

**Science & Technical Advisory Committee**  
**Issue Paper 1, April 2008**  
**Monitoring and Modeling Tools:**  
**Application Products for Tracking Proposed Ecological Indicators**

**Position:** STAC recognizes that given the continuous development and implementation of monitoring and modeling tools for the Albemarle-Pamlico Estuarine System, it is critical to support the establishment of a data clearinghouse where an inventory of these efforts be kept to further enhance communications and data-sharing capabilities that will facilitate implementation and evaluation of ecological indicators and will serve APNEP's contribution to the people of North Carolina and Virginia.

**Supporting Statement:** Understanding coastal ecosystems requires a broad endeavor presently carried out by a myriad of federal and state agencies, universities, institutes, and research centers, as well as NGOs. Modeling tools and especially environmental monitoring efforts are continually initiated, maintained, and discontinued throughout coastal North Carolina and southeastern Virginia. Because of the specific objectives of such efforts, overlap and duplication are often followed by gaps in the availability of information. This creates inefficiencies in the allocation of resources and data analysis.

This ecological indicators initiative relies on historic baseline data and ongoing and future measurements that have regional coverage. Long-term monitoring efforts provide the baseline information that in turn, modeling tools can use to evaluate results and scenario analysis. Either of these two activities require substantial resources. As means to optimize these research efforts and to optimize resources, the needs for a comprehensive temporal and spatial database make it imperative to support and encourage the creation of a data clearinghouse for pertinent environmental and modeling information.

APNEP efforts since the late 1980s have mainly focused on the creation of a spatial coastal database (CGIA 1990a and b, 1999; Clark 1987; Khorram et al. 1992; UNC Water Resources Research Institute 1987). In combination with proposing principles and database structure, APNEP has also been involved in the inventory and compilation of information (Bales and Nelson 1988, Legrand et al. 1992, Dodd et al. 1993, Smith et al. 1993), with the aim of functioning as a clearinghouse of environmental information.

New technologies facilitate the implementation of this type of a community-based, environmental clearinghouse. Based on a strong commitment to open-source approaches and philosophy, this clearinghouse could be implemented as an internet portal that provides information about the available data in general and ownership and sources in particular.

In addition to remotely sensed imagery and land use/land change information, the STAC proposes that APNEP incorporate other data to establish historical baselines, and to incorporate information, location and extent of the diverse modeling efforts, especially when these have been used for decision-making. Examples of these can be found in Pietrafesa and Janowitz (1991).

As development and expansion of human activities continues within the Albemarle-Pamlico drainage basin, it is evident that social and economic indicators should also be incorporated, particularly those with a spatial component at appropriate scales.

APNEP continues to provide leadership and is committed to support monitoring and modeling tools under broad themed clearinghouse initiatives advocating common use and maximizing applicability of data and research efforts. The STAC encourages funding that supports and “requires” these synergistic activities to be implemented as a strategy for multi-disciplinary, basin-wide scientific research and managerial planning. The STAC considers the implementation of this environmental clearinghouse as providing community-wide information services and technologies that advance the sciences of prediction and hazard planning for the region’s estuarine and coastal populations.

## References

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