

**COMPREHENSIVE INTEGRATED MANAGEMENT PLAN
FOR THE MAYAGÜEZ BAY WATERSHED
RESEARCH PROGRAM**

Quarterly Progress Report

Date of Report: March 17, 2004 For Quarter Ending: Feb/29/2004
(nov/30, feb/28, may/31, aug/31)

Project No. CIMP-001

Project Title: Monitoring the water quality parameters of Mayaguez Bay

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Project Status: On Schedule Suspended Delayed Cancelled Completed

Percentage of Work Completed: 55 Completion Deadline: February-29-2003

The applicant is requesting that an extension be granted for this CIMP project through / / .
(Please attach project extension justification.)

Activities progress: (According to Work Schedule submitted with application)

Task #	Major Activity	Date Started	% Complete	Estimated Date of Completion	Date Completed	Dependancy on Task(s):
1	Validation of water quality models	Sep. 1, 2003	100%	Dec. 31, 2003	Dec. 31, 2003	
2	Description of each station	Sep. 1, 2003	100%	Dec. 31, 2003	Dec. 31, 2003	
3	CD-ROM time series data	Jan. 5, 2004	20%	May. 31, 2004		1, 2
4	Field sampling	Oct. 1, 2003	100%	Feb. 15, 2004	Feb. 29, 2004	
5	Remote sensing reflectance	Oct. 1, 2003	100%	Feb. 15, 2004	Feb. 29, 2004	
6	Field data analyses	Nov. 3, 2003	50%	Mar. 31, 2004		4, 5
7	Estimation vs observations	Nov. 24, 2003	50%	Apr. 31, 2004		6
8	Validation Redfield ratios	Dec.22, 2003	50%	Jun., 15, 2004		7
9	Estimation of chlorophyll a					8
10	SeaWiFS images	Sep. 1, 2003	70%	Apr. 15, 2004		
11	Validation of bio-optical algorithms	Oct. 15, 2003	50%	May 15, 2004		10
12	Validation SeaWiFS images	Dec. 1, 2003	50%	May 15, 2004		11
13	Develop specific algorithm	Oct. 1, 2003	60%	Aug 30, 2004		
14	Preparation of final report	Oct. 1, 2003	60%	Aug 30, 2004		

Summary of Progress on Project this Quarter:

Activity 1. The validation water quality model was completed.

Activity 2. Description of each water quality parameter at each station was completed.

Activity 3. A CD-ROM is in process of preparation. This CD will contain the statistical description of each one of the parameters for each month. The original data and the estimated parameters are also included.

Activities 4 and 5. The sixth sampling field was conducted on January 12, 13 and 14, 2004.

Activity 6. The collected data during the sampling field was analyzed. This analysis includes sediments and nutrients. These data are shown in Figures 1 and Table 1.

Activity 7. Observations of water quality parameters were obtained up to year 2002 and included into the data file. Interpolations were computed for the missing months. Spatial interpolation was accomplished to obtain estimators up the mouth of the Anasco river.

Activities 10 and 11. Sea-viewing Wide Field-of-view Sensor (SeaWiFS) images were obtained from DAAC and processed using the NASA developed software called SeaDAS for the six previous sampling periods of this project. These are:

DRY SEASON	WET SEASON
April 24-26, 2001	October 2-4, 2001
February 26-28, 2002	August 20-22, 2002
February 25-27, 2003	October 7-9, 2003

The available SeaWiFS images were processed using SeaDAS to obtain the concentration of Chlor-a in Western Puerto Rico centered at the Mayagüez Bay (Figure 2). The processing allowed us to determined critical problems with the data. Since we are working in coastal waters the signal from Mayagüez Bay is highly affected by the bottom, suspended sediments, and colored dissolved organic matter. Therefore the default SeaDAS algorithm for Chlor-a failed in providing numbers for most of the coastal region.

Activity 13. Preliminary work has been conducted to identify pixels from SeaWiFS which can be associated to actual Chlorophyll *a* observations.

Activity 14. The final progress report in the process of preparation.

Problems Encountered and/or Assistance Needed: We could not obtain the SeaWiFS images on time because we did not have the NASA password to access those images. However, we just obtained the NASA password and we will be able to study those images during this summer.

(Attach additional sheet, if necessary)

Certification:

As the Principal Investigator, I certify that the information contained within this quarterly report accurately reflects the status of this CIMP project.

March 18, 2003

Principal Investigator Signature & Title

Date

CIMP Project Authorized Representative Use Only

Funding Status: Unchanged Overruns Underruns

Funds Expended to Date \$ 30,241 Anticipated Cost Overruns/Underruns: \$

Payment Request this Quarter: \$ 10,000 Payment Received this Quarter: \$ 9,997

Project Extension Authorization:

Based upon our review of the supporting documentation, the requested project extension is justified. The project director authorizes an extension of this project through ____/____/____.

Director's Signature

Date

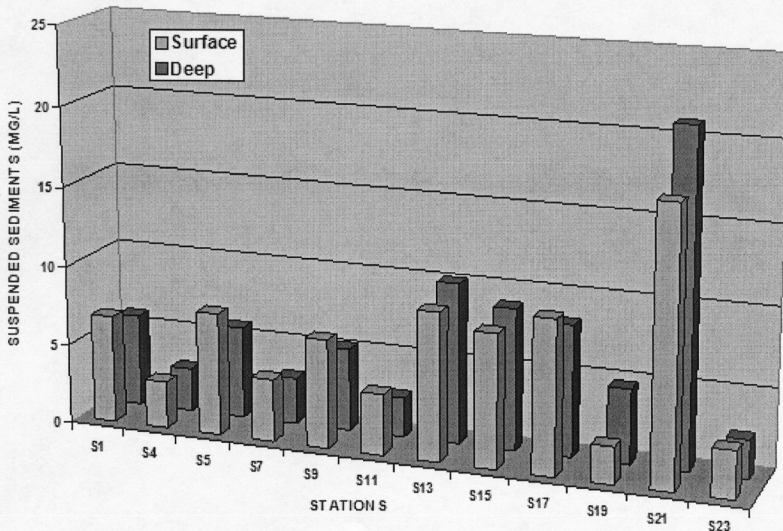


Figure 1. Suspended sediments at Mayagüez Bay during the sampling of January 2004

Station	NO2+NO3	NO2	NO3	PO4	SiO2	NH4
1s	0.62	0.07	0.55	0.12	7.87	0.43
1p	0.03	0.04	0.00	0.05	1.89	0.21
4s	0.00	0.02	0.00	0.01	2.25	0.04
4p	0.00	0.01	0.00	0.00	1.66	0.02
5s	6.37	0.14	6.23	0.69	6.23	0.14
5p	0.07	0.05	0.03	0.03	2.16	0.09
9s	0.01	0.04	0.00	0.02	2.40	0.00
9p	0.13	0.03	0.10	0.06	2.40	0.28
13s	0.06	0.13	0.00	0.22	5.93	0.05
13p	0.01	0.11	0.00	0.16	4.61	0.06
21s	1.21	0.42	0.79	0.58	13.20	0.14
21p	N/A	0.33	N/A	0.57	3.17	0.07

Table 1. Concentration of Nutrients in Mayaguez Bay (January 12-14, 2004)

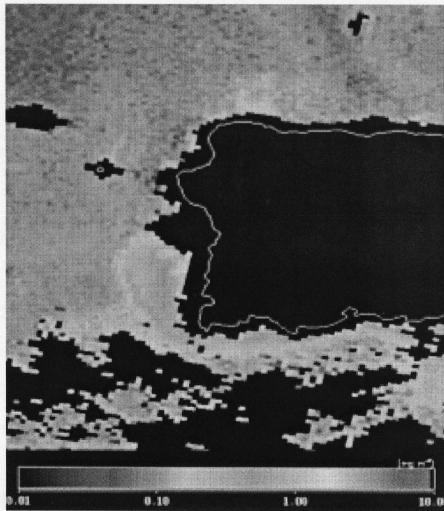


Figure 2: Example of SeaWiFS image collected during February 28, 2003.