

President's Message

Stan Allen, OFWIM President

First, I need for all of you to take out your pencil and erase the preliminary dates given for the 2002 OFWIM Annual Meeting. Second, using a pen, write in **November 1 - 5, 2002** to be in Baltimore for the Annual Meeting and the National Fish and Wildlife Data Summit! Additional details can be found in this newsletter and on the OFWIM web site (www.ofwim.org). I hope to see as many of you as possible make it to this very important event. The Data Summit very possibly could set some new direction and recognition for fish and wildlife data management over the next decade, and that is what OFWIM is all about – you, the professional fish and wildlife data manager.

Now for my membership plea to all current, former, and future OFWIM Members:

For those of you who do make it to Baltimore in November, your next year's membership will be included in the registration costs. For those of you who cannot attend, please renew your individual OFWIM membership (or consider an agency membership) so we can keep you in the all important communication loop over the next year. Individual membership costs are still only \$25.00, a bargain. Now is also a great time to make others aware of OFWIM and the benefits of being a member. I know that when I first started in the fish and wildlife data business, I felt very alone at times with new technology issues, standards issues, etc. OFWIM provides a network of people that are just like you and me, one of which I am quite sure knows about XML, ArcIMS, GPS, or whatever else is out there on the horizon. I personally miss dBase III, but oh well...

Membership information can be found at: www.ofwim.org/org/membership.html, and please do not hesitate to give your Regional OFWIM Representative or myself a call if you have questions, suggestions, etc. We are already in the process of planning for the 2003 annual meeting and hope to receive your input, but first I hope to see you all in Baltimore!



Baltimore Harbor at night

Photo courtesy of Baltimore Area Convention and Visitors Association

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ANNOUNCEMENT

The National Fish and Wildlife Data Summit

Co-sponsored by:

Organization of Fish and Wildlife Information Managers (OFWIM)

International Association of Fish and Wildlife Agencies (IAFWA)

National Biological Information Infrastructure (NBII)

November 1-5, 2002

Baltimore, MD

Radisson Plaza Hotel - Inner Harbor

The Summit is being held in conjunction with the OFWIM 2002 Annual Meeting

For further meeting details, visit:

<http://www.ofwim.org/ofwim2002.html>

for the travel grant application, visit:

<http://www.ofwim.org/meetings/2002/travelapp.html>

and for conference registration, check out the OFWIM web site at:

www.ofwim.org

Or, email us at:

summit@ofwim.org

This November, fish and wildlife biologists and data managers will gather in Baltimore, MD to attend the first National Fish and Wildlife Data Summit hosted by OFWIM as part of its annual meeting. Sponsored by the National Biological Information Infrastructure (NBII), the Summit extends beyond the 1998 Freshwater Fisheries Database Summit by including the entire spectrum of fish and wildlife management data management.

The Summit meets a need throughout the conservation community that an overwhelming amount of data is collected, yet there is an ongoing perception that information is difficult to locate when it is needed. The main question the Summit will address is "What do fish and wildlife managers need from data management?"

The Summit will attempt to identify the specific data management needs facing the fish and wildlife managers. Summit participants will work on evaluating current data management capabilities, ongoing needs across agencies and government sectors, and priority conservation issues that can be served by improving the data management infrastructure.

The NBII is interested in how it can better serve the natural resources management community, and the Summit was a great opportunity. Personnel from state fish and wildlife agencies may be eligible for travel grants funded by NBII sponsorship. You can request a grant application by contacting Jake Faibisch at the International Association of Fish and Wildlife Agencies: jacobf@sso.org, (202) 624-7744.



Baltimore Aquarium



OFWIM Field Trip

Karen Reay, OFWIM Secretary

The National Aquarium in Baltimore is perhaps the greatest attraction in Baltimore's celebrated Inner Harbor, and shows that the city really knows how to present fish in ways other than filleted and broiled. The exhibits start small with samples of marine life from local waters, but visitors soon find themselves eye-to-eye with sharks, rays, and other very large creatures. A simulated rainforest ecosystem, and regularly scheduled dolphin shows round out the attractions. The Aquarium is home to more than 5,000 aquatic animals, including sharks and dolphins. There are twelve major themed exhibits, including the Marine Mammal Pavilion.

The Baltimore Aquarium offers a special **\$5.00 admission** (regularly ~\$16) on Friday's after 5:00 pm. So join us on Friday evening, November 1 for Baltimore's best blue-light special! We'll meet in small groups in the hotel lobby and walk 3 blocks to the Aquarium. Participants can pay at the door.

Featured Exhibit - Seahorses: Beyond Imagination

Armored serpent? Miniature mermaid? Since ancient times, myths and legends have transformed the seahorse into an enigma of the underwater world. Now, a new exhibit, *Seahorses: Beyond Imagination*, at the National Aquarium in Baltimore, reveals the truth about these enchanting sea creatures: that their real-life existence is more unbelievable than any fantasy or the imagination could suggest.



Gastronomic Exploration

Participants (OK, the planning committee) have indicated a desire for seafood. On evenings without scheduled meal plans, small groups will be gathering in the lobby to check out the local seafood establishments. Please see the OFWIM web page for a restaurant critique compiled by Chowhound.com of Washington, DC.



Another site to see is the Patuxent Wildlife Research Center, approximately a half hour from Baltimore. For more information about this, please visit:
<http://www.pwrc.usgs.gov/visintro.htm>

An Insider's Look At Baltimore by Carol Sorgen

Welcome to Baltimore.

Or as the natives say, "Welcome to Bawlamer, 'hon." Just a quick 90 minutes from Philadelphia, Baltimore is known far and wide for the Orioles and its steamed crabs. But there's more to the city than that. Like Philly, Baltimore not only is rich in history, but is also a thriving metropolis with enough attractions to keep you busy for days at a time—or for a brief respite in between meetings. Whether you want to explore the Inner Harbor or venture farther afield to the surrounding counties, the Baltimore area has something for everyone.

To get your bearings, start your visit to Baltimore atop Federal Hill at Warren Avenue and Key Highway. From the top of the hill, you can see a dramatic view of Baltimore's cityscape. The

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area was named after the city-wide celebration that followed the ratification of the U.S. Constitution, and has been a public park since 1879. If heights don't frighten you, don't miss another view of the city from the Top of the World Observation Level and Museum at 401 E. Pratt Street (410-837-4515). Let the high speed elevators whisk you to the top of the World Trade Center for a five-sided panoramic view of the harbor and audio-visual presentations of the city's proud heritage.

If you're a history buff, Baltimore's just the place for you to step back into the past. The next time you sing the "Star-Spangled Banner," think about the Fort McHenry National Monument (1790) and Historic Shrine at the end of E. Fort Avenue (410-962-4290). During the War of 1812, the successful defense of the fort inspired Francis Scott Key to write what was to become our national anthem. The 1840 House, part of the Baltimore City Life Museums at 800 E. Lombard Street at Fallsway (410-396-3523), offers a fascinating glimpse at Baltimore life more than 150 years ago through the eyes of wheelwright John Hutchinson and his family, the original residents of this reconstructed 19th century rowhouse.

At the Center for Urban Archaeology, also at 800 E. Lombard Street at Fallsway (410-396-3523), look at Baltimore's beginnings through "Archaeologists as Detectives: Solving History's Mysteries." This special attraction features a life-size excavation pit, as well as ceramics and glassware from 18th and 19th century homes, industries, and shops.

Don't overlook Fell's Point to see how Baltimore's past and present graciously coexist. Go east on Pratt Street to President Street to Aliceanna Street to Broadway Street and you'll arrive in one of the country's oldest surviving maritime communities. Now a national historic district, Fell's Point's cobblestone streets front charming shops, galleries, pubs, and restaurants. About 350 of the neighborhood's original residential structures, many dating to the early 1700s, have been renovated and are home to those who wish to take advantage of all that city life has to offer.

If you only have time for a quick overview of Maryland's fascinating heritage, don't miss the Maryland Historical Society Museum and Library of Maryland History at 201 W. Monument Street (410-685-3750). The museum is home to the original copy of the "Star-Spangled Banner," as well as one of the largest 19th century American silver collections in the world, the country's largest decorative arts collection, and the Radcliffe Maritime Museum. What would a visit to Baltimore be without shopping? For a break from business or to find that perfect gift, you're sure to find just what you're looking for in the city's many unique shopping districts.

Love antiques? Head over to Antique Row at 841 N. Howard Street (410-462-2000) where more than 75 dealers sell items from the 18th century through the Art Deco period. From Howard Street, stroll up the city's main corridor, Charles Street, and view Baltimore's 19th and 20th century architecture while browsing in the many shops, galleries, and museums that line the street. And if you're in town at the beginning of the month, don't miss "First Thursdays," Charles Street's own block party, held the first Thursday evening of every month when the galleries stay open late.

Developed by the Rouse Company, Harborplace and the Gallery are a shopper's paradise. Located at the water's edge, two glass-enclosed pavilions feature more than 130 shops, restaurants, and snack stands, while an above-ground walkway connects the Harborplace pavilion to the chic boutiques at the Gallery.

You might not think of Baltimore as a mecca for the transportation industry, but that it is. The B&O Railroad Museum, for example, at 901 W. Pratt Street (410-752-2490 or 752-2388), is located at Mt. Clare Station. The oldest railroad station in the United States, and the birthplace of the B&O Railroad, the museum boasts the most extensive collection of railroad memorabilia in the country. Railroad collectibles, including prints, relics, dioramas, and a model train garden, are also on display.

Over at the Baltimore Maritime Museum at Pier 3 on Pratt Street (410-396-3453 or 396-5528), the city's seagoing heritage is on display. Here you can visit the submarine U.S.S. Torsk, which sank the last warship during World War II, and also see the Lightship Chesapeake, which served as a floating lighthouse.

Two of the country's most prestigious art museums can be found in Baltimore. The Baltimore Museum of Art on Art Museum Drive at Charles Street at 31st Street (410-396-7100 or 396-6320) is located just a short distance away from downtown Baltimore, adjacent to the Johns Hopkins University Homewood campus. The museum features a permanent collection of more than 120,000 works of art including the renowned Cone collection of 20th century art by such painters as Matisse, Picasso, and Cezanne. In addition to the American Wing, the museum spotlights the art of Africa, Asia, and Oceania, and the recently opened wing for modern art is drawing praise for its striking architecture.

At the Walters Art Gallery at 600 N. Charles Street (410- 547-9000), more than 30,000 masterpieces covering 5,000 years of history are on permanent display. The Hackerman House, the museum's Asian art wing, boasts more than 1,000 works. If you're in town over the weekend, take the museum's free tour on Saturday, 11 a.m.-noon.

Baltimore's ethnic diversity is one of its charms. From Little Italy to Corned Beef Row, the city not only teems with the sights, sounds, smells, and tastes of its "melting pot" population, but has also put together fascinating and educational displays to help resident and visitors alike get to know one another better.

The Great Blacks in Wax Museum, at 1601-03 E. North Avenue (410- 563-3404), is the United States' first and only wax museum devoted to African-American history and culture. More than 100 life-size and life-like wax figures are depicted in dramatic historical scenes. And at the Jewish

Historical Society of Maryland, 15 Lloyd Street (410-732-6400), you'll find the Jewish Heritage Museum, as well as two of the oldest synagogues in the country, Lloyd Street Synagogue, built in 1845, and B'nai Israel Synagogue, constructed in 1876.

If life's a zoo, take a few hours off and visit the real thing at the Baltimore Zoo at Druid Hill Park (410-396-7102 or 396-6165). Baltimore's zoo boasts 1,200 exotic birds, mammals, and reptiles that can be seen by walking through the grounds or riding the zoo tram. The zoo also features the largest colony of African black-footed penguins in the United States. And if the family came along on this trip, there's an eight-and-a-half acre children's zoo for the little ones.

Haven't had your fill of animals yet. Then make your way to the National Aquarium at 501 E. Pratt Street (410-576-8300). The Aquarium is home to more than 5,000 aquatic animals, including sharks and dolphins. There are twelve major themed exhibits, including the Marine Mammal Pavilion.

And what would Baltimore be without baseball. The boys of summer may have cut their season short but you can still relive the game's glory days at the Babe Ruth Birthplace and Baseball Center, 216 Emory Street (410-727-1539). Now home to the second largest baseball museum in the country, the Babe Ruth birthplace has films, highlights, and exhibits on Babe Ruth, the Orioles, and Maryland's baseball history. And for a glimpse at baseball as it's played today (well, as it was being played) take a tour of Oriole Park at Camden Yards, 333 W. Camden Street (410-685-9800). Baltimore has been receiving kudos from baseball fans near and far ever since the 46,000-seat park opened. See for yourself what everyone's cheering about.

Out and About

If you want to escape the hustle and bustle of city life, you're in luck. Hop in a car and in no time at all you can find yourself out-

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side the city boundaries, enjoying the fresh air and scenic charms of Baltimore's surrounding counties.

In Howard County, you're just about 30 minutes away from downtown Baltimore, but in a different world. Columbia, the population center of the county, is one of the country's most successful "new towns." Developed by the Rouse Company (of Harborplace fame), Columbia is a completely planned community with different "villages" that incorporate housing, schools, recreation, and shopping.

Just five miles from the town center of Columbia (which, by the way, has its own shopping mall if you're in need of a quick fix), lies the town of Ellicott City, formerly Ellicott Mills. Craft shops, art galleries, and restaurants line the historic district of Main Street. The town's old stone buildings have seen their share of misfortune—from fires to floods—but it seems that nothing can destroy the city for long.

In nearby Savage Mill, 8600 Foundry Street (410-4665-1449), a 19th century cotton mill has been renovated to showcase more than 35 specialty shops, 235 antique dealers, and 25 artists' studios. Between April and Halloween, pack a picnic lunch and drive out Jarrettsville Pike, north of Towson, to the Harvey Smith Ladew Topiary Gardens. The garden covers 14 acres and is known throughout the world for its extensive display of flowers, as well as a life-size fox hunt, birds, and seahorses, all of which have been carefully sculpted from the green shrubbery. The 11-room house, located on the grounds, contains Ladew's collections of fox hunting and equestrian memorabilia, as well as antiques, paintings, and silver.

In Baltimore County, just 15 minutes from downtown Baltimore, the town of Towson serves as the county seat. Established in 1685 as a stagecoach stop, Towson was one a thriving farm community. Today it's a bustling residential and shopping area. For a look at what once was though, visit the Hampton National Historic Site at 535 Hampton Lane (410-962-0688). A Georgian home begun in 1783 by

Charles Ridgely, the Hampton House depicts the life of opulence in post-Revolutionary times. The 60-acre site features a 19th century garden, greenhouses, an ice house, stables, and the mansion, as well as a tearoom for refreshments.



Baltimore's Inner Harbor

Lasting Forests Website

Dr. Robert Giles, Professor Emeritus, Virginia Polytechnic Institute and State University (Virginia Tech)

Dr. Bob Giles, retired Virginia Tech professor of wildlife resource management, has developed a website, **www.lastingforests.com**. Since his retirement three years ago, this site has greatly evolved. The site, which is served by the Conservation Management Institute at Virginia Tech, offers the following publications at no charge:

"Forest Faunal Systems" - a textbook

"The Trevey" - a large set of elements for land use planning as well as the concept of a dynamic planning system provided to land owners via the Internet. There are significant GIS uses proposed for inclu-

sion within this system.

"Lasting Forests" - a concept of a large, private not-for-profit natural resource conglomerate. This has recently been submitted to two county economic development interests.

"Gamma-Theory" - material used in Modern Wildlife Resource Management, a distance-learning course offered from the Northern Virginia Graduate Center.

Dr. Giles has begun developing "Action Boxes" within some of the above publications. JavaScript units are allowing students or other users to enter data in small simulations and obtain numerical answers.

With his friend, Haywood Shepard, a SC engineer, Dr. Giles has developed a CD of his essays which were written while at his log cabin near Salem, VA. The CD is called "Peculiar Manor" and may be one of the first e-books to focus on wildlife management and related natural resource management. This CD is available at cost via <http://fwie.fw.vt.edu/rhgiles/PeculiarManorflyer.htm>.

Sandpiper Technologies announces the 2002 Equipment Grants winners

Ann Christensen, Sandpiper Technologies

Sandpiper Technologies celebrates its fifth year of providing free use of its rental fleet to students conducting wildlife research.

Sentinel Surveillance Video systems were granted to Jeffrey Ball of Simon Fraser University for his study, "Variation in parental provisioning and fledging success of Red-throated Loons in western Alaska" and Mary Ann Furedi of West Virginia University for her study, "The effects of browsing by white-tailed deer on individual plant fitness and population growth of American ginseng."

Steven Sykes of the University of California received a Peep-A-Roo grant for his study on California Tiger Salamanders.

Peeper Video Probes were granted to Karen Beck of North Carolina State University for her work on "Determining free-ranging red wolf litter sizes" and Craig Thompson of Utah State University for his study on "Reproductive ecology of den-dwelling mammals."

The TreeTop Peeper Telescoping Video System was granted to Julie Gibson of the University of Wisconsin to study "Predation incidence and habitat relationships between nesting woodland raptors and mammalian predators in the upper peninsula of Michigan."

The deadline for submitting proposals for the 2003 spring/summer field season is December 1, 2002. For a list of available equipment and proposal requirements, go to the Sandpiper website at: <http://www.Peeperpeople.com>.

Sandpiper Technologies

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(209) 239-7460

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Wildlife Habitat Relationships in the Columbia River Basin: Integrating United States and Canada Information

David H. Johnson, Washington Department of Fish and Wildlife

Thomas A. O'Neil, Northwest Habitat Institute

Andy McKinnon, Ministry of Sustainable Resource Management

Chris Steeger, Pandion Ecological Research, Ltd.

Peter Paquet, Northwest Power Planning Council

Brian Nyberg, BC Forest Service

This is a joint project that collected information on more than 600 species of wildlife and their habitat relationships that resulted in a multi-facet data set that expands across the Canada and United States borders. The project covers the entire Columbia River Basin, including the portions that lie in British Columbia, Idaho, Nevada, Oregon, Utah, Washington, Western Montana, and Wyoming. Collecting and compiling wildlife-habitat information for this project resulted in an assemblage of 7 data matrices. They are as follows:

1. Wildlife-Habitat Data Types
2. Structural Conditions
3. Habitat Elements
4. Key Ecological Functions
5. Life History Characteristics
6. Salmon
7. Management Activities

Information found within the existing matrices has undergone quality control. Additionally, the information also incorporates (where appropriate) confidence levels or literature citations to give the user a sense of the reliability of the data. A significant attempt has been made to ensure that the information presented is accurate. In total, this effort has received support from nearly 40 organizations and has taken over 5 years to complete. Our final goal is to develop an

international wildlife information system that would disseminate high quality information for education and conservation of the region's wildlife resources across our national borders.



The above is a JPEG image of the first International Wildlife-Habitat Type Map created jointly by Canada and the United States. The map has a relational wildlife data set whereby Canada and the US can tie over 400 species to it. The work was done primarily by the Northwest Habitat Institute, Northwest Power Planning Council, and the British Columbia Forest Service.

Information and Knowledge Management in Nature Conservation

Klaus Schmitt and Kevin Sallee, Deutsche Gesellschaft für, Technische Zusammenarbeit (GTZ) GmbH

Supporting planning, decision-making, monitoring and evaluation in wildlife management in Uganda with a spatial management information system (MIST).

Summary

As a result of years of civil war and insecurity, management of protected areas in Uganda until the mid 1990's was largely reduced to anti-poach-

ing and policing measures. In 1996 Uganda National Parks and the Game Department merged to form the Uganda Wildlife Authority. UWA manages 10 National Parks and 13 Wildlife Reserves in Uganda. In addition to these wildlife protected areas (PAs), UWA is responsible for 7 Wildlife Sanctuaries and provides guidance for 5 Community Wildlife Areas.

GTZ (German Technical Cooperation) in June 1997 started the project Advisory Services to Uganda Wildlife Authority, to contribute to institutional and management capacity building in UWA. The GTZ project 'Advisory Services to Uganda Wildlife Authority (UWA)' has supported UWA with the development of a **Spatial Management Information System (MIST)** to provide managers and planners with up-to-date information for planning, decision-making and evaluation. MIST also contributes to a culture of knowledge management in UWA.

MIST has been developed as an easy to maintain, user-friendly software application to improve UWA management by providing access to up-to-date information. MIST functions as 8 separate program modules (one being a database administrator program accessible only to the system IT professional), all accessing a central database. Examples of data held/processed in MIST include: ecological data, data about illegal activities, socio-economic data, tourism data, a literature database, an address database and annual operations plans. One of the MIST modules is a fully integrated GIS software which was designed to avoid the problems associated with a system which can only be used by specialized GIS experts and is thus unsustainable.

Criteria for the development of the IS and the selection of the software were:

- A national IS must be in a position to handle large amounts of data in an efficient manner.
- The data have to be stored in a central database for reasons of efficient maintenance and data consistency and integrity.

- The different types of information required by users need to be generated with a user friendly front-end application.
- Users at all levels must have access to the IS from their workstation.
- All components of the IS (hardware and software) and the knowledge required to run and maintain the IS have to be available or supported locally.

All users in UWA Headquarters have easy access to the central database from their workstation through a local area network. The users in the protected areas (PAs) have access to MIST through stand alone computers in the PAs which are synchronized with the central MIST database through automatic database replication.

It is relatively easy to collect large amounts of data, but entering these data into a database without mistakes is very time-consuming. MIST avoids these problems through data download (from GPS units and import from disk source files) and the use of look-up lists for data entry. Standardized data sheets have been developed for the recording of ecological data, illegal activities, park visitor information and resource harvesting by local communities.

All spatial data collected are geo-referenced using Global Positioning System (GPS). This enables production of the following outputs: (1) indices for monitoring of wildlife populations, illegal activities and resource harvest by local communities without the need for expensive baseline data, (2) distribution maps for planning and monitoring, (3) baseline information for patrol deployment planning, (4) information on wildlife population structure, (5) performance indicators to monitor and evaluate the implementation of annual operations plans and (6) reports for collaborating institutions etc.

MIST can be completely controlled by clicking on map items, page tabs, list entries and buttons of the query wizards. A tool to refine most SQL statements created by a

query wizard and a visual SQL statement wizard provide flexible ways to create any query not included in the custom-made wizards.

The programming of MIST contributes to sustainability through (1) a simple to use, user-friendly interface, (2) the use of program libraries, each dealing with a single logical task which can be up-dated on an as-needed basis and (3) the possibility to up-date much of the program's logic using SQL procedures and triggers instead of having to re-code the MIST user-interface or it's libraries.

For further information contact:
Dr Klaus Schmitt at klaus@brinkschmitt.com
Kevin Sallee at mail@ecostats.com
Uganda Wildlife Authority at uwa@uwa.or.ug

An Information Clearinghouse On Wildlife Capture, Handling, And Transport

**Mark R. Johnson DVM, Global Wildlife
Resources, Inc.**

In the last OFWIM newsletter, the Information Clearinghouse On Wildlife Capture, Handling and Transport project was introduced. As requested, we are including the full article of information regarding this valuable project. We would like to get OFWIM members comments and ideas to the following questions.

- 1) *Do you as an information manager/biologist think there is a need for this Clearinghouse?*
- 2) *What comments or suggestions do you have on the format, structure, or components?*
- 3) *What funding sources may be available to get make this Clearinghouse a reality?*

4) *Would you be interested in joining a task force with Global Wildlife Resources to help it become a reality?*

Please send your comments to Lila Borge Wills at lborge@vt.edu. Thank you for your support!

There is a continuous desire among wildlife professionals to improve their skills and equipment for animal capture and handling. Wildlife capture and handling is a very small part of research, management, and conservation, yet the latter are often characteristically dependent on this essential component. Wildlife handling is also one of the most public and controversial aspects of the wildlife profession. And as a result, both the public and wildlife professionals are experiencing a demand and an enthusiasm for dramatic growth and change in our equipment, our techniques, and at times even in our attitudes and approaches.

Global Wildlife Resources (GWR) and its collaborators recognize that the most effective mechanism for this change is a comprehensive database which *truly* builds upon our field experiences. This clearinghouse would gather practical information from biologists from all around the world, so professionals can learn of other tools and techniques which vary from agency to agency, state to state, and country to country. Gathering these tools would increase options for the field biologist. And it will naturally result in significant change as researchers or managers first compare and contrast, then select the proper tools and techniques for their particular species, region, or objectives. Even as the information clearinghouse becomes a catalyst for change, it pays tribute to the extensive growth and accomplishments of wildlife professionals.

Project Description

The Information Clearinghouse (ICH) will be a collection of searchable, on-line, interactive, and perpetual databases on wildlife capture, handling, and transport. It will allow biologists to conduct a

search as simply and completely as possible. It will also allow them to share their knowledge and experiences in a format which compliments published literature and which contains a variety of “gray” or unpublished literature such as field protocols, which can truly make the difference in field success and animal care. Its format will allow for contrast and comparison so species-specific guidelines can also be developed.

Who would use this database?

Initially, the ICH will be focusing on the needs of professionals working with free-ranging wildlife. This includes biologists participating in research, management, and conservation. In addition, state, federal, and private agencies could obtain space on the ICH to post their capture and handling protocols for their personnel and other professionals. (Several states have already expressed an interest in this). Wildlife professionals from countries across the world are in desperate need for this technical information as well. Other professionals who could utilize the ICH include zoo caretakers, animal control officers, wildlife veterinarians, university students, animal care and use committees, and wildlife rescue organizations.

Here is an example:

If a biologist intends to begin a research project on denning bears, it would be best if the biologist could find out how bears were being handled in Pennsylvania, Yellowstone Park, Arizona, and British Columbia, for example. If this information was available in the proper format the biologist could:

1. Gather a comprehensive list of published material relating to working with denning bears.
2. Compile a collection of field protocols describing the equipment, techniques, and precautions when drugging hibernating adults and proper handling of cubs, then compare and select the most appropriate methods.

3. Locate professionals from around the world who have handled denning bears and discuss with them the refined procedures.
4. Identify the best equipment for his/her field conditions and either make the equipment using diagrams provided (i.e. such as headcovers and weighing schemes) or contact vendors or distributors to purchase them.
5. After their project, contribute their knowledge and recommendations to the ICH to strengthen the profession and improve the well-being of animals handled in the future.

Proposed Searchable Databases

With each search, a boolean search engine will create a unique “website” with the search results. Four principle groups of information are proposed:

- A. Published Literature and Materials
 - Peer reviewed literature
- B. Non peer Reviewed Material (Gray Literature)
 - Non peer reviewed publications, conference proceedings, videos
 - Field protocols written by biologists, dialogues (i.e. forum discussions, bulletin boards, listserv participation),
 - Responses to WVR questionnaires
- C. Equipment and Services
 - Contact information of vendors and distributors including brands, models, specifications
 - Images (i.e. drug delivery systems) and schematics (construction and assembly of drop nets)
- D. Wildlife Professionals or Contributors
 - Contact information of wildlife professionals with field experience in capture and handling wildlife searchable by species or region. Provides the most current contact information to strengthen networking.

Where other databases exist, GWR may link to these rather than duplicate other efforts.

Updates and Maintenance

Maintenance will be an integral and active component of the ICH just as journals are continuously active. Therefore, an important mission of GWR will be to update and maintain the content of these databases through several means:

1. Assemble a Scientific Advisory Board to guide the development of the ICH, maintain scientific rigor, and address concerns such as posting “gray” literature.
2. Collaborate with a publishing firm for the latest literature relevant to the scope of the ICH.
3. Create purposeful investigations such as the current GWR projects:
 - a. A North American Review of Wolf Capture, Handling, and Transport
 - b. A North American Review of Non-invasive Techniques and Equipment for Wildlife Researchers and Managers.These two examples gather structured unpublished information through questionnaires to biologists and documentation of techniques while assisting in the field.
4. Generate open forums, discussions, bulletins boards. When the dialogue is complete, it could be posted as a non peer-reviewed publication into the database with key words and a record number.
5. Invite contributions from specialized wildlife organizations such as the International Bear Association or National Wild Turkey Federation who may recognize the benefit to their species if their organization gathered the knowledge and experiences of their members. This could ensure that the peculiarities of handling the particular species would be properly documented.
6. Provide agencies, professionals, and vendors with passwords for accessing and updating their contact information and content.
7. Establish a bulletin board for professional organizations to post events and resources.

Project Status

With the help of an advisory team, GWR has completed its Design Phase which is the formation

of this project description and its role as a template. The ICH is now in the Development Phase in collaboration with the Conservation Management Institute of Virginia Tech University. We seek any individuals or organizations who wish to join our team to make the Information Clearinghouse a reality. Each collaborator is valuable and unique when providing written, financial, or technical support and will be able to provide input into the design and construction of this valuable resource.

As funding grows, a full-time project leader will be hired, and a beta-version website will be published with selected components of the ICH. A feasibility study may also be conducted for this extensive project. In addition, a Scientific Advisory Board will be assembled to guide the professional and scientific merits of these resources, as well as assist with gathering international content.

Funding and Support

GWR, with support from collaborators, will manage this Internet resource as a non-profit, tax-exempt organization. GWR will employ a Project Leader and several full-time employees to build, develop, and maintain the content of the ICH. On-line communication and database technologies will be contracted. Initial funding will be generated from supporters. Long-term support will be generated by the ICH through collaborations with state and federal agencies, universities, and non-government organizations, and with membership or subscription fees.

Organization History and Status

Global Wildlife Resources, Inc. (GWR) (formerly Wildlife Veterinary Resources, Inc.) is a 501(c)(3) tax-exempt organization providing multi-faceted support to wildlife professional and promoting animal welfare in research and management. We recognize that all professionals inherently believe that animal welfare should be explored and strengthened within conservation, research, and management in a manner which maximizes the tools for the biologist and strengthens the wildlife profession. GWR is responding to this demand

with field assistance, training, and professional resources such as the Information Clearinghouse.

Global Wildlife Resources, Inc.

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Internet Mapping for Fisheries: A Brief Overview and Example Site

**David Graves, StreamNet Project, Pacific
States Marine Fisheries Commission**

GIS and Internet Mapping for Fisheries

There has been a recent trend in the fisheries disciplines to integrate fisheries information with geographic information systems (GIS). GIS offers a wealth of opportunities for any set of information that includes a geographic component, like much of the fisheries data that is collected from real world ground or ocean locations. These opportunities include the ability to quickly map the information, the tools to analyze it with other data based on spatial proximity and characteristics, and efficient storage and retrieval methods for long-term maintenance. While many of the applications of GIS in the fisheries world are of recent origin, the technology itself has been around at least since at least the late 1970's. Since its initial use, there has been a steady evolution of the technology from a set of very specialized applications, which require a significant time commitment on the part of the user to be able to operate them, to a much more varied and user-

friendly set of applications that form an integral part of many modern disciplines.

While this movement has followed the general trend of other computer technologies towards dispersed PCs at everyone's desk that are loaded with software with user-friendly interfaces, there are still obstacles that have prevented widespread usage. The GIS software is relatively expensive and cannot be run without at least a modest investment in computers with plentiful memory and processing power. The complexity of the operations that are performed in a GIS also still require a unique combination of training or understanding of geography and information systems from the user. This requirement will probably continue to be true, irrespective of how many improvements can be made to the interface to these operations, because these complexities are integral to the work that is done. Were it not for these financial and technical factors, GIS software would likely be more widely popular with a set of casual users for which the mapping aspects of the software may be helpful for their jobs or hobbies, but don't require and/or have time to use the more complex operations. Internet mapping is a relatively new technology that promises to help bridge this gap between the technical aspects and casual users.

Internet mapping technology functions in the same way that other internet applications do, in that a set of diverse users can view and examine information from one source through their web browsers. While complex operations and software may be used to answer questions at the source, the users does not need to see or understand these operations in order to get the information that they want. With internet mapping, the source provider maintains a set of geographic information and designs an application that will allow users to view this information through a map-based interface. These interfaces may range from very structured designs that limit the user to a few specific choices,

to highly versatile designs that provide the users with a wide range of tools and options, more closely mimicking the look of desktop GIS software. These design considerations should be largely driven by who the intended user is and what they will need to get out of the internet mapping application.

StreamNet Internet Mapping Site

The StreamNet project is a cooperative information management and dissemination project focused on fisheries and aquatic related data in the Columbia River basin and the Pacific Northwest. The project provides a variety of types of data related to fish resources and streams for the Pacific Northwest. A variety of approaches to this information are available from the web site (<http://www.streamnet.org>) , including a tabular query system, maps, reports, and data downloads. The most recent addition to the site are two internet mapping applications, which allow a user to view and query map layers related to Northwest fisheries through their web browser. These applications may be helpful in showing a graphic representation of the area you are interested in, making your own maps, or accessing StreamNet data by the geographic features that they are related to. The applications were designed with ESRI ArcIMS software. To use the applications, please visit the following site: <http://www.streamnet.org/mapper.html>. The following are some of the things that you can do with the applications.

From the initial mapping page, you can choose to view the information either for the whole Pacific Northwest or for the Columbia Basin (a smaller part of the Pacific Northwest). Once either application is started, the map interface will load up and look something like this:



The interface is broken into five areas:

Tools (Upper Left) – A series of tools and buttons that may be used to change and interact with the map. The currently selected tool is always listed under the tool bar.

Layers (Lower Left) – A set of map layers are presented, and the user has the option to turn the layers on or off by toggling the 'visible' box next to each layer. As they zoom into the map, more layers are also offered.

Map (Center) – The core of the site, this is the visual display of these layers on a map.

Text Box (Center bottom) – Results of queries and other information will be displayed here.

Legend (Right) – As with a paper map, the layers and their map symbols are shown in the legend.

By default, the 'zoom in' tool is initially selected. A user can either click or draw a box on the map to zoom in closer. For example, if a box is drawn around the Yakima subbasin, the map zooms into a closer view. Drawing another box around the town of Yakima zooms into a fine scale view and the map changes again, showing the land ownership in

the area as a background layer, the 1:100,000 scale streams, and hatcheries and other features around Yakima.



The navigation tools may be used to zoom in and out and pan until you've narrowed in on your area of interest. Once you have, there are a variety of different things you can do with the map layers:

Identify features on the map. The identify tool allows you to click on any feature on the map to find information on it in the text box.

Map fish distribution. StreamNet collects and compiles information on the distribution of various fish species from local fish and wildlife biologists. These may be mapped out, showing color-coded areas of migration, rearing, and spawning.

Access fisheries data. With a hyperlink tool, you can click on various features like streams or hatcheries and view and/or download any information that StreamNet has for these features. For example, you could click on a stream to bring up reports of recent and historic adult salmon abundance counts. Or you could click on a hatchery facility to obtain hatchery release data or aerial photos of the hatchery.

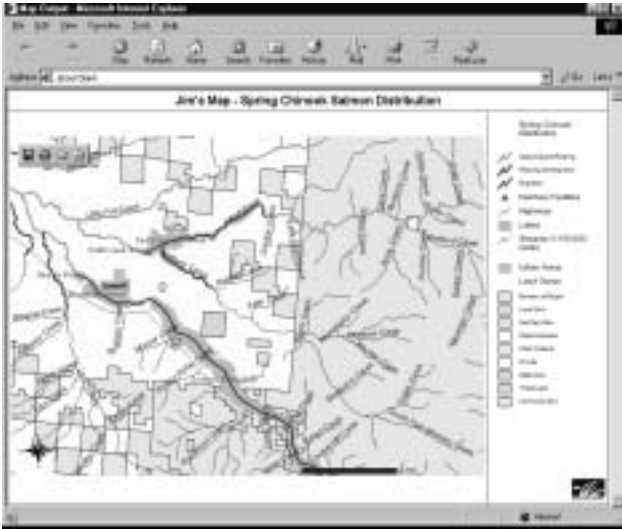
Find features. The find and query tools allow you to search for specific features. For example, you could search for a hatchery with the words 'Eagle Creek' in its name and find that there is an Eagle Creek National Fish Hatchery in the Clackamas watershed. Clicking this hatchery in a list then zooms the map view to the hatchery. Alternately, you might query for all streams that have been reported to have water quality impaired for sediment load, and the application will both return a list of these to you and highlight them on the map.

Measure distances. The measure tool allows you to measure distances on the map between points or along routes that you are interested in.

Buffer features. The buffer tool allows you to draw a buffer around a specified feature on the map, and determine how that buffer overlaps with another layer. For example, if you were interested in land ownership along Eagle creek, you could select this stream, tell the application to draw a half mile buffer around this, and return a list of land owners in this buffer zone. The map would show the buffered area in gray, and return the list in the text box (Private, the Bureau of Land Management, and the US Forest Service).

Make your own maps. Once you've zeroed in on what you would like to show, you can export this as your own map with the print button. You are prompted for a title, and then a new web page is opened with your map and legend on it. This may be printed or saved as an image to be pasted into a report or presentation.

(continued on next page)



These are just a few of the possibilities with the application- it's best to just give it a whirl and have fun trying different things. Happy mapping!

If you have any questions on the StreamNet interactive mapping applications or this article, please send them to us at StreamNetGIS@psmfc.org

**American Fisheries Society Annual Meeting, Baltimore, MD
August 18-22, 2002
Continuing Education Classes**

Conflict Resolution Skills for Natural Resource managers
Mike Fraidenburg fraid@earthlink.net

Principles of Leadership, Part 1 - Personal Paths to Effective Leadership
Steve McMullin smcmulli@vt.edu

How to Work with a Commission
Mike Fraidenburg fraid@earthlink.net

Fisheries Economics for Non-Economists
Ray Rhodes rhodesr@mrd.dnr.state.sc.us

River Morphology and Restoration Overview
Jim Gracie jgracie@holonet.net

Restoration Ecology: Conservation and Management of Brook Trout in Northern Lakes
Cliff Kraft cek7@cornell.edu
Dan Josephson dcj3@cornell.edu

Basic GIS Techniques for Fish Biologists
Micheal Porter mporter@uc.usbr.gov
Virginia Thompson vthompson@towson.edu

Infectious Diseases of Fishes
Jerri Bartholomew bartholj@orst.edu

Advanced GIS Techniques for Fish Biologists
Micheal Porter mporter@uc.usbr.gov
Virginia Thompson vthompson@towson.edu

Correction:

In the Winter 2002 edition of the OFWIM Newsletter, we neglected to include the **Northwest Habitat Institute (NHI)** in the list of individuals, organizations and agencies that provided items to our 2001 annual meeting raffle. Our apologies to the NHI for this oversight, and our hearty thanks for the donations!

NOMINATIONS FOR OFWIM POSITIONS NEEDED

Here is your chance to become a more active member of the Organization of Fish and Wildlife Information Managers and help shape the future of the organization. This year we are looking for nominations for the following Executive Committee positions: **President-Elect, Treasurer, Secretary, and Member-at-Large**

Please consider running for one of these very important positions, or nominating someone that you feel would do an outstanding job. Brief descriptions of each of these positions can be found in the organization bylaws found at: www.ofwim.org

Elections will be held at the Annual Meeting in Baltimore on November 1-5, 2002.

(Please Cut Here)

NOMINATION FORM: OFWIM EXECUTIVE COMMITTEE POSITIONS (2002 – 2003)

I hereby nominate the following individual(s):

Position

Name of Nominee

President-Elect: Name: _____

Phone: _____ e-mail: _____

Treasurer: Name: _____

Phone: _____ e-mail: _____

Secretary: Name: _____

Phone: _____ e-mail: _____

Member-at-Large: Name: _____

Phone: _____ e-mail: _____

Please send this nomination form (by August 30, 2002) to:

Stan Allen

Pacific States Marine Fisheries Commission

45 SE 82nd Drive, Suite 100

Gladstone, OR 97027-2522

