elicitation approach of asking users what they want the system to do.

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