

# The Society for Conservation GIS e-Newsletter Volume 5, Issue 1 June 2005

## **Society for Conservation GIS Obtains Grant from the Gordon and Betty Moore Foundation**

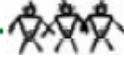
The Society for Conservation GIS (SCGIS), in partnership with The Nature Conservancy (TNC), has just obtained a grant from the Gordon and Betty Moore Foundation for \$334,000 to be used for International GIS Capacity building over the next three years. The grant will help to expand the annual SCGIS Scholarship Program, which provides conservation GIS training and conference attendance to 20-30 scholars each year. It will also fund a new SCGIS Leadership Program, which will provide grants to 5-10 GIS practitioners each year to support capacity and community building activities in their home countries or in support of SCGIS core functions.

Conservation NGO's have recognized around the world that advanced science and technical tools are critical for the pursuit and success of their mission. Unfortunately, the adoption and ownership of these tools is difficult for many. The SCGIS Leadership Program will support a global community of pro-bono Conservation GIS teachers, advisors and helpers, who will allow NGO's to gain access to the benefits of mapping and GIS technologies even where they cannot utilize the tools directly. Interested Individuals with a history of pro-bono GIS service and SCGIS activities may enquire at the email address below or look for details this summer at [www.scgis.org](http://www.scgis.org).

SCGIS would like to thank the Gordon and Betty Moore Foundation and the Environmental Systems Research Institute (ESRI) for their generous support, as well as Charles Convis and Sasha Yumakaev of the ESRI Conservation Program and Frank

Biasi and Dick Cameron of TNC for their work securing this grant. For more information, contact Sasha Yumakaev at [syumakaev@esri.com](mailto:syumakaev@esri.com).

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## Message from the Board: In Praise of Volunteerism

Since its beginning as a small gathering at the James Reserve before the ESRI User conference, SCGIS has consistently relied on volunteer effort to carry out the major tasks of the Society. SCGIS and its antecedent quasi-organizations have managed to maintain the focus and financial resources to carry out its mission to provide knowledge and create a community of international conservation GIS practitioners despite having no paid staff. Literally hundreds of volunteers have put their time in to make SCGIS what it is today. The turnover rate is inherently quite high with a volunteer base, so it is important to create a framework and an organizational setup that doesn't forget the decisions that get made and the knowledge that is created. Continuity becomes a goal in and of itself.

Our largest volunteer effort is our annual conference drawing between 150-200 members each year to share ideas, techniques and spend time relaxing away from our CPUs. Susan Miller has been the committee chair for the last several years and has done an incredible job marshalling the squad of 20-40 volunteers to pull off the event with aplomb.

Our other committee chairs also deserve recognition over and over: John Young, Domestic Chapters; Danielle Hopkins, Membership; Charles Convis, Sasha Yumakaev and Roberta Pickert from the International Scholarship program; Prashant Hedao and Lata Iyer, International Networks; Miriam Schmidts and Serene Ong, Domestic Scholarships; Dave Neufeld, Fundraising; and Rose McKeon and Pete August, who handle the web and listserv respectively. Check out the website to contact them and see how you can help.

And of course, the people that you have to thank for producing the newsletter you are reading now, Miguel Garriga and August Froehlich. Miguel is really the newsletter

editor and August is the man behind our other communications.

There are many other volunteers that are currently active in the committees, who we I don't have space for here. Thanks to all of you who have put time in over the last couple years to help us maintain a trajectory that increases our scope and effectiveness.

Our job as a Board right now is to continue to grow the organization while creating systems and a base of organization that will allow us to channel our volunteer energy effectively, as we work to get to a point when we can take on paid staff.

Please let me know what you like or don't like about the way things are going with SCGIS....

See you in July!

Dick Cameron  
President, SCGIS  
[dcameron@tnc.org](mailto:dcameron@tnc.org)

## Message from the Editor

This issue explores the impact of the Asian Tsunami on members of the Conservation GIS community.

Also in this issue, information on the recent Gordon and Betty Moore Foundation grant award, signing up for Email announcement services for GIS journals, and a description of Decision-Support tools developed to evaluate the effectiveness of protected areas and priority-setting in Mesoamerica and the Caribbean.

Thanks to all who contributed to this newsletter. I encourage all SCGIS members to send in their ideas and contributions now for the next issue of the SCGIS newsletter.

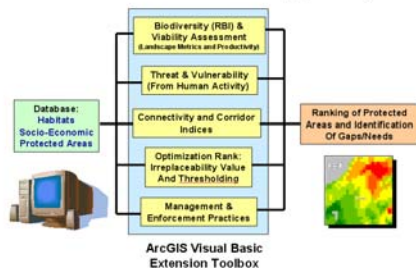
Miguel Garriga,  
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# Decision-Support Tools for Evaluating Protected Area Effectiveness and Conservation Priority Setting in Mesoamerica and the Caribbean

Steve Schil, *The Nature Conservancy*,  
[sschill@tnc.org](mailto:sschill@tnc.org)

The Nature Conservancy has recently completed a complex and rigorous ecoregional assessment of the Greater Caribbean Basin. In order to facilitate connectivity between the biological and geospatial data for this region and promote increased awareness for effective long-term conservation planning, a GIS-based decision-support system (DSS) is currently being developed that capitalizes on many of the conservation tools and model output that the science team has recently developed.

## Protected Area Decision Support System



This effort is part of the Inter-American Biodiversity Information Network (IABIN) Development Grant Facility (DGF) program and financed by the World Bank. The DSS is being coded as a VB ArcGIS extension and will utilize eight conservation indices to assess and rank protected area networks and identify gaps in conservation protection based on model results. The user of the DSS will be able to choose watersheds or user-defined size planning unit hexagons as their unit of analysis and have the option of defining weights for certain individual indices based on expert opinion. The DSS will assist long-term conservation planning by identifying conservation priority and current protected area network effectiveness and will operate using the following indices:

1. Analysis of habitat distribution and biodiversity uniqueness;
2. Computation of landscape metrics and habitat fragmentation;
3. Calculation of biomass and productivity based on remotely sensed data;
4. Mapping of habitat vulnerability based on surrounding socio-economic activities;
5. Ranking of habitat patch connectivity uniqueness based on graph theory principles and least cost path modeling;
6. Assessment of habitat corridor paths based on land cover and socio-economic activities;
7. Analysis of efficient biodiversity solution modeling output by MARXAN;
8. Consideration of current protected area management or enforcement level (where available).

For more information, contact Steve Schill ([sschill@tnc.org](mailto:sschill@tnc.org))

## Signing Up for Email Announcement Service for GIS Journals

August Froehlich, *The Nature Conservancy*,  
*SCGIS Communication Chair*,  
[afroehlich@tnc.org](mailto:afroehlich@tnc.org)

GIS and conservation are both fields in which a great deal of academic research is conducted. It can be difficult to keep up with all of the areas of new research, and expensive to subscribe to all the journals you might be interested in. Luckily for those who want to stay current with the research in their field, many major journal publishers offer email services which deliver the table of contents of your journal of interest to your inbox. Some of these table of content (TOC) announcements also provide hyperlinks to the abstract of the article. Publishers such as Blackwell (*Conservation Biology*, *Marine Ecology*), Cambridge (*Journal of Tropical Ecology*, *Environmental Conservation*), and Springer (*Aquatic Ecology*, *Landscape Ecology*) all provide some sort of email alert service for many journals of interest to SCGIS. Once registered, you can generally choose to receive the TOC from an entire

journal, or article announcements relating to a specific subject or keyword. Taylor and Francis, publisher of *International Journal of Geographical Information Science*, has a simple method for registering for their service- which they call SARA (Scholarly Articles Research Alerting Service)- and it is representative of the process used by the other publishers. You start by visiting their web site <http://www.tandf.co.uk/sara/> and clicking on the **SARA logo**. This will bring up a log-in page. Clicking on the **register** button brings up a page where you will enter your name, email address, username and password (write this down). A page will come up telling you that you have registered and that an email receipt has been sent to the address you provided. Selecting **continue** on that page will take you to the subscription page, where you can select to choose to receive alerts by title, keyword or subject. Selecting **title** brings up a list of their 1057 available journals. Use the drop-down menu menu bar to **jump to I**. Scroll down and check the box next to *International Journal of Geographical Information Science*. Click **ok** at the bottom of the page and you are done.

With all of these services, remember to keep track of your username and password as well as the email receipt you get after signing up. All of these services have an account management page where you can suspend the service, add more titles, change the email address you want the announcement sent to, or cancel the service if you change your mind.

<http://www.springerlink.com/>  
<http://www.tandf.co.uk/sara/>  
<http://journals.cambridge.org/>  
<http://www.blackwell-synergy.com/>

*The Society for Conservation GIS (SCGIS) is a non-profit organization that builds community, provides knowledge, and supports individuals using Geographic Information Systems (GIS) and science for the conservation of natural resources and cultural heritage.*

*For more information or to become a member, visit the Web site at [www.scgis.org](http://www.scgis.org).*

## Impact of Tsunami on IUCN - The World Conservation Union

*John Waugh, IUCN Washington, D.C.,  
[jwaugh@iucn.org](mailto:jwaugh@iucn.org)*

*How has the conservation community been impacted by this natural disaster ?*

IUCN -The World Conservation Union (<http://www.iucn.org>) has a field presence in Bangladesh, Sri Lanka and Thailand, and in all of the east African coastal states and islands. Many members are active as well, and in other countries where we don't have a field presence, such as Indonesia and Malaysia. The impact on the organizations in the field is huge, and we've diverted much of our resources to the response, first for humanitarian assistance, later for assessment work.

*Impact on conservation efforts in affected areas.*

As you can imagine, major impacts to infrastructure in coastal projects, especially to Sri Lanka's and Thailand's protected areas.

*Was there damage to conservation areas ?*

Yes, there was extensive damage in some places. Anecdotal information suggests that it was worse in developed areas where natural vegetation and features such as sand dunes had been altered. It is expected that these claims will be addressed through a more rigorous assessment process. Also, there are reports, as yet unconfirmed, that toxic waste had been dumped off the coast of Somalia during the period where there has been no functioning government presence in the offshore area, and that barrels of this waste have been washed ashore or into shallow water. We are trying to assess this now.

*Effect on species and habitats*

Field observations indicate both coral reefs and mangroves are heavily pounded. The effect on endangered species is still, as I understand it, to be assessed.

### *Recovery and conservation efforts*

Efforts underway to support rapid assessment, including linking remote sensing data providers with field assessment teams, in hopes of a rapid turn around on a scientifically defensible report of the resiliency of natural systems and features, their role in buffering impacts, and possible policy conclusions for redevelopment. For example, should the coral reef be pounded into rubble to build seawalls or did it provide benefits in situ that would militate in favor of coral restoration, artificial reefs, etc? Likewise for mangroves, other coastal wetlands, and dune systems.

#### *What can we learn from this ?*

We could do a lot to improve response times for damage assessment by linking the remote sensing community and environment community and pre-positioning ourselves with agreements etc.

### **Concept Note on Learning from Disaster**

Without a doubt, the level of response to the Boxing Day Tsunami of 2004 was unprecedented. Equally without a doubt, it was not smooth. The sheer scale of the event was overwhelming, and it was literally weeks before anyone understood the full extent of the humanitarian crisis. Damage to infrastructure hampered communications, making it difficult to grasp needs and to link those needs to capabilities. This was equally true of humanitarian relief and later, the environmental assessment necessary to begin the reconstruction effort. Makeshift measures were deployed, as they always are in times of crisis for which rulebooks and battle plans do not exist. As a result of the experience, a tremendous amount has been learned about the importance of coordination of relief and assessment efforts, especially in providing early information from as many sources as possible about the changes wrought by the catastrophe and the status of natural resources, environmental services, and

the built infrastructure and communications in the affected regions.

As the world transitions from relief to reconstruction, it is extremely important that we document the measures taken to adapt to difficult circumstances, what worked and what didn't, and how we can do better in the future. Work needs to commence immediately to collect the documentary evidence needed to assess how well we did and what we need to do in the future.

Armed with such information, it should be possible for systems to be put in place that can be activated in times of humanitarian crisis to more quickly and efficiently collect and disseminate information, skills and knowledge, and resources for human relief, and ultimately for environmental protection as well. With pre-existing agreements in place, pre-designated information clearinghouses could begin to receive information immediately from public sector and private sector data providers, for example (including through donated commercial information). Requests for information could be matched quickly to sources. Partnerships between the private sector, environment and development organizations, and relief agencies could be called into play to share technical expertise, facilities, etc.

If as some models predict we are entering an age of powerful and erratic storms resulting from climate change, such arrangements will of necessity become a part of our adaptation strategies. If we can hasten the relief of human suffering and the restoration of the environment after catastrophic events, we should, making learning from the Boxing Day tsunami and acting upon those lessons is imperative.

See the following web pages for more information on IUCN's response to the Tsunami.

- <http://www.iucn.org/places/usa/DCMC/DCMC%2B.html>
- <http://www.iucn.org/tsunami>

# Tsunami Impacts on Conservation and Recovery Efforts in Marine Park Management, Thailand

*Ms. Somrudee Meprasert, PhD Candidate, Department of Geosciences, Oregon State University, [somdeem@yahoo.com](mailto:somdeem@yahoo.com)*

Greetings from Thailand, one of the tsunami affected countries. I am a student in the PhD Resource Geography program at Oregon State University (OSU). I have had to change my dissertation topic because the tsunami waves destroyed many marine protected areas in Thailand, which were my site studies. Right now, I am in Bangkok and work closely with academic teams at Chulalongkorn University involving tsunami recovery efforts.

I have been in Thailand since January 11th and am working on a new research topic. After experiencing the devastated areas first hand, my new research topic will examine tsunami impacts on marine park management and recovery efforts. I will investigate direct and indirect impacts of tsunami on marine parks (environment, culture, and socio-economy) which can be interpreted as positive and negative impacts. I will also examine recovery efforts that have been done and will be done to the protected areas.

My proposed dissertation topic is "The tsunami impacts on conservation and recovery efforts in marine park management, Thailand". This dissertation will consist of three inter-related papers:

Paper 1: Overall impacts of tsunami disaster on coastal and marine tourism Thailand.

Paper 2: Impacts of the tsunami on conservation effort in marine parks in Andaman Sea, Thailand.

Paper 3: Post-disaster tourism management and recovery efforts in marine parks, Thailand: Surin Islands National Park as case example.

Regarding my field survey to many affected areas, I have found that tsunami disaster generated diverse impacts on marine tourism in Thailand, especially in marine parks. Surin Islands National Park which is one of the most beautiful diving sites in Thailand (both for snorkeling and SCUBA diving) is a good example.

In some heavily affected areas, tsunami waves and deposit completely changed near shore bathymetry and shoreline. This had led to changes in coastal water current and sediment transportation. The changes not only impact shallow water coral reef ecosystem but also lead to a new tourism management plan in the park.



Zoning coral reef for different usages, developing new diving sites, establishing underwater trails are some of many recovery and management plans where marine scientists, park rangers, volunteer divers and other sectors have collaboratively contributed their ideas and efforts.

In brief, the Indian Ocean tsunami has significantly increased public awareness among Thais and foreign tourists on the marine environment and ecosystem.



## Identifying and Previewing Available Commercial Satellite Imagery for Protected Areas Impacted by the Tsunami using ArcReader

Demian Rybock, *The Nature Conservancy*, [drybock@tnc.org](mailto:drybock@tnc.org)

The goal of this project was to create a tool for identifying and previewing available commercial satellite imagery for protected areas impacted by the tsunami. The product is an ArcReader package showing the image archives from Digital Globe, Space Imaging, and Orb Image and protected areas from the 2005 World Database of Protected Areas. The package is useful for previewing images (use the hyperlink tool ) and identifying information about an image (use the identify tool ) , such as the date the image was captured and thus where pre- and post- tsunami images overlap protected areas. The package can also be opened in ArcMap where the user can add additional data layers, query the image archive tables, perform analysis and edit the layout of the map.

This tool is available to anyone who is interested, and can be downloaded from The Nature Conservancy's FTP site at <ftp://ftp.tnc.org>. Log in anonymously, open the "parksnet" folder, and download the file named "Tsunami\_Available\_Imagery.zip".

If you have any questions or comments, please contact: [drybock@tnc.org](mailto:drybock@tnc.org)

## Donation of High Resolution Imagery for Tsunami-Affected Protected Areas in Asia

Paul Davis, *Project Manager, Global Land Cover Facility, University of Maryland*,  
[pdavis@umd.edu](mailto:pdavis@umd.edu)

*Digital Globe image of Gleebruk, Indonesia*



Digital Globe has donated a collection of high resolution satellite imagery for by the use of IUCN members and partners worldwide on Tsunami related work. The donation was made through the Global Land Cover Facility ([www.landcover.org](http://www.landcover.org)) at the University of Maryland. GLCF is eager to engage the conservation community regarding these materials as well as our general collections.

For more information on:

IUCN-GLCF Joint Press Release: <http://glcf.umiacs.umd.edu/news/press/quickbird.shtml>

GLCF's December 2004 Tsunami Portal: <http://www.landcover.org/portal/tsunami/>



## **Links to data sources and information on the tsunami's impact on conservation in Southeast Asia**

Mangrove Action Project

<http://www.earthisland.org/map/tsunami.htm>

Coral Reefs, Mangroves, and "Green Reconstruction"

[http://www.laksamana.net/vnews.cfm?ncat=33&news\\_id=7817](http://www.laksamana.net/vnews.cfm?ncat=33&news_id=7817)

Tsunami and the Environment – Regional News Summaries and Links

<http://www.wildsingapore.com/topics/tsunamieco.htm>

Biodiversity Impacts of the Asian Tsunami Tragedy

[http://www.birdlife.net/action/ground/asia\\_tsunami/](http://www.birdlife.net/action/ground/asia_tsunami/)

Threatened bird species and globally important habitats in the tsunami zone

[http://www.birdlife.net/action/ground/asia\\_tsunami/affected\\_species.html](http://www.birdlife.net/action/ground/asia_tsunami/affected_species.html)

Tsunami Impacts on Indian Ocean Sea Turtle Projects and Habitats

<http://www.ioseaturtles.org/tsunami.html>

Links to GeoSpatial Resources Relevant to Tsunami Affected Areas

<http://www.csi.cgiar.org/tsunami.asp>

USGS Provides Satellite Data for Tsunami Disaster Relief Efforts

[http://www.usgs.gov/public/press/public\\_affairs/press\\_releases/pr2028m.html](http://www.usgs.gov/public/press/public_affairs/press_releases/pr2028m.html)

Tsunami Uncovers Ancient City in India (AP)

<http://www.msnbc.msn.com/id/6993215/?GT1=6190>

Digital Globe - Tsunami Aftermath: Near Banda Aceh, Indonesia

[http://www.digitalglobe.com/images/tsunami/Gleebruk\\_Tsunami\\_Damage\\_Jan2.pdf](http://www.digitalglobe.com/images/tsunami/Gleebruk_Tsunami_Damage_Jan2.pdf)

Earth Observatory, NASA – Tsunami Damage, Gleebruk, Indonesia

[http://earthobservatory.nasa.gov/Newsroom/NewImages/images.php3?img\\_id=16782](http://earthobservatory.nasa.gov/Newsroom/NewImages/images.php3?img_id=16782)

Tony Demark Web Page with comparisons of Digital Globe images before and after

<http://homepage.mac.com/demark/tsunami/1.html>

