

The Marine Ecosystem-based Management Tool Innovation Fund



**SUPPORTING SOFTWARE DEVELOPMENT TO HELP
MANAGERS AND POLICY-MAKERS MEET THE
CHALLENGE OF IMPLEMENTING MEBM**

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Nicholas School of the Environment

Duke University



the David &
Lucile Packard
FOUNDATION

MEBM Tool Innovation Fund (MEBM-TIF)



GEOTOOLS PRESENTATION:

- Overview of the objectives of the program
- Analysis of the applications
- Description of the funded projects

MEBM Tool Innovation Fund (MEBM-TIF)



MEBM-TIF OBJECTIVES:

- Assist the implementation of M-EBM through the funding of EBM tool development.
- Get a better understanding of the scope and range of software development in M-EBM.
- Support tool development for M-EBM in developing countries

For more information please see: <http://mgel.env.duke.edu/mebm>

Application Process



- Two tiered application process
 - Request for letters of intent to submit a proposal
 - Request for proposals
 - 7 page, 60-question application
 - Included an additional guidance document to help those applicant less familiar with formal software development
 - Review of proposals
 - 4 internal reviewers
 - 11 external reviewers

LOI Considerations



- Is it a software tool?
- How widely applicable is the tool?
- How innovative is the tool?
- How much basic research is required?
- What is the current stage of the tool's development?
- How interoperable is the tool?
- What is the likely impact of the tool?

Full Proposal Review



- **GENERALLY EVALUATED ON:**

- Practical Usability
- Sustainability
- Generality/Applicability
- Innovation
- Impact
- Confidence
- Interoperability

12 of 32 PROPOSALS WERE FUNDED

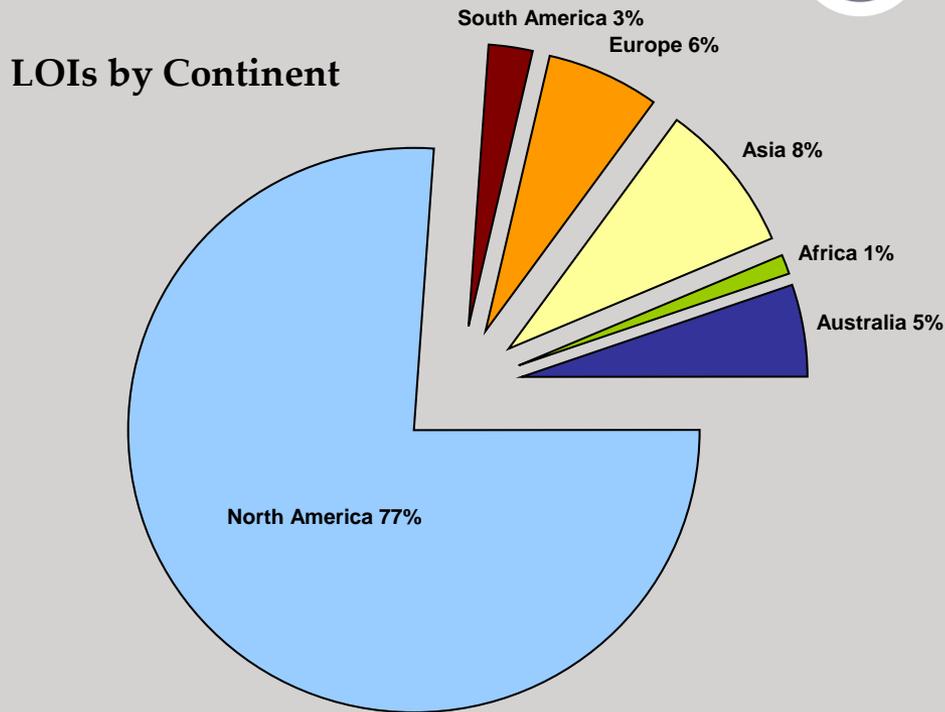
MEBM Tool Innovation Fund (MEBM-TIF)



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Who applied?

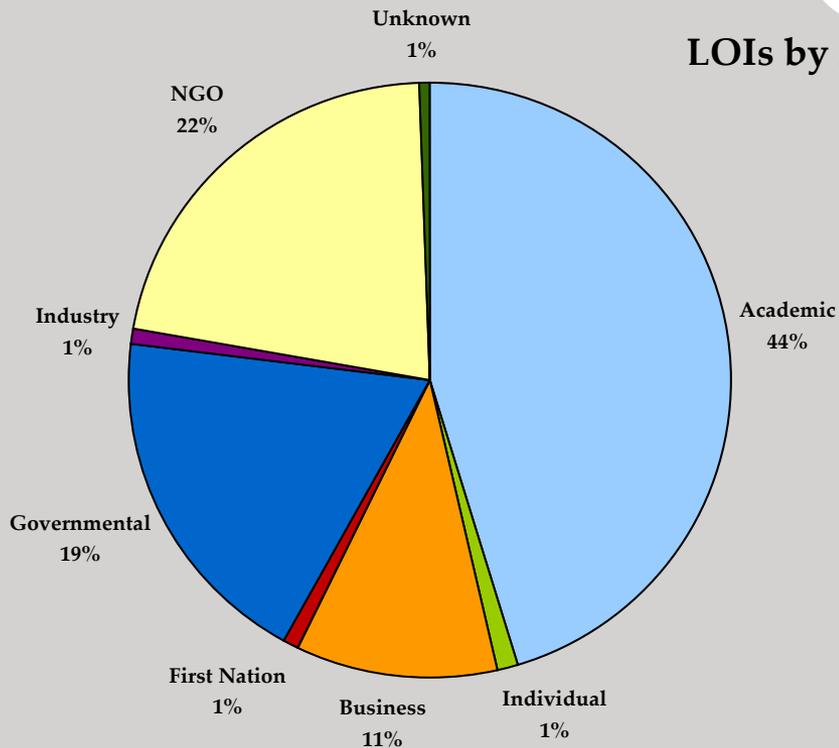


A total of 154 Letters of Intent were received from 21 countries and 6 continents.

Who applied?



LOIs by Affiliation

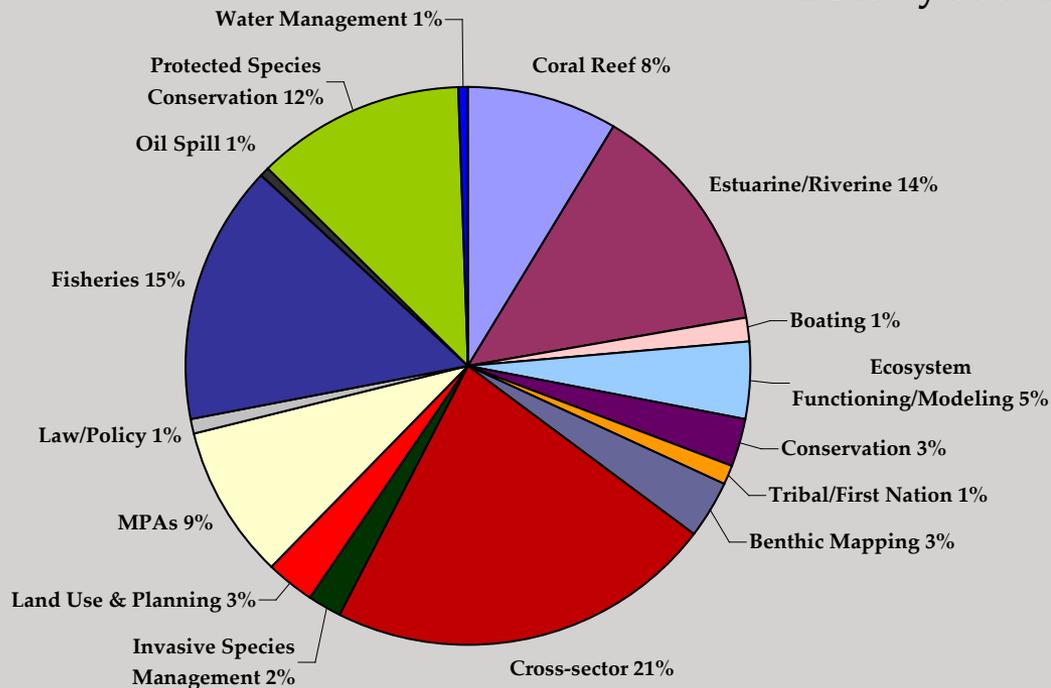


The proposals mostly came from academic institutions (44%), only 1 LOI was submitted by an industry group.

Who applied?



LOIs by Sector



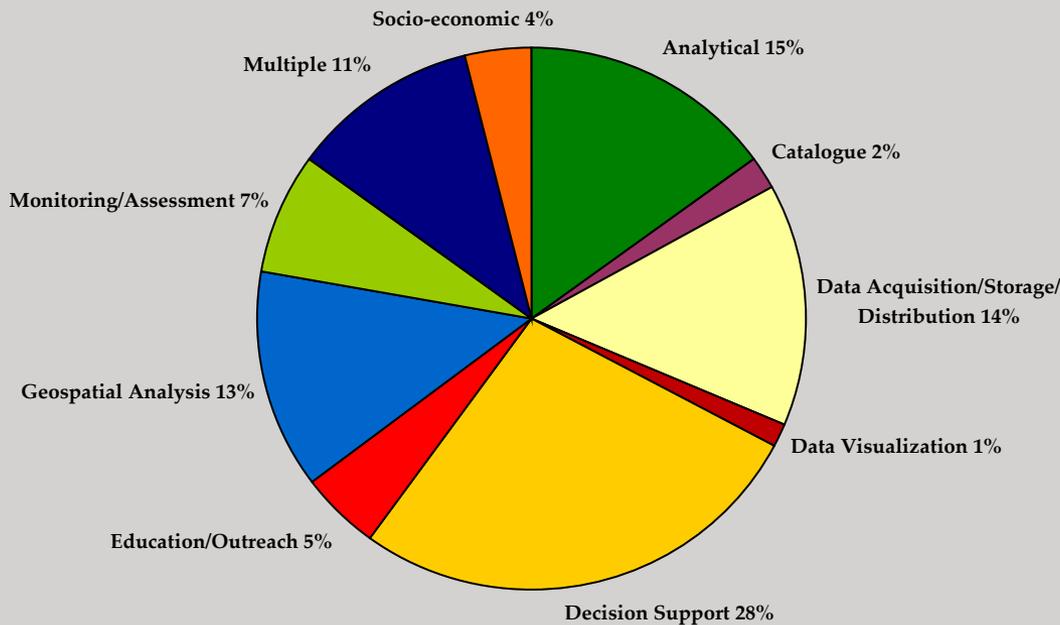
Major sectors were:

- Fisheries
- Estuarine & Riverine
- Protected Species Conservation
- MPAs
- Coral Reef Protection

Who applied?



LOIs by Tool Type



Decision Support tools were the most common. Analytical, Geospatial and Data Acquisition, Storage & Distribution tools were also well represented.

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Cape Cod Commercial Hook Fishermen's Association (CCCHFA)



MULTI-SPECIES COMMUNITY-BASED FISHERIES MONITORING AND MANAGING TOOL

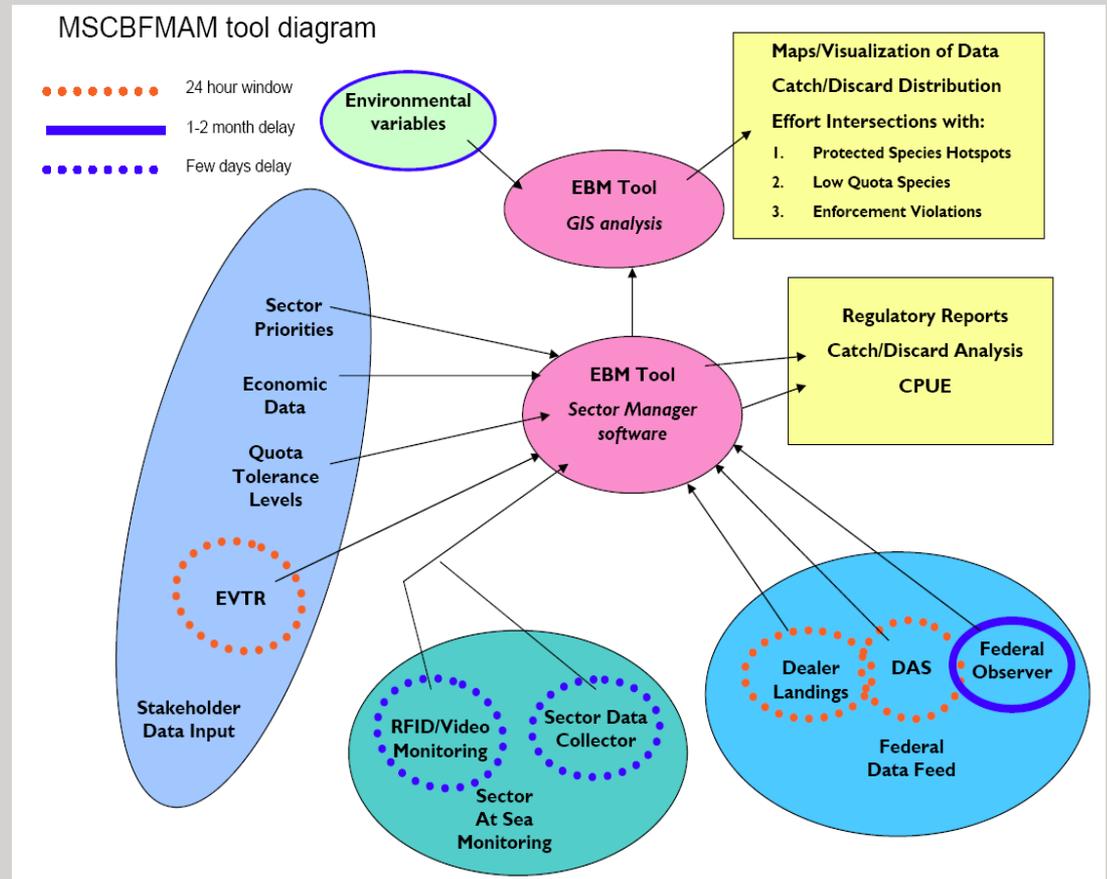
Melissa Sanderson, Eric Brazer, Paul Parker (PI)

MSCBFMAM Tool



Allows fisheries managers to monitor all aspects of a fishing trip:

- catch reports (EVTR)
- dealer reports
- enforcement violations
- fish auction prices
- federal and sector at-sea observer data



For further information please see: <http://www.ccchfa.org/>

Conservation and Community Investment Forum (CCIF)



MPA EZ

John David Claussen (PI), Sarah Conway

MPA EZ



Tool functionality includes:

- Cost Model
- Marine Protected Area Finance Tracking
- Marine Protected Area Finance and Resource Optimization
- Protected Area Revenue Generation
- Excel and web-based platforms
- English and Bahasa Indonesian versions
 - Possible future translations

Microsoft Excel - CCIF MPA Financial Mngmt Model ver 1.0 (example data).xls [Compatibility Mode]

MPA Financial Management Model ver. 1.0 Menu Master Summary Glossary

General Inputs Overview Instructions

Scenario: Status Quo

Title of the Model

MPA Financial Management Model ver. 1.0 (sample)

INPUT: MPA Functions

1	Management & Planning
2	Zonation & Enforcement
3	Science & Research
4	Information, Education & Communication
5	Sustainable Livelihoods
6	Tourism Management
7	Finance & Administration
8	Others

Scenario	Service level	Description
Scenario 1:	Status Quo	[Description]
Scenario 2:	Minimal Operation	[Description]
Scenario 3:	Optimal Operation	[Description]
Scenario 4:	[Name]	[Description]

Financial and Economic Assumptions

Interest rate on cash	0.50%	Inflation rate	6.00%
Interest rate on debt	10.00%	Annual salary raise	8.00%
Tax rate	0.00%	Discount rate	0.00%

Currency Assumption

Local Currency Name	Rupiah	Exch. Rate Rupiah per USD	9,080.00
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For further information please see: <http://www.cciforum.org>

Pacific Marine Analysis and Research Association
& University of Queensland, Australia



A MARXAN MANUAL
(ENGLISH AND SPANISH VERSIONS)

AVAILABLE AT:

www.pacmara.org

OR

www.uq.edu.au/marxan

PIs: Jeff Ardron (PacMARA), Dr. Hugh Possingham (UQ)

Univ. of British Columbia, Fisheries Centre & The Nature Conservancy



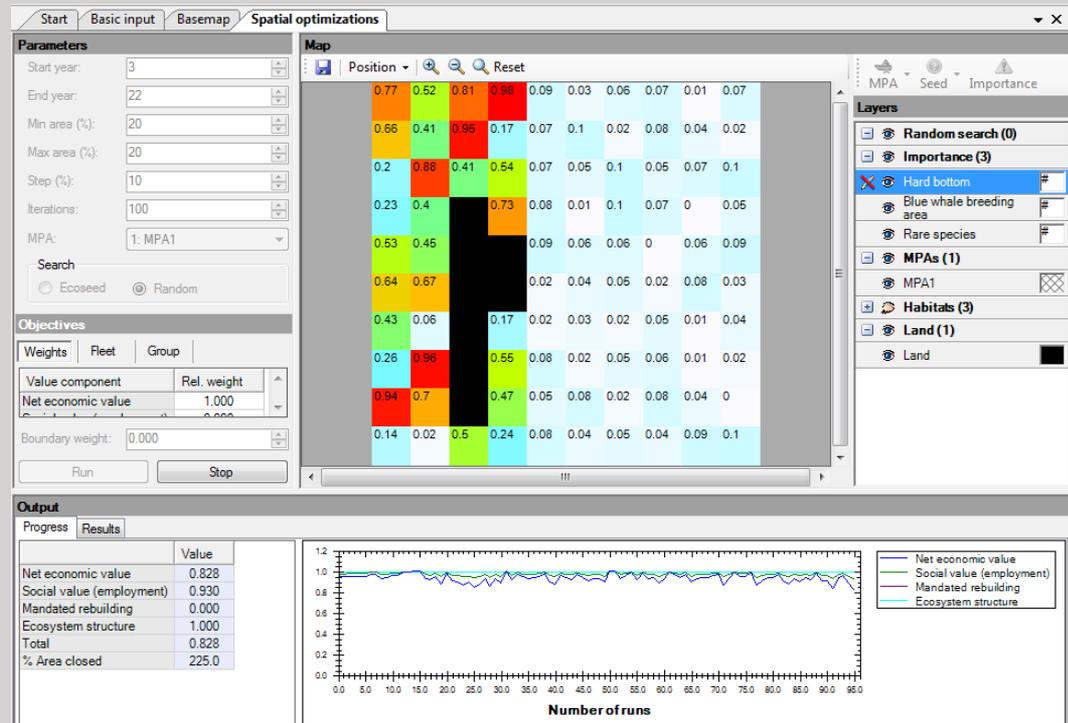
ECOSEED

PIs: Dr. Villy Christensen (UBC) & Zach Ferdana (TNC)

Ecoseed



- User defines potential sites, or 'seed cells', for placement of protected areas.
- Each seed cell is evaluated, and iteratively picked to optimize a given objectivity function.
- The best cell becomes a protected area, and its neighboring cells are designated as seed cells
- The process continues until all cells have been protected.
- The benefits and associated costs are recorded and visualized.



Stanford University



***MANAGEMENT IDENTIFICATION
FOR THE NEEDS OF OCEAN
ECOSYSTEMS (MINOE)***

(FORMERLY: EBM LEGAL FRAGMENTATION ANALYZER)

Dr. Julia Ekstrom, Dr. Kincho Law (PI)

MINOE



Additional features in this beta version include:

- viewing list of documents that contain an ecosystem element or ecosystem relationship
- viewing agencies in charge of relevant documents
- statistical tests of similarity between ecosystem model and related law/regulation matrix
- visualization module to graphically explore data

MINOE.stanford.edu
Exploring Ocean Management for Ecosystems

Home
Project background
How the Tool Works
Download
Related publications
Potential applications
CCLME Laws and Regulations
Help Topics
Contact

Project Summary

MINOE (formerly LeFA) is an ecosystem-based management (EBM) software program being built to assist interested parties navigate through existing laws and regulations (and associated agencies).

MINOE (pronounced "minnow"), stands for *Management Identifying the Needs of Ocean Ecosystems*.

How does the program work?

The MINOE tool is part database, part search engine and part graphing software. The application works by collecting keywords and terms from the user to query a collection of over 75,000 sections of laws and regulations with a powerful search engine. The results are formatted into a table and presented to the user for further analysis. The collection of laws and regulations is provided with the software so users can study how the documents relate to their analysis.

This first version of the MINOE tool contains the coastal and marine-related laws and regulations for the **year 2006** from the following geopolitical jurisdictions:

- California
- Oregon
- Washington
- Federal United States

For further information please see: <http://minoe.stanford.edu>

University of Texas-Austin



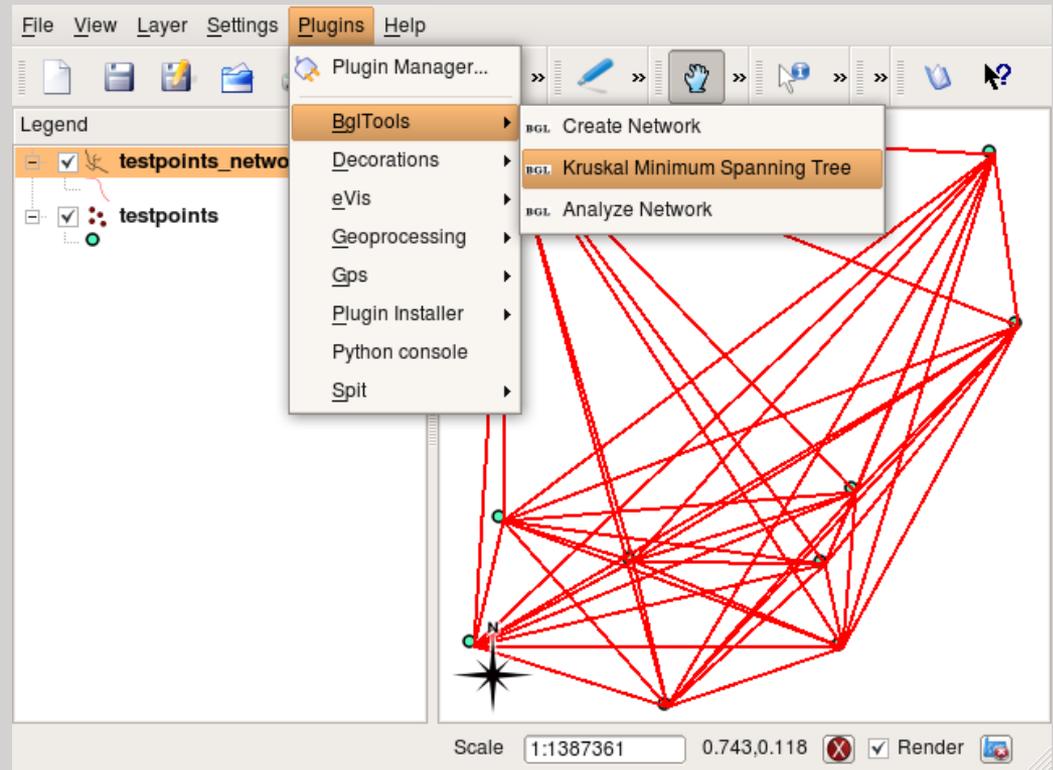
***NETWORK ANALYST FOR
MARINE ECOSYSTEM-BASED
MANAGEMENT (NAMEM)***

Dr. Tim Keitt (PI)

NAMEM



NAMEM allows analysts to perform large-scale connectivity analysis of marine habitats using recent advances in the application of network theory to source-sink population structures.



PlaceMatters



ANYWARE POLLING

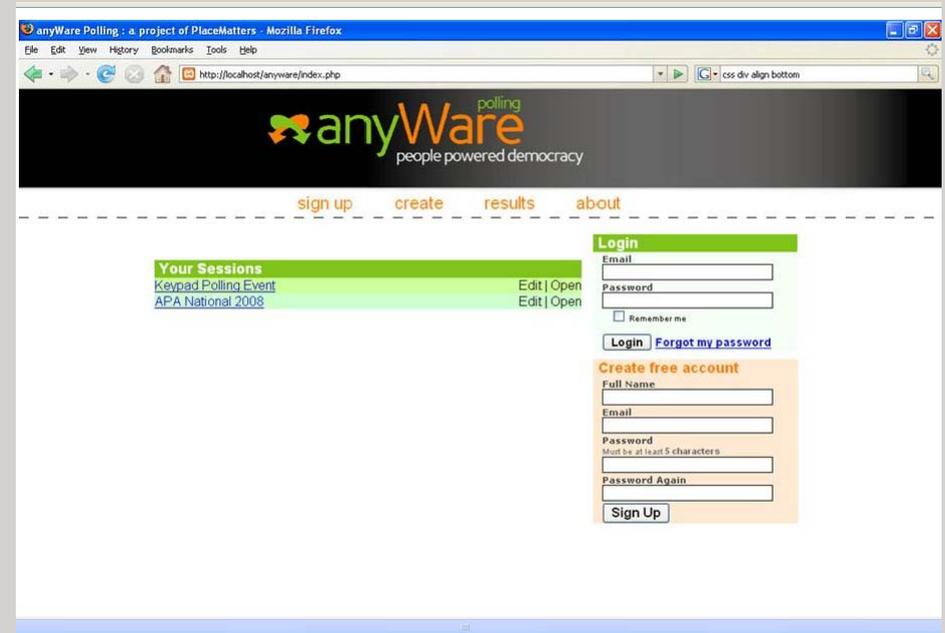
Ken Snyder (PI), Susan Crow (PI), Jason Lally

anyWare Polling



anyWare Polling can contribute to the success of ecosystem-based management by:

- Tapping into the local knowledge
- Soliciting ideas and feedback
- Educating the public
- Gaining long-term support by engaging stakeholders throughout the management process



For further information please see: <http://www.placematters.org>

Comunidad y Biodiversidad, A.C. (COBI) & EcoTrust



DELPHOS: MARINE RESERVES

PIs: Jorge Torre (COBI), Mike Mertens (EcoTrust)

Delphos: Marine Reserves



Empower stakeholders to perform 'citizen science' to better understand and communicate the effects of marine reserves by:

- Data collection from sub-tidal censuses
- Data management & sharing
- Data analysis
- Simple report production

Home MPAs Sites Surveys Records Cross Comparisons Logout Feedback Data Request

Sites

Search sites and surveys

My Data
My Account

Fishing/Harvest Zone Site

- Arroyo del Cartalon: 59 surveys
- Batza Batza: 48 surveys
- Cueva del Biologo: 44 surveys
- La Ventana de Ambar: 16 surveys

No Take Reserve Site

- La Cueva dentro de la Reserva: 62 surveys
- Los Morritos: 24 surveys
- Punta Rabijunca: 22 surveys

Download these sites: Excel KML shapefile Geojson

Search / Query sites...

Map-based Search / Query sites...

Garrison Environmental Analysis and Research



***MULTISPECIES VIRTUAL
POPULATION ANALYSIS (MSVPA-X)***

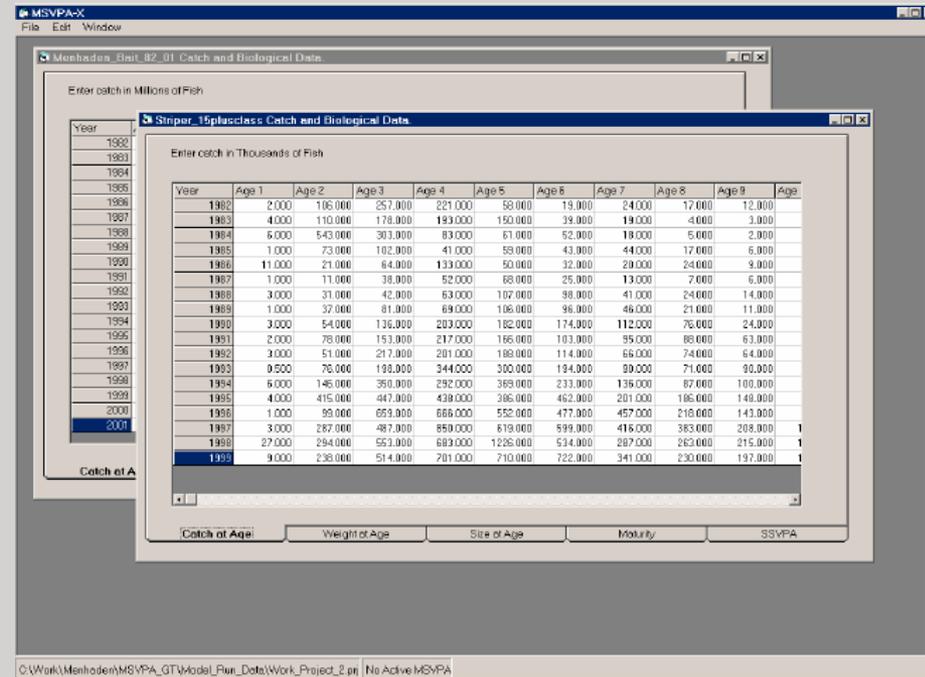
Dr. Lance Garrison (PI)

MSVPA-X



New capabilities include:

- Implementation of a broader range of population assessment models into the formulation
- Greater incorporation of, and ability to explore, uncertainty in model projections
- Improved user interface
- Incorporate greater diagnostic tools
- Improve error trapping and the specificity of error codes



Geohorizons, LLC.



***BOAT WAKE ENERGY MODEL
(BoMo)***

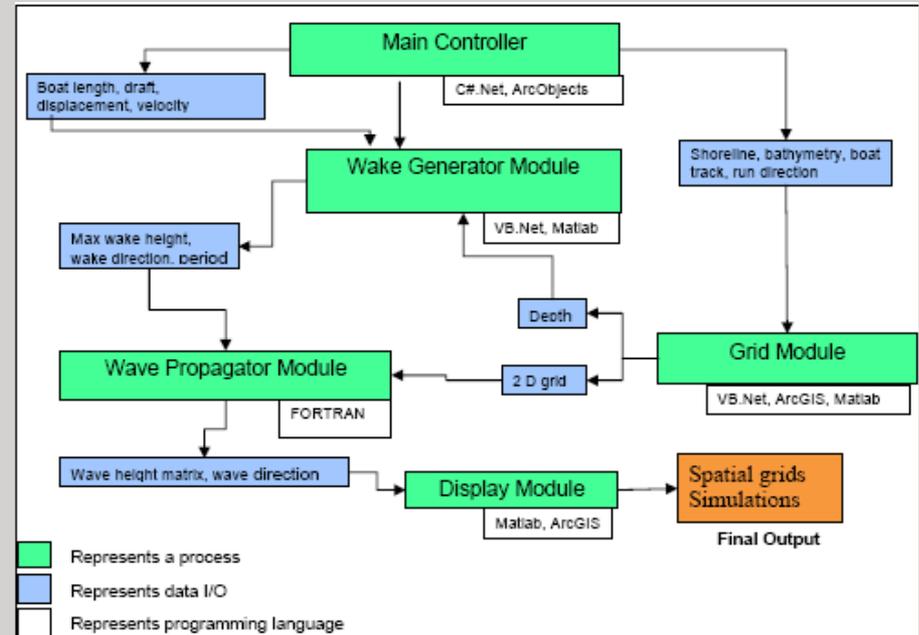
Amit Malhotra (PI)

BoMo



Possible uses of BoMo:

- Prediction of the impact of boat wakes on existing habitat
- Potential redefinition of the no-wake zone around critical marine habitats
- Prediction of the suitability of a wetland sites for restoration
- Analysis of the effects of creating new boating channels on ecologically active area
- Linkages to erosion models could help improve water quality and silt modeling



Rutgers University



COMMUNITIES AT SEA MAPPER

Dr. Kevin St. Martin (PI)

Communities At Sea Mapper

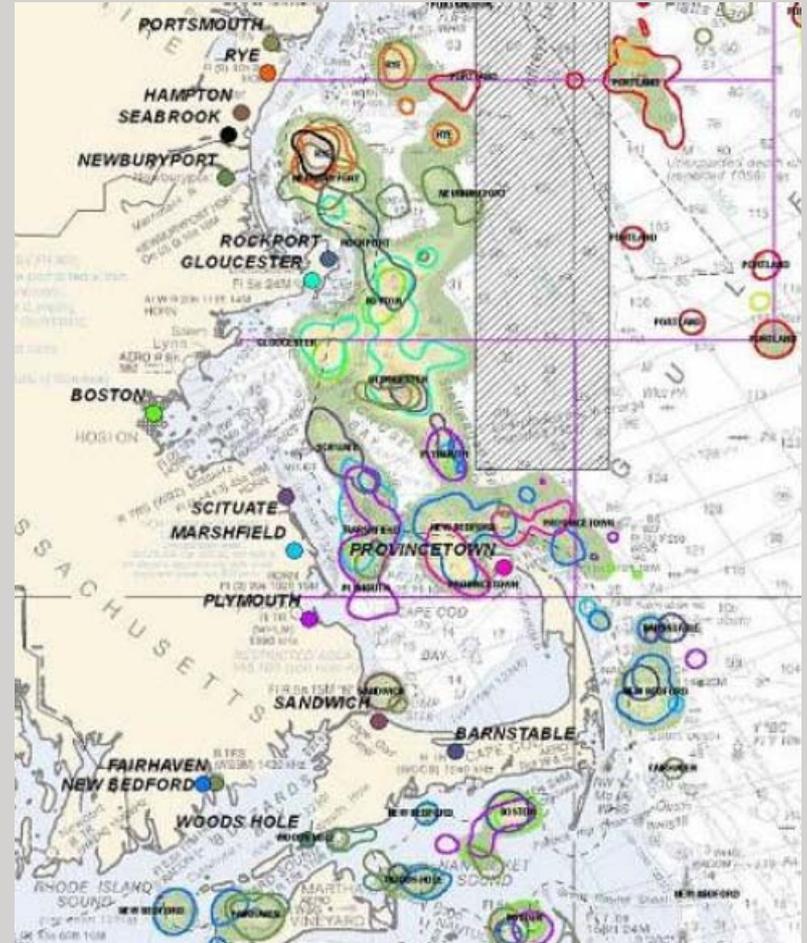


Functions:

- Linking Port Communities to Resource Areas
- Linking Resource Areas to Port Communities

Relevance:

- Helps to identify which marine areas are vital to which communities.
- Allows for a clearer understanding of how management decision will affect communities



Karumbé



SISTEMA DE INFORMACIÓN DEL PROGRAMA DE OBSERVADORES (SIPO)

(OBSERVER'S PROGRAM INFORMATION SYSTEM)

M-EBM related activities at Geotools



- **EBM TOOLS SESSIONS I & II**

- Wednesday afternoon 2-3:30, 4-5:30

- **EBM TOOLS NETWORK MEETING**

- Thursday afternoon 2-5:30

Ongoing MEBM-TIF Activities



• **TOOL DEMONSTRATIONS**

- Through the EBM Tools Network
- See <http://www.ebmtools.org> for schedule



• **EBM STRATEGIC PLANNING GRANT**

- EBM Tool Workflows
- Sustainable tool financing
- Fisheries, MPAs & MEBM

MEBM Tool Innovation Fund



**FOR MORE INFORMATION ON THE
MEBM TOOL INNOVATION FUND**

PLEASE SEE:

[HTTP://MGEL.ENV.DUKE.EDU/MEBM](http://mgel.env.duke.edu/mebm)