

Eddies

Reflections on Fisheries Conservation



Eddies

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Publisher

Bryan Arroyo, Assistant Director
U.S. Fish and Wildlife Service
Fisheries and Habitat Conservation

Executive Editor

Stuart Leon, Ph.D.

Deputy Editor

Richard Christian

Editor

Craig Springer

Contributing writers

Jim Bowker	Dan Mangeson
Corky Broadaddus	Carlos R. Martinez
Richard DeMarte	Mark Maskill
Dean L. Fowler	Tess McBride
James Gray	Frank Peterson
Karen R. Hollingsworth	Randi Sue Smith
Libby Hopkins	Jeremy Voeltz
Heather Jerue	Denise Wagner
Chris Kitcheyan	

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Ryck Lydecker, Boat Owners Association of the United States
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Michael Smith, U.S. Fish and Wildlife Service (retired)
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Contact

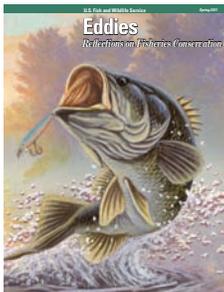
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call 505 248-6867, or write to:
Craig Springer
USFWS Fisheries RM 9100D
500 Gold Ave. SW
Albuquerque, NM 87103

Design

Blue Heron
Communications

On the Cover:

The late Seth Spradlin painted this award-winning largemouth bass. See page 16. Wildlife Forever.



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Wildlife Forever

Joshua Joint painted this brook trout, and won Best of Show in the State-Fish Art contest in 2004. See page 16.

The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people.



Headwaters

Creating Moments Everlasting

By Bryan Arroyo



Hazel Arroyo

I have a reckoning to make. The least deniable reality is my own thoughts. How one views the nature of reality equates to a philosophy, and mine is that experience in nature is sacrosanct. Nature-experience creates a unity, not necessarily between people, but with people *and* nature. Keep following me: that gives rise to a connectedness and thus a respect for wild things and wild places. It goes further, to reciprocity—a reverence toward science—and then science reveals the nature of our existence.

I have had a lifelong interest in conservation that originated in nature-experiences in my youth in Puerto Rico, typically fishing with my dad, Teddy. Whether catching river prawns by hand to eat or use as bait, chasing crabs through the sugar cane fields, or lip-gripping largemouth bass we caught in lakes, I had full exposure to nature and its wonders at a time most formative. The seeds were planted. As an undergraduate student at the Catholic University of Puerto Rico I was unsure about what career path to follow, but one thing was certain, it would be within natural resources. Professor Juan Ricart guided me there; in his tropical ecology class he was much more than a teacher, he was an inspiration. Small moments come and go in our lives and without knowing it they can be monumental to our future. Some things that seem so short-lived, rightly made, can be everlasting.

Here's something else that I reckon. This continuum could be severed to the detriment of conservation. Fewer Americans fish now than when I was a

youngster. More youth are plugged into something electronic, be it video games, a computer, or hand-held devices, and they spend much less time outdoors. This creates disunity and disconnect with wild things and wild places. So what will happen as young people mature with a scarcity of understanding on the workings of nature?

You can read the mission of the U.S. Fish and Wildlife Service on your left, down-page. In what appears as a paradox, it's more about people than it is fish or wildlife. We are people working to ensure a future for people. And that's what this issue of *Eddies* is all about. We aim to communicate a smattering of what we do in the Fisheries Program to help ensure that young people, well, people of all ages, really, can make use of our 154 facilities nationwide so as to learn more about fisheries conservation—and their role in nature.

Denise Wagner in her story, "Conservationists for Tomorrow," communicates how Inks Dam National Fish Hatchery in Texas transformed itself into an education destination. Corky Broaddus writes about the 20-year-old Salmon Fest at Leavenworth National Fish Hatchery in Washington, and how the celebration of returning salmon connects people to conservation. Sixteen-year-old Richard DeMarte, a high school student in New York pens a piece on striper fishing, and what the fish means to him. I think you'll be impressed by the young man. Speaking of striped bass, that's our American Fishes installment this time around, and Dean Fowler with the Virginia Department of Game and Inland Fisheries contributed a life-history of the species. The story on tribal youth summer employment tells us something new about relationships with Indian tribes that date back decades. Lastly, you will marvel at the artistic talent on display in the middle of the magazine, created by youth. Wildlife Forever was kind enough to allow us to print some of the recent award-winning pieces of art. They are visual representations of the unity and reverence that I mentioned.

The Fisheries Program is committed to engaging people of all ages in the outdoors and to conservation education. We welcome you to our facilities and want you to get to know our scientists. They are local resources who can team with schools and service organizations, as we have been doing for decades. Our commitment is unwavering to forge the future of conservation.

Bryan Arroyo is the Assistant Director for Fisheries and Habitat Conservation in Washington, DC.

Reel dollars and real jobs



Craig Springer

The Fisheries Program accounts for a total economic output of \$3.6 billion, and 68,000 jobs.

For the last 500 years, scribes have waxed poetic about the virtues and vices of fishing. Some lament the challenges and others applaud the rewards of the quiet sport. The

apostle Izzak Walton wrote in his book *The Compleat Angler* in 1653 that fishing “will prove to be a virtue, a reward unto itself.” Fishing and conservation have inherent and intrinsic values, and they own other values that are very measurable.

Two U.S. Fish and Wildlife Service economists, Joseph Charbonneau, Ph.D., and James Caudill, Ph.D., recently made such measurements. They assessed the economic contributions made by the work performed in the Fisheries Program, nationwide, from 2004 to 2008. The numbers they reported in their peer-reviewed work were adjusted to the value of a dollar in late 2010. The numbers are stunning, and would make any mutual fund manager blush.

Results from the entire Fisheries Program and its 154 field stations account for a total economic output of \$3.6 billion, coming from an

investment \$128 million. In the National Fish Hatchery System, 123 million stocked fish yielded 13 million angler-days in turn spurring \$554 million in retail sales, \$256 million in wages of jobs created, where \$37 million was returned to the federal treasury in income tax. Another \$34 million was generated in state income taxes.

Better habitat means better fishing. Toward that end, the Fisheries Program has restored thousands of acres and miles of streams for the betterment of fish, and it is good for people. The economists calculate that habitat conservation has a value of \$2 billion. Money changing hands means jobs. All told, the economic output related to the conservation successes of the Fisheries Program is responsible for 68,000 jobs in a variety of industries.

Five hundred years of fishing literature may have laid threadbare any questions on the value of fishing. But one thing is clear, conservation is important to the economy, and you can take that to the bank. ♦ Craig Springer

Engaging tribal youth

This past November, the Fisheries Program, in partnership with the National Conservation Training Center, hosted a celebration of the successes of the Fisheries Program’s Native American youth employment programs in Washington D.C. The week-long celebration provided ample opportunities for agencies to engage with tribal natural resource leaders in the development of a national tribal natural resources strategy.

More than 30 native youth from the 2010 Fisheries Youth Conservation Corps programs at Mescalero Apache (NM), Confederated Salish and Kootenai Tribes (MT), and White

Mountain Apache (AZ) joined with tribal elders, statesmen, and leaders of inter-tribal organizations from across Indian Country to celebrate the successful engagement of indigenous youth in fish and wildlife conservation activities and the promise and possibilities for the future. These youth employment programs lead to advanced education opportunities and natural resource careers. The need for these programs is overwhelming, and the U.S. Fish and Wildlife Service’s Fisheries

Program is committed to expanding natural resource employment opportunities for the nation’s indigenous youth. ♦ Stuart Leon, Ph.D.



Joe Milmoe/USFWS

Representatives from tribal youth YCC groups speak about what their work with the USFWS meant to them.

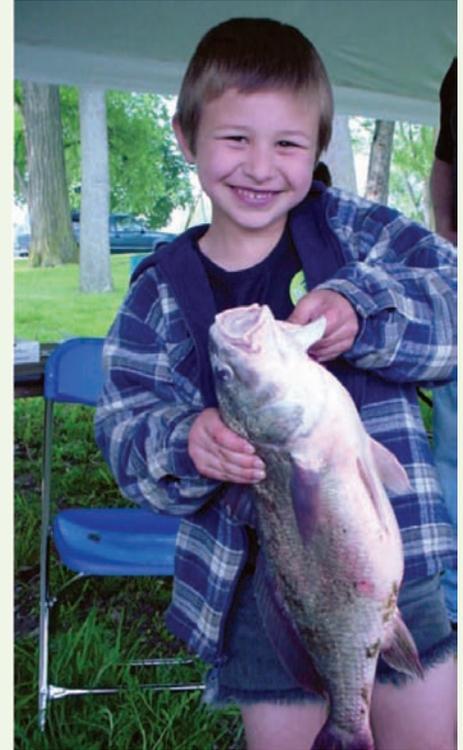
Conserving the Future: Wildlife Refuges and the Next Generation

The U.S. Fish and Wildlife Service and the National Wildlife Refuge Association have coordinated a national effort to craft a renewed vision that will guide management of the National Wildlife Refuge System for the next decade. Titled *Conserving the Future: Wildlife Refuges and the Next Generation*, the process has engaged thousands of people across the country to join a robust online discussion at www.AmericasWildlife.org.

The draft vision contains nearly 100 recommendations. Scores of comments were collected during the comment period that ended April 22. The final vision reflecting the online comments and bold ideas will be ratified and launched at the *Conserving the Future* conference July 10-14 in Madison, WI.

Often called America's "first conservationists," hunters and anglers have played an essential role in the conservation of the nation's fish and wildlife. Their continued support is essential to implementing the vision for the future of the Refuge System.

An array of technology will be available at www.AmericasWildlife.org to follow the *Conserving the Future* conference, including keynote speakers. Individuals can become virtual participants in the conference by registering at www.AmericasWildlife.org, which features blogs, videos and unique participation opportunities such as a book club titled "America's Wild Read." Visit the website today to become a member and join the conversation! ♦ Heather Jerue



USFWS

Big fish put big smiles on faces.

FEATURED FACILITY

Wolf Creek National Fish Hatchery

Where: Jamestown, Kentucky

When: Established 1975

Then: Rainbow trout were reared to mitigate for Corps of Engineer projects in Kentucky and Georgia; to support federal recreational fishing programs in the Daniel Boone National Forest, Fort Knox, and Fort Campbell military installations, and other state-managed waters throughout Kentucky.

Now: Wolf Creek's primary focus continues to be the mitigation of 15 federal water development projects in Kentucky and Indiana by rearing rainbow, brown, and brook trout. An agreement with Kentucky Department of Fish and Wildlife Resources requires Wolf Creek to produce trout for another 100 waters. Current annual trout production is about 1,000,000 fish, weighing 250,000 pounds. These fish provide \$34



USFWS

The fish hatchery stocks about one million trout per year; producing \$34 million in direct economic benefits at a cost of \$75,000.

million in direct economic benefit to the American people at a cost of \$75,000. For the last several years, Wolf Creek has reared mussels and threatened or endangered fishes like the relict darter, spotfin chub, and Barrens topminnow. In 2006, a state-of-the-art Environmental Education Center opened, a first of its kind at a National Fish Hatchery. ♦ James Gray

America's Great Outdoors and conservation education

The National Fish Hatchery System Volunteer Act of 2006 mandated that the Fisheries Program increase awareness of the conservation work delivered at Fisheries Program facilities through incorporation of outdoor classrooms and other conservation education programs. The Fisheries Program has provided quality conservation educational opportunities at the community level for decades.

As called for in President Obama's *America's Great Outdoors Initiative*, the Fisheries Program connects with today's young generations by engaging families in conservation. Working in cooperation with volunteers, partners, and formal Friends groups, the Fisheries Program delivers a wide array of formal and informal conservation education programs both on and off

Fisheries field stations at national and community levels.

With thousands of outreach and educational events every year, the Fisheries Program reaches well over one million youth alone. Biologists and professional educators communicate conservation issues through innovative, science-based, hands on learning, incorporating programs such as *Biologist in Training*; *Kids in the Creek*; and *Salmon Fest*. Through many of our 154 facilities nationwide, people of all ages experience inspired



Sheila Kirk/USFWS

Biologist in Training is a top-shelf education program used by U.S. Fish and Wildlife Service staff. Wolf Creek National Fish Hatchery's Amanda Patrick talks to a student about animals collected in a nearby Kentucky stream.

moments, learning about fish, plants and bugs, and science and conservation. These educational experiences plant the seeds of stewardship that may blossom into conservation careers. ♦ Denise Wagner

Discovering Burnt Island



Through hands-on experience, youth in Maine learn about the wild animals that live in coastal habitats.

The Maine Department of Marine Resources has transformed the Burnt Island Light Station, located on a five-acre island off Boothbay Harbor, into an outstanding educational

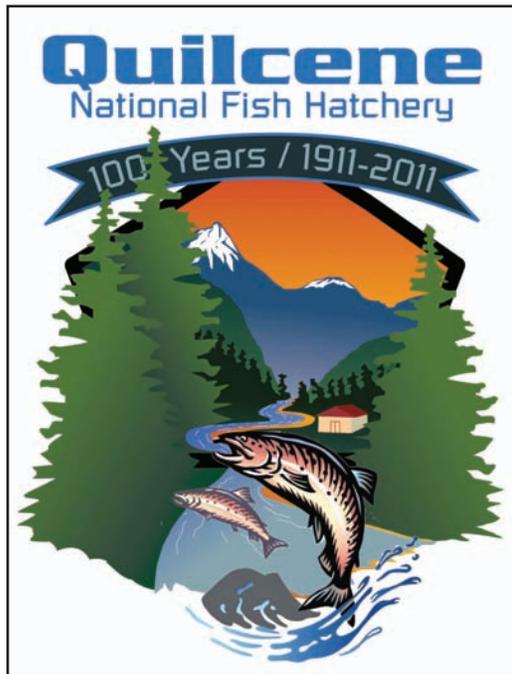
and geology, navigation and history, marine fisheries, and sport fishing. All curriculum activities are aligned with the state education standards. While on the island, students learn

facility. Before bringing their middle school classes for an overnight stay, teachers attend a weeklong course on the island. The training provides hands-on learning in the multidisciplinary curriculum, which covers topics related to Maine's marine environment and maritime history – ecology of the Gulf of Maine, coastal ecology

first-hand through explorations that include searching tide pools, digging in mud flats, studying beach sands, using compass and GPS units on a treasure hunt, climbing up the lighthouse, and fishing off the shore or dock for mackerel and pollock. Even in the fog, it is an experience to remember.

Though the island and buildings are owned by the state of Maine, the education staff and programs are funded primarily with Dingell-Johnson Sport Fish Restoration monies. These funds come from federal manufacturing excise taxes on fishing tackle, boat-trolling motors, and motorboat fuels distributed to state fish and wildlife agencies. The funds support fish management activities and boating access development to benefit anglers and boaters, and aquatic resource education programs for the public. ♦ Libby Hopkins

Hatchery hits the century mark



The late Edgar Albert Sims, a state legislator from Port Townsend, Washington, is credited with transforming the concept of a fish hatchery on the Big Quilcene River into a reality. The hatchery was authorized by Congress in 1909 and began operations in 1911.

The hatchery originally focused on culturing anadromous salmonids in support of the commercial fishing industry, but in 1930 production began including trout for stocking the waters of Olympic and Mount Rainier National Parks, as well as on military reservations. The trout program grew to encompass two-thirds of total production by the early 1960s. In the late 1970s, the trout program was phased out and

emphasis shifted back to anadromous salmonids. Quilcene's 12-year hatchery program for threatened Hood Canal summer chum was astonishingly successful.

Today, the hatchery's flagship coho salmon program provides a tremendously valuable resource for five Native American tribes and the sport fishing community alike. Other work being done at the hatchery includes restoration of threatened Hood Canal winter steelhead, as well as boosting Lake Sammamish kokanee salmon.

A day-long centennial celebration event is planned at the hatchery on Saturday, August 20, 2011. ♦ Dan Mangeson

FROM THE ATTIC Notes from D.C. Booth Historic National Fish Hatchery and Archives

Every mounted fish has a story. Several years ago a letter came to us from an Iowa taxidermist offering a mounted Yugoslavian trout. The taxidermist said this trout came from eggs that were given to President John F. Kennedy, as a gift from Yugoslavian President Tito. The eggs were hatched at the Manchester National Fish Hatchery, now owned by the Iowa Dept. of Natural Resources.

In 1962, the hatchery gave the taxidermist three fish to mount, one for President Kennedy, and one for the hatchery. The taxidermist kept one, and it's the mount that came to our archives. President Kennedy was inaugurated January 20, 1961, narrowing the time period.

Some sleuthing turned up an article about Lake Orhid trout in Wyoming, that were stocked from eggs received in 1965 from Yugoslavia. Lake Orhid trout, *Salmo lentica*, is native to the former Yugoslavia. Recently, a volunteer cataloger working on material from Harvey Willoughby, former fish hatchery chief, found



Randi Sue Smith/USFWS

Mystery fish: this antique mounted trout could have been given to President John F. Kennedy by President Tito of the former Yugoslavia.

a link—a 1963 publication, *ZAVRSNI IZ VESTAJ*, by Willoughby, *ekspert za ribarstvo*. And luckily, we also hold a translation in our files; Willoughby penned: *Management and Production of Trout in Yugoslavia*. The booklet has no reference to President Kennedy. But Willoughby did spend five months in Yugoslavia preparing the publication.

We aren't done yet—the rest of this trout's story might be recorded at the Kennedy Presidential Library, hatchery records, or local newspapers. Meanwhile, we may have a Presidential fish. ♦ Randi Sue Smith

By Carlos R. Martinez

Dr. Livingston Stone



Dr. Livingston Stone is undoubtedly one of America's greatest fisheries conservation pioneers. He was instrumental in the establishment of the U.S. Fish Commission, the precursor of today's U.S. Fish and Wildlife Service. Stone's work in conservation is an imprint seared in the American experience.

Born in Massachusetts in 1836, Stone graduated from Harvard College in 1857. He subsequently entered Meadville Theological School where he was ordained a Unitarian minister. Reverend Livingston Stone pastored the flock at South Parish Church in Charleston, New Hampshire, a mere four city blocks from the banks of the Connecticut River. Perhaps the allure of flowing water was too strong. For reasons unknown, Stone resigned his clerical duties in 1866 and began a career in fisheries conservation. He rapidly became a respected authority. In 1870, he was one of the founders of the American Fisheries Society, helping draft its constitution and serving as the organization's first secretary. The American Fisheries Society is today the world's largest and longest-serving professional society of its kind.

In 1872, Stone was named U.S. Deputy Commissioner of Fisheries. In an attempt to mitigate for the depletion of Atlantic salmon, Spencer F. Baird, the first U. S. Commissioner of Fisheries, instructed Stone to obtain a supply of Chinook salmon eggs from the Pacific Coast. Despite countless hardships and difficulties that would test the mettle of any man, Stone succeeded in establishing the first federal hatchery (see *Eddies*, Special Issue 2009).

From preacher to fisheries conservationist, Livingston Stone pioneered scientific fish culture and advocated for habitat conservation well ahead of this time. He wears an early U.S. Fish Commission uniform in this shot, taken circa 1895. Stone was born in 1836 and died in 1912.

Located at the remote junction of the McCloud and Pit rivers in northern California, he named it “Baird Station,” in honor of his friend and employer. As indicated by the report of the Commissioners of Fisheries of California (1874–1875), our nation’s first national fish hatchery would go on to play an important role in fisheries history. “The largest establishment in the world, for the hatching of salmon eggs, is that of the Government of the United States, on the McCloud River, in Shasta County...from six to ten million of young Salmon are hatched each year and distributed to the Fish Commissioners of the various States having rivers suitable for their growth and increase,” read the report. But the eggs would go further. Eggs from this facility would find themselves as far away as New Zealand.

In 1873, Stone was assigned the task of delivering fish across the continent via railcar. In his first attempt, using a retrofitted “aquarium” car supplied by the California Fish Commission, he carried an aquatic menagerie: 60 adult black bass, 60 catfish, 60 yellow perch, 12 hornpouts, 12 glass-eyed pike, 50 breeding eels, 1,000 tautog, 20 striped bass, 50 yearling perch, 40 large lobsters, 1 barrel of young selected oysters, 190,000 Hudson River Shad fry and 100,000 young eels with intent of introducing the eastern species to the west coast.

That was not to be. The railcar made it as far as the Elkhorn River in Nebraska, before disaster struck. “After leaving Omaha, we stowed away as well as we could the immense amount of ice we had on the car; and, having regulated the temperature of all the tanks, and aerated the water all around, we made our tea and were sitting down to dinner, when

suddenly there came a terrible crash, and tanks, ice, and everything in the car seemed to strike us in every direction,” penned Stone, recounting the event.

“We were, every one of us, at once wedged in by the heavy weights upon us, so that we could not move or stir. A moment after, the car began to fill rapidly with water. The heavy weights upon us began to loosen, and, in some unaccountable way, we were washed out into the river,” said Stone about cheating death.

One man was crushed in the engine-cab according to Stone, and two men were taken in the swift current. The fate of the fish is unknown, but Stone was not to be discouraged. A year later, Stone’s second attempt was much more successful with the 2,800-mile transport of 35,000 Hudson River shad to the Sacramento River.

Stone wrote the book *Domesticated Trout: How to Breed and Grow Them*, in 1872, published by the Office of the Fishing Gazette in London. Stone’s short prefatory remarks were prophetic: “To warn my successors of the dangers into which I fell myself as a pioneer, and to make their path easier, is object of this little book.” The “little book” of 367 pages became a standard manual, and later, a classic for fish culturists. Stone was one of the first to recognize the importance of controlled experimentation and scientific methods in fish culture. He strived to discover fish diseases and their therapeutics. He described greater than twenty diseases in his life and tried to educate others on the practices to control them.

Despite being a leading proponent of artificial propagation, Stone was a conservationist vastly ahead of his

time, advocating regularly for the conservation of fish habitat. He routinely encouraged the American Fisheries Society and the U.S. government to acquire land for fish refuges, writing “Let us now, at the eleventh hour, take pity on our long persecuted salmon and do him the poor and tardy justice of giving him, in our broad land that he has done so much for, one place where he can come and go unmolested and where he can rest in safety.”

He had some measure of success. On Christmas Eve 1892, President Benjamin Harrison set aside lands on Alaska’s Afognak Island for a “fish reserve.” The Library of Congress cites Harrison’s action as “what was in effect the first national wildlife refuge.”

In 1989, the Fish Culture Section of the American Fisheries Society enshrined Dr. Livingston Stone in the National Fish Culture Hall of Fame. In 1997, 125 years after Stone established Baird Station, the U.S. Fish and Wildlife Service named Livingston Stone National Fish Hatchery in his honor. It’s poetic; hatchery biologists there raise endangered winter Chinook salmon from the Sacramento River. ♦

Carlos R. Martinez is the Director of the D.C. Booth Historic National Fish Hatchery and Archives, in Spearfish, SD. He was profiled in *Eddies*, Fall 2009.

Striped Bass

By Dean L. Fowler

Looking for a workout, preferably something more interesting than an hour on an elliptical? Well, head to an East Coast estuary or an inland reservoir and angle for one of the most prized sport fish in the U.S. The striped bass is admired and highly valued throughout its native range from New Brunswick on down the East Coast to around Florida, and a few locales in the Gulf of Mexico. Because of its fighting ability and massive size—30-pound fish are not uncommon—and fine flavor, it's one of the most sought after fish in the U.S.

Significant commercial fisheries have existed for striped bass almost continuously since colonial times. Like the storied salmon, it is an anadromous fish—it spends most of its life in the ocean and bays, but ascends coastal rivers to spawn in freshwater. Because of its value, in the late-1800s the U.S. Fish Commission sent striped bass across the country in milk cans via rail to several locations along the coast of California, well outside its natural range. Today, striped bass live in rivers from Washington to Mexico, where they now support popular fisheries.

Striped bass also flourish in inland reservoirs. Quite by accident, some striped bass were trapped in the Santee-Cooper chain of reservoirs in South Carolina when they were impounded in the early 1940s. These landlocked fish adapted well to their new freshwater homes. Enough free-flowing river habitat upstream of these reservoirs existed to allow striped bass to make spawning runs up the Wateree and Congaree rivers. Once fishery managers discovered that stripers could develop trophy fisheries in large lakes, they began stocking them in earnest. Today,

you can catch striped bass in inland waters in 31 states.

The early American colonists netted, salted and stored the incredibly abundant anadromous shads, herrings, and striped bass that filled the coastal rivers during their spring-time spawning runs. These fish were vital foods that without which the colonists may not have survived the Northeast winters. The Colony of Plymouth established a free public school with the income generated by the early coastal striped bass fishery. For most of American history, striped bass supported primarily commercial fisheries. It wasn't until the 20th century that striped bass angling became widespread, thus making the fish more valuable.

Angling created another matter for fishery managers to consider. Not only were striped bass stocks affected by commercial fishing, but angling had an increasing influence as well. With the striped bass naturally being a wide-ranging fish, this created a need for coordinated management among the coastal states where the fish occurred. The largest producing area by far for coastal striped bass is the Chesapeake Bay and its tributary rivers. The Hudson and Delaware rivers also contribute to the coastal migratory stocks.

No matter where the fish lives, water temperature and day-length determine when the fish spawn. That can be as early as March in the southern states to July in Canada. Striped bass spawn in rivers in open water with groups of males drawn to a single female that may release millions of eggs. There is no parental care for the eggs or young. This is a numbers game: release as many eggs as possible in the hope that a few make it to adulthood. The tiny

buoyant eggs drift downriver as they incubate for three days, many becoming food for other fishes. The same fate awaits many of the newly hatched larvae that set about feeding on microscopic zooplankton until they're large enough to eat fishes, crustaceans, and aquatic bugs. They spend their first summer in the fresh and slightly brackish waters of the same river estuary in which they, their parents, and likely their ancestors were spawned. Science has shown that the females have a greater fidelity to their natal waters than do the males. For the remainder of their lives striped bass will feed primarily on fish. With the onset of fall and cooler temperatures, the young stripers school up and drift downstream into deeper, saltier, and warmer waters. It's in these estuaries they remain for two years.

By age three, having reached 16 inches or so, some begin to join the annual coastal migration that takes them on a round trip as long as 2,000 miles for those spawned in the Chesapeake Bay. The large schools of these migratory striped bass generally stay within a couple miles of the coast. They tend to overwinter in the ocean relatively close to their natal river, which they ascend to spawn during the spring. After spawning, the larger fish feed in the lower estuaries, regain some strength, and head to the ocean and northward to the preferred cooler waters off the northeast coast around Maine and Nova Scotia, where they stay the summer. We know that males mature by age two and females, age three to seven. The males tend to die at a younger age than females. Consequently, most stripers that exceed 20 pounds are females, as are most coastal migrants. Stripers have been known to live up to 40 years and reach 100 pounds. Striped bass that



Virginia Department of Game and Inland Fisheries

Anglers across the country enjoy catching striped bass. Virginia's striped bass fishery lures thousands of anglers each year to the Chesapeake Bay and its tributaries.

spawn in rivers south of Virginia tend to remain close to their natal river, unlike their wandering northern cousins.

Striped bass numbers have been up and down since the 19th century. Commercial harvest plummeted from 14.7 million pounds in 1973 to only 1.7 million pounds a decade later due to excessive harvest in both the recreational and commercial fisheries, coupled with polluted spawning habitats. With such a valuable fishery in dire straits, Congress passed the Atlantic Striped Bass Conservation Act in 1984, and research and restoration programs commenced with state fish and game

agencies, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service. The 1984 law gave the Atlantic States Marine Fisheries Commission the power to regulate coastal striped bass harvest.

It's all paid off: coastal striped bass was declared fully restored in 1995. Today, millions of fish are harvested each year by anglers and commercial fishers, with the latter taking about one-third as many pounds of striped bass as that taken by the former. Striped bass fishing across the country generates thousands of jobs, contributing millions of dollars to the economy.

But there's more, and it's immeasurable. To many an angler, the most important thing about this sleek-shaped, powerful game fish is the adrenaline rush you get when it's on the end of a line. There's a cardiovascular workout that beats any elliptical. ♦

Dean L. Fowler is a fisheries biologist working in the American Shad Restoration Program of the Virginia Department of Game and Inland Fisheries in Richmond.

By Denise Wagner

Conservationists for Tomorrow

Improving science literacy through outreach



Inks Dam National Fish Hatchery biologist, Greg Landry, teaches students of R.J. Richey Elementary from nearby Burnet, Texas, about the value of clean water to fish and to people.

In today's world, fisheries conservation is as much about people as it is about the fish. It's about good public relations, education, and awareness—and that creates future stewards—be they constituents or future employees. The U.S. Fish and Wildlife Service's Fisheries Program is evolving in a way to better serve the people we work with through outreach, by engaging people of all ages.

Outdoor education areas or "Outdoor Discovery Zones" on National Fish Hatcheries are a great way to connect the public in many ways. Educational experiences conducted at these sites are coordinated among U.S. Fish and Wildlife Service employees, volunteers, Friends groups, students, youth organizations, and the community. They can be used as a tool for public relations, and a means to deliver a variety of

formal and non-formal education programs. These curricula educate about the conservation work of the Fisheries Program, and inform the people we serve about fisheries and aquatic species conservation. An informed public leads to increased support. An educated public leads to greater science literacy. Conservation education facilitates the recruitment of youth into eventual fisheries conservation careers.

Many of the U.S. Fish and Wildlife Service's Fisheries facilities have done an excellent job of optimizing their properties into an educational resource, and have fully engaged their communities. A great example that started from scratch and has come a long way in just a couple of years is at Inks Dam National Fish Hatchery.

Located in Burnet, Texas, Inks Dam National Fish Hatchery has been around since the late 1930s. With tremendous potential, it sits on 170 riverside acres, where biologists raise channel catfish, Clear Creek gambusia, largemouth bass, paddlefish, and rainbow trout. The Colorado River flows by many historic structures built by the Civilian Conservation Corps during the Great Depression.

It is an amazing place but Inks Dam National Fish Hatchery has had an identity problem. Even their own community had overlooked the federal facility. Many local people did not know about the work done, let alone that the hatchery existed. Marc Jackson, the hatchery manager at the time, and administrative tech, Cindy Fronk, recognized the need for change and took action. As they began planning the future of the facility and the surrounding property, they wanted a name for their new conservation education plan, one that would let others know in few words what they were up to. The outcome: *Inks Dam National Fish Hatchery Restoration Project*.

The restoration of the hatchery's landscape happened quickly with Fronk pushing the work along. Fronk

and Jackson inventoried all available resources. From there followed visits to school teachers and principals, meetings with the Texas Parks and Wildlife Department, community leaders, and local organizations like the Highland Lakes Master Naturalists, and scout troops. These meetings yielded ideas on what could be created to help meet the needs of all interested in using the outdoor education area. The list created included things from curriculum extension activities that would benefit the school kids, to hiking and wildlife viewing trails, all the way to major refurbishing of the old Lower Colorado River Authority building to use as an interpretative center. Also from these meetings, a Friend's group came to fruition. In fact the Friends of Inks Dam National Fish Hatchery, non-existent two years ago, now has 30 members who volunteer to help at the hatchery. Last year they put in 9,000 volunteer hours. It doesn't hurt, too, that the hatchery is also frequently in the local news.

The Outdoor Discovery Zones at Inks Dam National Fish Hatchery serve many purposes, and have done a great deal to reinvigorate the facility and the community. First and foremost this outdoor classroom meets the educational needs of the local teachers. For example, the Discovery Zone on the Overlook Trail showcases vernal pools where people learn about the vital importance that food, water, space, and cover play in habitats. Open space and trails provide an opportunity for local citizens to share their love of all things in nature. The Highland Lakes Master Naturalists use the outdoor classroom to share their love of

birds, fish, conservation, and outdoor recreation.

People who visit the hatchery gain a heightened awareness of how to make minimal impacts to fish and wildlife habitats. Hatchery employees have greater opportunities to talk to visitors about the hatchery's role in conservation, the economy, and about the wide array of career opportunities within the Fisheries Program and the U.S. Fish and Wildlife Service.

Creating awareness and increasing science literacy, telling our story, helping to create stewards for conservation is what we must do for the future of fisheries conservation. ♦

Denise Wagner is the National Conservation Education Coordinator for the U.S. Fish and Wildlife Service's Fisheries Program. In her free time she enjoys hunting, fishing, rafting and Zumba fitness.

Once Bitten, Forever Hooked

My mind races with excitement as I prep my fishing gear for what lies ahead. I clean and lube my reels and make up a few hundred new striped bass rigs. My 2010 logbook guides my fishing plans for 2011. “All things striped bass” is my life.

Since I landed my first snapper bluefish at age three, the love of fishing has coursed through my veins. When I was 11, I had landed an 18.5-pound bluefish that could have bested an IGFA record by a full 3 pounds, but didn’t realize the fact until three weeks later. Before my teens, I had landed over 60 striped bass, the largest a whopper that measured 42 inches and tipped the scales at over 27 pounds.

The morning I landed that fish will live in my memory forever. As my dad Joe and I headed out before sunrise, we spotted a large school of menhaden, AKA moss bunker, at the mouth of Cos Cob Harbor in between a few dozen moored sailboats. As we cruised toward the bunker, we shut down the engine and drifted into casting range. I launched my weighted bunker snag-hook and within the first few cranks of the reel I felt the telltale bump of my line in the school of fish. I reared back hard and the snag-hook found its target.

With my first snagged bunker that morning, I let out a bit of line and allowed the weighted set to sink. I wanted to take advantage of the behavioral traits of the fish I was really after, striped bass. Stripers are at times lazy feeders and often lay underneath schools of bunker while bluefish aggressively chomp bunker in half with their razor-sharp teeth. The uneaten half, the bunker’s head, sinks and stripers pick up these easy meals.

In seconds, my rod slammed the gunwale. A striper gulped the bunker and started a screaming run. I knew this was a big fish by its speed and the surge I felt in the fight that followed. My fishing instincts took over. I quickly adjusted the drag, and used the rod for leverage. My dad fired up the engine and weaved our way around two of the moored sailboats. In the clear, my line screamed off my reel and my rod bent. The give-and-take went on for what seemed like an hour. When I finally brought the striper within netting range, my jaw dropped as I gained a full appreciation of its size. As quickly as possible, we weighed, measured, photographed, and tagged this beauty. While it was still in my hands in the water, its dorsal fins rose erect, and with a single powerful sweep of its enormous broom-like tail, it splashed and soaked us both as it disappeared into the depths. We looked at each other and burst out laughing.

The journey of learning these waters that I fish, along with the feeding habits and behavior patterns of the striped bass that inhabit them, has showed me how privileged I am to have this special estuary to experience and enjoy. With that comes a responsibility that we all have to protect these waters and conserve the fisheries for many years to come.

The past decade of striper fishing in the Western Long Island Sound has been nothing short of spectacular. My father reminds me quite often that back in the 1970s and 1980s pollution in the forms of waste water and fertilizer-laden runoffs choked the oxygen and destroyed the life of this estuary. Lobster die-offs drove most of the lobstermen out of business.

The low oxygen levels coupled with the fleets of net boats that stripped nearly all the baitfish from these waters turned it nearly into a barren wasteland. Anglers lowered their sights in the hopes of just tangling with even a few fish now and then. Landing a striper or two in a week’s time would be big news in those days.

The good news is that times have changed and over the past few decades the care and nurturing of this fine body of water has shown what we can all do to make a difference. These waters are once again vibrant, much cleaner and truly full of life. The pollutants and net boats are gone and I can tell you firsthand that the striped bass population is alive and well. In the past few years alone I’ve hooked and released 730 striped bass weighing up to 42 pounds. You can bet I take very seriously my responsibility to keep this waterway clean and healthy.

I use my boat to fish the shallow waters along inlets and stretches of sandy beaches and while doing so, I collect garbage every time I’m out fishing. In just the past three years my garbage collections—from boots to bottles, cans, plastic bags, and discarded fishing line—have weighed in at 400 pounds.

I make it a personal practice to always use circle hooks and to release everything I catch, except for the few that are occasionally gut-hooked and will clearly not survive. Every fish that I release gets tagged. The tags have my phone number plus a unique sequential number that identifies each fish. I keep a log of data about each one: its length, weight, lure used, location caught, tide, water depth and temperature, weather conditions, and time-of-day. To date,

of the 730 stripers I've tagged and released, I've received 52 phone calls from other fishermen who have re-caught these fish. Most of the calls have been from within a 50-mile range. But six of them were re-caught hundreds of miles away—as far north as Cape Cod to as far south as Virginia Beach and the Chesapeake Bay.

Knowing a little about striped bass biology underscores the importance of conservation. Each fish caught and released can have a significant effect on a fishery. An average 10-pound female striped bass which is about 6 years old and 28 inches long lays around 3 million eggs. Survival rates vary, but you can expect well below one percent of those eggs to mature into adult bass. That's not many. You can see that conservation makes a difference. ♦

Sixteen-year-old Richard DeMarte is a junior and honor student at White Plains High School in New York. He participates in band and baseball when not studying or fishing. DeMarte is considering a college major related to conservation. Visit him online at www.nyctfishing.com.



Joe DeMarte

Western Long Island Sound on the New York-Connecticut border is habitat for 16-year-old Richard DeMarte—and the striped bass that he passionately pursues.

By Karen R. Hollingsworth

The Art of Conservation®

*Young Artists of Wildlife Forever's
State-Fish Art Contest™*



Largemouth bass by Seth Thomas Spradlin won both the 2008 national Best of Show and The Art of Conservation Stamp Awards.

“After weeks and weeks of research, the young ‘Professor of Study’ would enter his bedroom studio, close the door and begin to paint. Always a

perfectionist, his goal was for the viewer to feel they were actually right there—in the nature he loved.” These words are from the parents of

Indiana State-Fish Art winner Seth Thomas Spradlin whose art graces the cover of this issue of *Eddies*. In 2008, Seth won both the national Best



Wildlife Forever

of Show and The Art of Conservation Stamp Award with his remarkable largemouth bass.

Late this past August, during his second summer earning funds for college as a seasonal employee for the National Park Service in Alaska, Seth, 20, and his brother Neal, 28, lost their lives in a bush plane accident in remote Katmai National Park and Preserve. Wildlife Forever is renaming their top award as the Seth Thomas Spradlin Best of Show Award in honor of his talent and conservation ethic.

“Seth’s artwork inspired us all. I remember feeling a sense of wetness from the splash in his painting. That element of engagement and his untimely loss challenges us to remember and recognize his talent,” states Doug Grann, President and CEO of Wildlife Forever. “I am pleased to rename our top award after him to inspire future young conservationists to excel and achieve in the outdoor world.”

It all began in 1998, as a child’s homework assignment and has become one of America’s most effective conservation education programs. Launched in 1999, Wildlife Forever’s State-Fish Art Program continues to teach and inspire thousands of kids across America with the school curriculum *Fish On!* Using art as a tool to teach youth about fish, fishing, and aquatic resource conservation, students create an original illustration of a state-fish and write an essay about their chosen fish’s habitat, life cycle, and conservation.

The program culminates in the nationwide State-Fish Art Contest. On Earth Day a panel of judges, composed of wildlife artists, outdoor writers,



Nathaniel Grann

Seth Spradlin (r) with Douglas Grann, President/CEO Wildlife Forever unveiling 2008 ART OF CONSERVATION Stamp.



Wildlife Forever

Joshua Joint, 10-12, Pennsylvania - brook trout - 2004 Best of Show.

fisheries specialists, and national celebrities, have the difficult, but rewarding, task of selecting a winner for each of the three grade categories from each state. This year, they also judged international entries stemming from a new partnership with the Ontario Ministry of Natural Resources. They will then choose the top three winners for each grade level. The creativity and hard work of all the young winners is recognized at the State-Fish Art EXPO later in the summer.

Joseph Hautman, wildlife artist and three-time Federal Duck Stamp winner sums up this unique opportunity for budding artists and conservationists, "Several big success stories involve the arts with

conservation. As a past judge of the State-Fish Art Contest, the students learn about fish and fishing and the best part is the art is amazing."

In 2006, Troy Truesdell, a Minnesota 12th grader, was taken aback when he received the first ever State-Fish Art "hat trick" winning the top three awards—with just his third



Wildlife Forever

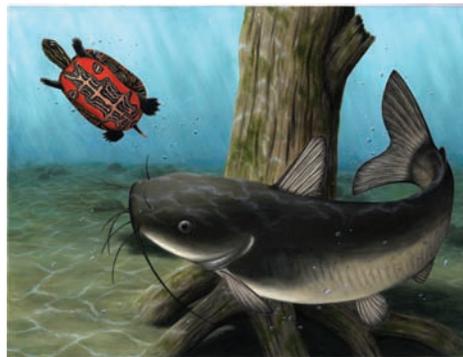
Walleye by Troy Truesdell.



Wildlife Forever

Brie Jenkins' "King Salmon" named 2009 Best of Show, the The Art of Conservation Stamp and People's Choice.

oil painting ever. Departing from his preferred medium of pencil, he painted his favorite fish. "As an avid fisherman, I even incorporated one of my favorite Rapala lures that had



Wildlife Forever

Tiara Jenkins 10-12 Missouri - channel catfish. 2005 The Art Of Conservation Stamp.

actually caught a walleye!" exclaimed Truesdell.

Four young artists in the Jenkins family made an indelible mark on State-Fish Art, winning 22 Missouri first-place honors since 2000. The tradition began with Tiara winning first place in the state's grade 4-6 category, followed by her younger sister Brie in 2002.

Maturing as artists year by year, their art is recognized with top national awards including Tiara's catfish in 2005, and Brie's king salmon in 2009, as The Art of Conservation Stamps.

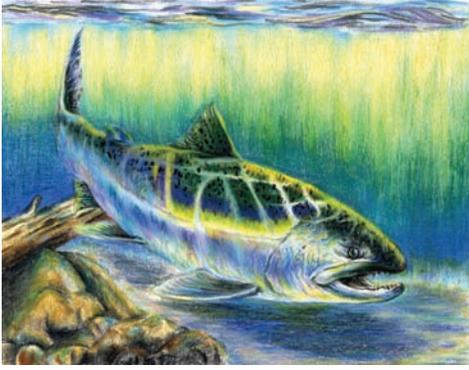
Today Tiara helps fund her pursuit of a B.A in Studio Art with merit

art scholarships, aspiring to teach art at the collegiate level. Brie continues to challenge herself artistically through commissions for her work. In the family tradition,



Wildlife Forever

Brie Jenkins' "Channel Catfish" took 1st Place in her home state of Missouri in 2002.



Tony Lee, 7-9, Oregon - Chinook salmon.

they mentor their younger siblings, Teal and Brock, with critique and encouragement as their young talent blossoms. As Brock says, "If I get their approval, I know I am doing 'okay.'"

These top winning artists, the students participating every year, and the youngest just starting their journey to learn about, study and create with their skills and imagination, a state-fish have all joined the ranks of one of America's greatest movements. Their eyes, minds and hearts have been opened to conservation and becoming

a steward of our fish, lakes and streams.

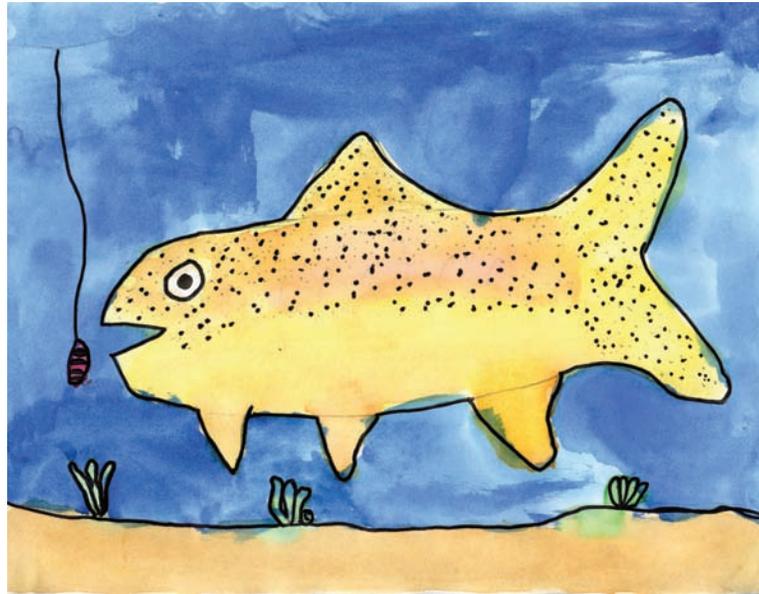
Seth Spradlin stayed up all night to finish a painting—a painting he had been working on for months. It seemed like forever to his family. "From time to time he would let us see it, as layer by incredible layer he laid in the background with painstaking attention to detail, right down to individual needles on trees," his father recalled. "Seth was leaving the next morning for his summer job in Alaska. That evening he says 'I'm finishing this painting before I go.' I told him he surely didn't have enough time and better to get a good night's



Carson Collinsworth, 4-6, Montana - cutthroat trout.

sleep. When we left for the airport the painting was still wet, completed overnight with an absolutely magnificent herd of elk. What an amazing gift for our family, Seth's undying love of nature shared in his art, and we absolutely treasure it."

Karen Hollingsworth manages the State-Fish Art Program. She's an award-winning wildlife photographer, and is featured in numerous publications including the *Smithsonian Book of National Wildlife Refuges*.



Wildlife Forever

Emma Gardner, 4-6, Utah - Bonneville cutthroat trout.



Wildlife Forever

Makena Peet, 10-12, South Dakota - bluegill.

Double Rainbow

Bill Brignon, a fish biologist with the Columbia River Fisheries Program located in Vancouver, Washington, hands down a pair of boots and waders from the bed of his truck. After jumping into them I feel like a kid geared up in ski boots and a snow jumper nervously trudging out for my first mountain experience. This isn't just because I'm nervous, but also because it feels awkward to lug such large and heavy boots on dry land.

Brignon speaks into his walkie talkie as he swats away branches lingering in his path while we make our way down to the creek. I try to avoid the flying foliage as I get used to walking in foreign shoes. Putting on somebody else's shoes for a day is exactly what I'm here to do, both physically and figuratively, in order to find out what it's like to do fisheries work hands-on.

Today I'm pretending to be a fish biologist, which already appears to be as demanding physically as I assumed it would be intellectually. Brignon and fish biologist Maureen Kavanagh invited me to participate in the tagging procedure they perform on Eagle Creek.

"We're comparing to see if the hatchery fish that are spawning here are affecting the wild fish here, and if so what can we do to lessen that," Kavanagh explains of the project. For some reason a large portion of hatchery fish are choosing to spawn in Eagle Creek and are not returning to their hatcheries of origin, which is traditionally what steelhead do. "It's really important that we manage the hatcheries in a way that we don't harm the wild population," Kavanagh said.

Chee Xiong, an Oregon State University fisheries student, lays out

a scale and a row of syringes on a board that he places on his lap. Each needle contains a tag that will be inserted in the belly of a steelhead. Xiong is working with the tagging team under the Student Temporary Employment Program (STEP). This program provides college students paying experience in their academic fields, while continuing with school, and they learn about the U.S. Fish and Wildlife Service.

Xiong places a motionless fish next to a ruler and then on a scale. "Getting PIT-tagged," he declares while reaching for a needle and turning the fish on its back in his hand. Xiong has a serious expression on his face as he gently but swiftly inserts the needle into the fish and pushes the tag into its belly.

We soon see the netting team who just zigzagged across the creek scooping up steelhead that float to the surface after being electroshocked. Electroshocking is a non-lethal process that temporarily stuns the fish so that it can be caught. Casey Callahan, a Washington State University STEP student, has the duty of electroshocker this round; holding out a long pole with a metal ring on the end into the creek, the other end attached to a large plastic box on his back, which resembles a prop from *Ghostbusters*. I'm later informed the team refers to this as the "fish capacitor," referencing the DeLorean-turned-time machine from *Back to the Future*, which Doc Brown calls the "flux capacitor."

Callahan's team includes two netters and a fish carrier; Brian Davis, an Oregon State University STEP student; Trevor Conder, a fish biologist; and Sheila Davis, a seasonal fish biologist. The group is laughing and giving each other high-fives as they set down their gear and reflect

on the successes and failures of the previous run. Both are laughed about; including a Spring Chinook sighting and Callahan's near fall with the electroshocking equipment on his back.

"Casey's going to have to hear about that one for a while," Brignon joked when we heard the commotion of the incident downstream. He was right. It's obvious these team members have a great vibe, and are both serious about the work they do and excited to be out in the field. This is why I'm thrilled to join the next round of fish wranglers as a netter.

I try my best to keep up with the team while scouting ideal placement for fish scooping. Conder, the electroshocker of this round, lets us know of his next plan of attack and we gather near a section of large rocks. As soon as the shiny bellies of two steelhead emerge I dive in and catch them both.

"Double rainbow!" the group shouts in reference to a YouTube video of an overly enthusiastic man who spots two rainbows, which they've incorporated into a reoccurring inside joke. I begin to feel pretty good about my loot, until Brian Davis scoops down and out does me. He's definitely the pro of our group; knowing where to stand, netting at lightning speed and scooping with a twist of the wrist that snaps the fish out of the water before I even spot them. As I begin to focus on the thrill of the catch I stop paying enough attention to my feet, resulting in a few slips and spills.

"Your style reminds me of Casey," Sheila Davis jokes, "willing to risk life and limb for a catch." Perhaps I am a bit wobbly, but I'm just determined to do my share. By the time we meet up with the tagging group we've filled two buckets with fish. I feel pumped



Tess McBride/USFWS

Each syringe is loaded with tiny tags that will be inserted under the skin of young steelhead. The data coming from tag returns will help guide fishery managers with future decisions.

classroom for his senior year, noting how useful it is to have experience doing what his professors are lecturing about.

“I like handling fish and being outside. It’s pretty exciting to see what we net up,” he said. One thing Xiong mentions he didn’t expect from this summer was the intensity of a day’s work. Right on cue Brignon announces it’s time to pack up and hike up “Heart Attack Hill.” If at all doubtful before, I’m now sure I’ll experience the exhaustion Xiong spoke about.

from the excitement of the run, but also ready for some lunch, which we sit down along (and in) the creek to enjoy.

After lunch I join the new tagging group. We charge up the creek and set up our station on a small bank about 10 feet above the creek. Not much room to work, but we’re able to make do by strategically placing our supplies around Callahan, who sits on a rock and prepares to do the tagging this round. Callahan, who will be a sophomore next year, is the youngest of the group and is in the middle of his first summer working as a STEP student.

“I went into this thing and soaked up a million pieces of information and got some new hobbies,” he said of his experience working in the field. “Jobs in the outdoors are really cool,” he adds. While Callahan enjoys his work in the field, he still plans to study pre-med in school.

“Pre-med also happens to be Casey’s nickname out here,” Sheila Davis chimes in. Callahan laughs and nods his head in agreement while splashing a handful of water on the ruler he prepares to place a fish on.

At our final tagging site I get a chance to talk more with Xiong. He predicts his work in the field will give him a one-up when going back into the

After panting our way up to the cars, the gang invites us along their ceremonial end of the day activity; getting Slurpees at 7-Eleven. We tag along (since we’re such good taggers at this point), and after creating our frozen beverages we form a circle in the parking lot to compare flavors and stacking techniques.

When we drive away the group is still laughing in a circle. It’s pretty clear this team’s strong dynamics lives in and out of the creek. One day down, 200-plus fish tagged, a handful of Slurpees consumed, a couple of references to classic ‘80’s movies made, and a great attitude about tomorrow still going strong. Double rainbow indeed. ♦

Summer Work Meaningful to Tribal Youth

Summers come and go. But memories last—and so do an education and work experience. Last summer, Native American youth in the West went to work doing good things for conservation. From northern Montana to southern Arizona, young people handled rare trout and muscled hay bales for bison. Here's a quick look at what they did—and what other youth can do in the future with the U.S. Fish and Wildlife Service's Fisheries Program.

Creston National Fish Hatchery

The Confederated Salish and Kootenai Tribes and Creston National Fish Hatchery in Montana launched an inaugural Youth Conservation

Corps (YCC) Program in June 2010, only the second such effort in the country administered by the Fisheries Program. Although new, it was forged on old friendships. The Creston National Fish Hatchery has raised fish for Native Americans for decades (see *Eddies* Spring 2008).

Fifteen tribal youth and three adult team leaders worked on a variety of natural resource projects during the eight-week program. Work sites included the National Bison Range where they learned about noxious weed control, and the Creston National Fish Hatchery where the students learned about fish production, fish biology, the role of hatcheries in fishery management. ♦
Mark Maskill



Youth from the Confederated Salish and Kootenai Tribes ready a load of hay at the National Bison Range.



Chris Kitcheyan/USFWS

Two members of the Mescalero Apache Tribe in southern New Mexico sort rainbow trout at their tribal hatchery.

Mescalero Apache Tribal Fish Hatchery

The YCC crew at the Mescalero Apache Tribal Fish Hatchery in New Mexico was essential in hatchery operations. Moreover, the work was an opportunity to apply cultural teachings that provided purpose and direction to the youth. The students participated in all facets of rainbow trout propagation. They learned practical construction and plumbing techniques while doing hatchery maintenance work. They built trails and installed fish habitat improvement structures in the Rio Ruidoso. The tribal youth were led by staff with the New Mexico Fish and Wildlife Conservation Office. ♦ Chris Kitcheyan



Jennifer Johnson/USFWS

An Apache trout gets a fin clipped while an Apache youth holds it steady. Her ancestors were the first conservators of this rare trout, found only in eastern Arizona. The White Mountain Apache Tribe closed off streams holding Apache trout in the 1940s.

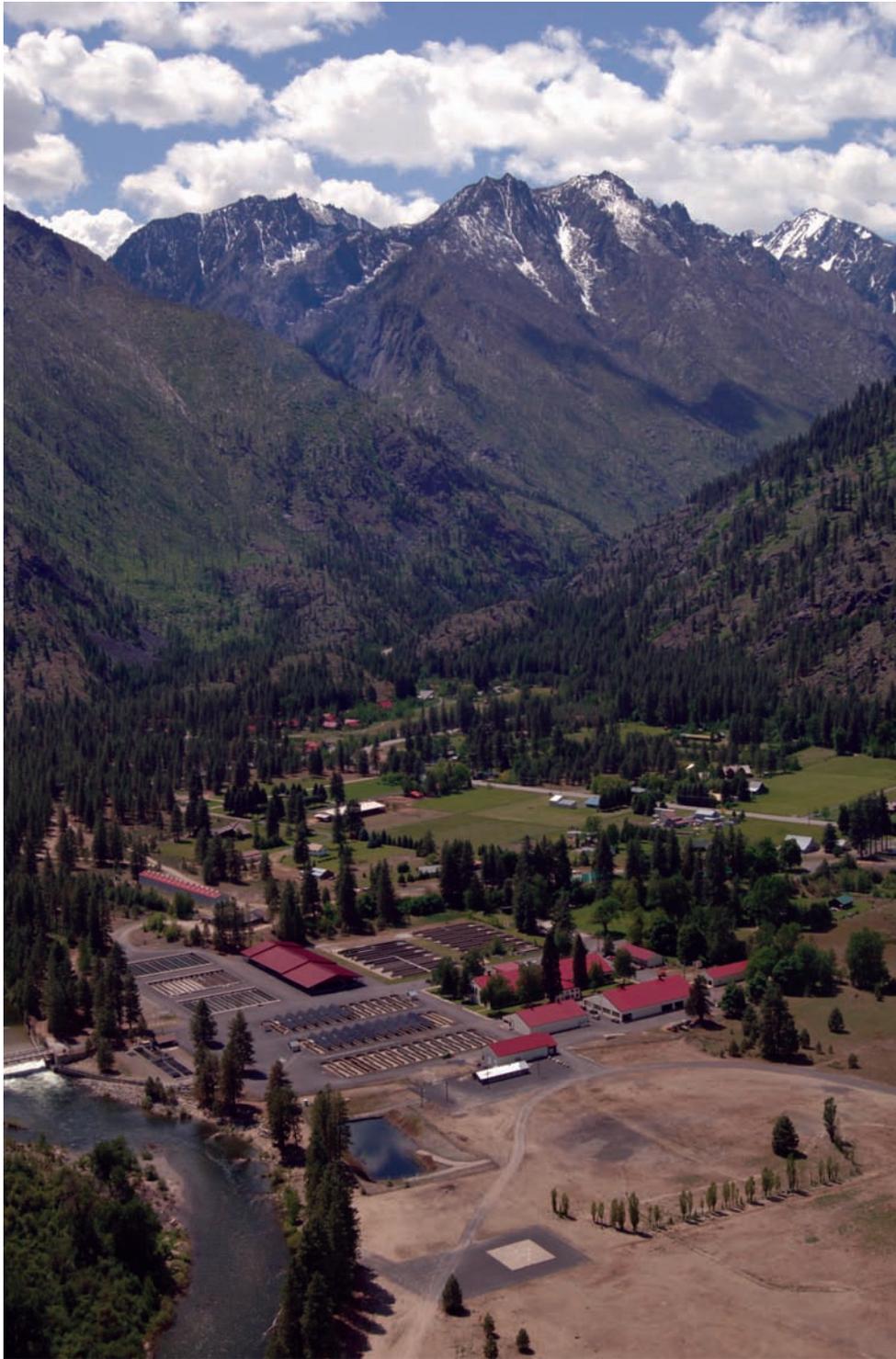
Apache Youth, Apache Trout

For over 50 years, the Arizona Fish and Wildlife Conservation Office has worked with the White Mountain Apache Tribe in conservation on 17 lakes and 350 miles of trout water. But the tribe has a unique asset: the Apache trout. Once near extinction, the rare yellow trout is now a sport fish, but the species still needs much attention. Last summer, seven tribal youth worked on Apache trout conservation. They did population surveys, evaluated artificial barriers that keep competing nonnative trout at bay, and helped rid streams of nonnative trout where Apache trout need to go.

For all of these American Indian youth, the summer 2010 was more than just a job—they were engaged, making a difference in fisheries conservation in their own backyard. All in all, the men and women gained valuable experience in natural resources conservation and developed themselves for future careers in conservation. ♦ Jeremy Voeltz

By Corky Broaddus

Wenatchee River Salmon Festival Celebrates 20 Years



A 20th anniversary celebration of the return of salmon to the Wenatchee River was held in September of 2010 at the Leavenworth National Fish Hatchery in Leavenworth, Washington. The award winning Wenatchee River Salmon Festival (AKA Salmon Fest) has become an iconic U.S. Fish and Wildlife Service Fisheries Program event, and an inspiring model nature festival.

The event's success reflects the power of partnerships. Since its inception, Salmon Fest has remained true to its natural resource education mission by updating and augmenting activities to keep them fresh and engaging. Salmon Fest may be a short event, but the work is done the year-round. It truly engages the community and visitors in a real-life salmon experience celebrating the incredible natural resources found in their own backyard. The beautiful National Fish Hatchery venue provides four full days of fun and learning. Salmon Fest has served 155,000 attendees throughout its 20-year run. The 20th anniversary alone received 10,000 visitors.

Linking science and fun and meeting outdoor education goals set by teachers and a Washington-state mandate created the need for a sanctioned festival curriculum, one that came together in 1994. It's updated every year with input from natural resource specialists. The majority of these same people lead the first two School Days of the festival, providing hands-on interdisciplinary learning for 3,000 students from more than 80 classrooms. Teachers sign up for specific activities and attend pre-festival workshops, which provide

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Leavenworth National Fish Hatchery sits alongside the Wenatchee River in Washington, the site of the 20-year-old Salmon Fest.



USFWS

A sidewalk was the medium for this piece of art created in chalk at the Leavenworth National Fish Hatchery during a recent Salmon Fest.

curriculum and festival information for them to share with their students before they attend the event.

Salmon Fest weekend days are open to everyone offering more educational activities, live stage entertainment, exhibits, food court, inspirational storytelling, art, an inter-tribal Native American encampment with traditional salmon cooking and dancing, outdoor recreational activities, guided nature trail walks, and hatchery tours. The weekend has built a reputation as “our favorite family event of the year,” with past attendees.



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Kids in the creek: a hands-on experience is a wonderful way to teach youngsters about fisheries conservation.



Over 10,000 people attended the 20th Salmon Fest in 2010. The event this year promises to be all it has been, and more. This attendee creates a salmon vignette.

Lodging, restaurants, and local businesses are booked full throughout the Wenatchee River valley.

The non-profit Friends of Northwest Hatcheries is one of the driving forces that make this event happen. The administrative office of the Friends Group is based at the Leavenworth National Fish Hatchery. Betsy McIndoe, President of the group and newly named national Vice President of the recently established National Fisheries Friends Partnership directs the planning for Salmon Fest. Other Friends members provide financial services, transportation, student scholarships, community relations, and maintenance work.

Volunteers are the fuel that makes Salmon Fest move. The 20th anniversary operated with a total of 413 volunteers, of which 325 were high school students. All of the volunteers worked 5,365 hours for the 20th anniversary event. "Spawnsorships" from corporate and non-profit contributors raised several thousand dollars to pay for the event.

The Wenatchee River Salmon Festival now has a 20-year tradition of celebrating the return of the salmon. The words we use to describe the personified character of salmon—endurance, strength, perseverance, beauty—in many ways describe the partnerships that keep the educational opportunities of Salmon Fest alive. Learn more at www.salmonfest.org. ♦

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Salmon Fest has received accolades through the past 20 years.

National Association for Interpretation Media Award for "Kids in the Creek"

Washington Festivals and Events Association Gold Summit Award, Best Children's Program

International Festivals and Events Association Pinnacle Award, Best Environmental Education

Volunteer Organization of the Year, American Fisheries Society

Conservationist of the Year, Trout Unlimited



USFWS

Salmon Fest is a favorite family event in the Wenatchee Valley where there is cooking, dancing, nature hikes, and artistic expression in various media (above and below).



USFWS

Meanders

By Frank Peterson

A Fisherman's Quarry

Earlier this spring, a friend and I were out on the Potomac River, heading south towards one of my favorite fishing spots, an area that always seems to attract a slew of largemouth bass when spawning time arrives. Speeding along the Potomac to “my” bass-rich hotspot, I relished the sense of being on open water. I love it and always have. There’s a freedom to being far from shore in my own world.

As I closed the gap between open water and creek, looking forward to a sure-to-be satisfying day of fishing, Bruce Springsteen’s *Born to Run* began to play on the boat’s sound system. The song’s line “sprung from cages out on highway 9” hit home in more ways than one, bringing back my early years of fishing. I couldn’t help but compare those fishing experiences with this totally different day on the river.

My fishing days started young, my dad and grandfather teaching me how to fish on the Hudson River. Later on, my regular fishing pals were school friends, guys as rough and tumble as I was and as unpolished as the spot we chose to fish in. It was a quarry pond in one of the area’s abandoned quarries, just off of — you guessed it — Route 9, down the embankment of a railroad track that crossed its way.

Weekends and summers, my friends and I would hike out

to the quarry, tackle boxes and pushbutton rods in hand. Together, we plied the pond’s waters for hours, baiting our hooks with doughball bait or my favored lure. We’d fish for bluegill and bass, while my constant companion, my transistor radio, played The Doors, The Beatles, Dylan and the like.

With city-bound trains and traffic roaring just above, my setting may not have been as bucolic as the quiet, pristine lakes that others enjoyed in their childhood. But as it turned out, my old setting of quarry walls, highways and train tracks was perfect — for me. Without my realizing it, this literally hard-edged fishing hole I shared with a small group of friends became a training ground for life.

As they say, all I really need to know I learned here, in the quarry. How competition strengthens character. How patience must be learned and practiced even when you’re a kid in a hurry, maybe especially then. How a fish’s strength, energy and wits deserve respect, and all wildlife is worthy of regard. And however far you may be from the structure and discipline of school and home life, structure and discipline remain essential for achieving anything, even if that achievement is just walking proudly alongside fishing buddies.

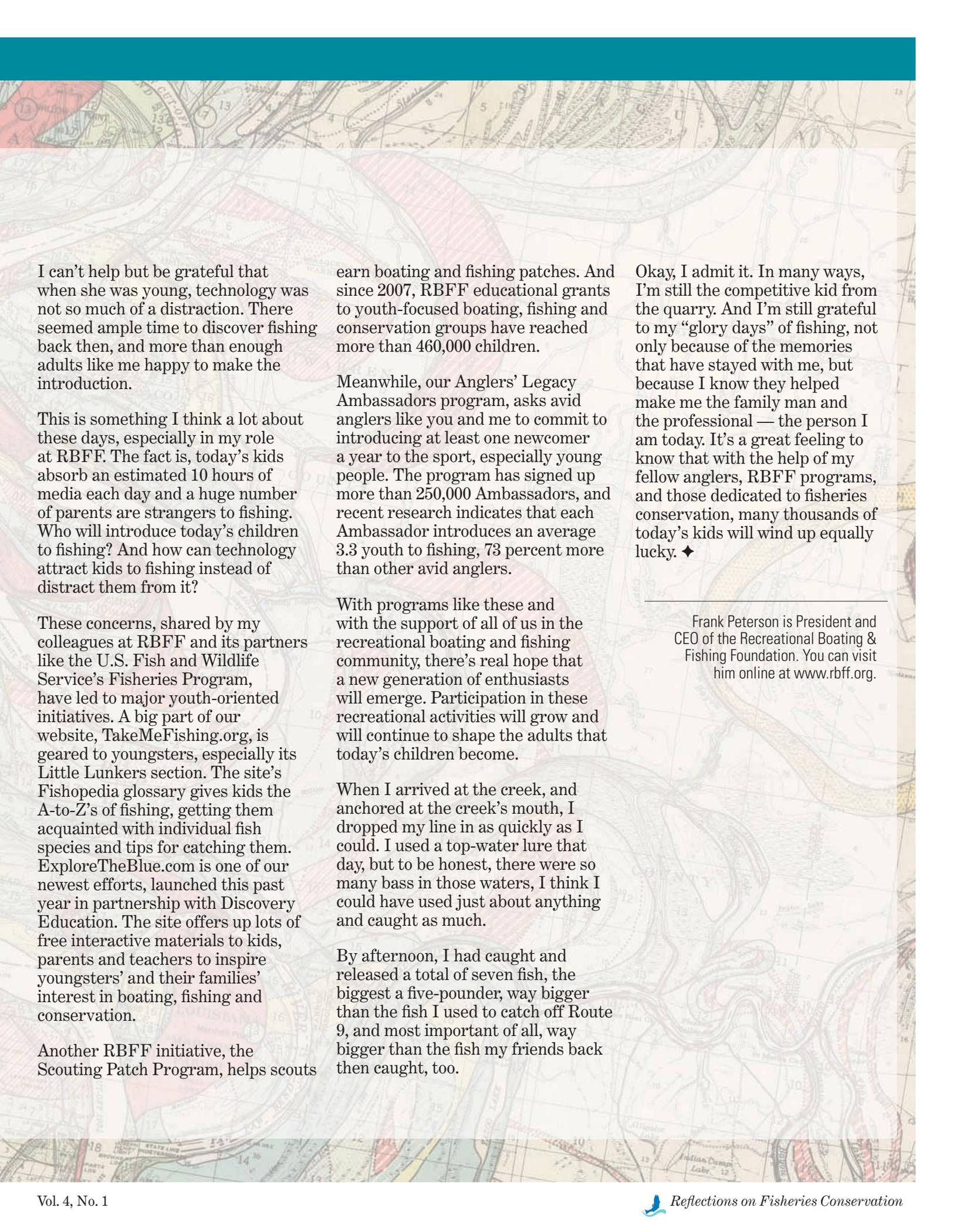
Fishing in this quarry, I learned I had to focus, absorb and practice specific skills such as precision casting around trees, playing a fish and reeling it in, to become expert at them. More

importantly, I learned how to apply myself to the challenge at hand. This was a lesson I later brought with equal dedication to my studies.

Let’s not forget, too, the invaluable lesson of surviving ridicule, that is, how not to look foolish in front of your pals. I learned that particular lesson one day in the quarry when I reeled in ... a snapping turtle. Yikes, that thing was angry and frightening, with jaws that looked more like a dinosaur’s. I know I showed my fear, couldn’t help it, which sent my fishing buddies into hysterical, doubled-over laughter. But then I laughed too, and like an old master, cut my line to safely set the beast free, respect and relief all around.

Years ago, I made sure to teach my children to fish. That was long before I joined the Recreational Boating & Fishing Foundation (RBFF) or had any inkling that my love of fishing would one day intersect with my career. At first, it was all my daughter could do to keep rod in hand, as she wandered around the shore, chasing butterflies that came our way.

But you never know how things will turn out. Of my three children, my daughter, now grown into a wonderful woman, is the one who has kept fishing in her life. We still go out together, sharing sometimes wordless sunny afternoons, as we wait for that telltale tug on a line. For me and for my daughter, the excitement of catching a fish remains as thrilling now as it ever was.



I can't help but be grateful that when she was young, technology was not so much of a distraction. There seemed ample time to discover fishing back then, and more than enough adults like me happy to make the introduction.

This is something I think a lot about these days, especially in my role at RBFF. The fact is, today's kids absorb an estimated 10 hours of media each day and a huge number of parents are strangers to fishing. Who will introduce today's children to fishing? And how can technology attract kids to fishing instead of distract them from it?

These concerns, shared by my colleagues at RBFF and its partners like the U.S. Fish and Wildlife Service's Fisheries Program, have led to major youth-oriented initiatives. A big part of our website, TakeMeFishing.org, is geared to youngsters, especially its Little Lunkers section. The site's Fishopedia glossary gives kids the A-to-Z's of fishing, getting them acquainted with individual fish species and tips for catching them. ExploreTheBlue.com is one of our newest efforts, launched this past year in partnership with Discovery Education. The site offers up lots of free interactive materials to kids, parents and teachers to inspire youngsters' and their families' interest in boating, fishing and conservation.

Another RBFF initiative, the Scouting Patch Program, helps scouts

earn boating and fishing patches. And since 2007, RBFF educational grants to youth-focused boating, fishing and conservation groups have reached more than 460,000 children.

Meanwhile, our Anglers' Legacy Ambassadors program, asks avid anglers like you and me to commit to introducing at least one newcomer a year to the sport, especially young people. The program has signed up more than 250,000 Ambassadors, and recent research indicates that each Ambassador introduces an average 3.3 youth to fishing, 73 percent more than other avid anglers.

With programs like these and with the support of all of us in the recreational boating and fishing community, there's real hope that a new generation of enthusiasts will emerge. Participation in these recreational activities will grow and will continue to shape the adults that today's children become.

When I arrived at the creek, and anchored at the creek's mouth, I dropped my line in as quickly as I could. I used a top-water lure that day, but to be honest, there were so many bass in those waters, I think I could have used just about anything and caught as much.

By afternoon, I had caught and released a total of seven fish, the biggest a five-pounder, way bigger than the fish I used to catch off Route 9, and most important of all, way bigger than the fish my friends back then caught, too.

Okay, I admit it. In many ways, I'm still the competitive kid from the quarry. And I'm still grateful to my "glory days" of fishing, not only because of the memories that have stayed with me, but because I know they helped make me the family man and the professional — the person I am today. It's a great feeling to know that with the help of my fellow anglers, RBFF programs, and those dedicated to fisheries conservation, many thousands of today's kids will wind up equally lucky. ♦

Frank Peterson is President and CEO of the Recreational Boating & Fishing Foundation. You can visit him online at www.rbff.org.

Eddies

Reflections on Fisheries Conservation

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Spring 2011



Common Sense Sedatives

Safe and effective fish sedatives are crucial to fisheries conservation. Sedated fish are easier to handle for spawning, tagging, and even surgery. Yet, no compound exists that biologists can legally use without holding the fish for a lengthy time period before release. Without immediate-release sedatives, fish and fish biologists are put at risk.

Biologists at the Aquatic Animal Drug Approval Partnership in Bozeman, MT, in partnership with fisheries professionals from the public and private sectors, drafted a policy statement describing the challenges of limited access to sedatives in the fisheries disciplines. "AFS Policy Statement on the Need for an Immediate-Release Anesthetic/Sedative for Use in the Fisheries Disciplines," was published in *Fisheries Magazine*, the flagship publication of the American Fisheries Society. This commentary summarizes the draft policy statement and calls attention to the complexities associated with gaining Food and Drug Administration approval for an immediate-release sedative. They describe the constraints this places on fisheries conservation and the aquaculture industry, and recommend a course of action to facilitate the timely approval of sedatives



USFWS

Dave Erdahl, Ph.D., Aquatic Animal Drug Approval Partnership, couldn't sedate this lake trout to collect its eggs. Sedating fish greatly reduces handling stress. Without immediate-release sedatives, fish must be held for impractically long periods.

that in the end will minimize risk to fish, fisheries professionals, the environment, and the public. For more information on the Policy Statement, please see the March issue of *Fisheries Magazine*. Learn more at www.fws.gov/fisheries/aadap. ♦ Jim Bowker