

TO: Biscayne Bay Regional Restoration Coordination Team
FROM: Biscayne Bay Subcommittee of the Florida Bay and Adjacent Marine Systems
Program Management Committee
SUBJ: Requested Review of Submissions to the BBRRCT Request for Information
DATE: November 12, 2002

In response to your urgent request we reviewed the science project submissions received by the BBRRCT. We evaluated them based upon the following criteria:

1. **Consistency** - with respect to the Biscayne Bay Strategic Science Plan we prepared at the behest of the SFER Working Group;
2. **Timeliness** – the need to address a particular topic at this time given the scientific activities already underway or about to be initiated by CERP (specifically the Monitoring and Assessment Plan or the Biscayne Bay Coastal Wetlands Project);
3. **Feasibility** – the likelihood that the methods and approaches offered will yield the promised information;
4. **Fiscal responsibility** – cost-effectiveness and the degree to which leveraging opportunities are capitalized upon.

Given the information provided in the brief responses, we felt it more appropriate to recommend topics or categories rather than specific proposals or investigators. It would be inappropriate (and inequitable) to go into greater detail without considerable additional information. We discuss below only those environmental science and research areas meeting the above criteria and recommend only those receive BBRRCT consideration at this time. We have included references to individual project submittals only to assist the BBRRCT members in better understanding the recommended topic or category.. We wish to be absolutely clear that we are not endorsing nor rejecting any particular respondent or investigator. The conceptual bases and cost estimates we provide are, however, derived directly from the enumerated submissions received in response to your Request for Information. We recommend that the first set of science and research topics receive the highest priority for funding. Should sufficient amounts of funding be available, the latter science and research topics also merit and should receive funding consideration. Within each of these groups no prioritization is expressed by the order in which they are enumerated.

Highest Priority Science and Research Topics:

Ongoing Monitoring - \$475K

Two major monitoring efforts are already underway: nearshore/wetland fish and invertebrate community assessment and Baywide water quality. While both need to be funded and continued this coming fiscal year, CERP plans affect them quite differently. The draft CERP Monitoring and Assessment Plan (MAP) budget is predicated on the fact that those government agencies already funding water quality sampling will continue to do so in the future. In contrast, CERP intends to eventually assume

responsibility for long term nearshore/wetland fish and invertebrate community assessment. The submittals falling under this topic included “Biscayne Bay Surface Water Quality Monitoring” and “Composition and Density of Fish and Macroinvertebrates in the Nearshore and Adjacent Coastal Wetlands.”

Modeling - \$450K

Available circulation models are sufficient to delineate the areal extent to which CERP is likely to affect salinity distributions in Biscayne Bay. One can only conclude that salinity effects will be limited to the very near-shore (<1km). However, existing physical models are insufficient to delineate what changes will occur with sufficient accuracy to assess ecological consequences in the very near-shore. Funding needs to be made available to refine circulation models to address this critical deficiency. To improve inshore resolution these models will need to be linked to appropriate hydrological modeling. Funding needs to be made available to improve this linkage. Last, available hydrodynamic models are insufficient for water quality modeling needs Funding needs to be made available to advance water quality modeling and there may be continued opportunities for federal matching dollars in this area. However we do not specifically endorse any particular modeling group or approach and, just as we have reported to the Florida Bay/Florida Keys Feasibility Study, strongly recommend that any future modeling selection process in Biscayne Bay will be more open than in the past and result in a community-based rather than proprietary model. The BBRRCT may wish to group modeling submittals under one topic heading. The submittals consistent with this topic included “A numerical hydrodynamic and mass transport model of Biscayne Bay”, “Linkage of Coastal Circulation, Regional Hydrologic and Wetland Models...”, and “Biscayne Bay Feasibility Study Phase II Water Quality Model.”

Freshwater Inputs - \$250K

Groundwater inputs in Biscayne Bay are a matter of considerable uncertainty. With the intrusion of saltwater into the coastal aquifer overall seepage has been reduced, however, individual springs/hot spots have been identified and are thought to result from geological conduits. Field measurements (including water quality) need to be funded to characterize the extent and significance of these phenomena. For the purpose of scoring project submittals, the BBRRCT may wish to group two groundwater characterization submittals under one topic heading. However groundwater is not the only freshwater input we need to measure. A modest effort was initiated last year to improve estimates of canal discharge by making critical measurements in spillways. Improved circulation/salinity prediction absolutely requires this effort be funded through completion. The submittals consistent with this topic include “Detection, Mapping and Characterization of Groundwater Discharges”,

“Coastal Spillways Study Operation and Maintenance and “Biscayne Bay Groundwater/Surface Water Interaction Study” It is important to recognize that the first two of these were funded by BBRCT last year and like the above mentioned monitoring proposals can be considered as “Ongoing”.

Science and Research Topics also meriting BBRCT consideration:

Planktonic Communities- \$170K

Ongoing water quality/physical monitoring programs should be funded to incorporate newly available analyses and technologies to sample plant and animal plankton. Plant plankton are often the earliest indicators of water quality changes while animal plankton include the critical early life history stages (and predominant food resource) of commercial and recreational fisheries species. This can be done at a comparatively modest additional cost. The submittals consistent with this topic include “Synoptic measurement, mapping, and analysis of larval fishes and planktonic invertebrates...” and “Phytoplankton Community Structure as an Indicator of Ecological Health”.

Nearshore seagrass and hardbottom habitats - \$170K

Given the likelihood that direct CERP effects will be local and restricted to the near-shore it is important that a more detailed baseline be established mapping the spatial distribution and abundance of seagrasses and hard-bottom organisms in this critical habitats. Newly available methods make feasible the creation of such a GIS database. The submittals consistent with this topic is “Baseline Abundance, diversity, and spatial distribution of seagrasses and hard-bottom organisms within nearshore environments” and “Structural and physiological measures of seagrass characteristics along potential stress gradients in Southern Biscayne Bay”.