Why Community Modeling? The CCMP perspective

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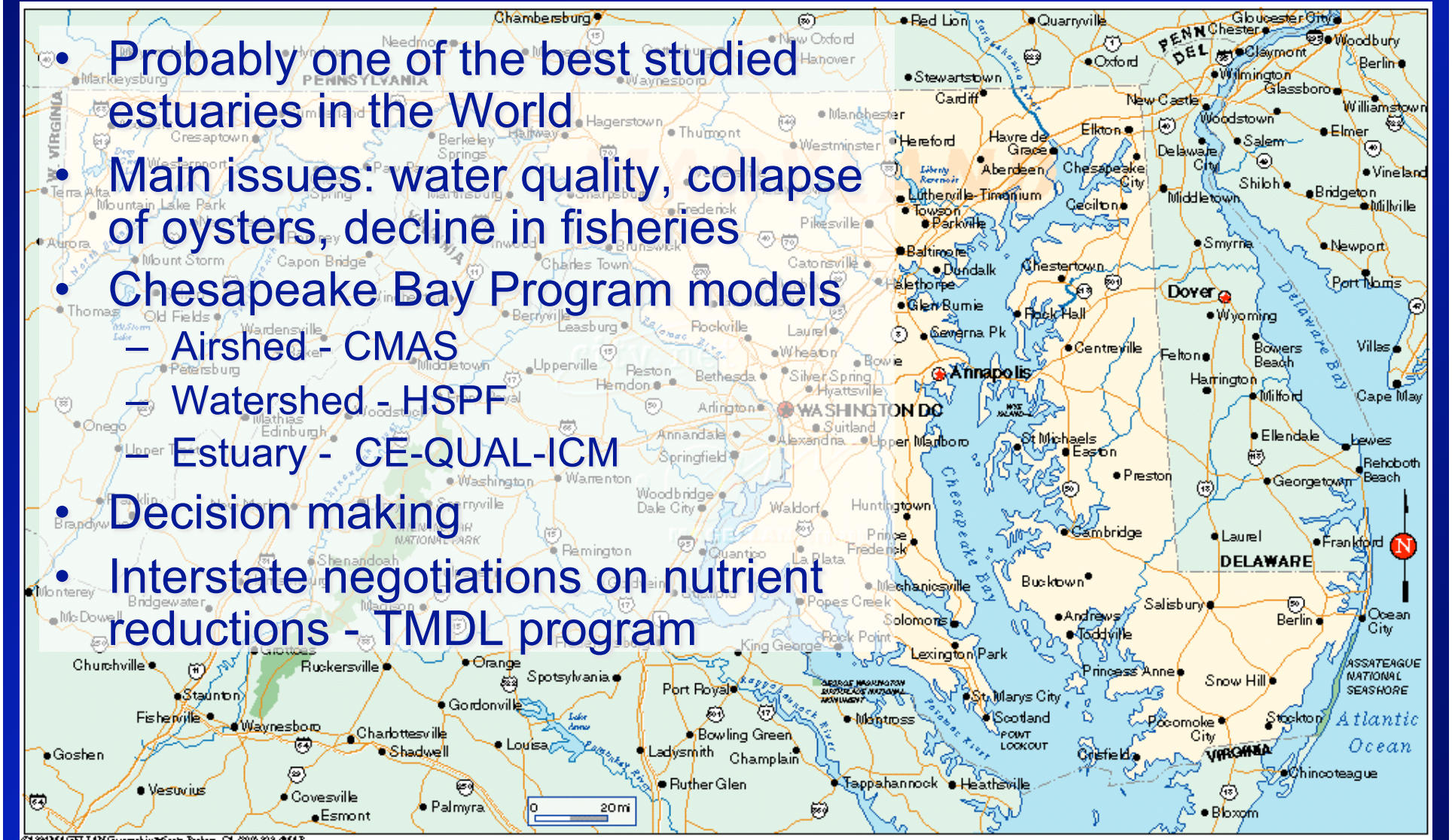
Chesapeake Bay Modeling

- Probably one of the best studied estuaries in the World
- Main issues: water quality, collapse of oysters, decline in fisheries
- Chesapeake Bay Program models
  - Airshed - CMAS
  - Watershed - HSPF
  - Estuary - CE-QUAL-ICM
- Decision making
- Interstate negotiations on nutrient reductions - TMDL program



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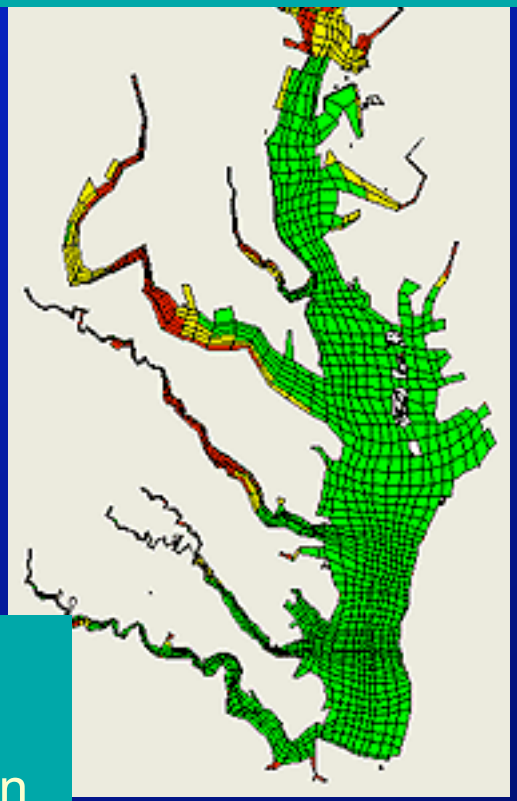
"It is the opinion of this team that the Water Quality Model does not currently provide information suitable for major management decisions and that use of the model for such purposes should be suspended." (STAC 1999, Analysis and Recommendations, p. 2).

- Why ano
  the CBP effort?
- Closed and contained suit of models
  - Some parts are open (HSPF)
- Development is slow
  - Phase 4.3 Model - 2003
  - Phase 5 Model - In development
- Interaction is limited



"The Chesapeake Bay Program's reliance on a single model structure had stifled scientific advances and reduced estimates of confidence in model output" (CBP STAC report).

Chesapeake Community Modeling program

Linden Group charge:

- Models should be open source and supported by a substantial user community
- Models should have institutional homes.
- Data integration, prediction and uncertainty quantification are essential aspects of the modeling process.
- Modeling activity should be integrated into the educational mission of the CRC institutions.
- Models should be incorporate modern numerics as well as physical/biological parameterizations.

Four Major Goals:

(from the CRC CCMP Implementation Plan)

1) Facilitate, focus and coordinate the intellectual resources of the CRC institutions.

2) Promote free and open exchange of information, data models and results.

3) Develop a state-of-the-art modeling system for research, management and operational applications.

5) Integrate and facilitate combined modeling and observational efforts in Chesapeake Bay and its watershed.

Chesapeake Community Modeling Program

chesapeake community modeling program

"advancing the cause of accessible, open-source environmental models in support of research & management efforts"

CCMP Home | About | News | Wiki | Models & Data | Proposals & Funding | Workshops | Links

BUILDING COMMUNITY

CCMP is dedicated to advancing the cause of accessible, open-source environmental models of the Chesapeake Bay in support of research & management efforts.

Through communication and advocacy the CCMP has generated several new modeling-oriented research programs. Our new web pages will help by providing access to Chesapeake community models, data, and communication tools.

CCMP Navigation

news
CCMP's latest on modeling research developments, funding opportunities, workshops and other activities around the Bay.

models & data
A gateway to open-source models, data sources, and links to various modeling activities and resources.

workshops
CCMP workshops emphasize modeling activities and build community. See what's coming or explore past archives.

proposals & funding
Find out what's being funded, what's in the works, and where future opportunities can be found.

Upcoming CCMP Workshop

Chesapeake Modeling Symposium '08

- May 12-14, 2008
- Annapolis, MD

CCMP is convening a modeling symposium as a venue to identify and showcase existing modeling efforts as well as promote information exchange and open modeling.

CCMP Navigation

News & Updates

- Chesapeake Modeling Symposium 2008 (CheMS'08) *(Oct 31)*
- Schedule Events with Ease using Doodle *(Oct 19)*
- Chesapeake Area Seminar Series Round-Up *(Sept 25)*
- CICEET Releases FY 2008 Funding Opportunities *(July 17)*
- CCMP Newsletter Released *(June 12)*
- GISFish Website Announcement *(June 5)*
- Employment Opportunities with ESSIC (Univ. of MD) *(May 21)*
- ChesROMS Webpage Launched *(Jan 24)*
- CBEO Webpage Launched *(Nov 21)*
- Presentations Now Online from Model & Data Distribution Workshop *(Nov 16)*
- New Ecosystem-Based Management Tools Website *(Oct 16)*

Models & Data

- Watershed Models
- Hydrodynamic Circulation
- Biology Models
- Supplemental Modeling Tools

http://ccmp.chesapeake.org/CCMP/

A CCMP project

chesapeake community modeling program

"advancing the cause of accessible, open-source environmental models in support of research & management efforts"

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CCMP Home » Models & Data » Chesapeake Bay ROMS Community Model

CHESAPEAKE BAY ROMS COMMUNITY MODEL

Welcome to CCMP's ChesROMS homepage. This page will introduce you to the Chesapeake Bay ROMS Community Model (ChesROMS) as well as provide links to additional information and resources.

1. Introduction
2. Project Summary
3. Investigators
4. ChesROMS on Sourceforge

Introduction

ChesROMS is a community ocean modeling system for the Chesapeake Bay region being developed by scientists in NOAA, University of Maryland, CRC (Chesapeake Research Consortium) and MD DNR (Maryland Department of Natural Resources) supported by the NOAA MERHAB program. The model is built based on the Rutgers Regional Ocean Modeling System (ROMS, http://www.myroms.org/) with significant adaptations for the Chesapeake Bay.

The model is developed to provide a community modeling system for nowcast and forecast of 3D hydrodynamic circulation, temperature and salinity, sediment transport, biogeochemical and ecosystem states with applications to ecosystem and human health in the bay. Model validation is based on bay wide satellite remote sensing, real-time in situ measurements and historical data provided by Chesapeake Bay Program.

back to top

Project Summary

Various noxious and toxic algal blooms afflict the Chesapeake Bay and other coastal U.S. waters, posing threats to human health and natural resources. The goal of this regional study is to develop and implement an operational system that will nowcast and forecast the likelihood of blooms of the following three harmful algal bloom (HAB) species in Chesapeake Bay and its tidal tributaries: the dinoflagellates Karlodinium micrum and Prorocentrum minimum and the cyanobacteria Microcystis aeruginosa. In addition, the feasibility of predicting other HAB species will be investigated and pursued. The method proposed involves using real-time and 3-day forecast data acquired and derived from a variety of sources and techniques to drive multi-variate empirical habitat models that predict the probability of blooms caused by these particular HAB species. The predictions, in the form of maps, will be available via the World Wide Web to individuals and interested agencies to guide research, recreational and management activities. In particular, these nowcasts and forecasts will be employed

ChesROMS Introduction

General ChesROMS Info
- ChesROMS Home
- Introduction
- Project Summary
- Investigators
- Sourceforge ChesROMS Page

ChesROMS on Sourceforge

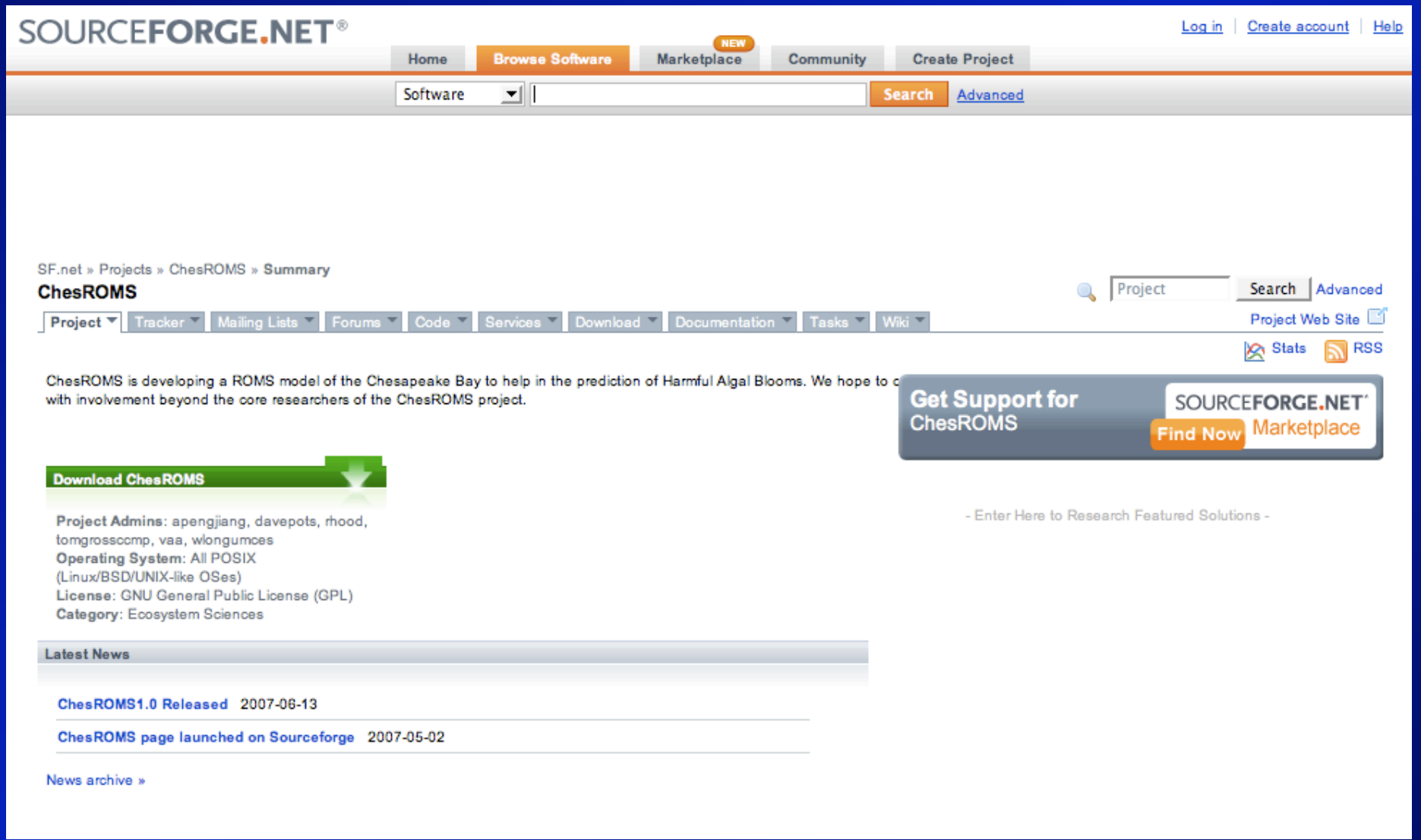
Documentation
- Installation Guide
- How to use SVN

ChesROMS Discussion
- Open Discussion
- Help

ChesROMS Tracker
- Bugs
- Feature Requests
- Patches
- Support Requests

ChesROMS Code
- SVN
- SVN Browse
- SVN Statistics

SourceForge support



CCMP umbrella

- HSPF - Chesapeake Bay Program watershed model
- ChesROMS - nowcast and forecast of 3D hydrodynamic circulation, temperature and salinity, sediment transport, biogeochemical and ecosystem states
- C3PO - Chesapeake 3D Physical Oceanographic model
- POMChes - implementation of the Princeton Ocean Model
- SME with LHEM - Spatial Modeling Environment & Library of Hydro-ecological Modules
- CE-QUAL-ICM - Cerco's 4000 cell model

- In progress:
  - SPARROW
  - PIHM

Participatory modeling

- Companion modeling, mediated modeling, shared vision planning…
- Participatory modeling is the process of incorporating stakeholders, often including the public, and decision-makers into the modeling process to support decisions involving complex environmental questions
- More open and integrated planning processes is a way to avoid potential conflict, misunderstanding and even litigation
- A platform for integrating scientific knowledge with local knowledge
- Goal driven
- Modeling as a process