GERSVIEW: A New Database for Web Mapping

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Overview

- Objectives
- Description
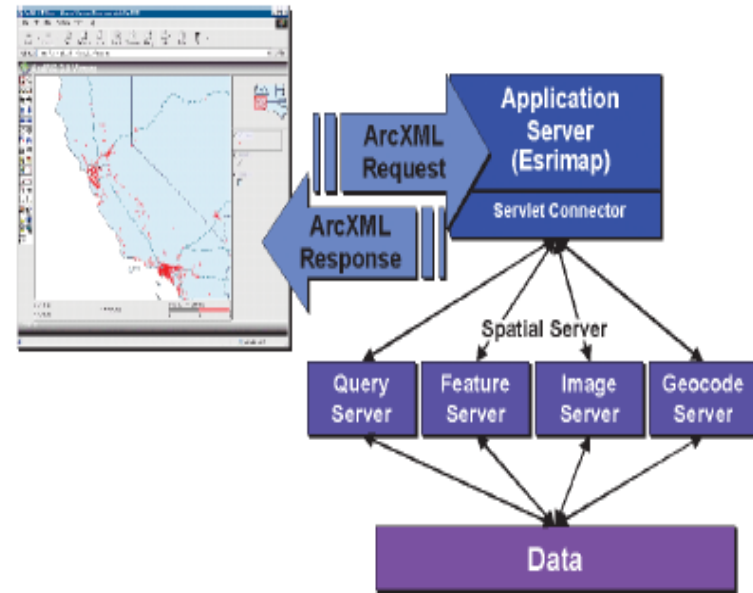- Methods
- Results
- Projections
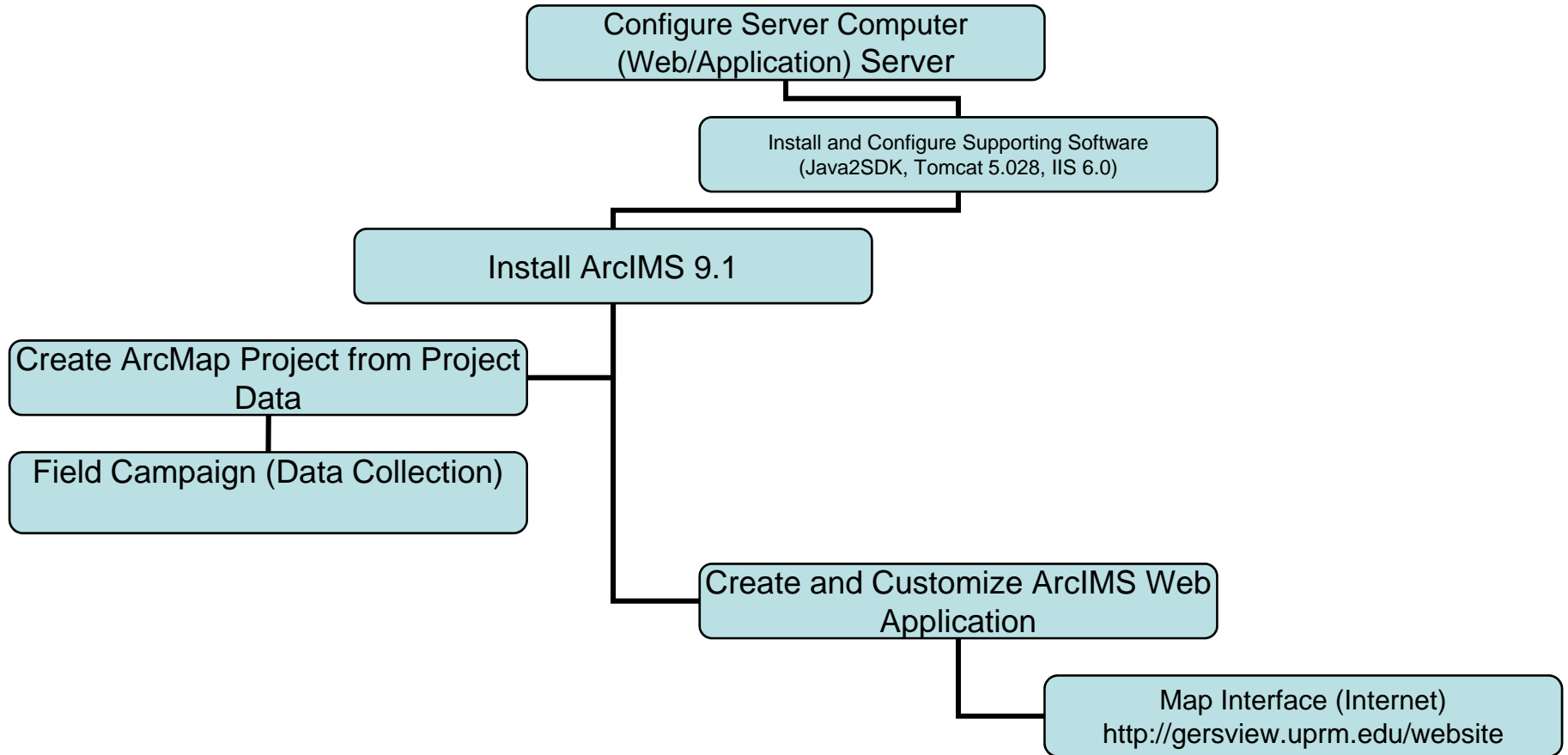
Objectives

- **GERSVIEW**
  - ❑ Organize data into a Geodatabase structure
  - ❑ Develop an ArcIMS Web Mapping Interface
  - ❑ Present spatial data created by the Geological and Environmental Remote Sensing Laboratory (GERS) Projects via ArcIMS.
  - ❑ Create GERSVIEW home web page (launch site)

ArcIMS

- ArcIMS 9.1®
  - Scalable
  - Extendable
  - Organizational application
  - Map distribution and geographic information system (GIS) data on the Internet.
  - Create easy-to-use, task-focused applications that use geographic content.
  - Deliver dynamic maps and data via the Web.
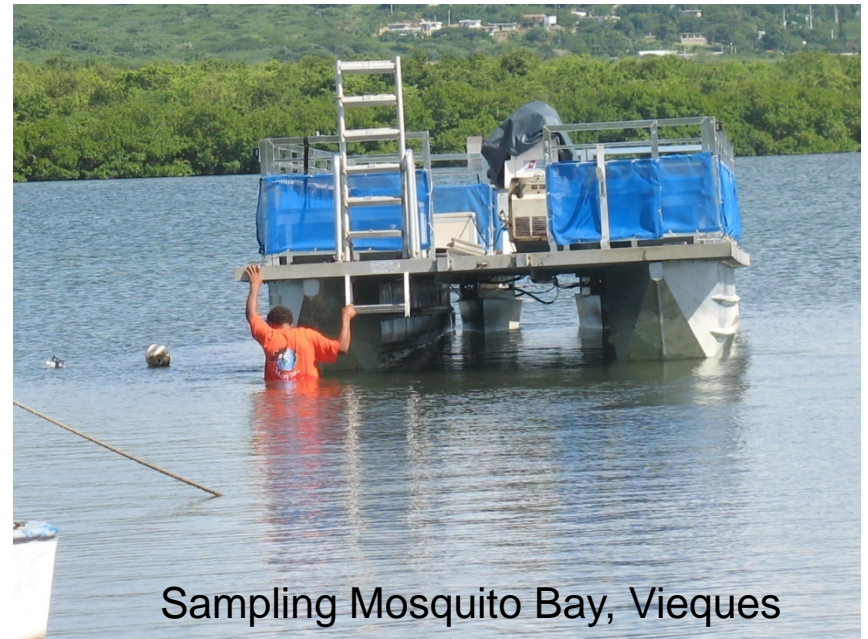 - Share data with others to accomplish tasks.

Configuration

Configure Server Computer
(Web/Application) Server

Install and Configure Supporting Software
(Java2SDK, Tomcat 5.028, IIS 6.0)

Install ArcIMS 9.1

Create ArcMap Project from Project
Data

Field Campaign (Data Collection)

Create and Customize ArcIMS Web
Application

Map Interface (Internet)
http://gersview.uprm.edu/website

GERS

Research Projects

- Presence of heavy metals in La Parguera Bioluminescence Bay in Lajas, and Puerto Mosquito Bay in Vieques
- Differences in the characteristic of bioluminescence.
- Samples were collected from four different environments:
  - bottom sediments under mangroves
  - mangroves leaves
  - bottom sediments
  - water column.

Sampling Mosquito Bay, Vieques

Data

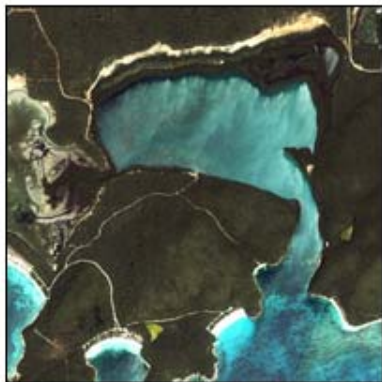| Table: GIS Data Layers used for Biobays Map Projects			
Layers	**Description**	**Source(s)**	**Location Used**
Sampling Sites	From heavy metals study	GERS LAB	Mosquito Bay, Parguera Bay
Hydrology	Surface hydrology	USGS	Mosquito Bay, Parguera Bay
Roads	Major roads	JP, DTOP	Mosquito Bay, Parguera Bay
Topography	Elevation contours	USGS	Mosquito Bay, Parguera Bay
Drainage basin	Delimiting drainage basin	USGS, JP	Mosquito Bay, Parguera Bay
Benthic Habitats	Benthic community types	NOAA	Mosquito Bay, Parguera Bay
Geology	Major geological feaures	USGS	Mosquito Bay, Parguera Bay
Soil Types	Soil Types and Series	NRCS-USDA	Mosquito Bay, Parguera Bay
Wetlands	Wetland features distribution	USFWS	Mosquito Bay, Parguera Bay
Aerial Orthophotos	Aerial Photography (2004)	US-COI, NRCS-USDA	Mosquito Bay
IKONOS image	Satellite imagery (2007??)	UPRM-GERS	Parguera Bay
Municipality	Puerto Rico Municipality name	JP	Mosquito Bay, Parguera Bay
Labels	Important Places	UPRM-GERS	Mosquito Bay, Parguera Bay
Aerial Orthophotos	Aerial Photography (1999)	NOAA	Parguera Bay

Web Publishing

- **ArcMap**
  - Project (.mxd)
- **ArcIMS Administrator**
  - New Service
    - Image Server Arcmap
- **ArcIMS Designer**
  - HTML Viewer
- **Customize Viewer Elements**
  - Table of contents, tools, layout, etc.
- **HTML Viewer for each site.**
  - Mosquito Biobay. http://gersview.uprm.edu/website/mosquito
  - Parguera Biobay. http://gersview.uprm.edu/website/parguera
- **Web Page development**
    - http://gersview.uprm.edu

WELCOME TO GERSVIEW

The Geological and Environmental Remote Sensing Laboratory (GERS Lab) was founded in January 2002 as part of the Department of Geology in the University of Puerto Rico at Mayaguez. Our mission is to promote and facilitate the education and research of the Earth System Science using remote sensing. Current research is mainly focused on environmental monitoring with bio-optical properties and digital images. We are also interested in developing Geographic Information Systems. Our vision is to become a prestigious laboratory in remote sensing of the Caribbean by generating innovative research and producing Earth System scientists well trained in the application of these tools.

In 2007, the GERS Lab developed a new database via the internet, called GERSVIEW, in order to make all the research data available to the wolrdwide community. GERSVIEW uses the ArcIMS platform, which is highly frieldly. It is currently under development and it has started with the database generated by a research project sponsored by the Sea Grant College at UPRM. In the future it will have other databases from NOAA and NSF projects. We hope you can find it an usefull tool and enjoy it.

Current Databases

Mosquito Bay, Vieques

Sponsored by the Sea Grant College at UPRM

Prepared by William Hernandez

>See more information of the project

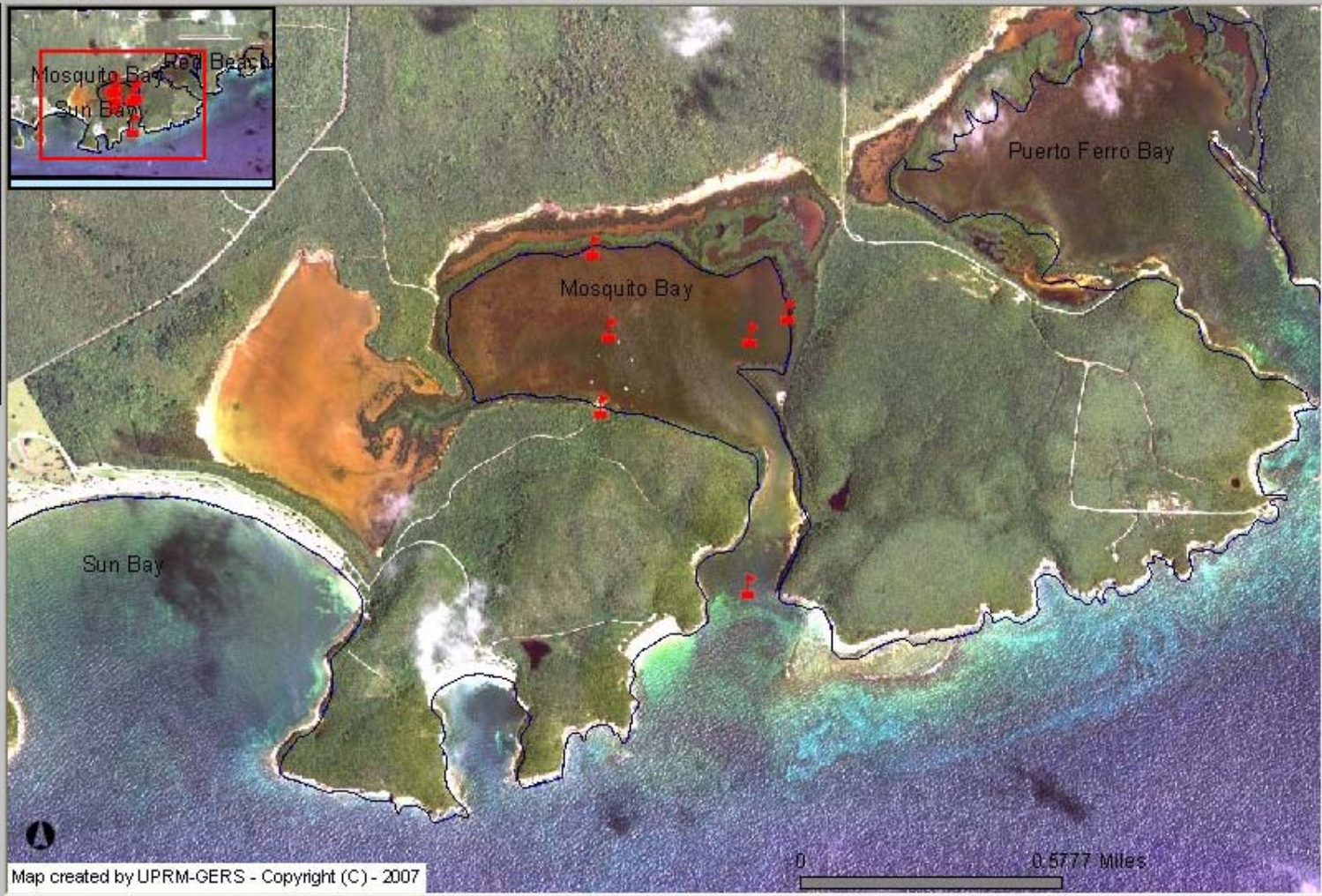>Go to the Database

La Parguera Bay, Lajas

Sponsored by the Sea Grant College at UPRM

Prepared by William Hernandez

>See more information of the project

>Go to the Database

Mosquito Bay

Red Beach

Mosquito Bay

Sun Bay

Puerto Ferro Bay

Sun Bay

Map created by UPRM-GERS - Copyright (C) - 2007

0   0.5777 Miles

LAYERS

All Layers
- Sampling Sites
- Hydrology
- Roads
- Topography
- Drainage Basin
- Benthic Habitats
- Geology
- Soil Types
- Wetlands
- Aerial Orthophoto
- Municipality
- Labels

Refresh Map

☑ Auto Refresh

Help:

A closed group, click to open.
An open group, click to close.
A map layer.
A hidden group/layer, click to make vi
A visible group/layer, click to hide.
A visible layer, but not at this scale.
A partially visible group, click to make
An inactive layer, click to make active
The active layer.

Sampling Sites

Rec	FID	#SHAPE#	IDENT	COMMENT	MODEL	X	Y	Location	StationID	Units	Environmen	Arsenic	Copper	Iron	Lead	Mercury
1	5	poin]	V03S	21-OCT-06 9:59:23AM	GPSMap76CS	-65.44559821	18.10211758	Puerto Mosquito Biobay	6	PPM	Bottom Sediments	BDL	7.96	BDL	BDL	BDL
2	6	poin]	V03S	21-OCT-06 9:59:23AM	GPSMap76CS	-65.44559821	18.10211758	Puerto Mosquito Biobay	6	PPM	Water Column	BDL	0.020	BDL	BDL	BDL

Identify

Map: 1005426.99 , 752423.3 -- Image: 690 , 313 -- ScaleFactor: 19.307184488190263

Internet

La Parguera Bioluminescent Bay, Lajas, Puerto Rico

La Parguera

Caribbean Sea

Parguera Biobay

LAYERS

- All Layers
  - Sampling Sites
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Sampling Sites

Rec	FID	#SHAPE#	IDENT	MODEL	X	Y	Location	Station ID	Environmen	Arsenic	Copper	Iron	Lead	Mercury	Units	HYPERLINK
1	5	[poin]	P01	GPSMAP 76S	-67.01577016	17.97125369	Parguera Biobay	4	Bottom Sediments	BDL	10.6	7.136	0.694	BDL	PPM	http://gersview.uprm.edu/website/PAR_BOT_SED.jpg
2	8	[poin]	P01	GPSMap76CS	-67.01577016	17.97125369	Parguera Biobay	4	Water Column	BDL	0.018	BDL	BDL	BDL	PPM	

Identify

Map: -67 , 17.97 -- Image: 764 , 250 -- ScaleFactor: 0.000028383159752983627

Internet

Future Databases

Mayaguez Bay

Sponsored by NOAA CREST

In preparation by Vilmaliz Rodriguez

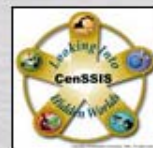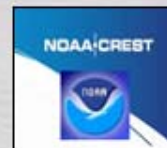>See more information of the project

La Parguera Coral Reefs System

Sponsored by NSF CenSSIS

In preparation by Carmen Zayas
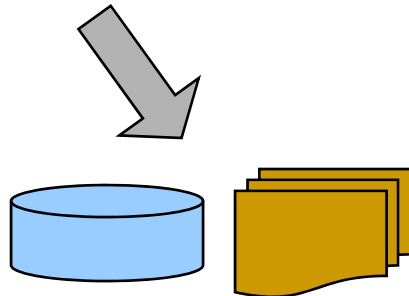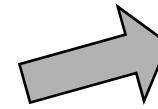
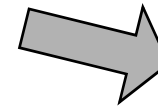>See more information of the project

GERSVIEW

Research Projects

1. Parguera and Mosquito Biobays
2. Parguera Reefs
3. Mayaguez Bay Watershed
4. Bio-Optical Properties of Mayaguez Bay
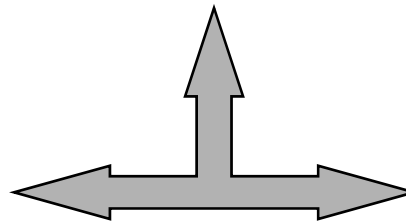5. Bio-Optical Algorithms in Coastal Waters

GERSVIEW

ArcIMS
Mapping Interface

ArcIMS
Mapping Interface
(Power Users, Researchers)

Central GDB
Raster Catalog
(Data)

ArcView/Info
Projects

Conclusions

- Spatial Data Organization using a Geodatabase

- Tool for Web Mapping

- **Interactive Project Publication platform**

- **Enable non-GIS-Users to access the spatial data**

- http://gersview.uprm.edu

Puerto Mosquito, Vieques

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Projections

- Include Geodatabase projects for Mayaguez Bay and Parguera Reefs
- Enhance HTML Viewer
    - Hierarchical Table of Contents
    - Hyperlinks, Graphics, etc.
    - Enable Java Viewer
- Obtain a New Server
    - Better storage and processing
- Upgrade to ArcIMS 9.2®
- Include RS imagery analysis products (ENVI, ERDAS).

Acknowledgements

- Sponsored by:

- Data Sources:

Questions?