

Developing an online environmental training program for San Diego business

The main aim of the proposed project is to engage more businesses within San Diego Bay's watershed system in environmental activism and raise awareness of green efforts throughout the County. IGIST staff will develop a set of e-learning tutorials and will follow up with individual corporate champions to engage their companies in awareness presentations and on-the-ground activism. San Diego Bay will benefit from having local business be more aware of their ecological impact. The program will promote and track their involvement with environmental activities that are sponsored by relevant green organizations that promote initiatives that lead to better water quality for the region.

Timeline: 2 years

Funding request: \$91,712

Total project cost: \$128,724

Inkind matching funds: \$37,012



Submitted 5/4/09

Principal Contact:

Andres Abeyta

IGIS Technologies

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1.0 Introduction

This project falls under the category of Environmental Education. The aim of the proposed project is to engage more businesses within San Diego Bay's watershed system in environmental activism and raise awareness of green efforts throughout the County. IGIST staff will develop a set of e-learning tools and tutorials that will be posted to the Port's website as an extension to the current educational links. The topics found under these pages will be:

1. Corporate Carbon Footprint Calculator
2. How a San Diego company reduced its carbon footprint
3. Understanding detriments to water quality in San Diego
4. Understanding the environmental monitoring system for San Diego Bay
5. Understanding your watershed map and the many activities you could be part of

IGIS Technologies is a local business situated in Mission Valley. Our core competencies are geographic analysis of environmental issues and curriculum development. The individuals listed in this project have shown personal commitment to some of the environmental groups that support the clean air, water, and landscape within San Diego County. We have been inspired by many of these organizations and would like to contribute to this noble task by being out in front to lead many businesses along the path to being more engaged with environmental activities.

The Port has supported education for individuals and public school programs as a consequence we see the activism of dedicated individuals in the cleanup and restoration initiatives. But we see a gap in corporate support and acknowledgement of their impact on the landscape. With this project, IGIST plans not only to setup a system of self tutorials through online training, but will follow through with individual contact of identified corporate champions through the entire program. Rather than invent a new environmental advocacy group, this project will help channel corporate sponsorship to those programs that are actively involved such as Coastal Cleanup, Coastal Keepers, SurfRider, and Friends of Canyons. San Diego Bay will benefit from having local business be more aware of their ecological impact. Much like Adopt a Highway, this program will promote and track their specific involvement with environmental activities that are sponsored by relevant green organizations that promote better water quality for the region. IGIST will track corporate activities to see that a corporate champion takes the training, makes an internal presentation to the company, and coordinates their company's attendance at one of the many cleanup/restoration activities.

2.0 Project Narrative

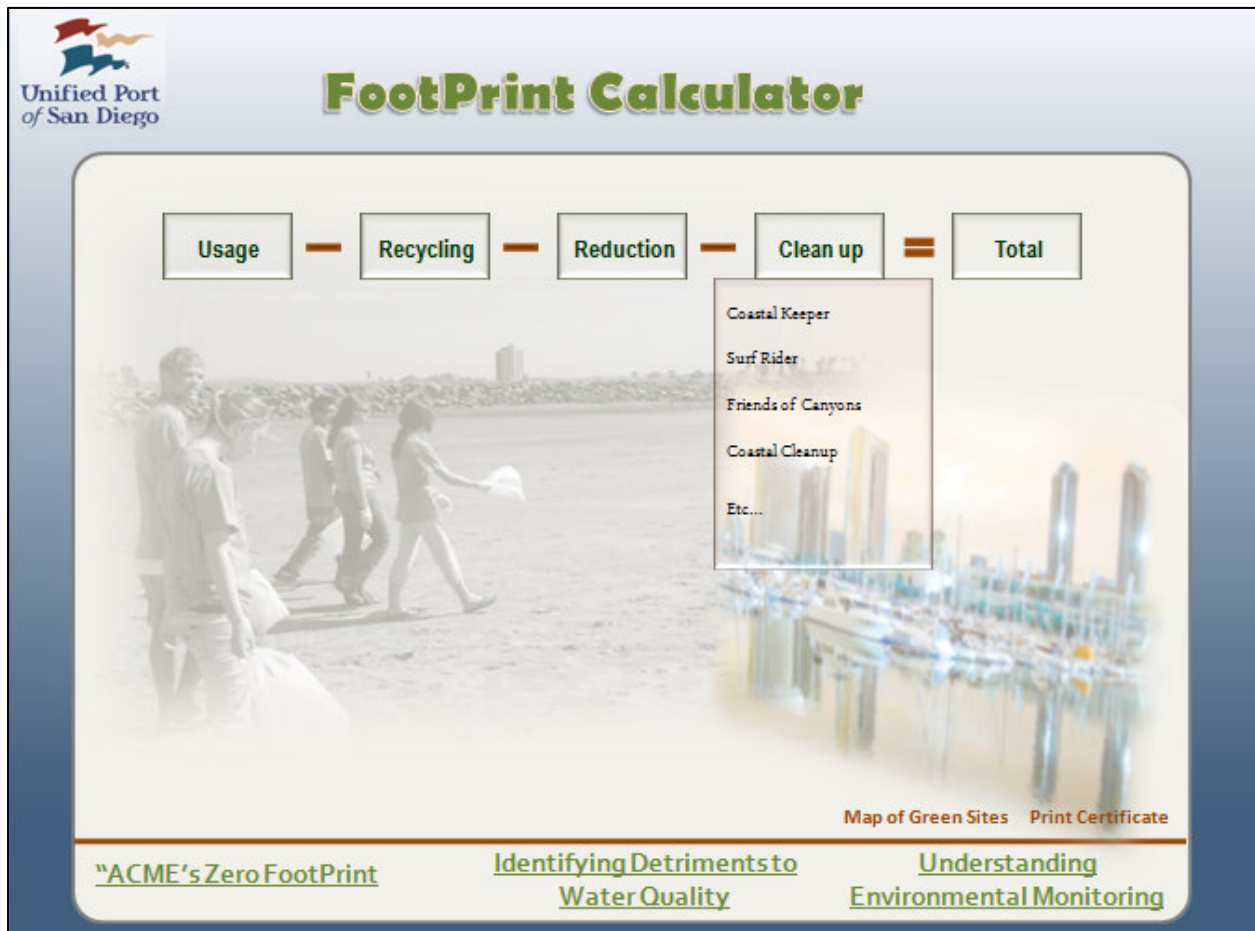
2.1 Why this project is important

San Diego Bay water quality is among the worst in the nation. As such, the region must take many steps to ensure that the collective inhabitants are aware of their impact to the bay and the activities they can perform to mitigate the problem. The Port has funded education for public school programs and this bodes well for a future group of empowered citizens to be environmentally conscious. But the current group of commercial consumers, homeowners, and businesses should be targeted in order to gain further support for advocacy groups. This can happen through a direct education campaign aimed at business where collective groups are more likely to be involved. None of us individually will be likely to go clean a stretch of highway, but as a group within a company, it is commonly done. Through this education program, more corporate sponsorship will find its way to the variety of local environmental advocacy groups as they will come to terms with a quantifiable footprint that they place on the environment.

2.2 Project Description

2.2.1 Training Workplan

The graphic below shows, a sample webpage layout that will be the center of the online instruction. Corporations will be invited to come to the site to measure their local footprint. Here they will be offered training tutorials that illustrate the nature of a clean watershed and how to lessen their impacts. Through this grant effort, the Port will realize the value of a distributed training model that could impact many other content areas as they look at environmental outreach to the local community.



Task 1: Create an e-Learning webpage that educates individuals and corporations about environmental issues

IGIST will setup a dedicated development server in its office to host the e-learning tools and tutorials proposed. IGIST will work with an identified POC at the Port to ensure that content and objectives are consistent with the Ports vision. Development will take on 4 stages.

1. Develop outline of the content followed by Port POC review.
2. Develop storyboard of the content followed by Port POC review.
3. Develop programmed tutorials and tools followed by Port POC review.
4. Final programming of application followed by Port POC acceptance.

IGIST will solicit content from various local environmental sources and will be qualified by our content lead, Dr. Hardy who has several years experience in monitoring and ground contamination through variouls pollutant sources. Once the application has been approved, the

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content will be ported over to the Port's website and tested again. Within these training modules, IGIST will use its depth of experience in e-Learning instructional system design to adhere to these principles.

1. The training shall use accurate content specific to the San Diego Bay watersheds
2. The training shall be interactive with regular knowledge checks
3. The training shall be professionally narrated with audio throughout
4. The training shall use attractive graphics and Flash transitions

Task 2: Perform outreach to regional businesses

Once the site has been completed, IGIST will perform outreach to regional businesses with the goal of identifying 60 individuals that would act as environmental champions for their respective organizations. The outreach will start with 12 presentations at local trade meetings and conferences. Examples would be the National Defense Industrial Association and the San Diego Software Industry Council where IGIST is a member. The nature and size of business will not be of concern so the outreach will be equal toward a small CPA firm or a large IT Contractor. An email campaign will target the lists that the local environmental groups possess. IGIST will create an advertisement of the site that will be sent through these email lists. IGIST will attempt to feed information that results in a local news article. And IGIST will hold meetings with 8 local environmental groups so they realize the goals of this project and the roles they will have.

Task 3: Monitor site activity

IGIST will track registrations to the site and cross reference these names with others identified at the outreach events. IGIST wants to ensure that enough traffic makes it to the education pages in order to meet the goals of having 40 individuals complete the online training on behalf of their companies. Reminders will be sent out to any of the previously defined interested individuals in order to promote their participation.

Task 4: Work with environmental champions to perform tandem company presentation

To perpetuate support at a greater level, IGIST will work with each environmental champion that has completed the training to prepare them to give a presentation within their company about water quality, company footprint, environmental groups, and mitigating activities. The goal will be to empower the environmental champion with the materials and message that will garner the support of management and other individuals within the company. The environmental champion will be armed with statistics about company footprint that resulted from one of the tutorials. Subsequently they can act as a collective group that can support environmental initiatives.

Goal 5: Monitor companies that graduate from the 3 step program

The result from the (1)online training and (2)environmental presentation is the collective follow through when individuals of companies go out and (3) participate in environmental initiatives. IGIST will follow up with surveys to see what action companies did as a result of the training. The results could be in terms of monetary contributions, in-kind services rendered, and volunteer time at various functions. These will be quantified at the end of the 2 year program. A report on the efficacy of the project will include these numbers as well as a projection of near term results as other champions and companies registered near the late stages of the project.

2.2.2 Project Effectiveness and Performance Measure

We will use a combination of quantitative and qualitative measures to assess the impact and effectiveness of the training program developed and implemented in the course of the project. To facilitate the assessment we will develop pre- and post-training evaluation instruments. The instruments will be comprised of on-line questionnaires containing questions about the

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organizations history in environmental initiatives and quantitative values on its carbon footprint. The evaluations will be collected in the form of numeric scores using a standard 1-5 Likert scale. There will also be open-ended questions soliciting written comments from the trainees.

2.2.3 Project Sustainment Plan

This project will develop multimedia online delivery modules that are available whenever an individual requires on-demand training. The IGIST team will design the e-learning modules that focus on the San Diego Bay environmental issues, monitoring, analysis, and data. We will develop a training program capable of staying current over time by adding new modules covering new data and analysis methods with a capability of being served by the Port. In the future, these modules could be linked to a Learning Management System that would be able to report attendance and receive feedback.

Interested environmental champions may enter the program later in the term. A guideline to greening up their company can be given to them to independently proceed through the program. The IGIST team members hired for the project may be retained for future extensions.

Online training modules will be developed in an e-Learning standard called SCORM compliancy. This ensures that the content will be scalable with new modules. The content will initially be served by a dedicated IGIST server. But the modules will be ported over to the San Diego Unified Port District web server.

2.3 Project Timeline

The grant description states that this can be a 2 year project. The timeline below outlines the main tasks and persons responsible as they are delivered on a quarterly basis.

Table 1: Proposed Project Timeline in Quarters (Q)

Phases	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
1. Online Module Development Zlatina Anguelova/Brad Oleson								
2. Corporate Outreach Andres Abeyta								
3. Tutorial training Nick Muscolino								
4. Inhouse Environmental Awareness Nick Hardy								
5. Corporate activity tracking Nick Muscolino								

2.4 How the project benefits San Diego Bay

Initially, this project will identify 60 individuals as a result of the IGIST outreach and advertising. Because of attenuation, this project has a goal facilitate 30 businesses through the training program and retain them as long-term advocates to the environment. The residual effect will be that many individuals will know about this program and request that their employers enroll in this program. Over time, the program will grow with more advocates that will be able to lend their name to a worthy environmental cause. The more that these companies reduce their consumption, the more sustainable our local population will be. And the more that these companies contribute to local cleanups and restoration projects, the better the Bay's water quality will be.

3.0 Qualifying Experience

IGIST is enthusiastic about this proposal because it incorporates 3 types of projects that we do very well. We are educators having taught over a hundred courses across the country for local, regional, and federal clients. We are curriculum developers having developed over 20 national custom curriculums both as instructor led and e-Learning formats. And we are environmental analysts/programmers, having a staff with research backgrounds within the SDSU Geography Department which has been applied to federal natural resource agencies.

3.1 Educators

IGIST has worked on providing geospatial technologies training to federal agencies involved in environmental issues, land management, and natural resources. Certified by both Trimble and ESRI to provide technical training, IGIST staff teaches off-the-shelf courses throughout the United States. For a number of years, SDSU coordinated an NGA sponsored Defense Conversion Program to help train government employees in a marketable area.



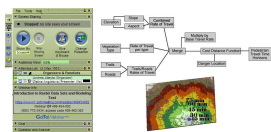
Ongoing provider of geospatial training for the Bureau of Land Management National Training Center.

This involves teaching standard courses developed by ESRI and Trimble, as well as developing and teaching custom courses based upon BLM specifications. IGIST has performed onsite training in over 35 State and Field Offices within the BLM for the last 13 years.

Diane Nelson National Training Coordinator(602) 906-5548
BLM Phoenix, AZ

3.2 Curriculum developers

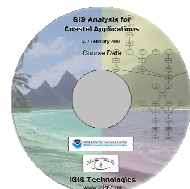
The project team will deploy several state-of-the-art e-learning technologies that we have employed for our customers including the US Border Patrol, US Forest Service, and Bureau of Indian Affairs. Independent e-learning modules allow users to interact with Flash-based modules that we have tested and deployed for Navy Marine Corps Internet (NMCI) security in our work with Navy and USMC and should thus work within the Port's computer security firewalls. Following are examples of curriculum and stand-alone e-Learning courses IGIST has developed for its customers.



Pedestrian Trafficability Logic Model, US Border Patrol/SDSU

A Pedestrian Trafficability Logic Model was developed (within the ESRI ArcGIS 9.2 environment) by a research team at San Diego State University as a part of a NASA-funded project for the San Diego sector of the Border Patrol. Through an e-Learning module and webcast, the application of the model was distributed out in a national presentation to US Border Patrol personnel. This curriculum development project went from January 2008 - June 2008.

Doug Stow Grant Project Manager (619) 594-5498
SDSU San Diego, CA



GIS Analysis for Coastal Applications

This course was requested by the National Oceanic and Atmospheric Administration Pacific Services Center in Honolulu, HI. The course is designed to show GIS analytic capability in the context of coastal applications. The spatial analysis problems addressed in the class include exercises on locating

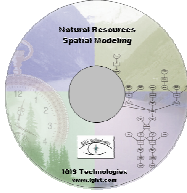
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coastal areas susceptible to runoff pollution, creating an erosion hazard raster, locating safe lava viewing areas, and classifying benthic habitat zones. By providing GIS instruction using datasets and workflows that are part of NOAA's GIS program, students more easily comprehend GIS concepts and the use of the GIS tools. This curriculum development project went from October 2005 - September 2006.

Cindy Fowler
NOAA

Training Coordinator
Charleston, SC

(843) 740-1249



Model Builder Tools for Natural Resource Applications

The Bureau of Land Management (BLM) National Training Center wanted to elevate the level of GIS usage within their agency to get beyond just creating maps, and move into performing complex spatial analyses with ArcGIS. They hired IGIST to design and develop a 3 day class to accomplish this and port this content into a set of online training modules. The resulting class teaches users how to implement modeling. The models used in this course fall within typical natural resource applications like fire, forestry, and invasive species. This curriculum development project went from October 2007 - March 2008.

Stu Gregory
US Forest Service

Geospatial Support and Training Center
Salt Lake City, UT

(801) 975-3833

3.3 Geographic analysts/programmers

Five IGIST staff members have their Master's degrees from the San Diego State Geography Department and have gone on to apply their research and analysis skills to analyzing tobacco health data for Legacy Foundation, environmental alternatives for BLM pipeline routing, and Mexican border pedestrian trafficability for US Border Patrol. Training programs, data analysis, and geographic analysis are the focus of the projects that are performed by IGIST. IGIST is also adept at programming web mapping applications that leverage resource datasets.

Right of Way Web Mapping Application, SDCWA

IGIST is developing a web mapping application to manage San Diego County Water Authority Right of Way projects. The application is driven by events that are stored in an Oracle database and allow managers to track activities in the right of ways. Project duration is May 2007 to current.

Matt Brown
SDCWA

IT Manager
San Diego, CA

(858) 522-6625

4.0 Objectives of Proposal

The main aim of the proposed project is to engage more businesses within San Diego Bay's watershed system in environmental activism and raise awareness of green efforts throughout the County. IGIST staff will develop a set of e-learning tutorials and will follow through with individual contact of corporate champions through the entire program.

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Objective 1: Within 6 months, IGIST will create an e-Learning webpage that educates individuals and corporations about environmental issues.

Outcome 1: A set of additional San Diego Port Authority web pages allows people to take tutorials on Greening your Business, Effects on Water Quality, and Case Study of a business that minimizes its footprint.

Objective 2: Within 12 months, IGIST will perform outreach to regional businesses in the form of 12 trade presentations, an email campaign, a news article, and meetings with 8 local environmental groups .

Outcome 2: 60 Individuals will be identified as environmental champions within their respective organizations.

Objective 3: Within 15 months, 40 individual champions will have taken the complete set of IGIST tutorials.

Outcome 3: The champions will have an awareness of San Diego Bay watershed environmental issues and know how a company may reduce its impact and contribute to environmental initiatives.

Objective 4: Within 18 months, the IGIST will accompany the champions in a tandem environmental presentation that will be made internal to the company.

Outcome 4: A percentage of these companies will use this to promote themselves as green organizations and actively contribute to local environmental initiatives.

Objective 5: Within 24 months, IGIST will compile a list of those companies that have graduated through the stages and will post this list to the website.

Outcome 5: A growing list of companies will be advertised on the San Diego Unified Port District website to help encourage others to follow the adoption of the Port's 'Green Badge of Honor'.

5.0 Cost Proposal

Task	Person	Hours	Rate	Cost
Outreach	Nick Muscolino	360	88.56	\$31,882
Instructional design	Zlatina Anguelova	346	101.21	\$35,058
Programming	Brad Oleson	278	101.21	\$28,096
Content development	Nick Hardy	95	118.08	\$11,217
Project manager	Andres Abeyta	145	118.08	\$17,121
Contracted Narrator	Connie Terwilliger			\$3000
ODCs				
Server time				\$2000
Postage				\$150
Reproduction				\$200
SubTotal:				\$128,724
Inkind Services			30%	\$37,012
GrandTotal				\$91,712

6.0 Personnel

This project requires 6 professional competencies to be successful. They are listed along with the staff attributed to each:

- Competency #1: Data mining
- Competency #2: E-Learning curriculum development
- Competency #3: Water quality subject matter
- Competency #4: Web programming
- Competency #5: Public outreach

Project Team Members and Their Proposed Roles

TEAM MEMBER	PROPOSED ROLE
<p>Andres Abeyta, M.A., Project Manager</p>	<ul style="list-style-type: none"> • Competency #5 • Project manager, outreach presentations
<p>Mr. Abeyta is the owner of IGIS Technologies. He has managed several large agency contracts with USFS, Navy, and BLM. He will be in charge of public outreach and presentations. He will apply his vast experience in teaching and presentations on environmental mapping across the country.</p>	
<p>Nick Muscolino, B.S., Curriculum Developer</p>	<ul style="list-style-type: none"> • Competency #5 • Outreach presentations
<p>Mr Muscolino is a geospatial curriculum developer that has worked on national USFS and USFWS mapping projects. His work has focused on custom workflow development.</p>	
<p>Zlatina Anguelova, M.S., Flash Programmer</p>	<ul style="list-style-type: none"> • Competency #2 • Curriculum developer
<p>Mrs. Anguelova is an instructional designer and the prime e-Learning programmer for the USFS Geospatial Support and Training Center in Salt Lake City.</p>	
<p>Nick Hardy, PhD., Programmer</p>	<ul style="list-style-type: none"> • Competency #3 • Water Quality
<p>Dr. Hardy has developed contamination models in his PhD dissertation.</p>	
<p>Brad Oleson, B.S., Programmer</p>	<ul style="list-style-type: none"> • Competency #4 • Web programming

**Online Environmental Training for SD Business
Project Team Members and Their Proposed Roles**

TEAM MEMBER	PROPOSED ROLE
	<p>Mr. Oleson has developed extensive web mapping and database tool applications. He is currently programming on web development projects for SDCWA and CCDC here in San Diego.</p>

Qualifications

- Founder of IGIS Technologies
- ESRI: Authorized ArcView/ArcGIS instructor
- Trimble: Certified instructor for GPS mapping systems
- ERDAS: Instructor for 7 years teaching custom courses
- Full time teaching experience at the industry, college, public school levels
- Practical field experience in geologic exploration and GPS field surveying

Professional Experience

IGIS Technologies, Inc., San Diego, CA (1997-present)

Project Manager for Navy NIRIS e-learning training program development. IGIST is currently working for SW Division of the Navy to create web based training modules for a regional environmental database that tracks ongoing sampling records for data at all the bases in the region. The application is tasked to be housed and served at NITC servers in Port Hueneme.

President of IGIS Technologies, Inc. for the last 10 years. Most work has been done with city, county, and federal agencies in the area of resource management. Mr. Abeyta's work has ranged from needs assessments to analysis to project management to training.

Project Manager for Resource Management Plan GIS support for **BLM Lewistown Field Office**. This project entailed the reorganization of the supporting GIS. A new data file/folder naming convention was developed for BLM offices in the state of Montana. Training and data cleanup were performed throughout the project term.

Project Manager and **GIS Analyst** for landcover mapping project for **Municipality of Anchorage**. The project required coordination of GPS field sampling, image classification, fire hazard modeling and reporting. It involved working with multiple city and state government shareholders to ensure all parties were satisfied

Trainer for federal agencies including **BLM, USFWS, USGS, and USDA**. Mr. Abeyta has taught landcover mapping classes in Anchorage to members of each of these agencies. He maintains a contract to teach on behalf of the BLM National Training Center in field offices around the country.

Manager of an application development project for the **Bureau of Land Management** State Office in Wyoming. This three-phased project required contract modifications and the coordination of multiple BLM offices to get the entire project funded. This software application, called CARAT (Computer Assisted Resource Analysis Tool), is an ArcGIS extension that improves the permitting process of the BLM to grant applications to permit drilling.

ERDAS, Inc., Atlanta, GA (August 1995 – June 1997)

Software Trainer. Taught 7 types of classes including image processing, classification, GIS integration, and map composition. He was also responsible for writing technical documents and course curriculum.

Education

Master of Arts Degree, Geography
Master of Arts Degree, Education
Bachelor of Arts Degree, Geography
Authorized Instructor
Certified GPS Mapping Instructor

San Diego State University, 1994
University of New Mexico, 1992
University of New Mexico, 1988 ArcView/ArcGIS
ESRI, 1997
Trimble, 1998

Qualifications

- Extensive knowledge of Trimble GPS hardware and mapping software
- Routinely a lead cartographer and GIS Analyst on environmental documentation
- Practical field experience in mapping biological resources and GPS data collection
- Five years of experience providing GIS support to environmental disciplines

Professional Experience

IGIS Technologies, Inc., San Diego, CA (July, 2008-present)

Mr. Muscolino is **currently developing a course** for the **US Forest Service** (USFS) for their Motorized Vehicle Use Maps (MVUM). This includes 4 sections: MVUM policy, custom QA tools to prepare data, cartographic standards, and map series generation. He will teach this instructor lead course to USFS offices throughout the country.

HDR, Inc., San Diego, CA (March 2004 – July 2008)

GIS Specialist/ Biologist. As the primary GIS support for the biology department, Mr. Muscolino prepared maps and graphics for biological, environmental and marketing documents. He performed field GIS duties using GPS and field PCs to map target species, habitats, wetlands and features of interest. He was also responsible for GIS duties including creating and maintaining personal Geodatabases, heads-up digitizing, geo referencing, data editing, processing, and spatial analysis. While primarily focusing on biological issues, Mr. Muscolino often worked with local, state, and federal datasets.

Wildlife Research Institute, San Diego, CA (March 2003 – March 2004)

GIS Technician/ Biologist. As the lead GIS professional in the organization, Mr. Muscolino was responsible to collect field data and prepare maps, graphs, and graphics for papers presented at scientific conferences. He performed all GIS and cartographic duties including field collection of data using GPS and production of required maps for study analysis and reports. He also wrote grants resulting in the organization procuring the latest GIS technology.

Education

Bachelor of Arts Degree, Geography
Certificate of Completion, GIS Specialist

Frostburg State University, 1997
Mesa College, 2004



Qualifications

- Flash developer for curriculum training
- Accomplished in the ESRI ArcGIS suite of products
- Data Design and Data Conversion
- Remote Sensing and Image Processing

Professional Experience

IGIS Technologies, Inc., San Diego, CA (March 2007-present)

GIS data conversion work for the **San Diego County Water Authority**. Developing and executing procedures to convert a Microsoft Access-based database into an Oracle geodatabase to service the needs of the Right Of Way Department at SDCWA. Prepare data from Access to be ingested into a relational database to take advantage of current geospatial technology.

Lead Technical Curriculum Developer on a project for the **US Forest Service GSTC** to convert a 4 day ILT (instructor led training) course to a web-based format. The course, titled *Applied Cartographic Concepts*, focuses on cartographic concepts and principles, and on the use of ArcGIS to create maps that adhere to those principles. Tools to accomplish this include ArcGIS 9.2, Articulate, and PowerPoint.

GIS Analyst providing continued support for a data conversion project for the **Bureau of Indian Affairs** in Juneau, Alaska. This project involves converting Native American land allotments into a GIS database. Work includes organizing large amounts of data, on-screen digitizing using advanced editing techniques such as the traverse tool, reading complex surveys, populating attribute fields, converting AutoCAD drawings into feature classes, attributing feature classes, and projecting data into a specified coordinate system.

San Diego State University, San Diego, CA (2004-2007)

As a **research assistant** while studying in the Geography Masters degree program at SDSU, worked on a **NASA-funded REASoN project** that studied **US/Mexico border issues**. Conducted GIS analysis to determine areas of high wildland fire danger to pedestrians in remote areas. Utilized wildland fire behavior model and pedestrian trafficability mode to develop Wildland Fire Danger Maps. Performed vegetation change detection research using high resolution airborne imagery, as well as land cover change detection analysis using moderate resolution satellite imagery.

San Diego County Water Authority, San Diego, CA (2004-2005)

As an intern at the **San Diego County Water Authority**, assisted the GIS department in the conversion of the SDCWA pipe system into a 3D network. Created a variety of GIS maps for engineering teams, project presentations, and community meetings.

Education

Master of Science Degree, Geography San Diego State University, 2007
Bachelor of Science Degree, Geography San Diego State University, 2004

Qualifications

- Extensive background performing GIS analysis for natural resources applications
- Professional experience as an SDE administrator using SQL Server and Informix databases
- Teaching experience at many different levels of student ability
- Broad background in reviewing and interpreting information from disparate sources

Professional Experience

IGIS Technologies, Inc., Boise, ID

(November 2007-present)

Instructional Designer for USDA Forestry Service. This project involves developing curriculum for the USFS GSTC (Geospatial Services and Training Center) to teach GIS technicians how to interact with ArcSDE when connecting to a multiuser enterprise geodatabase

GIS Analyst for United States Fish and Wildlife Service (USFWS). This project involves integrating three separate databases that catalog a variety of FWS wildlife surveys.

GIS Instructor. Assuming responsibilities to teach a variety of the custom courses that IGIST has developed for the federal government.

Bureau of Land Management, Boise, ID

(July 2004 – November 2007)

GIS Analyst. Provided project support for many natural resources projects. Used the Spatial Analyst extension and the habitat fragmentation program FragStats to analyze land cover datasets. Presented the results of analysis in oral presentations, reports, and cartographically.

SDE Administrator. Administered ArcSDE on Informix and SQL Server databases. Developed the editing workflow and database structure.

Database Designer. Designed data standards for state and nationwide datasets. Worked both as a team member and as the project lead, synthesizing the needs of all users into a functional geodatabase.

Script Development. Developed numerous Python and VBA scripts to improve workflow and enable greater software functionality.

Power Engineers, Boise, ID

(January 2004 – July 2004)

As a **GIS Technician**, used ArcSDE and ArcFM to digitize paper maps. Used Network Analyst to ensure data quality.

Edinburgh University, U.K.

(September 1998 – October 2005)

Ph.D. Thesis. Evaluated the application of remote sensing to the detection of ground contamination through a vegetation stress response considering the evolution of tolerance to pollutants.

Education

Doctor of Philosophy Degree, Geography
Bachelor of Science (Hons.) Degree, Ecology

Edinburgh University, U.K. 2005
Sheffield University, U.K. 1998



Qualifications

- Twelve years of experience in GIS production, analysis, programming and customization / testing as well as system development and implementation.
- Expertise in process analysis and improvement, programming using Visual Basic .NET, Java / NetBeans, C# and Avenue, software development / testing / management, Internet / web technology, graphic design, and systems installation.
- Experienced with majority of ESRI software
- Oracle 10g / SQL Server 2005 database administration and setup for ArcSDE / ArcGIS Server

Professional Experience

IGIS Technologies, Inc., San Diego, CA (August 2006-present)

GIS Support for **City of La Mesa, California** to include data maintenance and map production as needed

Programmer for Right of Way Java / Web application for the **San Diego County Water Authority** using ArcGIS Server 9.2 and ArcSDE / Oracle.

Lead Curriculum Developer and **Onsite Instructor** for the **USFS course** "Managing Workflows in USFS Enterprise Geodatabases" for ArcSDE.

Programmer for Phase III of the CARAT (Computer Assisted Resource Analysis Tool) application for the **BLM Wyoming** using VB .NET.

US Army, Rocky Mountain Arsenal, Denver, CO (August 2005-July 2006)

GIS Specialist, Converted CAD datasets to GIS format, edited and digitized data where needed to fill in gaps in CAD data. Collect, edit, and improve (where necessary) relevant data for various areas of interest around Army munitions depots in the United States. Matched data sets to installation data where they shared boundaries. Ensured metadata met FGDC standards and edited metadata where needed to meet this requirement.

Self Employed, Denver, CO (August 2003-August 2005)

Photographer / GIS Analyst, Performed data quality checks for Denver photo database; performed programming using VB and C# in the .Net IDE. On a contract basis, worked on digital photography project for ZAIO Corporation (www.zaio.com). Responsibilities included photographing buildings, project training using ArcGIS, database development, data upload, and data integration into master database.

Education

Bachelor of Science Degree, Information Technology University of Phoenix, 2003
Certificate of Advanced Study, GIS University of Denver, 1999

Military

1987-1992: UH-1 Helicopter Pilot, CW2 US Army, Fort Carson, CO; Air Defense Operation Specialist, Fort Campbell, KY

7.0 Subconsultants

IGIST will use Connie Terwilliger of 42nd Street Productions as the voice talent for the tutorial narrations. She has 25 years experience as a producer, writer, and narrator for video presentations. See her site at: www.corporatevideo.com.

8.0 Non-profit Status

IGIST is not a for profit corporation.

9.0 Applicant Disclosure

IGIST has never had any citations for environmental violations

10.0 Agreement

IGIST agrees with the terms of the attached sample agreement and accepts the insurance and indemnification clauses.

11.0 Conflict of Interest

IGIST currently works with no one that would cause a conflict of interest.

12.0 Additional Information

IGIS Technologies has been environmentally active by organizing a company event with the 2008 Coastal Cleanup. IGIST is a member of the San Diego River Park Foundation and the Wildlife Research Institute. Our GIS work for natural resource agencies and our environmental research backgrounds with San Diego State University Geography Department demonstrate our commitment to local green initiatives.