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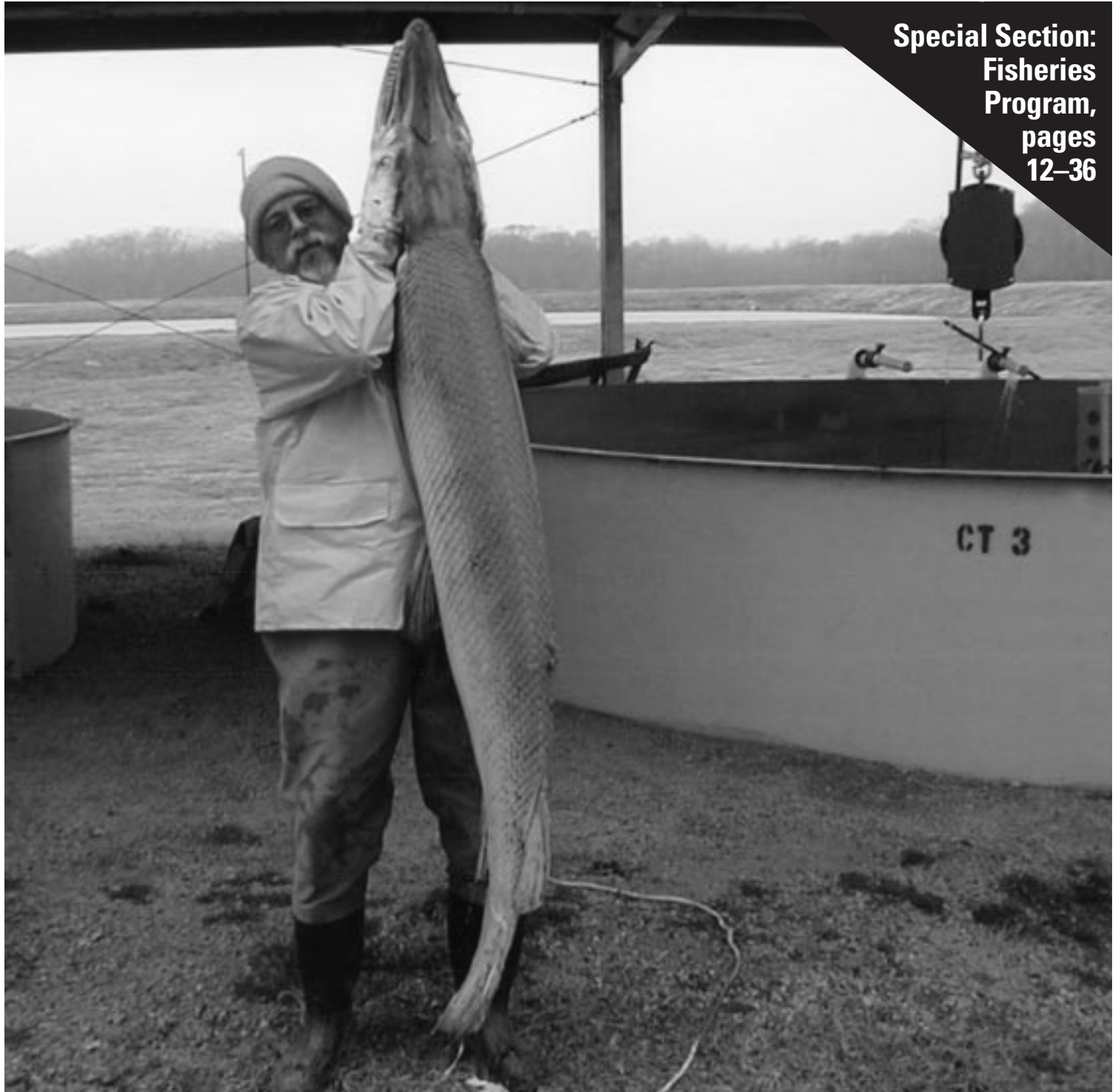
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Centennial Commission Gets Down to Business



Centennial Commission. (Left to right) Marshall Jones, Steve Williams, John L. Morris, Peter Coors (top), Daniel A. Pedrotti, Bill Horn, Secretary Norton, Kym Murphy, Michael Bean, Assistant Secretary Craig Manson, Lynn Greenwalt, and J.R. Johnson (for Jack Hanna). DOI photo: Tamè Heilemann.

On March 12 and 13, the National Wildlife Refuge System Centennial Commission held its first meeting in Washington, D.C. Commission members reviewed various projects being carried out in recognition of the Centennial, divided itself into four subcommittees to evaluate funding opportunities, and developed a budget for supporting endorsed projects.

The 19-member commission, announced by Interior Secretary of the Gale Norton on February 20, will help celebrate the 100th birthday of the National Wildlife Refuge System in 2003, and map out a plan to ensure that some of this country's greatest natural treasures can be enjoyed by all Americans for the next 100 years.

Modeled after a similar group that oversaw the National Park System's successful Centennial celebrations in 1972, the Refuge System Centennial Commission will accept donations of money, property and services

to leverage efforts with public and private organizations. The commission will also plan and host a national conference on the refuge system in 2003.

Commission members include:

Ramona Seeligson Bass, Board of Directors, Fort Worth Zoo, and Director of the Texas Wild Campaign;

Michael Bean, Wildlife Program Chairman, Environmental Defense;

Peter Coors, Vice Chairman and CEO, Coors Brewing Company;

Lynn Greenwalt, former Director, U.S. Fish and Wildlife Service;

Jack Hanna, host of television's "Jack Hanna's Animal Adventures;"

William P. Horn, Commission Chair, Counsel, Sportsmen's Alliance, and former Assistant Secretary of the Interior for Fish and Wildlife and Parks;

Karl Malone, twelve-time NBA All-Star, Utah Jazz, and Olympic Gold Medalist;

John L. Morris, CEO, Bass Pro and former Chairman of the Board, National Fish and Wildlife Foundation;

Kym Murphy, Corporate Vice President of Environmental Policy, Walt Disney Company; and

Daniel Pedrotti, former President, Boone and Crockett Club.

Ex-officio commission members from Congress are:

Senator James Jeffords (I-VT), Chairman, Committee on Environment and Public Works;

Senator Robert C. Smith (R-NH), Ranking Member, Committee on Environment and Public Works;

Representative James V. Hansen (R-UT), Chairman, Committee on Resources;

Representative Nick J. Rahall II (D-WV), Ranking Member, Committee on Resources;

Senator Thad Cochran (R-MS), Migratory Bird Conservation Commission;

Senator John Breaux (D-LA), Migratory Bird Conservation Commission;

Representative John D. Dingell (D-MI), Migratory Bird Conservation Commission and;

Representative Curt Weldon (R-PA), Migratory Bird Conservation Commission.

Service Director Steve Williams also serves as a member of the Centennial Commission.

Rachel F. Levin, Public Affairs, Washington, D.C.

On the cover:

Gator Gar. Gary Wyatt of Tishomingo National Fish Hatchery in Oklahoma, stands alongside hatchery ponds. Not a great deal is known about the biology of the alligator gar, the second largest freshwater fish in the country. Alligator gar, which sometimes reach 300 pounds, are native recreational fish in decline and the public is becoming more aware and more interested in the conservation issues surrounding this primitive piscatorial prize. See story on page 23. FWS photo: David Hoke.

What's New With Refuge System Centennial?

The big news is that the Centennial Commission has been named and held its first meeting in March to begin building even more support for the Centennial and coordinating national partnerships (see article, page 2). Keep reading *Fish & Wildlife News* for updates on the National Wildlife Refuge System Centennial. For more information about the Centennial, point your browser to <<http://refuges.fws.gov/centennial>>, or contact your regional centennial coordinator (see list at right).

Here's what's new with some of the Centennial projects already under way:

- More than 1,000 people are expected to attend an international refuge system conference in Washington, D.C. in October, 2003, and a Servicewide conference steering committee has begun planning, with the assistance of the Centennial Commission.

- A huge celebration will be held on the refuge system's 100th birthday, March 14, 2003, at the system's birthplace, Pelican Island, Florida. The Service and the community near Pelican Island are planning a parade, tours, a concert and fireworks.

- The refuge system exhibit at the Smithsonian's Museum of Natural History in Washington, D.C., is moving toward the design phase. This multi-part, interactive exhibit about the history and purpose of the system will open in March 2003 and may travel around the country to other museums after 2003.

- Also in Washington, the National Zoo will upgrade its facilities to create space for a refuge system exhibit. Refuge employees will have a chance to give stand-up programs at the zoo during 2003.

- A national workshop for refuge Friends groups this February highlighted the centennial and energized Friends groups to help celebrate the Centennial.

- The Service has redesigned the refuge system Web page to be an eye-catching and functional source of centennial information online.

- Look for a centennial focus at the 2002 Federal Duck Stamp Contest in Washington, DC., to be held October 15-17, during National Wildlife Refuge Week.

- We continue to pursue corporate partnerships to bolster the refuge system and centennial celebration. Look for refuge system maintenance workers on the Caterpillar Corporation's 2002 calendar and keep your eyes peeled for a Toyota hybrid vehicle cruising the Pacific Coast as part of a "Highways to Flyways" program.

- A special edition of *Fish & Wildlife News*, due to hit the streets in January 2003, will commemorate the centennial with articles, photos, and anecdotes about the refuge system's first 100 years.

- A partnership with Walt Disney World will include an interactive exhibit at the Conservation Station in Animal Kingdom theme park, along with many other great programs.

- NCTC's Production Division is hard at work on a plethora of audio-visual products to support centennial projects, including 2 photo CDs of refuges coast to coast and a number of b-roll tapes featuring spectacular video footage of refuges.

*Rachel F. Levin, Public Affairs,
Washington, D.C.*

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Fallen Comrades Honored



Remembering Grandpa. *Trey (left) and Isaiah Govan lost their grandfather Murphy Peterson in a truck accident at Alligator River National Wildlife Refuge. FWS photo: Todd Harless.*

Three men died in different ways at three separate ends of the country since the Fish and Wildlife Service's "Fallen Comrades" memorial first was dedicated, and their colleagues came together in April at the National Conservation Training Center to bear witness to their stories.

Lloyd Smith was a proud member of the Quinault Nation and an employee of the Federal fish hatchery in Washington State that carries the same name. He carved canoe paddles and took kids fishing. There was a house fire on his station on May 21, 2000, and, along with his wife, Lloyd Smith died.

Murphy Peterson was a big man, with a laugh that could rattle windows. He drove trucks at Alligator River National Wildlife Refuge. There was an accident when he was coming back to the refuge on April 27, 2001, and Murphy Peterson died.

Richard Guadagno had ardor for his work and for the out-of-doors equaled only by his love of big black dogs. There was a plane crash on September 11, 2001, the nation gained some heroes, and Richard Guadagno died.



Honor guard. *Service refuge employees formed an honor guard while the colors were presented by an army contingent from Fort Leslie McNair to honor our fallen comrades. FWS photo: Todd Harless.*

"When we lose a colleague, we lose a little bit of ourselves," said newly appointed Fish and Wildlife Service Director Steve Williams April 15 as three simple markers of slate joined 66 others on his agency's memorial wall in Shepherdstown, West Virginia. "But we are all so much richer for their having been with us."

Joining Williams were Deputy Director Marshall Jones, NCTC Director Rick Lemon, and an honor guard from nearby Fort Leslie McNair. They were accompanied by family members of each of the three employees killed in the line-of-duty and a phalanx of Fish and Wildlife Service employees in uniform.

"This wall is not a wall of sorrow, but of hope and inspiration," Williams said as he presented parents, sisters, and children with memorial flags and photographs of the "Fallen Comrades" memorial. "To Rich, Murphy and Lloyd... Rest now, your work on this earth is done and done well. Those of us that remain behind will carry on from here, in your memory."

*David Klinger, Senior Writer/Editor,
Shepherdstown, West Virginia*

Service Is Home to Many Noble Eagles

Chuck Deaver, the operations manager for the Service at the National Communications Center in Lakewood, Colorado, is volunteering to support our country in his own way. Before the September 11 tragedy, Deaver was a member of the Colorado Air National Guard, assigned as the non-commissioned officer in charge of Operations at the Headquarters, as a Senior Master Sergeant. Now, he is on active duty as a member of the 140th Wing at the newly named Buckley Air Force Base supporting Operation Noble Eagle as a Command Post Controller.

He is working shifts at Buckley and part time at the Service.

"Little did I know that September 11 would change my life forever," said Deaver. "This is just my way of doing my part to protect the citizens of the United States and the State of Colorado that they remain safe from further attacks and hostilities."

The Service, the National Communications Center manager and the entire staff have supported Deaver wholeheartedly since September 11. A branch chief within Deaver's IRM Division conducted a letter writing campaign to show support for his efforts. He soon found out from heartfelt thoughts expressed in lengthy emails that his coworkers at the Service were grateful for the protection Deaver's unit provided.

Deaver, who has 28 years of military service and 24 years of Federal service, is due to pin on Chief Master Sergeant in May, the highest rank an enlisted member can attain. He was selected as the Outstanding Senior Non-Commissioned Officer for the third quarter for the Colorado Air National Guard and this year as the Senior Non-Commissioned Officer of the Year for 2001 for the Colorado Air National Guard. He left active duty in 1977 to finish his education and then joined the Idaho Air National Guard.

Dress Uniform Wins Award



Colonel David Harris and SMSgt Chuck Deaver with plaque honoring Deaver's selection as Senior Non-Commissioned Officer of the 3rd Quarter for the year 2001, for the Colorado Air National Guard. Colorado Air National Guard photo: Captain Renee Cunningham.

“Operation Noble Eagle is the official name given to the U.S. military operation associated with homeland defense and support to Federal, State and local agencies in the United States,” said 1st Lt. Holly Peterson of the Colorado Army National Guard, Public Affairs Office. “More than 80 percent of the aircrews flying in Operation Noble Eagle are Air National Guard.”

Compiled by Nicholas Throckmorton, Public Affairs, Washington, D.C.



New threads. *National Wildlife Refuge System fashionistas Becky Halbe and Jerry Olmsted model the new dress uniform. FWS photo.*

The Service's newly redesigned dress uniform won the Image of the Year award for 2002 given by the National Association of Uniform Manufacturers and Distributors' Career Apparel Institute. This marks the first time a government agency has won this award.

Uniform coordinator Lori Jones accepted the award on behalf of the Service during a February 23 ceremony in Miami. The Image of the Year award is given not only for uniform design, but also for the driving concept, in this case the National Wildlife Refuge System's Centennial in 2003, Jones said.

“With the Centennial coming up, I was looking at what we have in the uniform program that is really appropriate for media events and other public interaction our employees would be having,” she said.

More than two thirds of the Service's 9,000 employees wear uniforms. Many of them who work on national wildlife refuges will be highly visible during hundreds of special events held throughout the Centennial year.

Jones contacted VF Solutions, the Service's uniform vendor, and asked them to design a dress uniform that would bring a more tailored, professional image to the Service's casual uniform. VF Solutions, in cooperation with Hardwick Suits, created a brown wool/polyester blend suit with a single-breasted blazer, pleated pants or skirt, and an ecru oxford shirt that is embroidered with the Service logo for agency identity when the jacket is removed. The new uniform tie is flecked with the same blue that is in the Service logo.

The Service approved the new design last October and the uniforms will be available to employees this spring.

Made to Measure, the uniform manufacturers and distributors' association's magazine, will feature the award-winning uniform—as well as a Refuge System Centennial message—in its Fall 2002 edition.

Rachel F. Levin, Public Affairs, Washington, D.C.

Among “Friends:” Refuge Support Groups Gather in Washington for First Ever Conference

An unprecedented number of national wildlife refuge support groups—“Friends”—came together February 23–25 in Washington, D.C., for the first National Refuge Friends Conference.

Some 300 representatives from Friends groups in 43 States attended, along with Refuge System employees from Washington and the field, members of the Cooperative Alliance for Refuge Enhancement, and other conservation partners. Hosted by the National Wildlife Refuge Association and the Service, the Friends Conference gave refuge system advocates a unique opportunity to learn from each other, and provided them with the tools they need to continue their passionate work on behalf of the system.

The keynote speaker, U.S. Representative Curt Weldon of Pennsylvania, reflected on his love for the refuge system and for Refuge Friends, encouraging Friends Groups to educate his Congressional colleagues on the importance of refuges.

Among others making appearances at the energetic and fast-paced weekend conference were Interior Secretary Gale Norton, who offered her thanks to refuge Friends via a letter and a video message that was played at the opening of the conference. In the video, Norton thanked the Friends Groups for their hard work and commended them for their commitment to conservation.

Assistant Secretary for Fish and Wildlife and Parks Craig Manson praised Friends for their volunteering spirit and continued dedication and Service Deputy Director Marshall Jones pledged the Service’s continuing cooperation and collaboration with Friends and other refuge system volunteers. Refuge System Chief Dan Ashe explained the significance of Friends Groups in the overall strategy for the refuge system Centennial.

The conference served as opportunity for Friends Groups to connect with CARE group members and meet Bill Horn, chairman of the Refuge System Centennial Commission. Horn outlined his three themes for the commission as it advocates for the refuge system through the Centennial year: encouraging and reinforcing partnerships; celebrating successful professional management in the refuge system; and enhancing public opportunities on refuges.

At an evening reception the Refuge Association and the National Fish and Wildlife Foundation honored supporters who have stood out from the pack, bestowing the Refuge Volunteer of the Year Award on Melissa Owen, a volunteer at Buenos Aires NWR, and giving the Friends Group of the Year Award to the Coastal Wildlife Refuge Society, which supports Pea Island and Alligator River refuges. (See sidebar for details)

In between listening to speakers and looking at the myriad exhibits, participants came together at breakout discussions to learn about planning special events and garnering media coverage, and raising funds for continued conservation on refuges. The Refuge Headquarters Communications Team also brought conference-goers up to date on the Centennial Campaign.

Refuge System Chief Dan Ashe pronounced the Friends Conference a “rousing success,” noting that when he visited Capitol Hill on the Monday following the conference, he noticed distinctive blue and yellow “Honk If You’re a Friend of Refuges” tote bags “everywhere”—a sign that Friends had taken to the Hill in droves to exhort their Members of Congress to support refuges.

*Rachel F. Levin, Public Affairs,
Washington, D.C.*

Volunteer, Friends Group Honored for Outstanding Efforts

More than 200 National Wildlife Refuge Friends Groups and some 36,000 volunteers offer financial support and services to refuges nationwide. On February 24, during the Friends Conference, the National Wildlife Refuge Association and the National Fish and Wildlife Foundation honored an individual and a group that exemplify that giving spirit.

Volunteer of the Year Melissa Owen has dedicated more than 6,000 hours to Buenos Aires NWR over the past 6 years. She initiated landscape projects that created a native grass garden and a butterfly garden on the refuge; helps greet refuge visitors on weekends; and continues to build the refuge’s basic recycling efforts into a comprehensive “greening program,” making Buenos Aires the first national wildlife refuge to have such a program.

Owen also helps to coordinate the refuge’s cadre of other volunteers, as well as working with the Friends of Buenos Aires NWR.

The Refuge Friends Group of the Year, the Coastal Wildlife Refuge Society, provides funding and volunteer labor to Pea Island and Alligator River refuges on the Outer Banks of North Carolina. Among other accomplishments, the society has contributed half a million dollars worth of labor and materials toward building a visitor center, overlooks and wildlife viewing towers.

Founded in 1985, the Coastal Wildlife Refuge Society has been instrumental in purchasing equipment and publications for the refuge, and funding the refuges’ volunteer programs. It also runs a gift shop in the Pea Island Refuge Visitor Center, selling more than \$160,000 worth of books and other educational items yearly.

Rachel F. Levin

Roundtables Promote Citizen-Centered Conservation



Department of Natural Resources; Mike McShane, ACE Basin Chairman; Edwin Cooper, Ducks Unlimited; Robert Schofield, private landowner, and Jane Griese, ACE Basin refuge manager are a part of the "Ecosystem Conservation in Practice" roundtable.

Charles Ragsdale leans forward, his elbows resting on his knees. He's part of a large circle of 25 folks sitting on folding chairs under a large live oak that easily saw the 19th century. Spanish moss hangs from the oak, and a large magnolia tree stands guard a few feet away.

The circle is largely made up of Service employees with other private landowners, South Carolina State fish and game officials, representatives from Ducks Unlimited and the Chairmen of the Ace Basin and Winyah Bay Focus Area Tasks Force. It's October, 2001 and we're a few miles outside of Georgetown, South Carolina on the Exchange Plantation which has been in the Ragsdale family for over 50 years.

What brings such a diverse group together in such an idyllic setting? To learn how to do what's right for conservation!

This is the first of three roundtables sponsored by the National Conservation Training Center entitled "Ecosystem Conservation in Practice." Roger Banks, Field Supervisor at the Charleston Ecological Services Field Office and a member of the Winyah Bay Area Task Force has become an icon for implementing an ecosystem approach, and the other Service personnel were there to listen, learn, and share their own ecosystem approach experiences.

Trust circle. (left to right) *Kenny Williams, Ducks Unlimited; Joe Carter, Winyah Bay Focus Area Chairman; Roger Banks, Ecological Services; Ernie Wiggers, Nemours Foundation; Bob Perry, South Carolina*

A few miles to the north and east of the Pee Dee and Waccamaw rivers, plantation upon plantation have been gobbled up and made into the latest, greatest conference center and golf/tennis resort. Presently, there are more than 120 golf courses within 50 miles of Myrtle Beach, South Carolina. Roger Banks and others in the Winyah Bay Task Force saw the need for community-based conservation planning and did something about it.

Why did these developers, private landowners, State and Federal employees come together? The answer is as diverse as the participants. Whether it was to protect upland habitats, protect wetlands, or protect a way of life, each participant had a different reason for being there, and each worked to find common ground.

The members of the Winyah Bay Area Task Force have been able to accomplish much by focusing on a common-based interests and making sure the variety of concerns were validated and balanced. All are diverse and equal. Joe Carter, Chairman of the Winyah Bay Focus Area Task Force and also, Secretary of the South Carolina Historical Rice Plantation Association summed it up best when he said, "like the boughs of a tree, we all had to bend to shade and protect a common area."

Many of us have ideas about what makes a partnership and how a functioning partnership should operate, but few of us have ever had the good fortune to be a member of such an effective partnership. Among its many successes, the Winyah Bay Area Task Force is renowned for its role in the establishment of the Waccamaw National Wildlife Refuge in South Carolina's coastal zone.

If you are interested in citizen-centered, landscape conservation, want to share your experiences, and learn from others, don't miss the next Conservation Roundtable scheduled for June 3-7, 2002 in the Blackfoot Valley of Montana.

Terry Sexson, Special Assistant for Ecosystems, Lakewood, Colorado



Oil spill. *Tim Keller, Fire Management Officer at Quivira National Wildlife Refuge in Stafford, Kansas, directs the refuge fire staff to manage an oil spill 125 feet wide and 1/4 mile long that threatened wildlife habitat on the refuge. Being able to burn the site quickly prevented large amounts of oil from soaking into the soil on refuge land. The spill occurred due to a 1/2-inch puncture hole in the pipeline, which moved oil across the refuge. This is the second such incident to occur on the refuge in recent years. The refuge fire staff is now developing a Standard Operating Procedure for managing such incidents, which may include specialized training. FWS photo: Bill Waln. Karen Miranda Gleason, External Affairs, Denver, Colorado.*

Louisiana's New Bayou Teche Refuge Protects Threatened Black Bear



Traps. While trapping bears for population monitoring and management purposes on land that was still under private ownership by the Bailey Family, Deputy Manager Steve Regan found that "somebody else was setting traps that morning." This photo exemplifies the deep, thick and practically impenetrable nature of bear habitat in the Lower Atchafalaya Basin and the Bayou Teche NWR. FWS photo: Steve Reagan.

The Service and the Trust for Public Land last November celebrated the creation of Bayou Teche National Wildlife Refuge in Franklin, Louisiana. Located at the southern extreme of the rich Atchafalaya floodplain, Bayou Teche NWR is the only refuge in the country specifically created to conserve threatened Louisiana black bears and is a critical part of efforts to bring back this threatened native species. It is the 538th national wildlife refuge.

"The primary reason for establishing the Bayou Teche National Wildlife Refuge is to protect the threatened Louisiana black bear," said Southeast Regional Director Sam D. Hamilton. "Together with our partners, we are committed to restoring the species throughout its historic range."

Critical elements of black bear recovery include protecting currently occupied bear habitat—including Bayou Teche—and enhancing areas that bears have the potential to move into, as well as establishing movement corridors.

Previously owned by the Bailey family of St. Mary Parrish, the 9,000-acre property that now forms Bayou Teche is a critical link for the Louisiana black bear. In addition to providing important year-round habitat for this unique subspecies of black bear, the refuge also provides rich habitat for a variety of other wildlife, including wood ducks, neotropical migratory birds, and wintering waterfowl; white-tailed deer; red and grey fox, bobcat; and river otter.

The new refuge will support environmental education, interpretation and wildlife-oriented recreation. As ecotourism becomes an increasingly vital part of Louisiana's economy, Bayou Teche NWR will provide valuable revenue to the local economy. When the refuge is completed, it will encompass 27,000 acres of important wildlife habitat.

Creation of the Bayou Teche NWR received strong support from U.S. Senators Mary Landrieu and John Breaux of Louisiana. In addition, U.S. Representative Billy Tauzin of Louisiana helped secure funding from the Federal Land and Water Conservation Fund.

The Trust for Public Land is a national conservation organization dedicated to protecting land for people. Since 1972, TPL has protected more than 1.2 million acres nationwide valued at \$2 billion, including 311,472 acres within the National Wildlife Refuge System.

Dario Bard, External Affairs, Washington, D.C.

What are they doing? *Craig Mowry, Tallgrass Prairie Coordinator, demonstrates to an enthusiastic group why this grass is called BIG Bluestem. Students were provided learning opportunities in topics such as coyotes, wetlands and erosion at Waubay National Wildlife Refuge's grade school program "1, 2, 3 To The Refuge." This program was supported by the Agriculture Department's Resource Conservation Service, South Dakota Game, Fish and Parks, State Forestry Department, Ducks Unlimited, The Nature Conservancy, Enemy Swim Day School, South Dakota State University, and the Jane Goodall Institute. – Connie Mueller, Waubay WMD, Waubay, South Dakota. FWS photo: Laura Hubers.*

Houston Area Extends its Outreach

"Bao Ton thien Nhien cua Hoa Ky", or more commonly known as "Conserving the Nature of America", has been translated to Vietnamese and is available through the Clear Lake Ecological Services Field Office. A translation of the "Careers" brochure is in print and will be available early 2002.

The Vietnamese translation is a product of Carlos Mendoza, Project Leader at the Clear Lake Ecological Services Field Office in Houston, Texas. Mendoza attended an Environmental Protection Agency hosted meeting concerning Asian American and Pacific Islanders. By partnering with various members of the community and both government and non-government organizations, Mendoza developed an outreach project for the Service.

"I felt that in order to determine how the Service could be of assistance to people of the Vietnamese community, we must first explain, in their native tongue, what it is that we do," said Mendoza.

The Advisory Commission on Asian American and Pacific Islanders was established by Executive Order in 1999. The commission's focus is to improve the quality of life for Asian Americans and Pacific Islanders through increased participation in Federal programs. On the two year anniversary of the program, President Bush signed an amendment to the executive order extending the President's Advisory Commission on Asian Americans and Pacific Islanders for an additional two years.



U.S. and Russia: 25 Years of Working Together to Protect Migratory Birds



Translation? *First Service Brochure in Vietnamese is usually known as Conserving the Nature of America. FWS photo.*

At 125,000 strong, Houston has one of the highest populations of Vietnamese living in the United States. Moreover, Vietnamese is the sole

language of 44 percent of Vietnamese households nationwide.

The brochure recently became available at all thirteen Texas National Wildlife refuges, as well as many Texas State Parks, and also will be placed in shopping area Kiosks in Houston communities predominately populated by Vietnamese. Furthermore, the potential for nationwide use is quite wide. "One of the beautiful things about this program is that the brochures chosen can be used anywhere within the Service. The literature is not specific to any particular region," said Mendoza

"The Service is indebted to Ms. Lisa Pham, from the Environmental Protection Agency, Dallas, Texas, and to Messrs. Trouc Le and Nathan Tran, Boat People-SOS, Houston, Texas, for their work in translating the Service's brochure," said Mendoza.

Jose Viramontes, External Affairs, Albuquerque, New Mexico

This past November, the United States and Russia marked 25 years of working together to conserve some 200 migratory bird species with common flyways, breeding, wintering or molting areas. The two countries signed the "Convention between the United States of America and the Union of the Soviet Socialist Republics Concerning the Conservation of Migratory Birds and Their Environment" on November 19, 1976.

The treaty provides a framework for cooperation between scientists and wildlife managers. It also encourages research and coordination between national bird banding programs, exchange of scientific information, and the conservation of bird species and their habitats.

As early as 1939, the two countries were concerned about these bird populations. Even during the height of the Cold War, both nations shared data and conducted joint field work on species such as black brant and Steller's eider. With the dissolution of the Soviet Union came new opportunities for Russian and American biologists to uncover many of the migratory bird mysteries of the Bering Sea region. This information has led to more effective wildlife management plans for these shared populations.

The cooperation has produced many results. Two transfers of Aleutian Canada geese from the United States to a captive breeding facility in eastern Russia have greatly contributed to the successful effort to restore a wild migrating population in the Asian portion of the bird's range. By the early 20th century, the Asian Aleutian Island population had been extirpated following the introduction to its nesting islands of Arctic foxes for fur farming. Today, thanks to the removal of the foxes and the transfer program, Aleutian Canada Geese once more populate these islands.

Sharing information and conducting joint field work, wildlife managers have been studying the spectacled eider, a large sea duck threatened throughout its range in Alaska and Siberia. Between the 1970s and the 1990s, the breeding population on the Yukon-Kuskokwim Delta of Alaska declined more than 96%, and only about 4,000 pairs nest there today. Wildlife managers are still trying to understand the cause of this decline.



Serene. *A flock of wintering long-tailed ducks in Prince William Sound, Alaska, benefit from a U.S. and Russian convention to conserve migratory bird species. FWS photo.*

Banding and vaccination efforts are ongoing against cholera of lesser snow geese from Wrangel Island in the northeastern Russian Arctic. These geese winter along the west coast of North America, including California's Central Valley region.

To date, biologists have identified 1,705 seabird colonies in Alaska and 453 colonies in the Russian Far East. Work continues on a database to store data on the location, breeding population size, and species composition of seabird colonies found throughout the Bering Sea region.

The U.S. has signed other migratory bird conventions with Canada in 1916, Mexico in 1936, and Japan in 1972.

Peter Ward, International Affairs, Washington D.C.

The Ramsey Canyon Leopard Frog

Frogs were on the menu for a long time at the Beatty's Miller Canyon Guest Ranch and Orchard in Arizona's Huachuca Mountains. Bullfrogs, that is. "It took two years to get them all," says Tom Jr., who runs the guest ranch with his parents Tom Sr. and Edith. The Beattys had introduced bullfrogs into a large pond built for fishing and swimming. Then they realized the East coast bullfrogs were competing with the native Woodhouse toads on the property, and also with a native frog heading for the endangered species list—the Ramsey Canyon Leopard Frog. When they understood that this is one of the rarest frogs in the world, the Beattys joined up with a team spear-headed by the Arizona Game and Fish Department to release adult frogs into a renovated pond on their property to help them increase their numbers. Four years ago there were perhaps 10 of these frogs in the world. Now, thanks to the Beattys and to crucial help from the National Fish and Wildlife Foundation, the Ramsey Canyon frog population is much more secure.

The Beatty family is one example of private property owners who are working to make "endangered species" an opportunity rather than a liability. The Foundation is committed to protecting species on private property as well as on public land, conserving plants and wildlife. Many species close to being listed could avoid it altogether with some help in getting their populations up. The foundation matches funds through partnerships on critical conservation projects, and is very enthusiastic about citizens such as the Beattys, who see an opportunity and take it into their own hands. Since over 80 percent of endangered species are on private property, joint ventures like this one are critical to our environmental health. Keeping species off the list serves everyone's best interest.

Mike Sredl, the Rapid Frogs Project Coordinator at the Arizona Game and Fish Department, had seen a Ramsey Canyon Leopard Frog in a local museum collection, and Tom Jr. remembers seeing them as a boy. In the late 70's, a fire in the area caused a flood that may have wiped out most if not all of these frogs in Miller Canyon. Sredl spent some three years with the Ramsey Canyon Leopard Frog Conservation Team trying to revive them before the Beattys got into the picture. "They just boosted or efforts enormously," Sredl says. He helped the Beattys by recruiting volunteers to collect eggs for metamorphosis and the releasing the adult frogs into the Beatty's ponds.

"I get enjoyment out of watching the frogs," said Tom Jr. "The newest pond is just outside my window and has the strongest breeding population—28 egg masses in the first year, starting last July, from frogs under a year old... this year should be even better."

This article is an excerpt reprinted with permission from the SouthWest Journal of the National Fish and Wildlife Foundation: Regional Director, David Brunner; Associate Director of Programs, Claire Thorp; and Editor, Mary Ellen Hannibal.

Emma Moton Appreciated



In a company town where people come and go in 4-year cicada-like cycles, where bureaucratic fates rise and fall with the political tides, there is but one, true constant in our lives as Service employees.

The one, true constant in our lives... is Emma Moton.

For any agency employee who hasn't opened the mail, cashed a paycheck, or taken sick leave over the past 30 years, the name "Emma Moton" means little.

For the rest of us, it means the world.

In my 25-year career with the Service, I have had but two faithful correspondents: Ed McMahon and Emma Moton.

Ed McMahon and his "Publishers Clearinghouse" sidekicks have never awarded me a nickel in their annual sweepstakes.

Emma Moton pays me off, without fail, every 14 days.

Actually, it's something of a misconception that this soft-spoken, diminutive, 61-year old woman with a heart of gold and a backbone of steel pays the entire U.S. Fish and Wildlife Service every 2 weeks.

It's just that most of the Fish and Wildlife Service believes it to be true.

"People actually think I pay them personally," says Moton. "And people think I withhold their paycheck."

It doesn't hurt that her name is on the return address of biweekly payroll statements that go to every agency employee. Her unintended fame began back in 1986, when the Service converted to the "Federal Personnel Payroll System." Time and attendance tracking became a part of the agency's larger personnel processing operations. A name was needed for paychecks returned in the mail... and that name was Emma Moton's.

“I had no choice. They had to give them a name to go on the envelopes, and when I saw mine, I was really upset!”

That’s when Emma Moton first emerged as the Fish and Wildlife Service’s most well-known and revered correspondent.

That honor translates, in an agency of 7,000 mobile employees, to at least 100 returned envelopes every 2 weeks, in search of updated mailing addresses.

When I visited Moton in her cubbyhole office in Arlington, Virginia, shortly before Christmas, letter carriers had come calling for \$57.38 in postage for errant payroll statements sent to the out-of-date residences of long-transferred employees.

“The post office must think Emma Moton is the dumbest person in the world to be getting this much mail back each month,” she laughs.

In any tug-of-war over postage due between Emma Moton and the U.S. Postal Service, my bet will be on Moton.

The folk wisdom and myths that have grown up around Emma Moton during her 29-year career with the agency are now the stuff of legend, reflecting her “larger-than-life” persona to some employees:

– The West Virginia employee who, 5 years into her career, still believed that the Service had “out-sourced” its payroll operations to a multi-national conglomerate called “Emmamoton;”

– The worker from the hinterlands who finally wrangled a trip to Washington, D.C., returning to tell his wife, excitedly, “I went to the Nation’s Capital, where I got to meet ... Emma Moton!”

– The toddler who nearly jeopardized an employee’s marriage when she ran to her mother, envelopes in hand, asking, “Who is this lady who keeps sending Daddy letters all the time?”

Moton left Wilson, North Carolina, at age 19 with a high school degree and a handful of business courses from Bennett College and North Carolina Central under her belt.

Her love of numbers and her assertiveness she carried with her from childhood.

“I was an ‘A’ student in algebra and geometry, and on the honor roll, too!” she says. “I don’t consider anything hard, but every job I’ve ever had I’ve learned from scratch. Never had a trainer, but I’ve sat down, learned, and then trained others.” She supplemented her on-the-job experience with courses at Strayer Business College and George Washington University, though she never earned a degree.

Moton joined the old Civil Service Commission, predecessor to the Office of Personnel Management, in 1966, concentrating on retirement and payroll operations in the era before computers and digital technology. In 1973, she transferred to the Fish and Wildlife Service, joining eight other clerks who handled payroll for the entire agency.

“There were ‘no mistakes’ in those days. You had to ‘balance out’ everyday, and stay until 9 or 10 at night if you were off by a penny on a bond! In those days, we did everything manually, starting with keypunching time sheets,” she recollects.

Now, as payroll coordinator, Moton concentrates chiefly on computer input of Region 9’s biweekly payroll. The rest is left up to the agency’s network of timekeepers spread across the country—though Moton’s name still appears on all payroll statements—and to Personnel, which now handles specialized matters like health insurance.

No wonder that employees, no matter where their duty station, still keep calling Emma Moton for answers.

“I’ve never, ever told anybody I can’t help them. That’s the satisfaction I get—helping people,” she says. “I’ve said the wrong thing at times, and I’ve learned how to keep my tongue... at times. But I’ll argue with anyone to make sure a person gets paid and the right thing gets done.”

Like the employee who was stranded at an airport with no paycheck and no money. “I told him I’d check on it so he could go to the bank and get some money. He told me I was the only person who had helped him.”

Others agree. “You are my favorite person in all of Fish and Wildlife,” wrote Lisa Roberts, who recently departed the Service from Ventura, California. “You have made sure I get a paycheck every 2 weeks for the last 4 years.”

“Emma is the payroll Bible,” writes another.

Privately, Moton is hinting of retirement. She’s eager to spend more time with her extended network of “children” who have adopted her, and with her cooking and substitute teaching.

It’s hard to imagine how the Fish and Wildlife Service would function without her.

It hasn’t in the past.

During both the government shut-down and Washington’s winter snows of 1994, thousands of Fish and Wildlife Service employees were sent home.

Emma Moton stayed put.

Deemed essential, she trudged in each day to complete the company payroll.

Even though my paycheck will read the same when Emma Moton trades in her computer and her payroll cubbyhole for her “other life” of dinner parties and church work in her Maryland neighborhood, I have an idea my paycheck undoubtedly will be worth a little bit less.

Because, in the world of Fish and Wildlife Service payroll, her name has been our only “coin of the realm” for three decades.

So “cheers” to Emma Moton... and to a bureaucracy that’s small enough for everyone to know your name!

*David Klinger, Senior Writer/Editor
Shepherdstown, West Virginia*

The Fisheries Program, An Overview

This edition of the *Fish & Wildlife News* is dedicated to those who tirelessly work with passion to support the conservation of our Nation's fisheries. Through the Service's predecessor agencies to the current network of fish hatcheries, fish health centers, fish technology centers and fishery resource offices, we have led the country in fisheries conservation for over 130 years.

A broad range of activities supports our conservation efforts. These include raising and releasing fish to assist with mitigation and species recovery, restoring habitat, surveying fish populations and habitat, developing new technologies to improve the effectiveness of conservation efforts, inspecting fish for pathogens and disease, preventing the spread of aquatic nuisance species and managing fisheries.

The following stories, and those appearing in the *Fish & Wildlife News* throughout the year, will focus on these activities of our Fisheries Program.

Nicholas Throckmorton, Public Affairs, Washington, D.C.

Vision for Fisheries' Future Taking Shape



A number of important developments regarding the future of the Fisheries Program occurred early this year, prompting us to produce this special Fisheries issue, which features much of the program's history—the proud foundation that we are building on as we move to a bright future in this new century.

The Service's Fisheries Program is to receive \$94.8 million under the President's proposed 2003 budget. Within that amount, the National Fish Hatchery System budget has been reduced by \$1 million, tied to concerns at the OMB about how best to move the system forward. While at one point in the budget deliberations it appeared that a larger decrease for hatcheries was likely to be proposed in the President's budget, Secretary Norton appealed the decrease and succeeded in reducing it significantly after agreeing that the Service would make demonstrable progress toward addressing several real and perceived concerns about the hatchery system.

OMB has been grading agency performance for various programs, consistent with the President's management agenda. The Service's National Fish Hatchery System was identified as an area of concern; as a result, a series of more than 20 directives were stipulated by OMB and the Department to move the system forward, as part of the appeal negotiations. These directives include several major categories: sound science and good management, achieving cost savings, strategic thinking (completing our collaborative strategy for the Fisheries Program), performance management, workforce management, mitigation analysis, mitigation cost-recovery, and competitive sourcing and activity-based costing.

The Service formed eight work groups to respond to these directives. Each work group is being led by a member of the Directorate and includes representatives from the Regions and the Washington office. Turnaround time for the products is short, and all of the products must be completed by the end of the fiscal year. The first product, the mitigation database, was delivered to the Department March 12. Since then, several other work group products have been provided to the Department, including the Service's draft strategic vision for our Fisheries Program.

Last, all of the work addressing the directives about the hatchery system will be integrated into the larger collaborative planning effort now going on in the entire Fisheries Program. In July 2001, the Sport Fish and Boating Partnership Council (SFBPC) was charged by the Service to convene a steering committee representing a broad array of stakeholders in fisheries and aquatic resource conservation to work with the Service during the development of a new Fisheries Program blueprint for the future. The first product from the steering committee was a consensus report on the recommended role that the Fisheries Program should play in the partnership



Guidelines: When and where to use the new fisheries "signature"

The fisheries outreach initiative "signature" may be used in the following ways:

- The signature may be used on official brochures, press releases, press kits, and any other official printed material except letterhead, but must be used in conjunction with the official Fish and Wildlife Service shield.
- The signature may be used on any official Service web site that also includes the official Fish and Wildlife Service shield.

- The signature may be used, standing alone, on clothing approved for sale as a part of the outreach initiative, but may not be used as part of the approved Service uniform.
- The signature may be used, standing alone, on approved promotional products.
- The signature may not be loaned to any entity for the intention of use on products sold by any commercial retail outlet.

effort to conserve the Nation’s fish and aquatic resources. This vision for the future, along with the earlier hatchery report from the SFBPC (*Saving A System In Peril*) were the keystone elements in the development of the first part of the Fisheries Program plan, the draft “Strategic Vision.” This is a focused, concise document that discusses where the program is today, where it needs to go in the future and why it’s important to get there.

The Service has met with the SFBPC Steering Committee members again on May 31 to get their input on the draft “Strategic

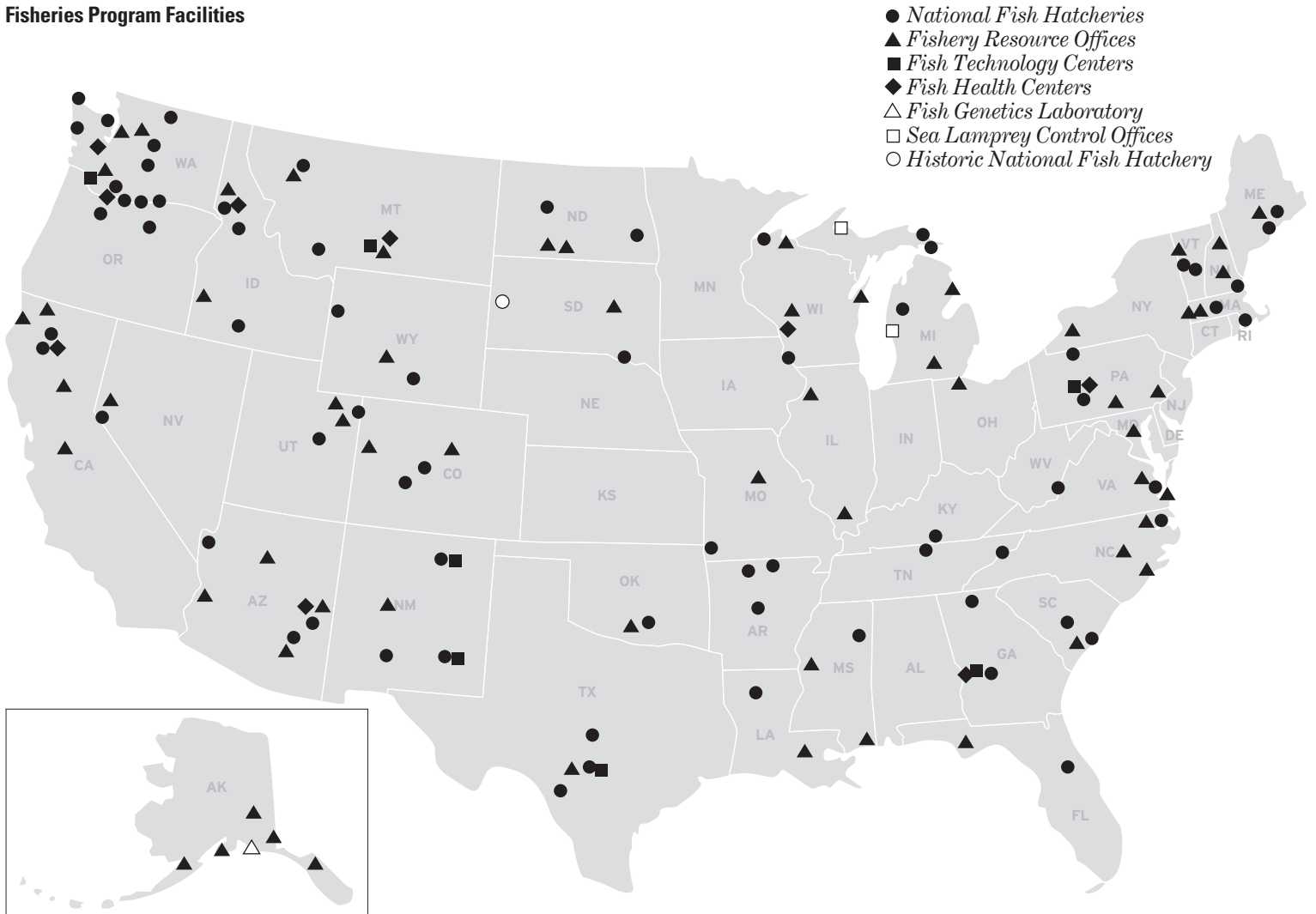
Vision” and discuss the scope and content of the communication strategy and implementation plan and the Steering Committee role in their development. These two parts of the Fisheries Program plan will be in draft form by mid-July. These three pieces, together, will form the strategic plan for the Fisheries Program.

Much of the work on the OMB-DOI hatchery directives will be incorporated into the implementation strategy portion of the Fisheries Program plan. This part of the plan will set out specific action and time frames the Service will take to make the vision for its Fisheries Program a reality.

“I’m very heartened by the enthusiasm and dedication of everyone’s effort to bring our collective expertise together to strengthen the Service’s Fisheries Program,” Director Steve Williams said. “It is one of my highest priorities. Completion of the Vision draft was a major milestone in our collaborative process to reach that goal.”

Cathleen Short, Assistant Director, Fisheries and Habitat Conservation, Washington, D.C.

Fisheries Program Facilities



Fisheries Readies a Major Outreach Initiative



Let the festivities begin. *The Fisheries Program kicked off its outreach campaign at the North American Wildlife and Natural Resources Conference in Dallas last April. Director Williams gave accolades for the display to Tom Busiahn (left), Craig Springer (right of center), and Lucille Harrell (right). FWS photo: Megan Durham.*

Conservation, history and the future—with a decided emphasis on the emerging collaborative strategy for the Service's Fisheries Program—are the multiple thrusts of a major outreach initiative that will stretch across all of the Fisheries facilities throughout the United States between now and March 31, 2003.

"This is a benchmark," said Service Director Steve Williams. "Our Fisheries Program has been around for more than 130 years. It is the literal foundation of our agency. And it's time for a pat on the back in recognition of the many contributions to fish and aquatic resources conservation it has made."

Open houses, presentations and special events will highlight the effort at Service fisheries facilities throughout the year and dozens of events will be aimed at children. Many will welcome participation by state fishery agencies, non-government and civic organizations.

"We are all very excited about this effort," said Cathleen Short, Assistant Director for Fisheries and Habitat Conservation. "This is a first for our program, which dates back to President Grant. At the top of our list is an effort to tell the fisheries story to Americans everywhere, explaining what this program

Well-dressed culturalist. *A derby, tie, watch fob, jacket and waders typified early U.S. Fish Commission employees. These men are spawning Atlantic salmon, location and date unknown. FWS photo.*

*Craig Springer,
Division of
Fisheries,
Albuquerque,
New Mexico*



has done for our nation, for our many partners and for a critically important resource. Fisheries is not just about fish. It's about all of our aquatic resources, and we want to spread the word about their importance to the American public."

The fisheries program has designed a graphic text, called a signature, which will adorn the new fisheries brochure, display, Email, fact sheets, press kits, and dozens of other products throughout the year. Directly to the point, the message is "Conserving America's Fisheries." (See related story on page 12 regarding guidelines for the signature's use).

"One of the highlights of this effort will be the unveiling of the program's new collaborative strategy," said Short. "I've not seen an effort that has drawn on so many sources, from among so many diverse meetings, from among such a cross-section of fish and other aquatic conservation interests, as this one. It will be our blueprint for this program for the 21st century. It's going to be an exciting year, and we want everyone to be a part of it."

*Ken Burton, Public Affairs,
Washington, D.C.*

Creation of the Fisheries Program



McCloud River salmon-breeding station workers pose, ca 1875. *Livingston Stone reported to the U.S. Fish Commission on starting the McCloud River hatchery: "... and on the morning of September 1, 1872, the hatching-works of the first salmon-breeding station of the United States was located on this stream."* FWS photo.

Shakespeare wrote, "What is past is prologue." Our history begets future; the proud heritage of the last 130 years of fisheries conservation sets the stage for the time to come.

The mid 19th century saw many changes in America: societal upheaval, war, the expansion of industry. Amid all this, concern grew for our natural resources. Thinkers of the day began to see our natural resources not as an inexhaustible commodity, but as treasures worth conserving.

In 1871, Congress passed the first legislation recognizing a Federal role in conservation of natural resources—the Joint Resolution for the Protection and Preservation of the Food Fishes of the Coast of the United States. Congressman Robert Barnwell Roosevelt, Theodore Roosevelt's uncle, sponsored the initiative.

The resolution recognized that "the most valuable food fishes of the coast and the lakes of the United States are rapidly diminishing in number, to the public injury, and so as materially to affect the interests of trade and commerce."



Spencer Fullerton Baird. *Baird was the driving force behind the creation of the U.S. Fish Commission. Many of today's Service fish biologists have a direct academic link to Baird's first employees.* FWS photo.

The act gave President Grant authority "to appoint, by and with the advice and consent of the Senate, from among the civil officers or employees of the government, one person of proved scientific and practical acquaintance with the fishes of the coast, to be commissioner of fish and fisheries, to serve without additional salary."

Thus, the U.S. Commission of Fish and Fisheries was created. President Grant appointed Spencer Fullerton Baird, at the time Assistant Secretary of the Smithsonian Institution, as the first U.S. Fish Commissioner.

The new Fish Commissioner set up an office in his New England home. His initial charge was to assess the condition of fisheries and report remedial measures to Congress. Baird began studies of Atlantic salmon and striped bass. A year later he was given another charge: study and promote fish culture. Toward these ends, Baird worked in partnership with fish commissioners from the States; he advocated State involvement in fisheries, and as a result State fish commissions proliferated during his tenure.

Thus the early Fish Commission presaged the modern Fisheries Program, in which Fishery Resource Offices assess the condition of fisheries and coordinate remediation—and the National Fish Hatchery System contributes to the science of fish culture.

Baird's scientific work influenced a future president. Theodore Roosevelt wrote: "My chief interests were scientific. When I entered college, I was devoted to out-of-doors natural history, and my ambition was to be a scientific man of the Audubon, or Wilson, or Baird, or Coues type—a man like Hart Merriam."

Fish culture soon took precedence over most of the commission's activities. In 1872, Baird sought the input of State fish commissions and the American Fish Culture Association, precursor of today's American Fisheries Society, on ways to carry out the wishes of Congress. As a result of that meeting, Baird directed scientist Livingston Stone to spawn California salmon eggs for distribution elsewhere.

In September 1872, Stone established the first Federal hatchery near the mouth of California's McCloud River. Stone's report to Baird read: "We at last discovered a spring stream, flowing a thousand gallons an hour... and on the morning of September 1, 1872, the hatching-works of the first salmon-breeding station of the United States was located on this stream."

Stone's hatching-works became the first national fish hatchery and remained in operation until 1937. Today the facility lies entombed in a watery grave below Lake Shasta.

One hundred and thirty years later, the Fish Commission's legacy remains within the Fish and Wildlife Service. The Service's Fisheries Program has evolved as our scientific knowledge has grown, and today, it comprises a network of dedicated professionals engaged in their craft at 70 hatcheries, 64 fishery resources offices, nine fish health centers, seven fish technology centers, one genetics lab and one historic National Fish Hatchery. These professionals proudly carry the mantle of 130 years of fisheries conservation—descending from the oldest organized conservation effort in our nation's history.

*Craig Springer, Division of Fisheries
Albuquerque, New Mexico*

National Fish Hatcheries Over 100 Years Old

Fish culture in North America evolved as a result of exploitation of many resources, starting as early as 1853. By 1870, 19 of 37 States plus the territories of Colorado and Kansas practiced fish culture.

In 1872, the National Fish Hatchery System began with the U.S. Commission of Fish and Fisheries funding for fish culture operations at Craig's Pond Brook, Maine, and McCloud River, California, later known as the Baird hatchery. Concern over the potential use of the McCloud River site by market fishermen led the President to officially set aside the McCloud River tract as a reservation of pisciculture on December 9, 1875—our first National Fish Hatchery.

Craig Brook hatchery continues to play an important role in the restoration of Atlantic salmon. Although the McCloud River facility now lies at the bottom of Shasta Reservoir, a new hatchery at the base of Shasta Dam, the Livingston Stone National Fish Hatchery, plays an important role in the recovery of the endangered Sacramento winter chinook salmon.

The heritage of our hatchery system is reflected in several hatcheries over 100 years old, which are still addressing national fishery resource priorities for the American people.

Craig Brook NFH, Maine, Est. 1889, has worked to rebuild Atlantic salmon populations where wild populations still exist.

Neosho NFH, Missouri, Est. 1888, is the oldest operating Federal hatchery. The hatchery has produced over 128 different species and now is focused on mandated mitigation and recovery efforts. Because of its park-like environment and location in the heart of town, it hosts over 40,000 visitors annually.

Leadville NFH, Colorado, Est. 1889, sits at an elevation of 9,600 feet in the Colorado Rocky Mountains. The hatchery supports the recovery of the threatened greenback cutthroat trout, provides for fisheries mitigation in Federal project waters in the Fryingpan-Arkansas River drainage, supports the Upper Colorado River Endangered Fish Recovery Program, and recreational fisheries in Service waters in Colorado.

Bozeman FTC, Montana, Est. 1892, was recently also designated as the Fish and Wildlife Service National Investigational New Animal Drug Office to address the registration of drugs and chemicals with the Food and Drug Administration for aquaculture use.

Erwin NFH, Tennessee, Est. 1897, had a mission to rear trout for streams in the southern Appalachians. Today, the hatchery functions as an integral part of the Service's National Broodstock Program, providing certified disease-free rainbow trout eggs to many Federal and state hatcheries across the nation.

D.C. Booth Historic NFH, South Dakota, Est. 1896, was originally known as the Spearfish National Fish Hatchery. This hatchery's mission was to stock fish in the Black Hills. With a rich history that includes managing the fishery in Yellowstone National Park and training fish culturists, the station now serves as a national repository and interpretive site for the history of fisheries management in this country, and is supported by volunteers from the local community.

Little White Salmon NFH, Washington, Est. 1898, produced fall chinook salmon for release into the Little White Salmon River to help reverse the decline in Pacific salmon stocks within the Columbia River Basin. Today the hatchery has a similar mission.



Dedicated conservationist. *Livingston Stone, U.S. Fish Commission, exported shad and stripers, McCloud River rainbows and established a reserve for salmon on Alaska's Afognak Island in 1892. FWS photo.*

Nashua NFH, New Hampshire, Est. 1898, began rearing rainbow, brook, and brown trout for stocking state and Federally managed waters within New England. Today, the hatchery is a domestic and sea run salmon broodstock facility, with the goal of producing four million eggs annually for Atlantic Salmon restoration programs in New England rivers.

Edenton NFH, North Carolina, Est. 1898, began rearing American shad, striped bass, and river herring. Superintendent William C. Bunch is recorded as being the first individual to rear striped bass fry to a stocking size. Today, a hundred years later, the hatchery is still spawning American shad and striped bass. It also serves as a refuge for an endangered species, the Cape Fear shiner.

U.S. Fish Commission employees net carp from ponds on the grounds of the Washington monument, ca 1880. *Carp were brought to the United States from Europe with the intent of providing a food source—and one recent European immigrants would take to or so it was thought—and increasing sport fishing opportunity. The 1880 Fish Commission Report states, "In 1879 the propagation of the oyster was accomplished, by cooperation with the Maryland Commission, under the direction of Major Ferguson, and the distribution of the carp throughout the country was begun." Toward that end, several fish culture facilities existed in the Washington DC area until 1905. FWS photo.*

Craig Springer, Division of Fisheries, Albuquerque, New Mexico

Historical Hatchery Serves as Interpretative Center



Craig's Pond Brook, Maine. *This hatchery was annexed by the U.S. Fish Commission making it one of the first Federal fish hatcheries. FWS photo.*

Warm Springs FTC, Georgia, Est.1898, had a mission to supply sport fish and to augment declining natural stocks of important food fish. Since 1989, its mission has expanded, and the hatchery was turned into a complex and named the Warm Springs Regional Fisheries Center.

Spring Creek NFH, Washington, Est.1901, had a mission to supplement harvest for the commercial salmon industry. The hatchery now serves recovery, mitigation and the future restoration of the indigenous Tule fall chinook stock.

Private John Allen NFH, Mississippi, Est.1901, was known as the Tupelo National Fish Hatchery. Today, the hatchery still plays an active role in rearing warmwater species for Federal lands in the Southeast Region.

White Sulphur Springs NFH, West Virginia, Est. 1900, was charged to produce fish for the Nation's lakes and streams. Today, the hatchery produces 7.5 million disease-free rainbow trout eggs, shipping eggs to hatcheries in 14 States. The hatchery is also developing propagation techniques for freshwater mussels from the Ohio River watershed.

Stephen D. Brimm, D.C. Booth Historic National Fish Hatchery Spearfish, South Dakota



D.C. Booth's historical hatchery building. *Built in the 1890's, the main hatchery building now hosts a museum. FWS photo.*

The year was 1896. Americans were still driving horse and buggies. The Wright Brothers were years away from their first flight. Grover Cleveland was finishing up his second term as president. And Congress created the Spearfish National Fish Hatchery in Spearfish, South Dakota, to produce trout for the Black Hills.

Rich in historical and cultural heritage, the Spearfish hatchery, known as D.C. Booth Historic National Fish Hatchery is operated by the Service through unique partnerships. The hatchery has a colorful and important history, including introduction of trout into the Black Hills and the first fish management in Yellowstone Park. Because of its historical significance, it is listed on the National Register of Historic Places. Contributing elements of the National Register designation include the original 1899 hatchery building, a 1905 superintendent's residence, historic stone garages and stone-lined rearing ponds.

Visitors have long enjoyed feeding fish and wildlife and touring the tranquil grounds, making the hatchery one of the major tourist attractions of the northern Black Hills. Today, visitors also learn about the fundamentals of fish culture, resource management and aquatic ecosystems. The hatchery includes a very popular underwater fish viewing area, a fishery museum in the century-old original hatchery building, the

National Fish Culture Hall of Fame, a pond shop store and a new National Fishery Collection Management Center.

The center houses and preserves historic fisheries information for use by historians, teachers, students, researchers, and the American public. Its 10,000-square-foot building includes a conservation laboratory, research room, photo laboratory, walk-in freezer, 50,000 cubic feet of environmentally controlled storage with intrusion and fire suppression systems, conference areas, and a special moveable shelving system for storing written material.

D.C. Booth hatchery has a long and admirable record of public service. Authorized as a single-mission, trout rearing facility by Congress in 1896, it now has multiple missions through a series of unique partnerships.

The non-profit Booth Society, Inc., is a citizen-run supportive arm to the hatchery that raises funds, provides services and coordinates a volunteer program that provides over 17,000 hours per year. The Booth Society's mission is to promote, preserve and enhance the educational, cultural and recreational opportunities.

The City of Spearfish assists with volunteer lodging and provides advice and portions of their hospitality tax to the Booth Society for promoting and marketing this major tourism destination. The American Fisheries Society-Fish Culture Section has located its National Fish Culture Hall of Fame at the hatchery, honoring fish culture pioneers. The South Dakota Department of Game, Fish and Parks uses the hatchery ponds and raceways to rear fish in support of recreational fishing in the Black Hills.

Over the past decade, these partners have worked together to secure \$3.8 million for station renovations including an underwater fish viewing area, \$600,000 for historic site preservation work, \$100,000 for art exhibits, and \$150,000 for building a replica fish railcar. These partners are currently working together to enhance site interpretation and have completed a memorial to the early fishery workers.

Stephen D. Brimm, D.C. Booth Historic National Fish Hatchery Spearfish, South Dakota

Maiden Voyage of the California Aquarium Car Was Rough

Imagine traveling in a 27-foot-long railroad car, crowded with live fish. Built in 1873, only four years after the Transcontinental Railroad was completed, the California Aquarium Car was to travel from the East Coast all the way to the West Coast, carrying precious cargo.

The trip was a cooperative effort between the California Commissioners of Fisheries, a state agency, and the U.S. Fish Commission. California considered itself deficient in food fishes, the only kind that really was considered important at that time. Livingston Stone, founder of the first Federal fish hatchery, was in charge of correcting the situation.

It took three months to ready a borrowed railroad car for the journey and to assemble the fish in Charlestown, New Hampshire. No journey like this had ever been made. It was doubtful whether the closely confined fish could be kept alive for seven or eight days, especially when traveling in a railroad car. Locating good water supplies would be challenging since 2000 miles of the trip was through country where the water could be fatal to the fish. Locations of good and bad water were generally unknown throughout the whole trip.

Inside the car, one stationary tank was built into the end, across the full width. It was 8 feet long and over 2 feet high, and could hold 10,000 pounds of water. The crew slept on mattresses on top. Nearly 20 portable tanks of various sizes took up most of the floor space. A large ice-box occupied the entire width of the end opposite of the stationary tank. Shelves, cupboards and hooks were added wherever possible. Carpenter's tools, nets, aerating apparatus, a small alcohol stove and personal gear filled the remaining space.

With consideration for employee morale, the interior of the car was made attractive for the long journey. Pictures and other little devices covered the walls and the tanks were brightly painted. It was quite an inviting apartment, when the beds were made.

Everything was ready by one o'clock on June 3. Loaded on the car were 60 breeding black bass, 11 breeding glass-eyed perch, 110 yellow perch, 80 young yellow perch, 12 breeding bull-heads (hornpouts), 110 breeding catfish, 20 tautogs, 1500 salt water eels, 1000 young trout, 162 breeding lobsters and one barrel of oysters. As the journey progressed, 40,000 fresh water eels and 20,000 shad and shad eggs were added. Minnows were also brought along as food for the larger species.

A large crowd gathered to see the car depart. It left with hearty cheers and congratulations and the waving of hats and handkerchiefs.

Tanks were cooled with ice at temperatures ranging from 36 to 50 degrees. Ice covered every surface when a new supply was taken on, as well as filling the ice-box. The fish traveled well, except for some eels and lobsters. The eels got too cold and died, and mortality was high among the lobsters. The crew, Stone, Myron Green, and W. T. Perrin, had little time for sleep, with the constant and laborious demands of caring for the fish.

All was going well as the train left Omaha, Nebraska, on June 8. The crew had made tea and was sitting down to dinner at about half past two. Unfortunately, high water on the Elkhorn River had undermined the trestle foundation. The locomotive plunged into 15 feet of water; the crew barely escaped with their lives as the fish car quickly filled with water. A newspaper account headlines the loss of \$30,000 worth of fish.

Presumably, the fish escaped into the Elkhorn River. A 1962 article in Nebraska Outdoors refers to this as Nebraska's first stocking and says that some of the species took hold. California had to wait until 1874 to receive its first carload of eastern fish.

Those first two journeys, as well as journeys with cans of fish in a baggage car, proved that fish cars were feasible, leading to 66 years of Federal fish cars.

Randi Smith, D.C. Booth Historic National Fish Hatchery, Spearfish, South Dakota



Fish Car design improvements. *This full-size replica of the original Fish Car 3 is on display at D.C. Booth Historic Fish Hatchery. This replica is a much improved version of the first fish car—that met disaster.* FWS photo.

Help us find a film!

If any of our readers has a copy, or knows the whereabouts of a copy, of **Hatchery Salmon: Good, Bad or Indifferent?** Please contact the External Affairs Office in Washington, D.C. at 202/208 5634, and ask for Ken Burton or Mike Smith. The film was produced at the Abernathy facility in the 1960's. We hope to provide a copy of this historic film to N.C.T.C. and the Service's Heritage Committee.

Hatchery Created by Congressional "Appeal" Celebrates 100 Years

To gain a full understanding of the long and productive history of the Private John Allen National Fish Hatchery, one would have to travel back in time some 100 years and relive the days of a very colorful and often humorous Mississippi congressman, known to friends and colleagues as Private John Allen. Throughout his career, Congressman Allen made a number of very serious—but always entertaining—speeches before the U.S. House of Representatives.

Those who knew Allen would say that his most famous speech was his fish hatchery speech delivered before the House of Representatives on February 20, 1901. To this date, it is regarded as the most spontaneous burst of wit and humor ever heard on the floors of Congress. The Congressional Record shows that the House was in a continuous roar of laughter throughout the speech, inserting the words "Laughter," "Great Laughter," and "Renewed Laughter" a total of 26 times during the text of the speech and ending with "Loud Laughter and Applause." This speech was not only humorous, it resulted in the establishment of the Tupelo National Fish Hatchery, renamed Private John Allen National Fish Hatchery in 1982.

Congressman Allen's speech illustrates the loyalty and passion he had for his district in Mississippi, as well as his vision for growth and prosperity for the city of Tupelo. Here are the final excerpts from this famous speech that most certainly ensured appropriations for construction of this Tupelo hatchery.

This, Mr. Chairman, is a proposition to establish there a fish hatchery.

We have the ideal place for a fish hatchery. Why, sir, fish will travel over land for miles to get into the water we have at Tupelo. Thousands and millions of unborn fish are clamoring to this Congress today for an opportunity to be hatched at the Tupelo hatchery.

Now, Mr. Chairman, I only wish to say in conclusion that if there is a member here who wishes to have his name connected by future generations with that of Judas Iscariot and Benedict Arnold, if he wishes to have himself and his posterity pointed at with scorn, if he desires to be despised by men and shunned by women, let him vote against this amendment and he will secure all this infamous notoriety.

Shortly after Congressman Allen's speech, Congress voted in favor of the bill and President McKinley signed into law provisions establishing a Federal fish hatchery in Tupelo, Mississippi.

Although a lot has changed since 1904, when the hatchery actually began production with five earthen ponds and three artesian springs, the hatchery's mission has basically remained the same. Initially the hatchery produced largemouth bass, bluegill, redear sunfish, and channel catfish to support recreational fishing in Mississippi and contiguous states. Fish were transported on railcars that bordered the hatchery grounds on the east and west boundaries.

Private John Allen NFH has grown and now consists of 13 earthen ponds, two lined ponds, an in-ground raceway system and a fish holding house/intensive culture building. The hatchery still plays an active role in

the production of recreational species. In addition, the hatchery carries out interjurisdictional stockings of gulf coast striped bass that benefit Louisiana, Mississippi, Alabama, Georgia and Florida; it produces walleye for mitigation of the White River Basin in Arkansas and Missouri, and assists with restoration and recovery efforts of imperiled species such as paddlefish, alligator gar and lake sturgeon.

In addition to propagation activities, the hatchery also works hand-in-hand with fisheries resource offices doing population surveys for gulf sturgeon, product evaluations on gulf coast striped bass and sampling efforts for the endangered Alabama sturgeon. Future plans include working with species such as freshwater mussels and alligator snapping turtles.

On-site environmental education programs communicate the mission on the Service to 50,000 visitors each year. Outreach programs, featuring an interactive mobile aquarium present the Service's conservation message to school groups and community organizations.

*Richard Campell, Private John Allen NFH
Tupelo, Mississippi*

*James Cummins, Wildlife Mississippi,
Greenville, Mississippi*

Collecting eggs. *The box dates this photo to post-1903, after the U.S. Fish Commission was changed to the Bureau of Fisheries. Leadville hatchery workers collected eggs from neighboring streams for wide distribution—France, Japan, and South America. Today its concerns are closer to home. Leadville NFH is gearing up to host a brood stock of native greenback cutthroat trout, a threatened species. FWS Photo.*

*Craig Springer, Division of Fisheries,
Albuquerque, New Mexico*



Giving Nature a Helping Hand Since 1898

The decline of Pacific salmon in the Columbia River Basin is the result of a series of events that occurred over the past hundred years. Once the home to the most abundant run of salmon in the Pacific Northwest, the Columbia River system began to change with the arrival of settlers from the East. By 1900, a fishery that once produced 18 to 24 million pounds of salmon for Native Americans in the region had been replaced by canneries and an annual commercial harvest that peaked in 1883 at 43 million pounds of fish. This intensive harvest, combined with population growth, development, and habitat alterations, led to a serious decline in Columbia River salmon stocks.

The Little White Salmon National Fish Hatchery was established in 1898—although production began in 1896 on an experimental basis—to address the decline of native tule fall chinook. This site was selected because it was considered one of the principal spawning areas of the quinnat or chinook salmon. Assistant U.S. Fish Commissioner William Ravenel noted in 1898 that, “during the season, the salmon appeared in such large numbers below the rack that the Indians often speared two and three at one cast of the spear.”

The original hatchery was described as a rough wooden structure without a floor and lit by skylights. It was equipped with 50 troughs that were fed by water from a nearby stream. Other buildings included a mess-house and sleeping quarters for employees.

Fall chinook eggs were taken from adult fish that were captured in a downstream trap from mid-September through mid-October. It was noted in 1898 that the best “fishing” occurred at night, about one hour after dark. Spawning began in the morning and continued until eggs had been removed from all ripe fish. Hatchery records indicate that an average 16.5 million eggs were taken annually between 1896 and 1915. These eggs were incubated in baskets, hatched and eventually released as fry. Once the fry were released, the station was closed for the season. The cost of constructing and operating the hatchery during the first year was \$2,288.27.



1898. *Little White Salmon National Fish Hatchery and the Little White Salmon River, Washington. Hatchery buildings, crew quarters and mess house along with lumber flumes from the upper watershed. Intensive logging during the period contributed to the early demise of Columbia River salmon. FWS photo: Report of the Commissioner for the Year Ending June 30, 1898, U.S. Commission of Fish and Fisheries, George M. Bowers.*

Profound changes occurred in hatchery operations during the next 50 years. While the hatchery continued to produce the native tule fall chinook salmon, production was expanded to include chum, coho, sockeye and spring chinook salmon. The completion of Bonneville Dam was probably the most significant event of the time. Not only was the hatchery flooded by the rising Bonneville pool, but the average annual egg take of tule fall chinook declined by 44 percent. The natural spawning grounds of this fish were lost as habitat at the mouth of the river was inundated by the Bonneville pool. Led by scientific advances in fish culture, the hatchery program continued to change in an attempt to reverse the decline of the native stock. New fish culture techniques were implemented in an attempt to enhance hatchery survival, the most notable of which was the production of a formulated, pelleted fish food diet.

Today, the hatchery program includes the production of three species of salmon for release and off-site transfer to provide mitigation for the construction and operation of dams on the Columbia River and to assist with tribal restoration efforts.



2001. *The Little White Salmon National Fish Hatchery seen in Spring, 2001. FWS: photo.*

Recent scientific findings have guided hatchery biologists to produce a salmon smolt that is more like a wild fish, which enhances its survival upon release. Biologists expose smolts to predators and simulated riparian cover found in nature. Raceway concrete matches the Little White Salmon River bottom to mimic the natural stream environment. Once released, biologists monitor interactions of hatchery and wild fish and document the survival of hatchery fish with internal tags and fin clips. Science, and lessons learned over the last 100 years, have guided reforms at the hatchery.

An 1892 U.S. Fish Commission report on the salmon fisheries of the Pacific coast noted that: “No section of the country is probably more dependent on fish culture for the successful continuance of its fisheries than the Pacific slope. Experience has fully demonstrated that the supply of salmon is likely to be so much reduced through over-fishing that the industry depending upon their capture must soon be abandoned, unless the skill and well-directed efforts of man are utilized to maintain the stock upon which he draws so heavily and so continuously. Artificial propagation of fish

Former Hatcheries Chief Thoesen in Fisheries Hall of Fame

has now passed beyond the experimental stage, and there is no longer doubt in unprejudiced and well-informed minds as to its possibilities when conducted intelligently and on a scale equal to the objects aimed at.”

One hundred years later, it is obvious that hatchery operations alone will not restore Pacific salmon. Unlike operations during the early years, today’s hatchery program is only part of a coordinated effort aimed at restoring declining stocks of salmon. A scientifically sound hatchery program—combined with habitat restoration, harvest management, and improvements in fish passage—hold the most promise for reversing the decline of Pacific salmon.

Speros Doulos, Little White Salmon/Willard NFH Complex, Cook, Washington

The weapons with which we have gained our most important victories, which should be handed down as heirlooms from father to son, are not the sword and the lance, but the bushwack, the turf-cutter, the spade and the bog hoe, rusted with the blood of many a meadow, and begrimed with the dust of many a hard-fought field.

Henry David Thoreau, 1862



Hall of Famer. Robert Thoesen poses with a brood-stock brown on the banks of the North Fork White River, Arizona, in 1955. FWS photo.

His three-decade career took him from the cool, thin air of the New Mexico high country to the limestone halls of Washington D.C. His love for fisheries conservation left impressive evidence, a place in the American Fisheries Society Fish Culture Hall of Fame and a son than carries the mantle as a fish health biologist.

Robert Thoesen had an impressive career and left a lasting mark, one still very visible today—nearly 20 years after his retirement. That mark is underscored by his peers.

“Bob’s greatest contribution to our profession centered around new technologies for fish feed, brood stock, distribution, and fish health to name a few,” said Roger Schulz, fisheries supervisor in the Southeast Region. “During his tenure, the Fisheries Program saw his innovation—innovation sought around the world. His mark on the art and science of fish culture is indelible.”

During Thoesen’s time in the Fisheries Program, 1952 to 1982, he witnessed many changes.

“Fisheries went from an art to a science in those years,” he said. “When I got to Williams Creek NFH, making \$2,900 a year, I was issued a 30-30 rifle and dodge pickup; I hunted ‘broomtail’ horses on the Fort Apache Indian Reservation. We mixed the horse flesh with locally grown pinto beans to feed hatchery trout. It was not very nutritional; it was expensive and labor intensive. The balanced nutritional diet hadn’t come into being yet.”

That was an issue Thoesen did something about; he was instrumental in creating some of the first pelletized fish diets still in use today.

“Having pellets to feed fish was a big move forward in fish culture,” said Thoesen. “The pellet foods don’t spoil—you need no refrigerator—and the modern diets are much better for fish, making hatcheries run more efficiently.”

Once fish are grown to size they have to go somewhere and how they get there is a matter of practicality. And in practical fashion, Thoesen developed fish distribution systems—efficient transportation systems that get large volumes of fish where they need to go. This involved not only trucks, but aircraft for dropping fish in remote locations.

“Bob made significant advancements in fish distribution equipment,” said Steve Brimm, the Service’s National Brood Stock Coordinator. “He standardized fish distribution equipment that delivers large numbers and weights of fish more efficiently.”

That’s the measurable, tangible evidence of Thoesen’s influence on the fisheries profession. His sphere of influence was much wider, and when asked what he thought his greatest accomplishments were, it wasn’t what he’d done, like moving hatcheries in the Southeast toward important striped bass restoration projects, or creating the first fish health diagnostics. No, it’s not what he’d done, but what he was given—good employees.

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Former Chief in Fisheries Hall of Fame (continued)



Catch. Robert Thoesen (center) hands over a load of trout to retired Service biologist, Andy Anderson (left). A Ft. Huachuca biologist looks on, ca. 1960. Photo: Courtesy John Thoesen, FWS.

“My greatest contribution was not what I did, but what I received—the opportunity to mentor and encourage employees,” said Thoesen. “I got to motivate up and coming fisheries professionals.”

Robert Thoesen’s son John is the project leader at the Pinetop Fish Health Center:

“Dad’s achievements were many, but what stands out is his leadership skill, the ability to motivate, mentor,” John said. “Dad cared very much about his employees; he knew every hatchery employee from the manager down, their wife and kids, all by name.”

Thoesen’s leadership and vision for fish culture and the National Fish Hatchery System led to greater partnerships with the states and tribes and greater understanding by Congress of the needs of the hatchery system. The best way to get to the top is start at the bottom, and Thoesen did just that.

Craig Springer, Division of Fisheries, Albuquerque, New Mexico

Farm Pond Program Instilled Conservation Ethic

Farm ponds. They conjure an idyllic scene in the theater of the mind. I can see myself, a boy of 10, oblivious to the doughy mud that curls around and soaks my canvas high-tops, or the whirr of mosquitoes that float around my face. I focus on the bluegill that throw caution aside and dart out from the bankside brush pile after a meal worm. The slender little slabs of fish take turns at stealing my bait. My dad offers instruction a few feet away.

Like so many Americans, it’s not casting crank baits for big bass, dropping down riggers for lake trout, or slinging streamers for silver salmon that brings them to fishing; most ardent anglers come to the quiet sport by way of these bantam-weight battlers—often by way of farm ponds. And for a good number of years, the Fisheries Program had a hand in farm pond management.

Popularly known as the Farm Pond Program, the Service began providing fish to private pond owners in conjunction with the USDA-Soil Conservation Service (presently

the Natural Resources Conservation Service), in its effort to conserve precious top soil. Two pieces of legislation, landmarks in the American conservation movement, gave rise to the Farm Pond Program: the creation of the U.S. Fish Commission in 1871, and the Soil Conservation Act of 1935. The SCS encouraged rural land owners, coming out of the Dust Bowl era, to build ponds to conserve top soil and retain water. Fish from the national fish hatcheries were an additional impetus to landowners to get the ponds built.

While the program operated in all of the lower 48 States, farm ponds in the Southeast U.S. were the primary beneficiaries of bluegill, largemouth bass, red ear sunfish, and channel catfish. On average, about 25,000 ponds were stocked annually across the U.S. In 1977, for example, 26,412 ponds received fish at a cost of \$855,700. But the return to the economy from sport fishing was \$7.1 million—a seven-fold return on the dollar.



Working for people. J.C. Morrow, Ft. Worth NFH, dips catfish for farm pond owners in McKinney, Texas, 1962. The farm pond program helped instill a conservation and stewardship ethic in rural landowners, and promoted the quiet sport of fishing. The Ft. Worth facility shut its doors in the early 1970s. FWS Photo.

Partnerships

Partnerships Help a Long-lived Leviathan

The Farm Pond Program was quite popular among our constituents.

“The program was very positive for community relations,” said Arnold Rakes, Region 4 biologist. Rakes worked in the Farm Pond Program at Cohutta NFH in Georgia. “Farmers were getting an immediate return on their tax dollars—and a year or two down the road when they caught a big bass, they remembered where it came from.”

John Thoesen, formerly at Natchitoches NFH in Louisiana agrees: “The Farm Pond Program reached an expansive number of people. Service fish trucks on the town square drew big crowds and our shoulder patch got in front of a lot of folks.”

Helping pond owners with their waters had another immeasurable benefit: conservation stewardship.

“The Farm Pond Program made people aware of the environment—it gave them a better appreciation of what it takes to have a pond, a better understanding of the aquatic environment,” said Rakes. “They sought advice beyond what fish to put in their ponds. They sought management advice for things like ducks, what kind of vegetation birds need, what not to plant.”

But good things don’t last forever. The Farm Pond Program was phased out as the Service focused on more pressing needs, and when the original conservation intent of the SCS had been met. But its effect endures, part of the Fisheries Program’s proud past.

“My granddad had a pond in his pasture,” said Rakes. “It engaged me in nature and the outdoors. I can remember catching that first fish as a kid from a farm pond—in all probability it came from the Farm Pond Program.”

Craig Springer, Division of Fisheries, Albuquerque, New Mexico

They’re outcasts, much maligned and misunderstood. Despite tremendous sport fishing potential, alligator gar have suffered in the court of public opinion.

Growing to 300 pounds with a penchant for fish fare, these behemoths have gained an unfair reputation as a nuisance; a threat to game fish. But it’s truly an unfair perception according to Kerry Graves, manager of Tishomingo NFH in Oklahoma.

“Alligator gar eat rough fish. They eat sick fish easily caught,” said Graves. “Game fish benefit from the gar’s eating habits. If anything, game fish suffer from the same thing that plagues alligator gar—poor habitat.”

Alligator gar are a big-river fish, a top of the food chain predator once found throughout the Mississippi River and the lower end of its tributaries. Its range has shrunk. Meandering rivers have been turned into sand-bottom trapezoidal channels devoid of habitat. Spring floods no longer pour into the bottomlands where alligator gar spawn.

“Alligator gar are a species in decline, in need of restoration, and there’s an information gap that needs to be filled,” said Graves.

Ricky Campbell at Private John Allen NFH in Mississippi agrees: “There’s a lot we need to know about this species. We still need to learn the basic information like techniques for spawning, holding, and rearing—things well known for other fishes.”

Between the expertise at Tishomingo and Private John Allen, the information gap is closing. They’ve spawned alligator gar three times and put young fish on feed, but that’s just a start. Fish from Private John Allen have already been stocked in the wild for a restoration project in Tennessee.

Alan Peterson, biologist with the Tennessee Wildlife Resources Agency, sought out Service assistance with alligator gar.



Measuring up. Brent Bristow, Oklahoma FRO, is ready to measure, tag, and release an alligator gar caught by cooperating anglers. FWS photo: Bob Pitman.

“If it wasn’t for the Fish and Wildlife Service, there would be no restoration project,” said Peterson. “They are the project—we just tell them where to stock the fish.”

Over 200 alligator gar were stocked in the Obion River in 1999. It’s too soon to know if these long-lived fish survived, let alone reached maturity.

For alligator gar conservation to get traction, partnerships are a necessity. An unusual partnership with the private sector has proved essential in Oklahoma.

Anglers familiar with alligator gar are gathering data and tagging big adults they catch and release under the guidance of Brent Bristow, Oklahoma Fishery Resources Office. The anglers have also helped bring alligator gar to Tishomingo NFH. Graves and his staff are engaged in age and growth studies and trying to determine optimal culture conditions.

Craig Springer, Division of Fisheries, Albuquerque, New Mexico

A Modern Success Story: American Shad Restoration on the Susquehanna River

The Susquehanna is the largest river on the east coast of the United States and provides most of the freshwater input to the Chesapeake Bay. The river drains an area of 27,500 square miles and courses 444 miles from Cooperstown, New York, across the breadth of Pennsylvania, and enters the Chesapeake Bay at Havre de Grace, Maryland. It is the site of the greatest shad restoration program ever undertaken.

Historically, anadromous American shad and river herring were important food sources for native Americans and early colonists. This river once supported extensive shad fisheries which were lost with construction of four large hydroelectric dams in the lower 56 miles during 1904- 1931. For the past 50 years the Service has worked closely with resource agencies from the three basin States, as well as four private utility companies, to restore shad and herring to the Susquehanna River. Throughout the 1950s and 1960s, Service biologists conducted fishery and habitat suitability investigations. Over the past three decades, utility company funding was used to rebuild the population returning to the river. This included the trap and transport of 225,000 spawning adult shad and the culture and release of over 200 million larvae and fingerling shad. As a part of the restoration effort all shad fisheries in Maryland waters of the bay and river have been closed since 1980.

The shad population returning to the lowermost dam on the Susquehanna has grown from only a few hundred to over 200,000 fish in the past 17 years. Survival of out-migrating juvenile shad through hydroelectric turbines has been evaluated and, where necessary, improved with project operational changes during peak movement periods. As the shad population grew through the 1980s, settlement agreements were reached with each of the utility companies operating hydroelectric dams on the lower river. Large capacity fish elevators were built at Conowingo Dam in 1991 and

Holtwood and Safe Harbor dams in 1997. A "vertical slot" fish ladder was completed in 2000 at York Haven Dam which resulted in a reopening of over 200 miles of historic spawning habitat for anadromous fishes. Over the duration of this program, Susquehanna utility companies have invested over \$75 million including \$59 million for fish passage facilities.

A fishway is currently being designed for the final mainstem blockage at Sunbury, Pennsylvania. When completed in late 2003, migratory fish will have access to an additional 200 miles of river, including all of their historic spawning waters up to Binghamton, New York. In addition to the main river, numerous tributaries of the Susquehanna will support river herring restoration. With direct financial support from the Chesapeake Bay Program, dozens of smaller tributary dams have been removed or fitted with fishways in the past 10 years.

As a recognized leader in fisheries resources conservation, the Service chairs the Policy and Technical Committees of the Susquehanna River Anadromous Fish Restoration Cooperative and provides a full-time program coordinator. Service biologists and engineers also participate on several fish passage advisory committees, provide fish passage engineering support, and actively participate in the Chesapeake Bay Program's tributary fish passage and habitat improvement efforts. The shad restoration program on the Susquehanna River is a model of Federal, State and private cooperation... and perseverance. As the shad population continues to grow, valuable commercial fisheries will once again reopen in the upper Chesapeake Bay and new recreational fishing opportunities will be provided to tens of thousands of anglers in three States.

Richard A. St. Pierre, Susquehanna River Coordinator, Harrisburg, Pennsylvania

Refuges are for Fish, and Fishing, Too



Raining fish. *Carl Campbell, from Private John Allen NFH, stocks bass at Hatchie NWR. FWS photo: Marvin Nichols.*

Anglers vying for an opportunity to land a red salmon upon its return to its natal spawning grounds, often line riverbanks elbow-to-elbow on Kenai National Wildlife Refuge in Alaska. In Minnesota, visitors to Tamarac National Wildlife Refuge try their luck with northern pike and walleye.

In 2000, 6 million fishing visits occurred on nearly 300 units of the national wildlife refuge system. Refuge streams, rivers, dams and ponds provide a wide spectrum of recreational fishing opportunities.

Nowhere is fishing on refuges more popular than in the Southeast, where nearly half of those 6 million visits took place—and fully 30 percent of refuge visits involve recreational fishing.

At coastal refuges such as Mackay Island in North Carolina, striped bass often land in the creel; at Merritt Island in Florida and Breton in Louisiana, boaters ply the shallow flats for sea trout and red drum; and at any number of inland refuges in the South, anglers of all ages spend countless hours, year-round, pursuing those mainstays of southern angling—largemouth bass, crappie and their cousins.

Saving the Quilcene Summer Chum



Island making. *This artificial island was created in Goose Lake to improve habitat.*
FWS photo: Randy Kipley.

Typical of these warmwater fishing havens is 11,556-acre Hatchie NWR, straddling the rich Hatchie River bottom lands of southwestern Tennessee. Fishery management assistance to refuges has been an important part of the Fisheries Program since the early 1970s. John Forester of the Louisiana Fishery Resource Office—an avid angler—is busy working with refuges throughout Alabama, Arkansas, Louisiana, Mississippi and Tennessee, to help them improve fish habitats and populations and access to anglers.

The popularity of angling on refuges nationwide can be attributed to the success of intra-agency partnership efforts formed between the Service's refuges and fisheries programs.

Fisheries management at Hatchie goes back to at least the early 1980s, when an initial fishery management plan was developed for the refuge by a fishery biologist at Greers Ferry National Fish Hatchery in Arkansas. John Forester updated this plan in 1987 and soon afterward began a systematic electro-fishing sampling program to assess fish populations. Forester provided detailed recommendations to the refuge manager to enhance recreational fishing.

Based on some of his recommendations, biologists incorporated new water control structures designed to improve habitat for both fish and waterfowl on Goose and Quail Hollow Lakes. While the lakes were emptied to install the structures, heavy equipment deepened the lakes 10–20 feet to cut down on the amount of aquatic vegetation that hampered bank fishing.

Other lake areas were also deepened to 8–10 feet to offer fishing during extreme summer and winter temperatures and during droughts. In addition, one of the lakes was modified to provide habitat for wading birds, shorebirds and other wildlife in the fall, when lake levels are seasonally lowered to provide water to flood adjacent crop land and a nearby impoundment. For this improvement, biologist excavated a saucer-shaped, half-acre depression in one of the lakes to hold water and provide food for waterfowl and shorebirds.

Following construction, Goose and Quail Hollow Lakes were allowed to re-fill and were stocked last year with largemouth bass and bluegill supplied by Private John Allen National Fish Hatchery. Although the lakes were closed to fishing to ensure a self-sustaining bass population, they re-opened June 1, and promise to provide many hours of quality fishing for refuge visitors.

*Doug Frugé, Golf Coast Fisheries
Coordination Office,
Ocean Springs, Mississippi*



Mission accomplished. *Quilcene National Fish Hatchery's primary mission is to produce coho and fall chum salmon for commercial, sport and tribal.* FWS photo.

Time has always been important to Quilcene summer chum salmon. For centuries they moved into the Big Quilcene River on Washington's Hood Canal during low stream-flow periods in the late summer and early fall to spawn. After incubating through the winter in the river's gravel, their eggs hatched in late winter and early spring and the fry moved immediately into estuarine areas. From there, they moved to the Pacific Ocean, returning in two to five years to complete their own cycle.

But time has not always been kind to summer chum salmon. A century of intensive human use has left their habitat degraded, years of over harvest have decimated their numbers, and competition from fall chum produced by hatcheries has limited their ability to recover.

By 1989, the Big Quilcene River summer chum salmon population had run out of time. That year, just one adult returned to spawn. The following year only six adults returned.

Fishery biologists from the Service, the Washington Department of Fish and Wildlife, and the Point-No-Point Treaty Tribes began a concentrated effort to save the Quilcene summer chum. In 1991 the cooperators began planning to restore the run.

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Saving the Quilcene Summer Chum (continued)

Biologists began field restoration efforts in 1992, including the collection of brood stock from commercial beach seine nets in Quilcene Bay by staff from the Quilcene National Fish Hatchery and the nearby Western Washington Office Fisheries Resource program in Lacey, Washington.

“Collecting the broodstock couldn’t have happened without help from a lot of people,” says Service Fishery Biologist Tom Kane, who worked on the project since its inception. “Commercial fishermen and state, tribal and Federal fisheries personnel all worked together to ensure that we got enough brood stock to meet projected program needs.”

“Also, both tribal and non-tribal anglers modified their seasons and gear to greatly reduce their incidental catch of summer chum during coho and other fisheries seasons,” Kane said. “That was a big help.”

The biologists and fishermen slipped the captive fish into large tubes for transport back to the hatchery, where they were held for spawning. The hatchery became a temporary refuge for the eggs and fry, giving them protection from the factors that had led to their decline in the wild. After the fry hatched, they were fin-clipped to distinguish them from naturally produced fish and released into the Big Quilcene River.

“We started out to develop a plan to restore the Big Quilcene summer chum run. But we couldn’t afford to wait for the plan to be complete before beginning field work,” said Assistant Hatchery Manager Larry Telles. “By the time the summer chum salmon Restoration Initiative plan was completed in April of 2000, we were already well on our way. Now we’re in the 10th year of a 12-year program and the runs have increased significantly.”

Gradually, the hard work and cooperation began to pay off and the number of returning adults began to climb. In 1995, the first year adults from the hatchery program returned, the count jumped from 344 fish in 1994 to 4,025. By 1997 the count increased to 7,269 returning adults and has remained in the thousands ever since. By the time the summer chum was listed as a threatened species in 1999, restoration efforts had already brought the run from the literal brink of extinction to a return of thousands of fish annually. In the last few years, biologists have felt the run is strong enough to contribute stock to a successful project to re-introduce summer chum to Hood Canal’s Big Beef Creek, where they had been extirpated.

“The geneticists we consulted recommended a 12 year or three-generation program to minimize domestication or inadvertent human selection,” said Dave Zajac, a fishery biologist from the Western Washington Office. “The hatchery program was always considered a short-term alternative to keep the population viable until habitat and other issues had been addressed and recovery of the natural population is possible.”

“After all,” Zajac added, “beyond preventing extinction, our primary concern was always to maintain the stock as a wild population. They just needed some time.”

Doug Zimmer, Western Washington Fish and Wildlife Office, Olympia, Washington

130 Years of Tribal Partnerships: More Than Rainbows

Soon after its creation in 1871, the U.S. Fish Commission contacted the coastal tribes along the McCloud River in northern California to begin identifying salmon stocks along the west coast. This early effort paved the way for decades of cooperation between the Service and tribes from coast to coast on fisheries issues. However, it wasn’t until 1941 that the Service actually signed a memorandum of agreement with tribes in the Great Plains and southwest regions of the United States. These agreements focused on the development of recreational fisheries that would provide subsistence, recreation, and economic opportunities to the tribes and the general public. These long-standing agreements represent the foundation of the Service’s efforts to fulfill its Federal trust responsibilities.

Tribal support has been a major component of the Fisheries Program since 1941. The earliest program began on the Wind River Reservation in Wyoming and eventually extended to several other States in the region. The largest tribal assistance program in the region is in Montana, where the Service provides technical services to seven reservations, contributing to the successful management of more than seven million acres of some of the best fish and wildlife habitat in the country. The recreational fisheries are supported by the 500,000 rainbow and cutthroat trout stocked annually by Creston National Fish Hatchery. In the Mountain-Prairie Region, the Service and tribes provide more than 500,000 user-days of fishing and hunting opportunities on tribal lands with an annual economic impact of nearly \$30 million.

Fisheries Helps Defend Department of Defense Resources

Today, 90 of the 120 reservations with recreational fisheries offer excellent opportunities for non-tribal recreational fishing. Tribal lands contain 15,000 miles of perennial streams, one million acres of natural lakes and ponds, 630,000 acres of reservoirs and impoundments, and 93 million acres of habitat ranging from sagebrush desert to wetlands to alpine forests. Nationally, recreational fishing on the reservations provided 4,038,353 angler-days in 1991, bringing in \$203 million in direct angling-related expenditures and creating \$314 million total economic impact. National estimates show recreational fishing on tribal lands supports approximately 6,534 jobs, resulting in \$3 million in state income tax revenues and nearly \$10 million in state sales tax receipts per year.

The 575 recognized tribes conserve 100 million acres of habitat, create yet another series of stepping stones for fish and wildlife. A new century brings with it new challenges and the Service has long-standing, productive relationships with many tribes in this country.

For the past 130 years, the Fisheries Program has helped tribes conserve resources and will continue to do so in the future.

According to Mountain-Prairie Regional Director Ralph Morgenweck, the Service “must continue to build relationships because that is the most effective means of conserving fish and wildlife.”

Steve Farrell, National Wildlife Refuge System, Arlington, Virginia

Morgan Elmer, Division of Fisheries, Denver, Colorado



Voles' Vol's. *SCEP students conduct a small mammal survey on Malmstrom Air Force Base. FWS photo.*

The Service's Fisheries Program is in the business of restoring fish habitat, populations, and providing recreational fishing opportunities. This mission knows no bounds and the program works with countless partners such as private landowners, state and tribal governments and the Department of Defense. In 1960, Congress enacted the Sikes Act, calling for cooperative efforts between the Service, states and the Department of Defense to develop and manage “fish and wildlife resources on military reservations.”

In the early years, the Fisheries Program and the Defense Department developed recreational programs for the installations. Under the Sikes Act, the Service provided fish for recreational programs, improved accessibility and helped develop regulations for fishing and hunting. In the early 1980's, the Service ended most of its Fish and Wildlife Management Assistance work on Defense Department lands. In the last two years this work has increased significantly as Congress has placed more emphasis on fish and wildlife planning and management on military installations.

Today, 12 Colorado Fish and Wildlife Management Assistance Office employees, funded by other agencies, work at Department of Defense, Department of Energy and National Park Service properties. These Colorado biologists, who work on a reimbursable agreement, specialize in the areas of range management, wildlife, endangered species, National Environmental Protection Act, noxious weeds, GIS, non-native fish removal, soil conservation and prairie restoration. These new programs are not the typical focus of Fisheries Program offices of years ago, but are the new realities of national priorities for threatened and endangered species, environmental protection and habitat conservation at the ecosystem level.

The Department of Defense uses Integrated Natural Resource Management Plans to guide the management of its fish and wildlife resources and is required to have the plans signed by the State game and fish agencies and the Service. Today, the Mountain-Prairie Region's Fisheries Program is assisting in plan development through its new Sikes Act Coordinator and at times, through reimbursable funding contracts to field stations.

Why do these current Department of Defense natural resources reimbursable agreements work? According to Gary Belew, Chief Natural Resource Division, Fort Carson, “We need the Service because they bring an unequaled level of experience to Fort Carson, without which our resource programs would suffer.”

One of our newest partnerships is with Malmstrom Air Force Base in Montana. They contracted with the Service to provide a baseline inventory to include in their plans. Fisheries staff inventoried amphibians, fish, neotropical birds and their habitats. This information will help improve habitats, revive their rainbow trout fishery and develop a wildlife monitoring program.

According to Malmstrom's Conservation Program Manager, Rudy Verzuh, “Even though the Sikes Act encourages the Base to look to the Service for fisheries assistance, we choose to work with them because they complement our efforts.”

Department of Defense Resources

(continued)

Science and Management

Fish Wheels Keep On Turnin'

Through continued partnerships, the Service has direct influence on the management activities of numerous recreational or imperiled species. In the Mountain-Prairie Region, the Fisheries Program continues to build partnerships with the Defense Department, extending its impact to 1.2 million acres of habitat.

The successful relationship between Region 6 and the Pueblo Chemical Depot has become an invaluable partnership. The U.S. Army has funded Region 5 to establish a similar program for eastern U.S. Army facilities.

According to the Mountain-Prairie Regional Director, Ralph Morgenweck, "Congress called for cooperative efforts to manage the Department of Defense's natural resources and the relationship continues to benefit natural resources, the Service, and the Department. Providing cost-reimbursed technical and management assistance to the Defense Department has created a win-win situation leading to effective and compatible conservation on millions of acres of Federally owned fish and wildlife habitats."

Steve Farrell, National Wildlife Refuge System, Arlington, Virginia

Bruce Rosenlund, Colorado Fish and Wildlife Management Office, Denver, Colorado

The graceful rhythm of fish wheels turning in river currents has been a welcome sign of summer along Alaska's Yukon River for more than 100 years. The origin of these simple and elegant devices is uncertain, but their usefulness as tools for commercial and subsistence anglers, and more recently for fishery researchers, is undeniable.

A fish wheel consists of a log raft anchored to shore and fitted with two large baskets that rotate on an axle. Powered by the flow of the river current, the slowly turning baskets scoop up passing fish as they rotate. The catch slides down a wooden chute at the bottom of the basket and into a holding box that's emptied several times a day.

The fish wheel is thought to have been invented in the Far East several hundred years ago. They have been used in countries all over the world, including China, Japan and France. We know that fish wheels were being used in North Carolina as early as 1829, and were catching salmon in the Columbia River drainage by 1879.

Knowledge of fish wheel design may have made the jump from the Pacific northwest to Alaska with the gold rush in the late 1800's. Soon thereafter fish wheels were in wide use by both European settlers and Alaskan Natives along large river systems.

The presence of a rich fishery resource had always been essential to the survival of Native peoples in Alaska. Prior to the introduction of the fish wheel, however, even the sometimes staggering abundance of returning salmon couldn't guarantee that all of those who relied upon this resource could harvest enough to meet their needs. Alaska Natives initially used nets laboriously woven from plant fiber. They also constructed fish traps of willow twigs along spawning streams, and used spears to harvest salmon.

Nets were later woven from raveled trade cloth, but even these were fragile and difficult to make. Fish wheels proved so efficient that they soon widely supplemented, and sometimes replaced, other traditional fishing methods.



Time-tested design. *The design of Yukon River fish wheels are essentially unchanged since their introduction to the river over 100 years ago. FWS photo: Tevis Underwood.*

The fish wheel also played an important role in supporting the gold camps that sprang up along the Yukon River. Dog teams were the primary transport method for huge sleds of mail and freight destined for remote communities, and were also used to haul thousands of cords of wood to the river banks as fuel for summer steam ship travel. The fuel that powered these dog teams was fish. A single fort at the turn of the century required 40 tons of dried salmon each year to feed their working dogs. As settlements grew, fish wheels and racks of drying salmon became common seasonal sights along the Yukon.

Fish wheel design has changed little over the years. Since they can be manufactured out of mostly local materials, these devices are particularly well suited for use in roadless areas with high transportation costs. They continue to be the primary fishing tools for many subsistence and commercial fishers along the Yukon, Kuskokwim, Tanana and Copper Rivers.

In recent years, fish wheels have begun to catch fish for research as well as food. Biologists currently use two sets of them in a narrow section of the Yukon River to determine the relative abundance and timing of salmon runs in the upper Yukon River drainage. Researchers capture the fish as soon as they enter the wheel, and quickly measure, tag and release the salmon unharmed, to continue their migration.

Sea Lamprey Control in the Great Lakes

Thirty miles farther upstream, a Native fisherman working under contract with the project uses two of his fish wheels to capture and examine fish for tags. Analyzing the tagging data from recaptured fish helps scientists estimate the run size for each passing week.

Biologists are now pioneering remote video systems mounted on fish wheels to obtain salmon passage rates. After being captured in the rotating baskets, salmon travel down a chute, are video recorded, and re-enter the river. This by-passes the use of fish-wheel live boxes, eliminating fish handling and health concerns associated with crowding.

New video-capture software records only those video frames containing fish images. The time-savings this method provides over traditional viewing of time-lapse video tapes can be substantial. This approach may soon see widespread application and will greatly reduce stress to fish and the costs of collecting data.

Even if the origin of the fish wheel is unclear, its continued presence on the rivers of interior Alaska is a certainty. These simple, traditional tools will continue to turn, as graceful metronomes of the flowing river, and, more and more, will join with cutting-edge technology to help manage and preserve the great salmon runs of the vast Yukon River drainage.

*Laurel Devaney, Fisheries Resource Office
Fairbanks, Alaska*

Control of invading sea lampreys in the Great Lakes is one of the most complex and astounding stories in the history of North American fisheries management. These lakes have seen it all, from pristine environmental conditions in the early 1800s, through annual harvest of more than 18 million pounds of lake trout during the early 1920s, to a total collapse of fish communities by 1960 and recovery of self-sustaining lake trout in Lake Superior by 1997. Opening the Welland Canal in 1829 provided passage around Niagara Falls for sea lampreys confined to Lake Ontario. The ensuing century saw colonization of all the Great Lakes. Fast-forward to 1921 and the sea lamprey was first discovered in a Lake Erie tributary, 1937 in Lakes Huron and Michigan tributaries, and finally on to Lake Superior about 1946.

By 1945 dramatic declines in commercial lake trout landings dictated initial control of this invader by blocking access to spawning habitat. Mechanical barriers were placed in tributaries to Lakes Michigan, Huron and Superior. Lake trout, burbot, chubs and other fishes continued to decline in spite of 15 years of construction of over 160 electro-mechanical barriers in Upper Great Lakes tributaries.

In the 1950's, control of the devastating impacts required opening several Biological Stations and signing an international agreement. The Convention on Great Lakes Fisheries created the Great Lakes Fishery Commission and committed the United States and Canada to control operations that continue today.

The Service, through an agreement with the Commission, serves as the United States agent for sea lamprey control and the Department of Fisheries and Oceans is the Canadian agent. The U. S. Geological Survey and researchers from various universities conduct critical studies on sea lampreys and control methods.



Sea lamprey on an adult lake trout. *Sea lampreys are aquatic vertebrates native to the Atlantic Ocean and entered the Upper Great Lakes through shipping canals. Great Lakes Fishery Commission photo.*



Parasite. *Sea lamprey hold themselves to the wall of an aquarium with their sucking disks. Sea lamprey feed by attaching to fish with the sucking disk and sharp teeth. During its life as a parasite, each sea lamprey can kill 40 or more pounds of fish. Great Lakes Fishery Commission photo.*

Today's efforts include mechanical and electrical barriers that deny access to historically important tributaries; capture, sterilization and release of male sea lampreys at spawning sites such as the St. Marys River, the connecting waterway between Lakes Superior and Huron; the removal of adults from streams by trapping; and application of two chemicals to streams to kill young sea lampreys. An emerging control method employs pheromones to increase trapping efficiency or disrupt mating.

Sea Lamprey Control in the Great Lakes

(continued)

Control efforts are carefully combined and locally targeted for maximum effectiveness. Some populations are adequately controlled by a single low-head barrier, while several methods may be employed in more complex situations. Most populations are kept in check through periodic chemical applications. Each summer the 50 to 60 streams producing the most sea lampreys, per data from population assessments, are selected for treatment. Effectiveness of chemical applications varies, however a single treatment often controls sea lampreys for many years.

Completion of the first round of chemical applications to infested tributaries in the early 1960s reduced sea lamprey abundance in Great Lakes waters by over 90 percent. The combination of methods in use today keeps populations low. Effective control paved the way for the recovery of self-sustaining lake trout populations in most of Lake Superior, and increasing populations in the other Lakes point to a similar recovery in the future.

A common question posed is future elimination of the invader from the Great Lakes. Such a prospect appears out of reach today; however, biologists continue to explore additional controls with the hope of eventual resolution to one the most daunting problems in managing these freshwater fisheries.

Dennis Lavis, Ludington Biological Station, Ludington, Michigan

Robert Adair, Region 3 Regional Office, Minneapolis, Minnesota

Larry Dean, External Affairs, Minneapolis, Minnesota

Three Students of the Double Helix

Mention genetics to most Americans, and the conversation will turn in one of two directions. It might focus upon the mind-boggling task of DNA-mapping the human genome and the science-fiction-like impacts that such research could have upon humanity's future. Or, in a more prosaic turn, the discussion might focus on the use of genetic evidence in the courtroom and its role in trials and scandals that have captured the nation's attention. However, "genetics" is, by definition, the branch of biology that deals with the study of heredity. And, as a science, it has many applications to fish and wildlife management.

From a fishery professional's perspective, in fact, perhaps the most exciting applications of genetic study have been and will be in fisheries conservation. Genetic information is currently assisting management decisions on issues from the local to the global, from helping to set harvest regulations on two sections of the same river to influencing international treaties.

The history of genetics research in fishery management is not a long one, and its uses have evolved as the science itself has matured. All such applications find their basis in the knowledge that DNA is the hereditary material that codes for proteins and enzymes.

"Protein markers, or 'allozymes,' were used extensively in the 1970's and 1980's to identify populations which were reproductively isolated from one another or evolutionarily distinct," explains Don Campton, with the Service's Abernathy Fish Technology Center in Longview, Washington.

This enzyme-based analysis, however, had some shortcomings. For example, a fish had to be killed to obtain the tissue required and carrying liquid nitrogen or dry ice into the field to preserve the samples was often difficult. New technologies based upon polymerase chain reaction (PCR) of DNA alleviate these sampling problems. Rather than focusing upon proteins, which are the products of genes, researchers can now use PCR to detect genetic variation at virtually an unlimited number of regions, in the DNA itself, which can be isolated from a very small piece of fin tissue without sacrificing the fish.

"PCR methods allow the lab to use simplified field sampling techniques, including nonlethal sampling, and improve genetic resolution," says Bill Spearman, of Region 7's Conservation Genetics Laboratory.

These new capabilities are making their presence felt across the country. David Perkins, Senior Fishery Biologist in the Region 5 Regional Office, notes that genetics has played a significant role in the management of Atlantic salmon, Atlantic sturgeon, shortnose sturgeon and American shad in the northeast. Region 5 also relies upon genetics to determine stock structures and define management units, and to ensure the conservation of genetic diversity in hatchery breeding programs.

Genetics serves similar purposes in hatchery management in Region 1, notes Don Campton, who goes on to say that "molecular markers are playing important roles in assessing the potential genetic contributions of hatchery origin fish to naturally spawning populations, both in experimental situations and in restoration programs." In one specific example, genetic research, coupled with an understanding of the biology of Pacific salmon, has influenced the Service (after consultation with other agencies and groups) to phase out future propagation of the "Winthrop Carson" stock of spring chinook salmon at Washington's Winthrop National Fish Hatchery. The decision was made, says Campton, "because those fish represent an introduced stock derived from adults of unknown origin, and we believe the hatchery facilities should instead propagate the descendants of natural-origin fish returning to the Methow River, in order to assist in the recovery of this native population."

In Alaska, the primary functions of genetic research are to define the populations of specific species, and their boundaries, in order to fine-tune management actions.

"For example," says Bill Spearman, "we've learned that the rainbow trout in the Kenai River are subdivided into at least two genetically different populations. Managers can use this knowledge to tailor harvest regulations to match the abundance and production of these different populations. In the future, similar genetic information could pinpoint the entry of Canada-origin chinook salmon into the Yukon River, and help

Conserving Keystone Species

Native Trout Tell Story of the Past

managers to allow escapements into Canada to meet international treaty obligations.” Spearman notes that, in addition to the work with rainbow trout and chinook salmon, genetics research has uncovered valuable information about Alaska’s shellfish; coho, chum and sockeye salmon; and Dolly Varden. In the latter case, mixed-stock genetic assessments have contributed to our understanding of the impacts of oil exploration and production on Alaska’s North Slope.

While it’s clear that genetic science has already played a role in many major fishery management decisions, it is likely to become even more central to related issues in the future. Don Campton notes “It’s extremely important that we understand the genetic effects of habitat modifications, harvest, and hatchery propagation on life history and physiological traits that are directly related to fitness in the natural environment.”

David Perkins looks to the future, as well, when the genetics laboratory currently being developed at the Northeast Fishery Center in Lamar, Pennsylvania, “will guide a wide range of management decisions through the wise use of genetic information, and will influence hatchery and stocking policies that are designed to conserve the genetic integrity of both captive broodstock and wild stocks.”

Bill Spearman’s dreams are no less ambitious. He hopes to see the Region 7 Conservation Genetics laboratory “establish comprehensive genetic baselines for all fish species of importance region wide,” and to eventually “expand operations beyond fish to include marine mammals and waterfowl.”

Clearly, all three of these Service biologists recognize the challenges and opportunities posed by this evolving tool for fisheries research. In the years to come, we might look back upon the “old” days and wonder that managers were able to accomplish as much as they did, before genetic research shone its light into the many dark corners of our understanding of species, of populations, and of how we can best protect them and conserve them for the future.

*Bruce Woods, Public Affairs Specialist
Anchorage, Alaska*



Nature’s splendor. *Greenback cutthroat trout sport a painter’s pallet of color. Photo: Courtesy Michael Graybrook.*

You have to venture to the stream to see a living testament of the geologic past. The stories of three native trout read like a study in zoogeography. Their natural distributions are records of seaways, land shifts, headwater transfers, ice flows; their conservation status, a record of the prevailing scientific thought of the day.

A cooling climate two million years ago allowed trout to move southward in the western United States. The evolution of the cutthroat trout, a complex of 14 subspecies, reads like a chapter in a geology text book. The greenback cutthroat trout made its way to the eastern slopes of the Rockies in Colorado via ice dams and headwater transfers. Only a few short years ago, it was poised to fall into an abyss. Intervention by fisheries biologists kept that from happening.

Describing the plight of imperiled fishes has nearly become cliché; habitat alteration, over fishing and non-native fish sent native trout packing. Greenback cutthroat trout, native to the waters of the upper South Platte and Arkansas rivers, was hard hit during the 1880s. At the enactment of the Endangered Species Act in 1973, only two known populations lived in less than three miles of stream.

Today, according to Bruce Rosenlund of the Service’s Colorado Fish and Wildlife Management Assistance Office, greenback cutthroats have been restored to 100 miles of stream and 450 acres of lakes.



Poised for history. *The Apache trout may be the first Federally endangered fish fully recovered. FWS photo: Craig Springer.*

“Restoration has moved forward because of the hard work of our many dedicated partners, such as Rocky Mountain National Park, Trout Unlimited, the Colorado Division of Wildlife, and others,” said Rosenlund.

Leadville National Fish Hatchery will play a pivotal role in restoration, too, with establishment of a new greenback brood stock program.

“We’ve initiated hatchery clean-up to eradicate whirling disease to protect our future greenback brood stock; our brood stock will serve as a back up for our state partner’s stock,” said Leadville biologist Carlos Martinez.

After clean-up, Leadville’s brood stock is expected to provide 250,000 eggs annually to the Colorado Division of Wildlife. Martinez expects that to yield 27,000 13-inch fish destined for the upper Arkansas River.

Two southwestern trout, the Gila and Apache trouts, are geologic relicts from a cooler climate; they invaded the now hot and dry Southwest, descending from a coastal rainbow trout from the Gulf of California. Remarkably, both are of recent scientific vintage. The Gila trout was described for science in 1950; the Apache trout assigned a scientific name in 1972.

Native Trout Tell Story of the Past

(continued)



Making strides. *Gila trout conservation has made significant progress. FWS photo.*

The native southwesterners are so closely related to rainbows that they interbreed with ease. As with the cutthroats, non-native rainbows were stocked on top of Gila and Apache trout, creating populations of hybrid fish. Brown and brook trout out-competed the natives for food and space. The natives retreated to isolated headwaters.

Gila trout, naturally confined to the upper reaches of the Gila River in New Mexico and Arizona, remain an endangered species, but down-listing to threatened is under consideration. New Mexico Fishery Resources Office and the Gila Trout Recovery Team have reintroduced Gila trout into waters not occupied for decades. Stream-to-stream and hatchery-to-stream transfers have expanded the Gila trout's range, both in New Mexico and Arizona. With the projected down-listing, limited recreational fishing could be available for the first time since 1956.

Scientific capabilities from two fish technology centers will prove pivotal in recovery. A strong genetics capability at the Dexter National Fish Hatchery and Technology Center will be essential in the future, coupled with judicious brood stock management at the Mora Fish Technology Center.

"Microsatellite DNA analysis of Gila trout done by biologists at Dexter will essentially give us a pedigree chart," said Mora's assistant center director, Ronnie Maes. "When we know the genetics of our brood fish, that allows us to minimize losing wild fish characteristics. It's intensive. It's expensive. It's important for a fish like Gila trout."

The importance of a hatchery component in Gila trout recovery is underscored by the fact that recruitment of fish in the wild may not be enough to transplant to other streams. A whole lot more fish may be necessary for delisting—a large number that can only be produced in a hatchery, said Maes.

Closely related to Gila trout, the Apache trout is poised to make history. No living fish has ever been removed from the endangered species list and Apache trout could be the first. It was one of the first fish listed as endangered under the ESA in 1973. Conservation efforts underway with the Service and the White Mountain Apache Tribe had already paid dividends; the Apache trout was down-listed to threatened in 1975.

The Arizona Fishery Resources Office continues to work diligently with the White Mountain Apache Tribe and the Arizona Department of Game and Fish to restore habitat and expand the trout's range. The Pinetop Fish Health Center monitors wild fish and those raised at Alchesay-Williams Creek NFH. For nearly two decades, hatchery biologists have spawned and stocked Apache trout, upwards of 120,000 per year, in support of recovery goals. Stocking Apache trout in lieu of rainbows has reduced the chances for hybridization with pure populations. In a truly unique program, and in the spirit of partnership with the Tribe, hatchery fish make their way to tribal waters that draw anglers from points well beyond eastern Arizona.

The prehistoric past is with us, swimming in our western waters. We indeed are fortunate witnesses, but moreover, we are the judge and jury—arbiters for charting the future course of our fisheries. Scientific genetic research will help us set that course.

Craig Springer, Division of Fisheries, Albuquerque, New Mexico

Biologists Search for the Elusive Pallid Sturgeon

The pallid sturgeon, a strange-looking, primitive fish found in parts of the Missouri and Mississippi Rivers, has roots that go back as long as 70 million years. Modern-day versions of this endangered fish have been known to grow up to six feet long and weigh as much as 80 pounds. The Service's Columbia Fish and Wildlife Management Assistance Office and their partners in Missouri hope to halt and reverse declines in pallid sturgeon populations by conserving and restoring the fish's vital habitat on the Missouri River. However, pallid sturgeon populations have been on the decline since the early 20th century, and only now are biologists discovering ways to halt the decline.

"The pallid sturgeon was first recognized as a species in 1905 and was listed as an endangered species in 1990," said Joanne Grady of the Service's Columbia Fish and Wildlife Management Assistance Office. "It's an ancient fish species that evolved in turbid, free-flowing large rivers with braided channels, sandbars and extensive backwater habitats."

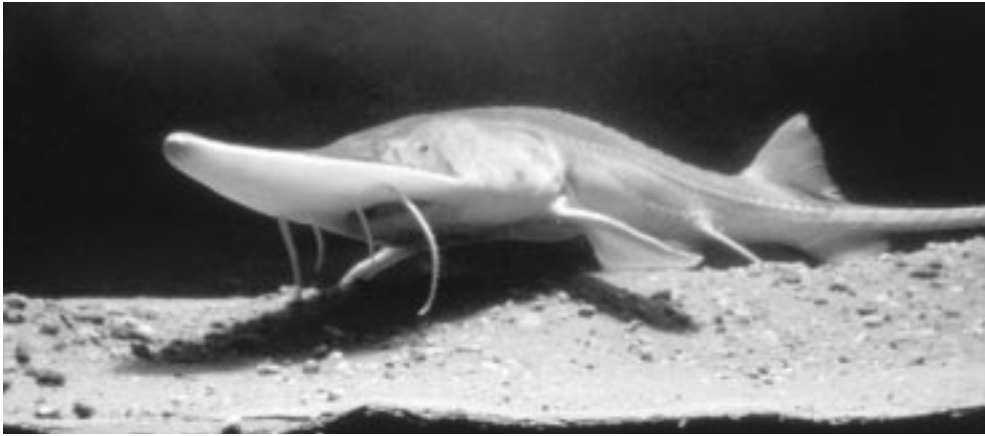
One part of that effort involves long-term monitoring of several sites on the Lower Missouri River to document impacts of Missouri River operations. The Nebraska Game and Fish Commission, the Iowa Department of Natural Resources and the Missouri Department of Conservation are helping with this.

The data being collected will be an important component to state and Federal decisions on Missouri River operations, mitigation site development, habitat restoration and land acquisition.

Though the Missouri and Mississippi rivers historically provided ideal habitats for the species, today the fish face habitat alteration, modifications to the rivers' natural hydrography, and hybridization of the species that has occurred with the shovelnose sturgeon.

"Our staff has worked for the last five years to document the occurrence and habitat preferences of pallid sturgeon," Grady said. "This includes a multi-state project to identify pallid sturgeon habitat and refine capture techniques and equipment for this uncommon fish."

Lake Trout Conservation in the Upper Great Lakes



Rare relict. *The pallid sturgeon population is in decline. FWS photo.*

From 1996 through 2000, the Columbia office, Nebraska, Iowa, Missouri, and Southern Illinois University cooperatively sampled pallid sturgeon in the lower Missouri and middle Mississippi Rivers.

“Sturgeon had last been extensively sampled in the lower Missouri and middle Mississippi Rivers in the late 1970s,” Grady said. “In the recent study, sampling crews targeted river reaches in which historic pallid sturgeon catches were noted or in which juvenile pallid sturgeon stocked by Missouri Department of Conservation’s Blind Pony Hatchery were recaptured.”

During the sampling, seven presumed-wild pallid sturgeon and two hatchery-reared pallid sturgeon were collected in the lower Missouri River. Eleven hatchery-reared pallid sturgeon and two presumed-wild fish were collected in the middle Mississippi River.

“Sampling documented declines in pallid sturgeon numbers coupled with the increased hybridization rate,” Grady said, “This indicates a need to step up efforts to benefit the species.”

The most recent sample, when compared to earlier sampling, showed that the ratio of wild pallid sturgeon to all river sturgeon collected dropped from about one in about 400 in 1985, to one in nearly 650.

Seven pallid-shovelnose hybrids were collected in the middle Mississippi River while 15 were collected in the lower Missouri River. In this sampling, the rate of hybridization increased from one in 365 in the late 1970s to one in 235 in the 1990s. But there were some indications that the pallid sturgeon might be holding its own in some areas of the rivers.

The first documented evidence of natural reproduction of the species in the lower Missouri River was collected in August 1998. Service staff collected three larval pallid sturgeon in an ongoing monitoring study of the Lisbon Bottoms Unit of the Big Muddy National Fish and Wildlife Refuge on the lower Missouri River.

Biologists collected a total of 44 larval sturgeon between 1997 and 2000 in a seven-mile stretch of the Missouri River. Three larval sturgeon were identified as pallid sturgeon, seven were identified as probably being pallid sturgeon, three as shovelnose sturgeon, and 31 could not be identified as pallid or shovelnose.

“Our staff will continue work to provide the pallid sturgeon population information needed by Missouri River managers and policy makers over the next several years,” Grady said. “These efforts we hope will lead to stronger pallid sturgeon populations and continued habitat conservation and restoration in our river systems.”

*Joanne Grady, Louise Mauldin
Columbia Fishery Resources Office,
Columbia, MO*

The Service plays a critical role in the conservation of lake trout in Lakes Michigan, Huron and Superior. Lake trout restoration activities are organized under the auspices of the Great Lakes Fishery Commission, which was established in 1955. The cooperative effort involves Federal, provincial, state, and tribal natural resource agencies as well as the Service’s national fish hatcheries and fish and wildlife management assistance offices.

The Service’s multi-disciplinary team is well suited for this challenge. Fish and Wildlife Management Assistance Office personnel assist with restoration plan development, coordinate research and assessment projects, assess the lake trout stocking program, develop brood stock plans, and identify new stocking strategies. Fish hatchery personnel produce yearlings for stocking and maintain brood stocks of various strains of lake trout identified in restoration goals and implement complex stocking strategies which involve fish transfer to offshore stocking sites.

A significant boost to the lake trout restoration effort is the implementation of the 2000 Consent Decree between the five Great Lakes Treaty Tribes and the State of Michigan. The five Tribes are the Bay Mills Indian Community, Sault Ste. Marie Tribe of Chippewa Indians, Grand Traverse Bay Band of Ottawa and Chippewa Indians, Little River Band of Ottawa Indians, and Little Traverse Bay Bands of Odawa Indians. The decree regulates tribal and state lake trout harvest to prevent excess harvest and specifically identifies increased emphasis on lake trout rehabilitation. Agencies are required to increase efforts for lake trout assessment, data analysis, and modeling to protect the stocks while allowing the execution of sport and commercial fisheries. The Service is acquiring assessment vessels and staff to meet 2000 Consent Decree mandates. Hatcheries are exploring options to increase production capabilities. These are exciting times for lake trout conservationists as the decree opens doors to new opportunities to achieve rehabilitation goals in the Upper Great Lakes.

Continued on page 34

Lake Trout Conservation (continued)



Engender. *Crystal LaGault, fisheries biologist at Hiawatha Forest NFH, spawns a lake trout. The eggs will be used for the lake trout restoration effort. FWS photo: Tracy Mathies.*

The 2000 Consent Decree removes significant amounts of gill nets from the most productive waters of Lakes Michigan and Huron and replaces them with non-lethal impoundment gear. This change is expected to significantly reduce fishing mortality. A lamprey selective chemical treatment on the St. Marys River, which connects Lakes Superior and Huron, is expected to significantly reduce trout mortality by lamprey predation. The St. Marys River is thought to be the largest producer of sea lamprey in the Great Lakes system. It is hoped that these two events will provide a “kickstart” to Lakes Michigan and Huron and initiate recovery similar to that observed in Lake Superior in recent years.

“I recall working in the Apostle Islands as a technician on the Service vessel R.V. Siscowet in the 1970’s when the biologists’ would cheer upon pulling a native lake trout from a net,” said Mark Dryer, Project Leader of the Ashland Fish and Wildlife Management Assistance Office. “Since then lake trout have shown a remarkable recovery in Lake Superior due to wise management, sea lamprey control and lake trout stocking programs of the U.S. and Canadian Federal Governments, state and provincial, tribal and public partners. This is a phenomenal success story about multiple partners working within their jurisdictions to accomplish a common goal on interjurisdictional waters.”

David Radloff, Division of Fisheries, Minneapolis, Minnesota

A Funny Looking Fish, a Serious Conservation Effort

Paddlefish have long adorned the walls of biology classrooms and restaurants along the banks of the mighty Mississippi River and its major tributaries, including the Chippewa, Wisconsin, Ohio, Illinois and Missouri rivers. But it was not until 1989 that the Service began to earnestly focus on this far ranging, riverine species with a paddle-like nose.

That year, the Service was petitioned to list the paddlefish as a threatened species under the Endangered Species Act. Seeking to learn more in order to meet the new responsibility, the Service quickly exhausted all information available on this little known species. However, the fish and wildlife management assistance offices in La Crosse, Wisconsin; Columbia, Missouri; and Carterville, Illinois stepped forward to lend their expertise in the quest for more information about this funny-looking fish.

“The challenge for the Service’s fishery program and its partners’ was twofold,” said Greg Conover of the Carterville office. “We needed to gain a better understanding of the population status, habitat requirements, and movement patterns of paddlefish; and we would use this information to conserve paddlefish populations and restore critical habitats.”

Initial efforts included filling data gaps and identifying needed studies by gathering existing information from fishery managers, anglers and commercial fishers to determine paddlefish population status and distribution in the Mississippi River Basin. Early efforts also included a study on paddlefish population dynamics on the lower Wisconsin River and evaluation of habitat use to determine whether proposed dredging and island construction would impact paddlefish in a portion of the Mississippi. The Service worked cooperatively with many of the Mississippi Basin States and the U.S. Army Corps of Engineers.

“Efforts quickly expanded with these initial successes,” said Joanne Grady of the Columbia office.



Fisheries Lab 101. *Ann Runstrom of the La Crosse Fish & Wildlife Management Assistance Office takes a break from paddlefish sampling in the Chippewa River, Wisconsin, to show off one of her specimens to some young paddlefish enthusiasts. FWS photo.*

The Mississippi Interstate Cooperative Resource Association, a group of twenty-eight States focusing on large-river fishery issues, initiated a paddlefish tagging and stock assessment project. The Region 3 fish and wildlife management assistance offices teamed up with state and Federal resource agencies to better understand paddlefish habitat use and movement throughout the Mississippi, Chippewa, Wisconsin, Missouri, Illinois, and Ohio rivers.

This expanded the battle for paddlefish conservation by beginning to address key concerns for paddlefish populations on a basin-wide scale. The Carterville and Columbia offices agreed to maintain the association’s paddlefish database, developed by Tennessee Tech University, and operate a coded wire-tag processing center needed for the basin-wide approach.

“Although funding was and is limited in carrying out this charge, these two offices have been processing thousands of individual paddlefish over the past five years,” Conover said. “This basin-wide effort with the potential of helping paddlefish populations in twenty-eight States is a beacon of hope for the beleaguered paddlefish and those battling on its behalf.”

As Region 3 Fisheries have gained a better understanding of the paddlefish and its habitat requirements, factors inhibiting its restoration have been identified. These include dams that block migration and alter habitat, dams that regulate flow outside of the natural seasonal flows, lack of information on life history, particularly early life history, and the lack of scientific data to determine current status of populations.

“Not only are North American paddlefish populations facing these threats, but additional threats emerge as human populations grow,” said Ann Runstrom of the LaCrosse Office. “Some of the more prominent threats include over-harvest as pressure from the caviar industry increases in response to collapses of caviar-producing fish populations, like the sturgeon populations in Russia, and water quality degradation due to poor land use practices.”

The benefits of paddlefish conservation are clear and extend well beyond the anglers who seek the paddlefish in the murky waters of the mighty Mississippi. Not only do the owners of restaurants, bait shops, marinas, and other businesses benefit financially, but those who live in the many river communities along the banks of the Mississippi River gain a cleaner, healthier environment as well as opportunities to see this amazing creature of the mighty Mississippi River and its major tributaries.

*Joanne Grady, Ann Runstrom,
Columbia Fishery Resources Office,
Columbia, MO*

*Greg Conover, Carterville-Marion Fishery
Resources Office, Marion, IL*

Fisheries Most Wanted: Bureau of Fisheries China Information. *Ceramic dishes marked with a fish flag design and the initials U.S.B.F. are in the museum collection at D.C. Booth Historical National Fish Hatchery and NCTC. The so-called Buffalo China was manufactured by the Buffalo Pottery Company of Buffalo, New York, after 1915. Design changes on the individual pieces are evidence that more than one lot was produced. Pieces included standard place settings and serving pieces. The flag, with a blue field, red diamond, and white fish, was the official flag of the United States Bureau of Fisheries. Formed from the United States Fish Commission, the Bureau operated from 1903 to 1939, when it became part of the Department of Interior. Commonly known as fish car china from its use on the railroad fish transportation cars, it was probably also used at other facilities in the Bureau. Written records of the china's*



use and purchase have not been located to date. If you have more information about the china, please contact the Curator, DC Booth HNFH, 423 Hatchery Circle, Spearfish, SD 57783, 605/642 7730.

Milkcan misnomer.

They look like milk cans aboard these buckboards, but they hold fish—trout propagated at the Manchester NFH, Iowa. Bureau of Fisheries employees are preparing to take a shipment of trout to the railway. The Manchester facility was given over to the State of Iowa in the 1980s and is still in operation. FWS Photo.

*Craig Springer,
Division of
Fisheries,
Albuquerque,
New Mexico*



Squid Pro Quo!

Arguably the largest commercial fishing trade show in the world—with 9,000 exhibitors and visitors from 39 countries—the Fish Expo provided a terrific opportunity for Service staff from Alaska to teach commercial fisherman how to pair streamer lines (also called tori lines) to help eliminate seabird bycatch.

The “Put Your Bait Where it Belongs” game, which soon became known as “The Squid Toss,” reeled in fishermen by the hundreds. Conceived by Endangered Species biologist Charla Sterne, the game required players to throw gooey plastic squid lures into the mouths of cod targets, while avoiding the beaks of surrounding seabirds. When a squid made it into a cod’s mouth, the triumphant fisherman walked away with a “Streamer Lines Are For The Birds” ball cap or coffee mug (both also designed by Sterne).

As the show progressed, people lined up and down the aisle for a chance to toss a squid. Some brought their children over, but the game, and the prizes, proved wildly popular with the target adult audience. In fact, tentacle-tossing was such



An Expo visitor prepares to pitch squid. FWS Photo: Maureen de Zeewu.

a hit that those operating displays nearby thanked the Region 7 squid hawkers for generating traffic that spilled over into surrounding booths.

The Service display consistently hosted 50 to 100 people per hour. It was an unconventional outreach effort that will both promote seabird conservation and improve the commercial fishing public’s image of the

Service. More important still, the booth helped further the ultimate goal of incorporating tori lines into the accepted culture of Alaskan longline fishing.

Greg Balogh, Ecological Services, Anchorage, Alaska

Maureen de Zeewu, Ecological Services, Anchorage, Alaska



Planes, trains, automobiles. (Clockwise from upper left) Whether moving fish from a hatchery to the wild, or a stream-to-stream transfer, it takes wheels, props, and hooves. Airplanes revolutionized stocking large and remote areas in the 1950s. FWS photo. Specially fitted rail cars were the technology of the day at the turn of the 20th century. When roads improved for long-distance travel, trucks became the most economical way to move fish. FWS photo. But we still do it the old-fashion way. New Mexico Fisheries Resource Office volunteer Hugh Bishop atop FWS mule, Mallet, looks back at Gila trout in panniers, followed by Jerry Monzingo, Gila Nat'l Forest. Photo: U.S. Forest Service.

Craig Springer, Division of Fisheries, Albuquerque, New Mexico

Fish & Wildlife Honors

Spencer F. Conley, newly retired Assistant Regional Director for External Affairs for the Northeast Region of the Service, has been named “2001 Dick Cronin Sportsman of the Year” by the New England Outdoor Writers Association. The award is given periodically in the name of the late Director of the Massachusetts Division of Fisheries and Wildlife. There have been 21 recipients since the Award was established in 1972. Conley, who has worked for the Service for 12 years, was honored “in recognition and appreciation of his unselfish contribution to fish and wildlife conservation.” In addition, he was praised for “outstanding work over the past year in his chosen field that was performed in such a way as to reflect the aims, ethics and principles of the Association.”

Paul Phifer, a wildlife biologist in the Portland, Oregon, regional office, has been selected by the Environmental Leadership Program to participate in that organization’s 2002 national fellowship program. Phifer will join 25 environmental leaders from across the country who will spend the next 3 years honing their leadership skills through retreats, networking and training opportunities. Environmental Leadership Program fellows are chosen based on their past accomplishments, promise for future leadership, and potential as interdisciplinary thinkers and effective communicators. Nearly 200 people applied for the 2002 fellowship.

The North Carolina Coastal Land Trust presented its first ever Government Agency award to **John Ann Shearer**, state coordinator for Partners for Fish and Wildlife in North Carolina, for conservation contributions to the Coastal Land Trust over the last year.

Service Director Dr. Steve Williams presented the Region 5’s **John S. Gottschalk Partnership Award** to Dr. John Organ, chief of the wildlife program in Federal Aid, in recognition of Organ’s professional dedication and commitment to relationships with universities, conservation organizations and wildlife. The Gottschalk award honors extraordinary conservation partnerships or human resource development. Gottschalk was a fisheries biologist and the Service’s director from 1964 to 1970.

Department of the Interior Meritorious Service awards in Region 5 went to: **Ralph Pisapia**, special assistant to the regional director, who has led programs to restore wetlands, coastal, and estuarine areas in his 28 year career; **Dick St. Pierre**, Susquehanna River coordinator, who created public-private partnerships that have contributed to restoration of American shad in the Susquehanna River; **Paul Gaston**, retired project leader, Green Lake National Fish Hatchery, who improved hatchery and fish culture operational efficiencies during his 30-year Service career; and **Adam O’Hara**, retired assistant regional director, law enforcement, who contributed to a multi-nation agreement on illegal trade in wildlife and plants, which led to an approach for curtailing illegal trade in African wildlife.

Region 5 honorary Eagle awards went to: **Rich Guadagno**, Humboldt NWR refuge manager and former R5 employee at Great Swamp NWR, killed September 11; **Spence Conley**, assistant regional director for External Affairs; **Dave Densmore**, project leader, Pennsylvania Field Office; **Stewart Fefer**, project leader, Gulf of Maine Coastal Program Office; **Tom Jasikoff**, refuge manager, Montezuma NWR; **Janet Kennedy**, refuge manager, Parker River NWR; **Joe McKeon**, project leader, New England Fishery Resources Complex; **Sue Oliveira**, chief, Realty Management and Appraisal Section, NWRS; **Rick Perry**, resident agent in charge, Richmond LE; **Dick St. Pierre**, Susquehanna River coordinator; **Vic Segarich**, project leader, Nashua National Fish Hatchery; **John Stasko**, refuge manager, Back Bay NWR; **Sandy Stosz**, chief, Budget and Finance; and **Terry Villanueva**, refuge manager, Bombay Hook NWR.

The Region 5 honorary Invest in People award went to **Chincoteague NWR**, for the best overall work unit; **Steve Atzert**, **Edwin B. Forsythe** NWR, **Mike Bartlett**, New England Field Office, **Karen Mayne**, Virginia Field Office, and **Norm Olson**, Division of Planning, NWRS were all nominated by employees; and **Joe Dowhan**, Ecological Services program supervisor, **Kofi Fynn-Aikins**, Lower Great Lakes FRO project leader, and **Gordon Russell**, Maine Field Office project leader were nominated by peers.

Region 5 ecosystem team leader awards: **Larry Lofton**, Connecticut River/Long Island Sound; **Jerry Marancik**, Gulf of Maine Rivers; **Pat Martinkovic**, Hudson River/New York Bight; **Dave Frisque**, Lake Champlain; **Bob Inslerman**, Lake Champlain; **Dave Stillwell**, Great Lakes Basin; **Karen Mayne**, Chesapeake Bay/Susquehanna River; **Sue Rice**, Delaware River, Delmarva Coastal; **John Stasko**, Roanoke/Tar/Neuse/Cape Fear Rivers; **Sandy Tucker**, Southern Appalachians; and **Kurt Snider**, Ohio River Valley.

Transitions... Who's Coming and Going

Kenneth Stansell is now officially the new Assistant Director International Affairs. He brings to the program a breadth of wildlife management experience, with more than 23 years with the Service. For the past 12 years, he has championed a U.S. international leadership role in global sustainability of wildlife resources. **Teiko Saito** became the new Deputy Assistant Director. Throughout her career both with the Service and the Department, she has gained extensive international experience implementing CITES and permitting, and has specialized in human resource and management issues.

Peter Thomas became Chief of the Division of Management Authority. He comes to the Service from the State Department where he worked as a senior conservation officer. He has a strong background in marine mammal ecology, and extensive experience in international conventions that focus on resource conservation. **Roddy Gabel** became Chief of the Division of Scientific Authority. With over 11 years experience in the Division and 22 years with the Service, he has an extensive background in endangered species and wildlife trade issues.

Hugh Vickery was promoted from his position with Public Affairs in Washington, D.C. to the Interior Department's Office of Communications. He is covering Service issues as part of his "beat" in the Department's press operation. Vickery leaves the Service after 10 years of covering some of the Service's most controversial issues.

Jon Andrew has been selected as the new chief of the National Wildlife Refuge System for the Southeast Region. Andrew, a 20-year veteran of the Service, has worked on national wildlife refuges throughout the country. Most recently, he served as the chief of the Division of Migratory Bird Management in Arlington, Virginia. Before serving in the Division of Migratory Bird Management, Andrew also served as chief of the Branch of Planning and Policy for the National Wildlife Refuge program in Washington D.C. He has worked on refuges throughout the country, and served as refuge manager at several, including Lower Rio

Grande Valley/Santa Ana National Wildlife Refuge Complex in Alamo, Texas; Balcones Canyonlands National Wildlife Refuge in Austin, Texas (which he helped establish); and National Key Deer Refuge in the Florida Keys. He also worked in research and land acquisition planning for the refuge system in Alaska and North Dakota. Andrew also served in a senior staff position in the Atlanta regional office. Andrew replaces Steve Thompson who left the Southeast to become manager of the California/Nevada Operations Office of the Service in Sacramento, California.

Spence Conley, assistant regional director for External Affairs, retired March 31. Conley started working for the Northeast Region as a freelancer and was an employee more than 12 years. He had a background in newspaper reporting, advertising and public relations, and teaching college journalism. Conley will continue to be involved in Northeast natural resource issues as a member of New England Outdoor Writers.

Susan Silander, a 14-year veteran of the Service, has been selected to head the Caribbean National Wildlife Refuge Complex that encompasses nine refuges in Puerto Rico and the Virgin Islands. Silander worked in the Ecological Services Field Office in Boqueron since 1987. Prior to joining the Service, she worked for the Puerto Rico Department of Natural and Environmental Resources and in the Caribbean National Forest for the University of Puerto Rico.

Allyson Rowell is the new Chief, Division of Visitor Services and Communications, in the National Wildlife Refuge System headquarters office. She was one of key architects of the Refuge Friends Initiative and the Volunteers and Community Partnership Act. As the Chief, Office of NWRS Budget, she strengthened the vital relationship with the Cooperative Alliance for Refuge Enhancement, the Service and Department budget offices, and with Capitol Hill.

Jae Ahn was recently named the new supervisor of Uvalde National Fish Hatchery, Uvalde, Texas. An eight-year Service veteran, Ahn will initially oversee an overhaul of the facility, then eventual operations at the hatchery. Ahn, a native of Seoul, South Korea, and 1993 graduate of the University of Washington, also served for six-years in the U.S. Navy.

Manuel Ulibarri was recently named the new supervisor of Dexter National Fish Hatchery & Technology Center, in Dexter, NM. Ulibarri, a 16-year Service veteran, will oversee technology development at the facility. He previously served at Uvalde National Fish Hatchery in Texas and Willow Beach National Fish Hatchery in Arizona.

After 26 years of overseeing Service contracts and assistance agreements, Region 3 Contracting Chief **John Mullins** has retired. Mullins' career is a success story of keeping a smooth contracting flow for the many vital projects of Service field offices throughout the Midwest.

Janet Tennyson is the new Director of Communications at the American Sportfishing Association. After 12 years with the Service, Tennyson left Refuges as the communications team leader. She started with the Service as an intern in Public Affairs, was hired as a secretary, and then became a Public Affairs Specialist, including editor of Fish and Wildlife News. In 1998, she transferred to refuges as the outreach coordinator.

In Memoriam...

Robert Wendell Scott of Bountiful, Utah, died at age 88 in July 2001. He joined the Service's Division of River Basin Studies in Billings, Montana and moved to Salt Lake City in 1960 as a Field Supervisor. In cooperation with state wildlife agencies he worked on the evaluation and planning of numerous water development projects, including units of the Colorado River Storage Project. He retired in 1973.

Fish & Wildlife... In Brief



Jeff Miller

Jeff Miller, 42, graphic designer at the National Conservation Training Center, died suddenly at home on April 14 of a brain hemorrhage. Jeff joined the Service in 1997 after graduating Magna Cum Laude from Shepherd College. While at the center, Jeff produced a wide variety of communication products including the Refuge "slides" seen in numerous Sony movie theaters around the country. Also, Jeff was instrumental in implementing the Service's publication guidelines. A memorial website, designed by friends and colleagues at the center, can be viewed at <http://training.fws.gov/JFMiller/index.html>. If you wish to contribute, the NCTC Employee Association set up the Jeff Miller Fund to help Jeff's young family. Contributions can be sent to the NCTC Employee Association (Jeff Miller Fund) care of NCTC. A scholarship fund for Jeff's daughters has also been established at

Jeff's alma mater: Shepherd College Foundation (attn.: Jeff Miller Scholarship Fund), c/o Shepherd College, P.O. Box 3210, Shepherdstown, West Virginia, 25443.

H. T. "Tuck" Stone, former manager of Wheeler NWR in Alabama passed away quietly at his home in Hartselle, Alabama in April 2002, after a long bout with cancer. Tuck started his career in the National Wildlife Refuge System at the Division of Wildlife and Refuges in Washington, D.C. in 1970. He subsequently served as assistant manager at Lake Andes NWR in South Dakota, assistant manager at Piedmont NWR in Georgia, and manager at St. Vincent's NWR in Florida, Kulm WMD in North Dakota, Lake Andes NWR, and Tensas River NWR in Louisiana. Tuck received many honors and awards during his career including the Meritorious Service Award in 2000. He retired in August 31, 2001 after 14 years as manager of Wheeler NWR.



Cooperation. *Financial and technical assistance through the Partners for Fish and Wildlife Program promoted the elimination of invasive and competitive species that were detrimental to the recovery of this young longleaf pine stand at Pleasant Oaks Plantation. A Partners for Fish and Wildlife agreement was signed with the Coastal Land Trust this past year directing \$14,000 towards the restoration and enhancement of 191 acres of degraded longleaf pine habitat at Pleasant Oaks Plantation in Brunswick County. Contributions total more than \$31,000. Pleasant Oaks Plantation, an antebellum rice plantation along the Cape Fear River, has been designated by the North Carolina Natural Heritage Program as a nationally significant natural area. The Coastal Land Trust holds three conservation easements totaling 2,309 acres of the plantation. North Carolina Coastal Land Trust photo: Janice Allen.*

Elsie Davis, Public Affairs, Atlanta, Georgia

Fish Technology Center Scientists Author Book Chapters

Every profession has its "bible" and fish hatchery professionals have theirs: *Fish Hatchery Management, 2nd ed. 2002*. American Fisheries Society, Bethesda, MD. Dr. Gary Carmichael, Director of the Mora Fish Technology Center, Mora, NM, authored the chapter *Fish Transportation*. Carmichael instructs other professionals how to successfully haul game and imperiled fishes without killing them. Dr. Holt Williamson, biologist at the Dexter Fish Technology Center, Dexter, NM, authored *Brood Stock Management for Imperiled and other Fishes*. Williamson writes about managing complexities and concepts in making decisions. "This book advances what came before," says Williamson. "The first edition is still very valuable, but the second edition advances new knowledge and new science."

Seizing the Moment

It is imperative that we change with the times. The Service's Fisheries Program is no stranger to this reality. It is the oldest member of the Service family and it has been evolving ever since its inception in 1871. Today, in light of shifting political, social, and economic factors, it is being asked once again to adapt to change.

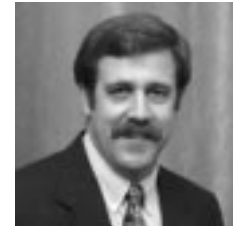
This issue of *Fish & Wildlife News* recaps the Fisheries Program's long and storied history. Many of us know from first hand experience that this valuable program is capable of amazing things. We've seen the program restore depleted fisheries from coast to coast—witness the extraordinary success of Chesapeake striped bass restoration in the late 1980's and early 1990's. We've seen it turn the tide against invasive aquatic species like the sea lamprey in the Great Lakes. And we have seen feats of scientific ingenuity in everything from fish ladders to genetics.

But now we are also seeing the Fisheries Program go through challenging times. For 2003, the program is being asked to absorb a \$1 million budget cut and demonstrate that it is using best business practices. Just as businesses do, we will have to refocus some of our activities.

Accordingly, Fisheries and Habitat Conservation Assistant Director Cathleen Short and her staff are working diligently on a strategic plan with the help of partners through the Sport Fishing and Boating Partnership Council. The plan seeks to chart a course whereby the Fisheries Program can, within its budget constraints, focus more on habitat conservation and restoration, fish passage issues, and the conservation of genetic diversity, while at the same time honor its Tribal obligations and its commitments to the States and to the nation's recreational angling community. In this endeavor, the program can benefit greatly from the support of the rest of the Service family. It can work with the National Wildlife Refuge System to reflect fisheries needs when setting land acquisition priorities. It can work with the Endangered Species Program to recover threatened and aquatic species. The possibilities for cross-program cooperation are out there waiting to be recognized.

Right now the Service has an unparalleled opportunity to revitalize its Fisheries Program. Interior Secretary Gale Norton personally intervened when it appeared an even deeper budget cut was being considered for the Fisheries Program in 2003, and I am devoting my personal attention to finding ways to strengthen the Program. In view of this high-level support, the Service must seize the moment and develop a strategic plan that appeals to the Secretary's call for partnerships and tangible results. While an immediate onus lies on the Fisheries Program, the entire Service family should stand with the Fisheries staff and help them forge a dynamic program poised for the challenges of the 21st century. This year represents a year of special outreach for the Fisheries Program. Its theme—"Conserving America's Fisheries: a proud past, a bright future"—is timely, and ultimately, will prove true.

Steve Williams



Fish & Wildlife News

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