It's tough to write this "Straight Talk" column because it will be my last one. It is natural to want to leave something behind that is noteworthy and worth remembering.

Most of the time we have preached the need for a conservation ethic. That worthy goal gets a great deal of lip service, but relatively few people are consistent in their insistence for a pure ethic. Looking around us we can find the evidence of a throwaway society. There are those who get a great deal of satisfaction and powerful and exhilarating freedom in feeling that you can afford to throw things away and easily find something even better. The expansion of America was seeded in such an ethic, where early farmers exhausted the land and moved westward. We even see evidence of that today, with people who resist the use of seat belts and continue to litter the countryside and, in spite of all the most drastic warnings imaginable, continue to smoke and use drugs. Perhaps with such invasion of the privacy of these personal weaknesses we over-generalize and consider that these people could never have a conservation ethic. I think that is wrong, and I think we can get such selfish people even to take a stand—especially when the results benefit all mankind.

The unique power bestowed on each individual human being to do good and even change the course of history is quite often underestimated. Even with sophisticated organizations working in the cause of a conservation ethic, there is a tendency of most individuals to say, "What can I do?" The same kind of logic prevails in elections when they say, "What can my one vote do?"

One person with enough tenacity can dig in his heels and say, "This much, and no more." Beware of the cause that you choose for this kind of stubbornness because you will surely prevail! There are great causes to be followed, and victory always starts with one person hanging on by his teeth and saying, "I will never give in."

All the greed and shortsightedness of the exploiters and developers—and that includes people in state and federal governments—will not prevail if that one individual rises up and says, "Why should we put up with this?" I insist that if one is stubborn enough—immovable, unchangeable, inexorable—he can and will prevail over those misanthropes who were obviously born out of wedlock.

The trail will be long and full of frustrations. Life is a whole, and good and ill must be accepted together. We have to reconcile ourselves to the mysterious rhythm of our destinies.

"Rest! cries the chief sawyer, and we pause for breath."
Oil Creek's Valley of Ghosts by Linda L. Steiner
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Pennsylvania's 10 Best Trout Flies by Harry W. Murray
The author's top 10 can help you catch trout anywhere and anytime in Pennsylvania...

Vary Your Strategies, Catch More Shad by Art Michaels
The most successful shad anglers use these strategies...

Erie's Deepwater Walleye by Darl Black
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Fishing Stocked Trout Streams After They've Been Skimmed by Fred Johnson
You could be a more successful angler if you apply these tactics to trout fishing in May...

Lake Trout Rehabilitation and Sea Lamprey Control by Robert M. Lorantas
The Commission and the U.S. Fish and Wildlife Service joined forces last fall to enhance the survival of Lake Erie’s lake trout and other introduced salmon and trout...

The cover
Staff photographer Russ Gettig caught the angler on this month's front cover trying his luck on Clinton County's Big Fishing Creek. Trout fishermen interested in successful jaunts won't want to pass up the features on pages 7, 20, and 26. For the remarkable story of Oil Creek's madness in the 1800s, turn to the article that begins on page 4. The shad run on the Delaware is now in full swing, so the information in the article on page 10 can help you make this season memorable. If you live in or near Philadelphia, you might want to scan the article on page 23, and if you're a bass fisherman, check out page 18.
Some 110 years have passed since a newspaper writer (an angler perhaps?) lamented the fate of a favorite stream. But if he'd had the use of Mr. Wells' time machine and had journeyed ahead to 1987, he would have had a pleasant and unexpected surprise. Today, Oil Creek flows clear again, winding through the solitude of its green hills, with the dimple of a rising trout and the falling of an angler's line the most likely disturbances of its dreaming.

This peaceful valley is haunted by memories of a wilder, rougher time, a day of oil rush and boomtown, when naked hills bristled derricks and the creek bustled with the traffic of barge and barrel. The region literally swam in oil. Now Oil Creek Valley is a focus of fishing, canoeing and other outdoor recreation. It is the home of a state park with many unique features, including a lot of history.

The excitement began just before the Civil War, when Edwin Drake came upon the small town of Titusville. He had a commission from investors "back East" and the bogus title of "colonel" to impress the locals, and he began drilling for oil. Drake's luck and pluck paid off in the summer of 1859, when the well, situated almost on the banks of Oil Creek, brought up more crude than anyone had ever seen before.

Drake and his associates may have been the first to drill successfully for it, but oil was nothing new at Oil Creek. Flowing out of Crawford County in the state's northwest, crossing at Titusville into Venango County and meeting the Allegheny at Oil City, Oil Creek has never had any other name.

The earliest known records show it as "Oyl Creek." Seneca Indians and 17th century French missionaries knew the oil was there. Natural springs were found along the creek's banks and even bubbled up in the stream itself.

Later settlers in the steep and isolated valley, who found petroleum seeping naturally on their land, used the substance as a liniment and cure-all medicine. Some bottled and sold it, but it was not in brisk demand. When a technique was found for distilling the crude so that it could be burned for illumination, "rock oil" suddenly had the potential for real value, if it could be gotten in sufficient quantities.

In 1859, Titusville was practically on the frontier. It had several hundred people and the stage coach ran twice a week to Erie. Oil City was a tiny outpost for lumbermen floating down the Allegheny and was known as Complanter. There was nothing between them in the Oil Creek valley but some meager farms on the flats and a few lumbering operations.

"This Oil Creek used to be one of the purest streams in the United States and now what is it like? Why, it is the most filthy stream on God's footstool, and you cannot find a fish in it from Oil City to Titusville."—The Venango Spectator, August 2, 1877.
Drake’s find flooded the once placid river valley not only with oil but with people. Almost overnight thousands of oilmen poured in. This was the heyday of the capitalist, the speculator, the rough-and-ready fortune seeker. Following the California gold rush by a decade, the Pennsylvania oil rush drew the same type as well as many of the very same men, with its get-rich-quick dream and its reality of easy ruin.

Because it was believed that oil was in underground basins or rivers that followed the course of the surface waterway, nearly valueless land the length of Oil Creek was quickly leased or purchased by shrewd first arrivals. These either put down wells themselves or sublet at a profit. Drilling next to the established wells, relying on guesswork, dreams, divining rods, even smell to find the best locations, the oilmen transformed the valley at a furious pace.

This 1865 photo shows the boom town of Pioneer. Note the oil barge on Oil Creek in the foreground. A dirt road winding down the valley provides access to the creek today. Pioneer had 2,000 inhabitants at its height, and grew up after the Sherman well was struck.

The dense woods were soon replaced by a stick forest of thousands of derricks. Wells extended from the bed of the creek itself, up the hillsides and even into the ravines of the once-clean tributary streams. By the end of 1860, over 200,000 barrels of oil had been produced, and that was just the beginning.

The first wells in Oil Creek valley were not gushers, but required pumping. In 1861, not long after the fall of Fort Sumter was news, the great flowing wells were struck. The Empire well was one of the most astounding, gushing forth 3,000 barrels of oil a day. So fiercely did it spew petroleum that its owners did not have the barrels and the well quickly overran a small dam that was built around it. Oil flowed unchecked into Oil Creek. In 30 days, the Empire poured out 100,000 barrels of crude.

Beyond the wildest dreams of their owners, other wells spouted thousands of barrels of oil a day. The most famous included the Phillips Number 2, the Woodrod, the Maple Shade, which netted investors $1.5 million, and the Sherman well, which made for its nearly broke owners almost $2 million.

The Noble and Delamater well, at the confluence of Bull Run and Oil Creek, gushed oil, water and gas a hundred feet in the air when the drill hit. For days petroleum ran into Oil Creek before the flow was controlled. Even afterward, huge amounts were permitted to run onto the ground and into the stream once available containers had been filled. The well produced 1.5 million barrels of oil in 18 months and made the owners $5 million at 1863 currency rates.

With such fortunes to be had up and down Oil Creek valley in the 1860s, the boomtowns sprang up. First one, then another emerged as the center of the drilling excitement. In five years, Titusville grew to a city of 10,000; Oil City to 8,000. The valley between filled accordingly. From Rouseville (just south of the present state park boundary) go-
ing north were Rynd Farm, Blood Farm, Tarr Farm (pop. 1,000), and Columbia Farm, which had houses, a machine shop, library and its own cornet band. Though the only crop was oil, the properties were still called, as they originally were, “farms.”

Halfway up Oil Creek was Petroleum Centre. It materialized in a few weeks from a village of 50 to a rollicking borough of over 3,000, in infamy equal to anything in the Wild West. At its height it played host to theaters, hotels, homes, stores, as well as gambling dens, saloons and houses of prostitution. All were hastily constructed, because all could be given 30 days notice of being torn down to make way for more wells. Only one building was constructed of brick: the bank. By contemporary accounts, “for pure undisturbed wickedness, it eclipsed any other town.”

Between Petroleum Centre and Titusville were crammed in Funkville, Boyd City, Pioneer, Shaffer Farm, which grew in 60 days to a town of 3,000, Miller Farm, a refining center, and Boughton. Eyewitness Rev. S.J.M. Eaton noted in his book Petroleum in 1866 that “it is almost impossible to tell where one (town) ends and the other commences, so thickly strewn is this entire valley with a dense, active population.”

Colorful characters and stories arose, unique to the area. There was the gambler “wicked” Ben Hogan and his partner “French Kate,” the daring robbery of wealthy John Benninghof, who didn’t believe in banks, and the rags-to-riches-to-rags story of “Coal Oil Johnny” Steele, who inherited a petroleum fortune and lost it in fast and extravagant living.

John D. Rockefeller and John Wilkes Booth were investors in wells, and Andrew Carnegie used dividends from Columbia Farm to build his steel mills. Valley oil was credited with having an influence in bringing an end, in favor of the North, to the Civil War, for which the region merited a visit from President Grant.

When the water was low, oil was hauled up and down the streambed by teams of horses towing barrel-laden boats or wagons. But on high water, it could be floated. Because there were already a number of sawmills on Oil Creek and its tributaries, artificial floods were produced, “pond freshets,” which bore the loaded barges to Oil City on a manmade tide. A toll was collected on each of the tens of thousands of barrels shipped, the dams were cut on cue, and the boats loosened. Several hundred crafts rushed downriver, surging, pitching, colliding, crashing.

As much as one third of the oil was spilled. Where it floated into eddies, dippers skimmed it off and sold it. Later, when railroads extended into the valley and pipelines were installed, the creek ceased to be a major transport.

The madness in Oil Creek valley couldn’t last, and it didn’t. Other western Pennsylvania oil fields were discovered, there were ruinous price/demand fluctuations and many producing wells failed. Even the great Empire well lasted just eight months. Speculators followed the trail of fast and easy money when it led away from the valley at the end of the 1860s.

Though there was some secondary recovery of oil through new techniques, in the late 1800s and early 1900s (a few wells are still pumped within the park today), “Greasedom’s” reign was over. The valley’s populations dwindled and the wells, towns and refineries fell in ruins and eventually disappeared. What had not been torn down or destroyed in the numerous fires simply deteriorated, as nature smoothed the scars of human intrusion through the intervening years. Almost unnoticed, the forest regrew and the creek recovered; fish and game returned.

Although portions of Oil Creek to the north had been stocked earlier, the first planting of catchable trout by the Fish Commission, in the stretch from Rynd Farm to Drake Well, was in 1959–2,600 brown trout. Last year, 1986, the stream received over 17,000 brook, brown, rainbow and palomino trout. Ron Lee, area fisheries manager, reports that Oil Creek has “good quality water” and that the stream has trout, some holding through the summer months, a fine smallmouth bass population, grass pickerel, rock bass, suckers, shiners, minnows and other baitfish. There are hatches of mayflies, caddises and stone flies, which make it a favorite with fly fishermen, as well as bait and lure anglers.

In 1967, 7,007 acres of the creek environs were incorporated into Oil Creek State Park. Besides fishing and canoeing, the park is popular for its macadam bicycle trail, which follows the original 1860s railroad grade for much of its length. A visitor’s center and walking tour at Petroleum Centre focus on history, as does Drake Well Museum. There is a 30-mile hiking trail, a cross-country ski area, picnic facilities and a tourist train which makes a run of the scenic valley.

Access can be gained from a paved road that parallels the creek from Rt. 3 at Rynd Farm (north of Oil City) to Petroleum and Miller Farm, as well as at Drake Well, off Rt. 8 at Titusville. Nearly 15 miles of Oil Creek are included in the park. The Fish Commission uses the bicycle path to stock the less accessible sections, so pedaling and hiking are recommended ways to find unfished hotspots. Some anglers have customized bicycles to carry rods, boots and minnow buckets.

Oil Creek is not a fast-falling stream. It has long gravel and rock-bottomed flats between riffles, but there are deep runs, like those below the Miller Farm and Petroleum Centre bridges, and big holes, like at Nithecop and Plum Dungeon, that hold fish. Other good spots are around islands, boulders, creek bends and bridge abutments. Near Boughton, anglers can fish below remnants of the old Brewer & Watson dam, which was used in producing pond freshets. The bridge on the bicycle trail sits atop original railroad supports, while rock pillars seen just downstream were built to protect wells in the creekbed. A few scattered oil-blackened wood barrels, rusted pipes, stone work and foundation holes, nearly hidden in the forest growth, are the only other visual reminders of the valley’s riotous past. The rest of Oil Creek’s ghosts live only in memory... and imagination.

Source materials and historical photos for this article were provided by Oil Creek State Park and Drake Well Museum. The author offers special thanks to Marsha Gordon of the staff for research assistance. Also helpful were Paul H. Giddens’ books The Birth of the Oil Industry (MacMillan Co., NY, 1938) and Early Days of Oil (Princeton University Press, 1948).
Pennsylvania's Best Trout Flies
by Harry W. Murray

No, I'm not kidding—it is possible to select 10 flies that cover the majority of trout fishing needs in Pennsylvania. The trick is to select the correct ones.

The trout are going to be the final judges of just how well you have made the choice, so look at the factors that influence their decisions.

First, examine the various food forms on which trout feed. These include all aquatic insects, terrestrial insects and minnows. You would be defeating yourself if, after evaluating these natural foods, you selected a separate fly pattern to imitate every insect that flies and every minnow that swims. Rather, choose imitations carefully so that they pass for more than one type of food on which the trout feed.

A second factor is the various water types throughout the state and how these affect the trout's acceptance or rejection of the offerings. We have excellent trout populations in many waters, from small mountain brooks to large freestone streams to flat limestone spring creeks to deep lakes. The fly selection should be made to provide you with patterns that can be manipulated in an appealing manner in all these waters.

Consider also the seasonal affects on the trout and how they influence your presentation and their acceptance of it. Insect activity as well as the high, cold streams of spring and low, warm streams of late summer all place different demands on the trout. They know how to adapt to these conditions and you must learn their tricks if you expect to select the right flies and outsmart them.

By evaluating all these factors and reflecting on 25 years of trial-and-error trout fishing, I came up with these 10 flies.

1. Adams dry flies have probably produced more trout on our waters than any other dry fly. There is excellent justification for this broad success. True, it is used a lot, but it goes beyond that. The Adams, with its gray body and grizzly hackle tip wings, passes for a broad variety of mayflies, caddises and land-borne insects, which are present all season long.

In sizes 12, 14, and 16 it is one of the finest dry flies for Pennsylvania mountain streams. It matches many early season insects quite well and the contrasting colors of its wings makes it easy to see on the stream surface.

On the other end of the spectrum, the tough trout in flat limestone spring creeks also find it desirable. I remember one day on one of these streams with a fishing buddy who knows that stream like you know your bathtub. He took three beautiful trout in quick succession on a size 20 Adams on a size 6x tippet.

2. Al Troth’s Elk Hair Caddis dry is one fly I would personally hate to be without. In the appropriate sizes (roughly size 12 to size 20) it matches most of our caddis flies and many of our stone flies. It also passes well as a grasshopper for summer use.

Skillful trout fishing tactics and choosing one of the flies mentioned in this article can help you outsmart more trout.

One outstanding attribute of this fly is how well it planes when casting. Its compact, streamline style lets you punch it smoothly through the air on finer tippets than you could with conventionally tied hackle-collar dries. Basically, this means a smooth, accurate presentation, a natural drift, and more strikes.

3. The cricket dry fly, developed by Ed Shenk of Carlisle many years ago, is my personal number one favorite dry fly. This fly has given me outstanding surface fishing under more diverse conditions than any fly I've ever used.

It's an excellent duplication of the natural cricket, and it passes for stone flies, caddis flies, beetles and other lesser-known land-borne insects. This accounts for its broad appeal throughout the
season on so many water types.

An attribute, not readily apparent to some, which enhances its acceptance under a variety of water conditions, is its bold black composition. In discolored water it is the most highly visible fly I've ever found, both to the trout and to the fisherman. I have taken many large trout on the surface with a size 10 cricket when most other anglers had gone to big streamers or nymphs fished right on the bottom. Still, in a size 16 it will take tough trout in crystal clear water anywhere.

The black fur ant is another excellent dry fly for tough trout in clear water. I'm not sure of the reason, but the trout go for it in a big way.

Recently, a friend and I located a rainbow just over 4 pounds in a small creek. We tried to catch that fish off and on all day with the flies that were hatching and those on which he was feeding with no success. Finally, several hours later, my friend said he had to go back and try him once more before we went home. His presentation of a number 22 black ant fell 4 feet short of the target. Much to his amazement, that big rainbow swam over and sucked in his ant.

Black ants have always been effective on spring creeks, but they are some of the finest dries to use for tough fish in freestone streams. If you find a good trout that is willing to come up and investigate your conventional dries but refuses them at the last instant, there is a good chance you can take him on a size 18 or 20 dry black ant. Don't worry about losing sight of that small ant on the rough water. In this case you know exactly where the trout is so the odds are in your favor.

The Royal Wulff dry fly, which is Dan Bailey's adaptation of the old English Royal Coachman fly, is an outstanding all-around dry. The story goes that on a trip to New Zealand, several years before his death, Dan took 6 dozen flies—3 dozen Royal Wulffs size 14 and 3 dozen Royal Wulffs size 12. Dan said this wasn't exactly right but that he felt they would have done the job.

Technically this could be called an attractor dry fly, but there are many theories on why the trout take it so well. These range from its tight mid-body area looking like an ant to its white wings conveying the impression of a flying insect.

Many experienced anglers prefer this dry fly for choppy water on freestone streams. Its good flotation and high angler visibility make it hard to beat under these conditions. For these streams sizes 12, 14, and 16 are best. A real sleeper, which few anglers are aware of, is their effectiveness in size 18 on the tough spring creeks.

The Gold Ribbed Hare's Ear nymph is one of the finest flies I've ever used. I have had outstanding fishing with this fly in a big size 8 fished right on the bottom in heavy, boulder-filled runs like the special regulation water on Penns Creek. Those big browns are accustomed to feeding on large stone fly nymphs around those boulders and I'm sure that's what they take the Hare's Ear nymph for.
that reach their full size and become very active in late April and early May. It is important to keep in mind that as the hatching time for the March Brown mayflies draws close, the natural nymphs move out to the sides of the streams.

Last spring several streams I fished must have had an all-time high March Brown population. The shallows were loaded with nice trout working on these nymphs. These fish are there to feed but they are easily scared in the shallow water. You will probably get your best results by staying back and spotting the trout before making your presentation. It is fairly easy to locate these trout by their movements and tail-waving as they feed on the nymphs. Dropping a size 10 imitation about 2 feet above them usually does the job.

The pheasant tail nymph is needed in the selection for the super-tough trout. There are several styles of tying this nymph, but I prefer Frank Sawyer's pattern. This tendency probably goes back to the times over 20 years ago when I had Mr. Sawyer tie and send me these in sizes 18 and 20 from England. At that time the fly wasn't well-known in this country and the only sizes the Sawyers were sending over for this market were much larger. So each year I had them work up 6 or 8 dozen in smaller sizes.

The pheasant tail nymph, when sparsely tied in small sizes, passes for a number of insects in our spring creeks; it is an excellent sulfur imitation. When tied in sizes 16 to 12 it passes for many of the nymphs and larvae in our larger trout streams.

I once located a huge brown that spent most of his time down deep under a big brush pile. I showed that brown every big streamer and nymph in my box with no success. In frustration I drifted a number 20 pheasant tail nymph to him and he took it instantly.

The black woolly bugger should definitely be on the list. Many anglers think this is taken as a sculpin minnow by the trout; others believe it is mistaken as a leech and some even say it represents a crawfish. I think it is so widely accepted by trout because it looks like a big mouthful of "something good to eat."

I have taken trout on this fly in all types of water, at all times of the year, and under all water conditions throughout Pennsylvania. I tie some as small as size 16 for small headwater streams and the brookies love them early in the year. In the average-sized stocked streams sizes 8 and 10 are the best all-around sizes. If you are going big fish hunting or insist on fishing in very discolored water you should include some as large as size 6.

The woolly bugger is usually fished downstream and across-stream in the conventional streamer fishing manner. A slow, short stripping action is normally effective. If this tactic fails to produce, try fishing right on the bottom with no more action than is needed to keep a tight line; not many trout can pass up this black wiggly creature crawling across the bottom.

Often I fish the woolly bugger almost straight upstream with what I call a bounce retrieve. I convey sort of a jigg ing-type action to the fly by lifting the rod tip every several feet of the drift. Both retrieves are well worth trying on all waters.

The muddler minnow is a must in everyone's fly box. Dan Gapen originally tied this fly to represent the sculpin minnows in the Nipigon River in Canada. The big brook trout in the 8-pound to 10-pound class were known to feed heavily on these minnows and the fly was an instant success in that area.

The muddler is probably the best known, most fished, most imitated and most adaptable fly. From putting silicon on its head to fish it dry, to putting lead in its tummy and rabbit fur strips on its back to fish it on the stream bottom, the muddler seems to cooperate and produce trout. A friend who is a superb angler insists that sparsely tied on a light hook the muddler is one of the best grasshopper patterns. Another angler I fish with likes to tie his muddlers with greatly oversized deer hair heads and rip these across the stream surface just as darkness is falling on the stream. Yet, another friend has his muddlers tied on a short 1/0 hook with lots of lead in the body to let him seek out the largest trout in the deepest holes.

For day in, day out trout fishing sizes 12 to 6 cover all the bases.

The techniques for fishing muddlers are easy. There is no wrong way to fish a muddler. The conventional down-and-across presentation is by far the most popular tactic but only one's imagination limits the applications of the muddler.

This selection of flies in a variety of sizes takes trout all season long in all Pennsylvania waters. Try them and reap the many pleasures you'll find in proving me right.
Vary Your Strategies, Catch More Shad

by Art Michaels

When you catch shad from a boat using one method and one color combination of shad dart, you tend to stick with that offering. That's fine, and in fact it's the way to go. But the most successful shad anglers frequently fool fish using a variety of lures and techniques because what works one day may not be the winning ticket on another outing.

If you use several successful methods and offer the fish an array of lure combinations, you can have the best chance of catching shad every time you go. These varied tactics help some shad fishermen consistently fill their creels. Here are some of those winning strategies.

Dart color

First, consider dart color. During the last few years, many anglers caught a lot of shad on darts that had some green in them, and on other darts with yellow or orange. The first group of these darts includes color combinations such as green body and black head, yellowish-green body and green head, and green body and yellow head.

The other darts that scored best are ones with color combos like yellow head and orange body, yellow body and black head, and darts that are green and yellow, and orange and green.

To find out what dart colors are doing the best job, ask in tackle shops and at accesses. Tying on the current winning color combo can help you catch shad fast.

Dennis Scholl (above left), lifelong shad angler and president of the Delaware River Shad Fishermen's Association, nets a nice one near Easton. At left, anglers battle a brace of bucks.

Angler subscriber Dr. Peter Friedman caught this shad using a 1/16-ounce dart with a black head and green body. He crimped two 1/8-ounce split-shot 18 inches above the dart. The action took place in about 8 feet of water at the head of a long, deep pool about 7 or 8 miles north of Stroudsburg.
How to Fight and Land Big Shad

Break-offs are part of the game, especially with the big ones, but the most skillful shad anglers put the odds greatly in their favor when they hook the heftiest shad. Here are some of their success secrets.

- Begin the season with fresh line, and if you fish often, respool with new line occasionally.
- Get your reel drag system in top working condition.
- Set the drag very light initially. Grab the line with no slack as it comes off the reel, and pull firmly. The drag is set correctly for the beginning of the battle when you can take line reluctantly off the reel with a slight tug.
- Keep a tight line on a large hooked shad during every second of the battle. Readjust the drag according to the fish you've hooked. Let the fish take line, but keep the drag loose enough so that the shad's sudden powerful runs and turns don't yank the line with a drag setting that's too tight.
- Anticipate the bulldogging runs of a big shad, especially during a long fight. When you get the fish close to the boat, the fish might freight-train again downstream. Loosen the drag a little and let the shad run.
- When you think a large shad is tiring, pump it into the range of the net near the boat. Slowly raise the rod tip high, and as you lower it, reel in line, thus bringing the fish close to the boat. Tighten the drag a little. If you're using ultralight gear, pumping is just about the only way to get a big shad up in the water and near the boat.
- To net a shad after a fight, place the net in the water behind (downstream) and a little beneath the fish, and in a quick, smooth motion scoop up the shad into the net.
- After you've creelied or released the fish, check about 8 feet of your line's business end, re-tie the dart on the line, and put on the splitshot again. If the shad you just boated cut or frayed the line, you could lose the next one.—AM

Consider these two good shad fishing strategies. On the left, to fish the dart at a selected depth, vary its size. From top to bottom are darts of 1/4-ounce, 1/8-ounce, 1/16-ounce, and 1/32-ounce. On the right, to get the 1/16-ounce dart deep, add as much crimp-on splitshot as necessary. In high, swift water as much as six or seven shot may be necessary to place the dart near the bottom.
Getting darts deep

When you find a good spot, getting the dart deep to fool migrating fish is a problem that the best shad fishermen have solved in several ways. First, there's the method of using 1/8-ounce to 3/8-ounce darts when the water is swift and high, and 1/8-ounce to 1/32-ounce darts when the flow is much less.

Another idea is to use only 1/16-ounce darts with as many crimp-on splitshot as necessary to place the dart at the proper depth. Anglers who fish this way frequently start the season in high, swift water with a 1/16-ouncer about 18 to 24 inches in front of as many as five to seven large splitshot. Later in the season, or when flows slow and depths decrease, these fishermen team the 1/16-ouncer with one to three splitshot, and sometimes with no shot at all.

To catch shad with this strategy, you have to select the right number of splitshot, so if you're not catching fish and your dart isn't collecting debris or snagging, put on another splitshot. If you're snagging bottom or collecting much debris, take off one shot.

Another plan, if you're snagging bottom or collecting debris, is to keep the same number of shot on but shorten the length of line out from the boat. On the other hand, if you think the dart is riding too high in the water, instead of adding splitshot, lengthen the amount of line you have out the boat stern. Try reeling in or letting out a few yards of line at a time.

When you change the line length, in addition to moving the dart higher or lower in the water, you also change how the dart swings or bobs in the current.

Both strategies work—adding or removing shot, and increasing or decreasing the line length. The idea with both tactics is to place the dart higher or lower in the water closer to the fish, or change the way the dart moves in the current so that it attracts shad better. You have to experiment to find what works best with your particular rod, reel, and line and just where you're fishing on the Delaware, just as the best shad anglers experiment until they score.

Tackle

Take a close look at your rods, reels, and line, too. Experienced shad anglers for the most part prefer light spinning rods of 6 feet to 7-1/2 feet with reels that they spool with 4-pound to 6-pound mono. In recent years, more Fish Commission Senior Angler Awards were given to shad fishermen who caught their quarries using 6-pound-test line than any other pound-test line.

The most important characteristic of a good shad rod is that it has backbone to fight those hefty bulldogging roe shad and winch them up from the bottom. In addition, many successful shad anglers like a medium-action rod, which bends through the top half. It absorbs the sudden jolts to the line that a big shad makes during the battle better than a fast-action rod, thus decreasing the chances of a break-off.

Shad fishing regularly use fast-retrieve reels, with gear ratios of 5:1 or greater. But for fishing from a boat, moderate-retrieve models are better for maximum lifting power at boatside. These reels have gear ratios of less than 5:1.

The most important quality of a reel for shad fishing is its drag. This mechanism has to work properly, usually set light. Shad anglers who boat a lot of fish and break few off use their reel drags most skillfully, never horsing fish in. They let the large ones take all the line they want, and then they slowly work these big shad to the boat.

Check out the sidebar on page 12 for a more specific explanation of how best to use your reel's drag and how to bring in a hefty shad.

Boats

Consider boats, too. Shad fishing vets frequently use 12-foot to 14-foot semiveses. Semiveses, sometimes called utility boats, are more stable craft than John boats, and when the river is high, some riffles could swamp a small flat-bottomed boat that has too little freeboard (the distance from the water line to the top of the gunwale). Because John boats have little freeboard, they are the easiest craft to swamp. For these reasons, shad angling regulars steer clear of John boats for shad fishing, but if you must use a John boat, beware of its limitations.

Using inflatables for Delaware River shad fishing is practical. Inflatables don't have to be trailered, so they can be launched just about anywhere, and they are surprisingly stable craft. If you investigate inflatables, look for models with coated rubber, which toughens the skin and makes it nearly puncture-proof.

Engines of about 6 hp to about 25 hp are right for the Delaware. Under-powering your boat won't let you get through some of the fast water on an upriver trip, and too big an engine will likely clobber the bottom in a few spots.

A 6 hp engine for a 12-footer and a 9.9 for a 14-footer are common among the top-scoring shad anglers. They also carry an ample supply of shear pins for their motors, along with the proper tools for changing them.

In some places, you can use larger boats with bigger engines. Before you go to a new spot, call local bait and tackle shops and ask if your boat and motor are okay on that section of the river. Check out the April 1987 Angler for the complete lowdown on where to find the good spots and where to put your boat in.

Lastly, successful shad anglers just about always use long-handed widemouthed nets. Common round trout fishing nets and "teardrop" nets don't do the job, and even with a long-handed net, you still wish the net handle were about 5 feet longer than it is after a half-hour battle with an 8-pound roe that you've wrestled boatside. Still, a 4-foot handle on a widemouthed net is a good choice.

No matter what your shad fishing success may be, you could improve your score by considering how and where other successful anglers catch shad, and by trying their fishing methods along with the strategies you already use.

Awards Information for 1986 Shad Catches

A total of 62 Anglers Awards were processed by the Commission for American shad—18 junior awards, 44 senior awards. In March 1986, one award-winning shad was caught; in April, 46 were caught; in May, 15 were brought in. Seven anglers used 4-pound-test line, 30 anglers used 6-pound line, eight used 8-pound test, four used 10-pound test, and 13 award winners didn't include this information on their applications.

The minimum weight for American shad is seven pounds for senior awards and four pounds for junior awards (persons under 16 years of age). For complete details on the Commission Angler Awards program, send a self-addressed, stamped business-sized envelope with requests to: Publications Section, Pennsylvania Fish Commission, P.O. Box 1673, Harrisburg, PA 17105-1673.
MATCH THE HATCH

In your fishing adventures you often see insects flying close to the surface of the water. Many of these are eaten by fish when they land on the water or rise to its top after hatching below. Many trout fishermen tie artificial flies to copy insects that exist in nature.

See if you can “match the hatch” by identifying the flies shown on this page.

Stone fly____
Mayfly____
Dragonfly____
Damselfly____
Caddis fly____
Dobsonfly____

A  B  C  D  E  F
Erie's Deepwater Walleye

by Darl Black

"There's walleye out there," the Lake Erie anglers were told by a few pioneering fishermen several years ago. "Out there" meant deep water, offshore, the middle of the lake, or however you wished to describe it. It was a place far different from where walleye sport anglers were accustomed to fishing.

Initial skepticism among anglers ran high, but it did not last long for news of fantastic catches to circulate. Suddenly hundreds of long-time Erie walleye fishermen were joined by thousands of new faces as everyone tried to cash in on the bonanza.

Traditional fishing methods for Erie's yellow pike, as the natives call the walleye, were limited to trolling plugs or drifting with worm harnesses in near-shore areas. Anglers rarely ventured beyond the 30-foot or 40-foot depths. But inquisitive anglers of the 1980s found walleye in sizes and numbers in waters whose depths up until then had been probed by only summer salmon downriggers.

The Pennsylvania deepwater walleye explosion reached an unbelievable peak in 1985. It seemed as if no one could help but catch walleye.

Yet there were anglers who did not catch walleye. Either they failed to understand the necessary techniques or they were not properly equipped to handle the deep water.

Let's run down the most effective techniques for deepwater walleye with one of the lake's experts. Chuck Bucsek of Edinboro has been pounding Lake Erie for 12 years in pursuit of smallmouth, perch, salmon, trout, and of course, walleye. He isn't afraid to experiment. In seeking deepwater walleye, Chuck uses a number of techniques. His advice and tips are valuable to anyone desiring to try for Erie's yellow pike.

First, Bucsek points out, it is necessary to understand that Erie's walleyed pike are in roving schools. These big-water walleye do not relate to structure, but rather to water temperature and location of forage. The fish of deep water are generally suspended. Bucsek finds most of his summer fish in 25 to 35 feet of water over 60-foot to 80-foot depths. However, the fish may be deeper or shallower at certain times; he has taken 'eye on the bottom in 80 feet of water as well as within a few feet of the surface. In the eastern basin walleye have been reported suspended over depths of 100 feet plus.

"The very first thing one has to do is locate baitfish before you can expect to find walleye," Bucsek emphasizes. "The most important piece of equipment for this chase is a chart recorder. Flashers just don't hold a candle to a good graph unit."

The graph doesn't always mark the walleye because the fish may move away from the sound of a motorboat, but it is needed to establish the depth of large quantities of bait. Once a forage-holding area is located, one of the following deepwater techniques may be applied.

Flat-lining

"Flat-lining is simply trolling a lure on a monofilament line straight off the back of the boat," says Bucsek. "We run the lines without weight and let the crankbait control the depth.

"For walleye in the open water of the lake I am a firm believer in using 4- and 6-pound-test line. Some people call my fishing buddies and me crazy for using such light lines, but they work. The fine-diameter line gets those crankbaits to their true maximum depths. Because bottom snags will not be encountered, there is no problem of hanging and losing a plug. And walleye don't hit hard, so there is little chance of breaking a line from the shock of a strike."

With 100 to 120 feet of light line out, Bucsek says a Norman Deep Little N can be trolled at 25 feet and a Bagley Double Deep Kil'r B II at 28 to 30 feet. "Extra sharp hooks are absolutely necessary for a positive hook set. The drag should be set very light for the initial strike, then tightened up as you fight the fish," says Bucsek.

"When running light line, stiff graphite rods will not be beneficial. Besides, a walleye may take a bait and let itself be towed right along with the boat. On a stiff rod it is very difficult to detect the rod tip bobbing. That's why I use light and ultralight action fiberglass rods with light lines. The rod tips bob up and down to indicate a fish on.

"Flat-lining with light line is my most productive technique. But the real secret is in the boat control. You can't run a straight line trolling pass and expect to take very many walleye. The fish spook to the left and right when the boat passes over. Trolling a large "S" pattern so your crankbait is not directly behind the boat."

Diving planers

A flat line will take care of walleye down to 25 or 30 feet of water. But when the 'eye are deeper, a diving planer may be used. Diving planers are in-line devices, four to five inches in diameter, used to take a bait deeper than it would normally run. One such unit is the Dipsy Diver, which retails for about $10.

"For diving planers, 12-pound test is the minimum line required due to the force of the planer pulling on the mono. A 10- to 12-foot leader is tied between the planer and the lure. The lure could be a crankbait, spoon, or worm harness.

"With a long leader behind the Dipsy Diver, you have to go with long downrigging rods in the 9- to 12-foot lengths to aid in landing fish at boatside because the diving planer does not release the line," adds Bucsek.

Each diving planer includes a chart to tell how much line to feed out to reach a specific depth. Based on his experience,
Bucsek thinks the charts are reliable to within 5 feet of the actual depth.

Bucsek says he has only limited success with diving planers for walleye fishing. "Unlike salmon, it is very difficult to detect a strike of a light-biting walleye with these devices because of the terrific drag from the planer. Their main use is for the angler who does not have downriggers or wire line rods to reach the deep fish."

**Side planers**

Side planers are used to place lures on either side of the boat while trolling. The surface-running planers run parallel to the boat because the boards are constructed at an angle. There are side planers on the market ranging from short boards of around 12 inches to large double boards exceeding 30 inches.

From Bucsek's viewpoint, the large double boards are far superior because they track better, handle rougher water, and can put lures farther off the port or starboard sides.

"Side planers are extremely effective when fish are up. When the walleye are within 20 feet of the surface, boat noise parts a school like Moses parting the Red Sea."

"Both deep and shallow diving crankbaits are used on planers, with the actual bait depending on the depth of the fish. Sometimes the fish are just under the surface, so a plug diving only four or five feet is all that is needed."

Large side planers require an upright mast or pole mounted in the boat to support the tow line above the water line between boat and planer.

The rigging process is simple. Run the planer board out on the tow line. Play the crankbait out about 25 or 30 feet, slip the ring eye of the release onto the tow line, and then clip the fishing line into the release. The release slides down the tow line toward the planer with the fishing line attached. When the walleye strikes the lure, it pulls the line free of the clip."

"Side planers are the best way to handle spooky walleye, but there are some problems," continues Bucsek. "The biggest disadvantage is getting a hook set. When a walleye hits and hopefully snaps the line out of the release, there is a lot of slack line in that sharp angle between the rod, planer and fish which must be taken up before the hook can be set. Just reel like crazy."

A commercially made outfit with planer boards, mast and retrieval system may run $200. Bucsek says an innovative angler can build his own boards and pole for a quarter of the cost.

**Downrigger**

Most anglers have an idea what downriggers are and how they work. A large spool of wire cable supports a heavy lead ball that is raised and lowered on the cable by a motor or by hand cranking. The monofilament fishing line is placed in a line release attached to the ball. Strictly for salmon fishing, right? Not any longer.

"Downrigger fishing requires a considerable outlay of funds. With a couple of moderately priced downriggers, bases, balls, releases and rods, the investment could approach $400—perhaps more than the occasional Erie angler cares to spend."

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"What I don't like about wire is the lack of fighting done by walleye taken on wire. There is no playing the fish; you just crank it in slowly. I would rather not use wire as long as I can reach the fish with monofilament and enjoy the fight."

On the other hand, many anglers find wire line fishing for yellows has swept Lake Erie. Although Bucsek has tried wire line, he does not use it on a regular basis.

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The second necessary adjustment was increasing the amount of line between the cannonball and the lure. In salmon fishing, anglers had discovered that the cannonball acted as an attractor for those fish, so a short lead was general practice. But 'eye anglers soon realized that the ball was a turn-off for their target species. Just as motor noise disturbed the walleye, the cannonball also spooked the fish. Bucsek runs 30 to 50 feet of line between the ball and lure when walleye fishing instead of

**Wire line**

Within the last three years, wire line fishing for yellows has swept Lake Erie. Although Bucsek has tried wire line, he does not use it on a regular basis.
standard free-spool casting reel matched with a fiberglass rod of 6 or 7 feet. Your entire investment may only run $70.

Wire can put a diving crankbait as deep as necessary for Erie 'eye. It is possible to run big-lipped crankbaits at 70 feet or more on wire line. There is no stretch to wire, so hooks are set automatically. Actually, if an angler reacts by setting the hook, chances are that the plug will be ripped out of the fish's mouth. And because of no stretch, even the smallest fish taking the bait is easily detected regardless of how much wire is out.

**Vertical jigging**

All the methods discussed so far have been trolling approaches. In the big-water situation, trolling helps to eliminate unproductive water quickly. But even when a concentration of walleye is found, casting has little application on Erie—the fish are generally deeper than you can possibly crank your deepest-diving bait. But Bucsek says there is one method that may be used for a change of pace.

"Jigging heavyweight spoons right under the boat can be fun as well as very effective on the walleye at times. First you have to find a good concentration of fish, and then the weather has to cooperate. Unfortunately, the chop on the lake usually precludes vertical jigging.

"If you would like to try jigging to catch some deepwater walleye, here is what you will need—a 6- to 7-foot medium/heavy graphite rod with a casting reel spooled with 12- to 14-pound-test monofilament, and several jigging spoons in the 3/4- to 1½-ounce range. The heavier the spoon, the easier it is to keep contact with it in choppy conditions."

Bucsek recommends casting the spoon ahead of the drifting boat, working it with small snaps as it sinks. If nothing nails the spoon by the time it is directly under the boat, push the free spool to let the flashy bait flutter toward the bottom. Engage the line, pump the rod a few times, and wind in the spoon for another cast before the lure drifts too far behind the boat. On a relatively calm day a good angler can catch walleye as deep as 70 feet using this method.

Select the deep-water techniques that fit your style of fishing and your pocketbook. If you don't have downriggers for the extremely deep fish, try diving planers or wire line. If you think your motor is scattering shallower walleye but you don't have side planers to get your lures away from the boat, give casting spoons a try while drifting. Be prepared to switch methods; don't expect one approach to work all the time.

Finally, safety must always be stressed with planning to fish Lake Erie. Be sure you have navigational aides and know how to use them. Never attempt to run out in marginal weather or when a storm is threatening. The walleye will still be there another day.
Largemouth bass have a critically important role as the dominant and sometimes only piscivorous predator in many Pennsylvania lakes and ponds. Piscivorous means feeding on fish, and fish can be a major part of the largemouth bass diet. The overall balance and health of a fish community can depend, in many instances, on predation by largemouth bass. In its role as dominant predator in a fish community, the largemouth bass feeds on small fishes, especially sunfishes, thus keeping them from becoming overabundant.

If sunfish populations are not held in check by effective predation, their numbers can increase until individual fish cannot find enough food to grow well. When fish can find only enough food to maintain life but not enough to increase in size with a normal growth rate, they are said to be stunted.

Fish communities with extraordinary numbers of small sunfish and few or no intermediate-size and large bass are often typical of small lakes and ponds where even a few anglers fishing for bass each year are enough to catch all the bass large enough to have been feeding on fish. As fishing pressure has increased over the past two decades on state-owned and other public lakes, excessive largemouth bass harvest has become evident. When fishing pressure is high enough to catch many of the desirable-size fish, it can have a destabilizing effect and lead to an unbalanced fish community. When intense fish pressure is directed at largemouth bass and bluegill sunfish, an unbalanced fish community may result composed of small sunfish and very few legal-sized bass.

An abundance of small sunfish eat bass eggs and compete with young bass for food, so the sunfish are able to limit the numbers of piscivorous predatory largemouth bass and perpetuate the unbalanced condition. Detecting and correcting unbalanced fish communities is a major task in managing fisheries.

Balance

There are three aspects of the fish community which are important to the concept of balance. First is the variety of fish species that make up the community. In a lake, the most simple fish community might be composed of largemouth bass and bluegill sunfish. The fish community becomes more complex when additional fish species occur. Typical members of
more complex communities might include chain pickerel and other piscivorous predators, as well as pumpkinseed sunfish and yellow perch.

The idea of community balance is relevant regardless of the complexity of the community. For a typical fish community to be in balance, there must be small prey or forage fishes and large fish that eat other fish. In a simple fish community, bluegills and small bass are the prey and large bass are the fish-eating predators.

Size of fish is the second aspect of balance. Small bass do not prey on other fish. Bass do not eat many fish until they reach a length of 8-9 inches and are about three years old. At this size they begin eating small fish, but it does not take many fish to satisfy them and they continue to eat insect larvae and crayfish.

Fish in the diet of largemouth bass are important for continued rapid growth and good health, which allows sexual maturity and reproduction. Bass over 12 inches are effective predators on smaller fish, including their own young. A diet of fish allows the largemouth bass to put on lots of weight, especially when they are over 12 inches long. At these sizes bass increase more in weight than they do in length, thus becoming more robust. Bass less than 12 inches eat fewer and smaller forage fish than do larger bass. The ability of these smaller bass to control forage fish populations is limited to small-size prey and limited by the number of bass available to eat the small fish.

The abundance or numbers of individual fish of various species in the community is the third aspect of balance. For a fish community to be in balance, each fish species must have small fish (indicating continued successful reproduction), intermediate-size fish (indicating survival and growth), and large fish that are sexually mature, effective predators and desirable to anglers.

The abundance or numbers of various sizes of fish in each species is how fish biologists measure balance. Anglers can also get a sense of a fish community’s balance by the numbers and sizes of fish they catch. Fish biologists try to catch large samples (more than 200) of a fish species to judge the state of balance of the fish community. They also try to collect these samples from many parts of the lake and throughout the year to ensure that the sample is a fair representation of the fish that live there. Anglers need to be cautious about drawing conclusions from small catches at one time of the year within limited areas of the lake.

When about four to six largemouth bass are over 12 inches out of every 10 bass taken over eight inches, the bass population can be considered in balance. When about two to four bluegills are caught over six inches out of every 10 bluegills taken over three inches, the bluegill population can be considered in balance.

More complex fish communities may include more than one piscivorous predator fish and several panfish or forage fish species and can have the state of balance analyzed using similar measures of abundance of various size fish. If there are too many or too few small fish or too many or too few large fish, the community can be considered out of balance.

**Causes of unbalance**

There can be many causes for unbalanced fish communities. Before corrective action is taken to bring a fish community into balance, the cause of the unbalanced condition should be identified.

Man is also a piscivorous predator. Anglers, through the harvest of fish, can have a profound effect on the balance of a fish community. Largemouth bass are the most sought-after fish in Pennsylvania and the nation, for that matter. Sunfish are a popular fish for the pan. Most anglers are delighted when they find a lake in which all of the bass or sunfish they catch are legal or desirable size. Theangler’s pleasure may be short-lived because when there are no small fish to replace the large ones that are removed, the good fishing will not last long. When a fish community is unbalanced because only large fish are present, reproduction may have stopped or excessive deaths are occurring during the fishes’ early life. Such a fish community will change rapidly with heavy fishing pressure. Either the fish will become scarce, or more likely, another fish species will become abundant. Anglers frequently complain when most of the fish they catch are small and large sunfish and legal bass are only rarely taken. Such situations are typical when fishing pressure is heavy and the fish are reproducing satisfactorily. When an unbalanced fishery can be attributed to fishing pressure and excessive angler harvest of fish, regulations can be an effective tool to help restore and maintain balance in the fish community.

**Regulations**

Fishing regulations affect the fishing activity of anglers. Commonwealth inland regulations for bass in lakes affect the seasons, size and number of bass that an angler can keep. The current closed season for bass in lakes coincides with their spawning time. This has considerable emotional appeal, but the real reason is that for 17 percent of the year, bass cannot be harvested from lakes. Because bass feed very actively at this time of year while attending their nests and young and fishing pressure is at its peak, the closed season probably reduces the potential bass harvest by 40-50 percent. Even more restrictive seasons of perhaps a few weeks would have the potential to reduce the harvest greatly and would be very effective in combating the effects of overharvest on the balance of the bass population.

The current statewide minimum size is 12 inches for bass from lakes. This minimum size limit was designed to protect bass from anglers through four years of their life. This protection should allow about half the female bass to spawn at least once before they are large enough for anglers to harvest. An equally important reason to protect bass in lakes until they are 12 inches is that it allows them to be an effective fish-eating predator for a year until they are large enough to be harvested.

The current creel limit of six bass per day does little to protect bass in lakes. Only on few fishing trips do anglers ever catch six bass, so the creel limit has no effect in protecting bass until an individual angler has reached the limit and must return to the water those legal-size bass that could have been kept if the creel limit were higher. Reducing the creel limit, even to one or two bass, also does little to reduce overall harvest, but it may serve to redistribute the harvested bass to more anglers. The redistribution of the bass harvest to more anglers is desirable in promoting angler satisfaction.

Fishing pressure is expected to continue to increase. Angler interest in catching bass will undoubtedly grow, perhaps at an even faster rate. As fishery managers identify problems with fish communities and bass populations that can reasonably be attributed to excessive fishing pressure, then more conservative regulations are appropriate.

R. L. Hoopes is Warmwater Unit leader in the Commission Division of Fisheries Management.

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Spinfishing with Worms for Spring Trout

by David R. Thompson

This hole in Little Juniata Creek received plenty of fishing pressure after it was stocked with trout. Still, a worm fished slowly along the bottom let a young angler catch this trout, with help from an enthusiastic netter.

A baitfishing specialist remarked to me after he'd caught another fish that "Just because everybody does it doesn't mean everyone does it well." He was referring to fishing for early season trout with worms, a bait that he used with finesse. He applied a gentle touch to worm fishing that elevated it to an art form. And as good art evokes a positive response from people, his approach to worm fishing received a favorable response from trout.

Angling for trout with worms may appear to be kids' stuff. The common earthworm certainly is no new, exotic bait that requires an introduction. Even youngsters who are still wet behind the ears as anglers manage to enjoy at least modest success at what superior fishermen might refer to as "worm dunking."

Yet, seasoned anglers who supposedly know the score where worm fishing is concerned seldom think highly enough of the lowly worm to explore its full potential and continually improve as bait fishermen. Consequently, fishing worms well remains a challenge for many of us and requires a fresh outlook.

Now in early spring is when to focus on worm fishing. The earth is dampened by showers. Earthworms are accessible just below the ground surface, especially in gardens. Some of them are washed by rain into trout streams, becoming easy prey for hungry stocked trout. Even trout that never have seen a worm recognize it as food. Even so, for the angler to be successful, a bait must be presented so that trout don't become defensive (worm shy) and instead are aggressive feeders.

Locating an aggressive trout in early spring is rewarding because its efforts to steal your worm will capture your undivided attention as surely as the last pages in a mystery novel. And like the thriller whose outcome isn't known, the outcome of the suspense created by an aggressive trout tugging a worm remains a mystery until the fisherman himself causes a satisfying ending. The question is, is he enough of a craftsman to choose the proper tools for his fishing and use them properly? Assuming that he is properly equipped and trained,
the trout fishing story will have a happy conclusion.

**Ultralight tackle**

To catch early season trout with worms, tools of the trade can vary; however, ultralight spinning tackle is an excellent choice. My favorite rod weighs only a few ounces and is five feet long. (Sometimes I wish the rod were smaller.) The open-face reel matches the rod so that the outfit is balanced and a joy to use. The average trout of 9 to 10 inches is fun to catch and yet the rod is suitable for playing larger fish of 12 or more inches that
are prone to take worms and nightcrawlers at this time of year.

An ultralight spinning outfit is ideal for fishing creeks and most lakes. It isn't necessary or recommended that long casts be made. Concentrate instead on cautiously approaching water that you intend to fish and make short casts that place the worm without commotion above the hole, eddy, rock or submerged log. Then let the bait wash naturally in the current into the target water. Next, brace yourself for a trout's solid tug.

Hatchery trout become opportunists like other creatures that must hustle and use energy to survive. In spring, they aren't finicky feeders and will eat different varieties of worms, including garden worms, leaf worms, manure worms, and red wigglers, to name some. Trout, particularly the larger ones, also take nightcrawlers.

Although any earthworm or nightcrawler is suitable bait, the worm-fishing specialist is selective. He avoids skimpy worms, preferring ones that are about 2 1/2 to 3 inches. Garden worms of that size are fine as are those known as blackheads. Nightcrawlers of similar size or slightly longer also are good. These baits are large enough for trout to find easily even if the stream is high and murky.

**Hooks, line**

A size 6 hook is a good choice for worm fishing. An earthworm that is about 3 inches should be hooked just once through its collar so that the head and tail ends dangle, giving the bait a natural appearance. A healthy earthworm hooked in this manner will wiggle and that movement entices trout.

If the bait is longer than 3 inches, it can be hooked through the collar and again midway below so that the tail is not so long that a trout will break it before mouthing the entire bait.

Using 4-pound-test line, these baits bring best results when fished on or close to the stream bottom. In early spring when waters often are high, crimp a splitshot to the line about eight inches above the hook to take the worm to the bottom. Then the important thing is to fish the bait slowly, allowing it to drift or tumble along the bottom and into each pocket of water deep enough to shelter a trout.

If the water happens to be clear and low and you don't see trout, don't bet that none is there. Trout are well-camouflaged and the slightest ripple hides them. Therefore, fish all possible hides thoroughly and if a spot looks particularly good don't give up on it too soon. Trout waters that are fished hard in spring often require patience and sometimes an innovative approach.

**Excellent strategy**

One morning last spring, for instance, I was fishing a mountain run that recently had received an in-season trout stocking. Several anglers had fished ahead of me and each stopped to try his luck at a pool created by a tree that had fallen into the water. None of them caught a trout. When my friend who specializes in worm fishing reached the same pool, I stopped fishing to watch him.

The first thing he did was select a fresh angleworm that he hooked carefully through the collar. Like the other fishermen, he cast upstream and let the bait flow into the pool under the tree. He kept the line tight, thereby eliminating slack from interfering with his detecting a bite. After the worm was on the bottom in the pool for several minutes, he cast upstream again and repeated the procedure. He did this four times without getting a strike.

Finally, he cast the worm to the downstream edge of the pool where the water was more shallow and immediately a trout socked the bait. He caught the fish that apparently had been scared out of the main pool and for the time being was holding in a less obvious place that the other anglers failed to fish.

In fishing for early season trout with worms, it is worthwhile to probe the deep water thoroughly with your bait. Often trout are there even though such water is fished hard. Trout become wary in these places and refuse to bite until fishing pressure has relaxed. That is when to tempt trout with an earthworm that is lively, properly hooked and fished slowly along the bottom.

Finding trout and enticing them to bite is only half the challenge. Anglers next must be able to hook them—something that many fishermen wish they did more often. My friend who catches trout in spring uses techniques that others can use to advantage.

"When the worm is drifting in the current and suddenly stops, I'm alert to the possibility that a trout has it," he said. "I reel in line very slowly, keeping the rod tip pointed toward the bait until there is no slack. If a trout has the worm, I usually can detect movement or feel the trout tug. Once I conclude that a trout has the bait, I wait until the fish makes the next move. If it tugs sharply or if I feel the line tightening, I set the hook. The important thing is not to react instantly when a trout bites a worm. Give it time."

In hooking a trout, he lifts the rod up and back so that his forearm comes straight back toward his shoulder.

"This is pretty much a natural reflex; however, a lot of fishermen pull so forcefully that the line snaps or the bait comes back and smacks them on the head. If you remove slack line as the trout bites, it isn't necessary to pull hard. A firm, upward sweep of the forearm is adequate," he said.

A worm fisherman wants to catch trout to take home to eat. He seeks stocked fish that are intended for the frying pan and to that end the common worm fished on light spinning tackle is an effective combination. Success, however, depends not only on mastering simple techniques but having the right attitude toward worms.

The worm is the all-American trout bait, which means it's a pretty classy critter. And that's why a worm fishing specialist is in a class all by himself... with the trout to prove it.
As a kid growing up in one of the nation's largest cities, I used to fantasize about living in one of the remote areas I read about in the glossy pages of slick national hunting and fishing publications. Imagine living in the woods of Minnesota or Wisconsin with that great musky or bass fishing close to home! Or what about trout fishing in the Rockies? Pike or walleye in Canada?

Reflecting on all this half a lifetime later, and after visiting these "exotic" spots and a lot more, I've come to a different point of view. I still live in Philadelphia but my perspective has changed. I've fished for smallmouth in three Canadian provinces and four states but the biggest I've ever taken fell to a jig-and-pig combination in the Schuylkill River, about 20 minutes from my home. Twenty years ago, a trip to Ontario for walleye was a bust. My first of that species came from the Delaware River in Bucks County. I've fished for pike in Alaska, Ontario and Quebec but never saw a larger fish than the one on the wall of Harry Neff's Sport Fishin' Outlet in Center Square, Montgomery County. The owner took the 21-pounder from nearby Green Lane Reservoir.

The tale of my first trout, first musky and first fly-caught stripped bass are all similar. I think the lesson is simply that we spend most of our time—hence do most of our fishing—close to home, in my case the densely populated greater Philadelphia area. I am impressed with the diversity of sport my neighborhood has to offer. A rough circle on a map around the city to a distance of 25 or 30 miles—say an hour's drive or less—encompasses, within its perimeter, dozens of good fishing sites and a rich variety of gamefish opportunities for the metropolitan-based angler.

To survey the smorgasbord, pick your favorite type of fishing or species and get out some maps of the Philadelphia area. Here are some suggestions on where, when and how you can enjoy some real fishing fun, even if, like me, you're a city slicker.

**Bass**

Smallmouth bass are plentiful in many local waters. In the Schuylkill River, from above Valley Forge clear into the city they can be caught by shore-based or boat anglers from spring through. Jigs topped with plastic tails or pork frogs, spinnerbaits and various crankbaits all work well. Prime areas to work include the Betzwood/Valley Forge stretch, around the mouths of the Perkiomen and Valley creeks, above and below the Norristown dam and around Conshohocken. The rocks from Flat Rock Dam and down to the mouth of the Wissahickon Creek are worth a try, too. This last stretch is actually within the city limits!

Perkiomen Creek, the Schuylkill's largest tributary in this area, teems with smaller bass and panfish. Wade it anywhere from Green Lane to the junction. There are some posted areas, but access is generally easy around Schwenksville, Collegeville and Oaks. You'll have top-notch action with tiny twister tail jigs or small streamer flies. If you live in the northeast part of the city or its suburbs, try the Neshaminy or the Delaware into which it flows. The Delaware has a long reputation as smallmouth water. Strike out for the Trenton/Yardley area or Washington's Crossing State Park.

The Delaware is also good largemouth water down around Croydon and Bristol. There are launching facilities and marinas at Croydon and down to Linden Avenue in northeast Philadelphia. You may also want to try the Commission access at Milnor and Princeton avenues (Tacony Access) and the Frankford Arsenal Access. You'll do well to invest most of your time exploring coves, harbors and creek mouths off the main river. Places like Dredge Harbor on the Jersey side and Tullytown cove on the Pennsylvania side are worth investigating. Again, spinnerbaits, jigs and crankbaits should all be given a trial. This is tidal water, remember, so you can better locate fish-holding structure during low water stages. Come back at higher tides to try these spots. Local papers give daily tide information.

Other recommended productive large-mouth waters include the reservoir at Churchville, Lake Nockamixon, Lake Towhee (Bucks County), Green Lane Reservoir (Montgomery), Marsh Creek Lake (Chester) and Springton Reservoir (Delaware). Two good fishing patterns for the summer are plastic worms and crankbaits around windy points, or jigs around large rock structure.

Though the water may be deep in some of these lakes, don't spend too much time testing the depths in summer. Tests have shown the oxygen levels are often insufficient for bass below the 8-foot to 12-foot range during the warmer months. Also, note that special regulations apply on some of these waters, so consult the Summary of Fishing Regulations in advance. For example, Springton and Churchville offer shore fishing only and limited access. Green Lane is county-owned and imposes a fee for non-residents. Still, these and other restrictions are some of the reasons these waters produce quality angling in a crowded environment. You won't complain after your first six-pounder.

**Panfish**

All the waters mentioned thus far offer good panfishing—bluegills, other sunfish, crappies, and perch. A casual weekend excursion with kids can be a resounding success, whether you flick small wet flies and poppers on a fly rod, fish tiny spinners and jigs or spin tackle, or just sit and watch a bobber while drowning worms.

For crappies you can't do much better than Green Lane or Springton in April and May. The fish school heavily then especially around bridge pilings or other structure. Small jigs with bright plastic tails (chartreuse is tops in my book), with or without a safety pin style spinner attached, are hard to beat. Use light line, 2-pound to 4-pound test, so your offering sinks more easily and gets more action as you jig it slowly. Two anglers can easily expect enough crappies for a few meals from one outing, but remember that one of the keys to keeping our sport is imposing limits on ourselves, both in terms of size and number.

The Delaware in Bucks County has a good population of crappies, too, and is underfished. These fish can be a little harder to locate, however.

**Trout**

If you lean to trout fishing, just consider your options: in Philadelphia County, Wissahickon and Pennypack creeks;
French Creek near Valley Forge Park is a popular—and productive—early season trout fishing spot.

in Montgomery, Wissahickon, Skippack, Unami, Mill and Valley creeks, Green Lane Reservoir, Lock Alsh Reservoir and Upper Perkiomen Valley Park; in Chester County, French and Pickering creeks; in Delaware County, Ridley and Darby creeks; in Bucks County, Levittown Lake and Lake Luxembourg. There are other smaller waters as well.

These are not natural cold-water fisheries, but due to the efforts of the Fish Commission and a few sportsmen's clubs, generous stockings of hatchery-reared fish afford accessible sport for thousands of local anglers.

Bait, fly and spin fishermen living in any corner of the city have easy access to one or more of the lakes and streams I've mentioned. These planted fish tend not to be too sophisticated. Salmon eggs,
fly-fishing-only waters that offer year-round angling. Lake Luxembourg and Levittown Lake are popular ice fishing locations for trout.

Muskies

Many years ago the muskellunge was a fish relegated to the dreams of city dwellers. We drooled as we envisioned "living logs" or "freshwater barracuda" in far-off waters. The local success story started when, a generation ago, a musky turned up in a water system filter about two miles from center city. The oddity was explained as a refugee from Green Lane Reservoir, a carry-over from an early, experimental stocking. The fact that the fish survived the Perkiomen and the Schuylkill proved that the cleanup of local waters was showing positive results. Since then, extensive Commission musky plantings have created a highly successful fishery. The toothy critters are no longer oddities, as they swim in both major river systems and a number of lakes in the Philadelphia region.

Try the slower stretches of the Perkiomen and Schuylkill in the areas mentioned above for smallmouths. An increasing number of legal-sized muskies can also be found on the Schuylkill River from below Flat Rock Dam downstream to and below the Fairmount Dam. The Commission stocks fingerling muskies in this section, too. The first two I ever hooked were in the 'Perk,' the first landed came from Lake Galena in Peace Valley Park near Chalfont. Good numbers have been stocked in the Delaware from the Tacony-Palmyra Bridge upstream. They are populous enough for some sport shops to run musky contests.

Springton, Green Lane and Nockamixon have been the most popular 'lunge lakes. Large Rebel plugs and jumbo Mepps spinners are the kinds of baits most musky fishermen like. Minnows, dead or alive, seem most preferred by bait anglers in these waters.

Walleye

Another popular midwestern and Canadian fish that has found a home in the Delaware Valley is the walleye. Though available year-round, winter and spring are hard to beat. In summer you will have to go to deeper holes for them. Visit the Delaware up to the Lumberville/Point Pleasant area. A good start would be ¼-ounce to ½-ounce lead-headed jigs with twister tails in yellow, purple or black. An added spinner often works wonders. Bounce the lures close to the bottom on overcast days or toward evening or after dark on clearer days.

Five-pound fish are not uncommon. Remember too that walleye fishermen in the Delaware regularly score on muskies, channel cats, smallmouth and crappies while pursuing their sport. Lake Galena is another good spot and generally has good fall fishing for walleye.

Carp

Bottom fishermen will find carp in most waters mentioned. They are prolific in the lakes and very few anglers fish for them, partly because of the abundance of other fish. The Delaware has been noted for large carp around the Tacony-Palmyra Bridge and up around the mouth of the Neshaminy for as long as I can remember. Across town, on the west side of the city, carp fishermen favor the Schuylkill below Flat Rock Dam and down along the city's Kelly and West River drives.

If you still need something to whet your appetite, consider that striped bass are common in the Delaware clear up to Yardley and small stripers have been taken by fly and spin anglers near the city's art museum and above Manayunk in the Schuylkill. Channel cats are numerous in both rivers, some smaller waters and most of the lakes. I've taken pickerel from a river cove near Bristol and perch from the Schuylkill near Norristown. The spring shad and herring runs on the Delaware are legendary and deserve separate coverage to do them justice.

Thanks to the Fish Commission's efforts and the ladder at the Fairmount Dam in center city, the Schuylkill may enjoy similar sport in the future.

If your job, family or the cultural and educational advantages of a large metropolitan area have determined your residence in or adjacent to Philadelphia, don't lament your fishing fate. We city dwellers never had it so good. Your only real problem is deciding which species of your plethora of gamefish to try for. The foregoing doesn't pretend to exhaust the opportunities but hopefully will encourage you to grab your rod and head for the ole fishin' hole. A good spot is probably right down the block.

Special thanks goes to the Southeast Law Enforcement Region and to Sally Corl, Philadelphia County WCO, for their assistance with this manuscript.

May 1987
Fishing Stocked Trout Streams After They’ve Been Skimmed

Using special tactics can help you catch stocked trout, now that opening day fever has subsided.
by Fred Johnson

The sun was already high in the sky, slightly angled to the southeast. It was hot when old Steve left the soothing security of his ancient but air conditioned “fish mobile” parked off the shoulder of the macadam. But this brief discomfort ended quickly as he entered the cool forest canopy to snake his way through the rhododendron that covered the forest floor and made the quarter-mile hike to the stream seem farther. Ten minutes of slicing through the thickets brought him to a steep incline, and the music of the stream directed his route with quickened pace.

Moments later, the slightly stooped angler reached the sparkling, bouncing thicket, still swift from spring rains, but Was it a March Brown? Another soon mystery of a moving brook and life magic of the movement, to observe the its barkless surface as a welcome bench.

Angler reached the sparkling, bouncing thicket, brought him to a steep incline, as he entered the cool forest canopy to

But this brief discomfort ended quickly as he entered the cool forest canopy to snake his way through the rhododendron that covered the forest floor and made the quarter-mile hike to the stream seem farther. Ten minutes of slicing through the thickets brought him to a steep incline, and the music of the stream directed his route with quickened pace.

Moments later, the slightly stooped angler reached the sparkling, bouncing thicket, still swift from spring rains, but clear and inviting. A fallen tree offered its barkless surface as a welcome bench. He used it as an excuse to extend the magic of the movement, to observe the mystery of a moving brook and life within and surrounding it.

A mayfly dun bounced off the water. Was it a March Brown? Another soon struggled to the surface, moved a few inches, and disappeared in the middle of a circle of miniature waves. Steve resisted the urgent voice that implored him to hasten, and carefully threaded the tapered fly line through the guides of his old, bent Granger. The water level was still well above the “finicky-low” stage, so he decided the 4X tippet at the end of his leader was fine enough and would yield fewer lures to the clutches of the thickets that bordered and sometimes formed a low roof over the water.

He carefully eased his crouched form to the shallow riffle below the small pool where the fly had disappeared, and waited. Within a minute (which seemed far longer), another mayfly popped to the surface and clumsily took flight at the angler’s feet. A swoop of his hat proved it was not a March Brown but the smaller Gray Fox. The odds for a successful outing rose! He tied on the feathered replica and floated it over the near side of the pool. Several casts later, each ratcheted toward the far bank, brought a short rise of a “fair” brown. The next cast brought a less enthusiastic response.

This fish knew what it wanted, and old Steve’s perfect imitation dry fly wasn’t it, as several more casts confirmed.

Maybe these fish wanted the emerger before it took flight. Off went the dry; on went a wet version of the emerger, which was carefully dropped a foot or two above the rising fish, and given a slight twitch. A small wave moved toward the fly and gently engulfed it.

The fish fought well and quivered as he released the fly. As always, Steve admired this first fish. The brown was just under 11 inches, her belly full from the brook’s spring cornucopia. She was a pretty fish, sporting attractive coloration, beginning to resemble a wild trout—a status, however, that her still-rounded fins clearly belied. Well before dusk, Steve had landed and returned over a dozen stocked brown and rainbow trout of similar size, and one fine wild (or carryover) 15-inch brown, which he killed with a quick rap of a rock—a fine dinner for him and his forebearing wife.

Steve represents the fairly small segment of expert trout fishermen, but we can all learn something from his experience.

The Fish Commission stocks about 5 million adult trout, just short of 10 inches average length, each year during March, April and May. Another million similar trout are stocked by our cooperative nurseries. It is doubtful that over 75 percent of these fish (and carryovers from the year before) will be creelable. Based on our estimates of the number of wild trout available, perhaps another two million stream-bred fish will also be creelable. This total of perhaps seven million trout, at most, wouldn’t seem to go very far to satisfy the needs of an estimated million licensed and unlicensed anglers who fish for trout at some time each year in our state.

Fortunately, they do provide a considerably greater fishery than would seem possible. This is true because an increasing number of anglers, like Steve, have learned that the ingredients of a successful day of recreational angling is in the total experience, including fishing over observed populations of catchable trout in pleasant surroundings, pure water, alone or with congenial companions, and yes, catching a few fish. As was the case with Steve, this does not always preclude the occasional killing of a trout or two to be prepared for a special culinary delight. The increasing use of catch-and-release and trophy trout water proves that each year, thousands more of our anglers have discovered that it is indeed true that a trout really is too valuable to be caught only once. It is for this reason that these special regulation waters are limited to the much less lethal artificial lures.

Why was Steve so successful in catching trout from this typical stocked mountain stream in the middle of the stocking season? First, he realized that a significant percentage of stocked trout, especially those stocked pre-season, are not creelable, even by autumn. This is true because these pre-season trout move away from the convenient stocking points (or may even be spread by float stocking).

Most anglers simply don’t bother to move too far from the bridges and road, especially following in-season stocking events. Steve may have passed a number of parked cars near the convenient access points, but he chose to enter the stream at a fairly inaccessible location, well away from the popular stocking sites and crowds. It was a fairly hot, late May day, so he selected a location in a forest-covered stream where the water temperature was in the low 60s—optimum range. He knew the stream supported some carryover and wild brown trout, which added a dimension that he sought—the chance to tie into an occasional larger fish. He’d already caught and returned a number of them on an earlier outing.

He also realized that at least three-fourths of angling pressure on this stream came from bait fishermen, and that by now the remaining fish must have become rather wary of natural lures, except after a rain. Thus, his use of flies allowed him not only to return his catch unharmed to the stream, but considering the stream level at the time, probably increased his catch as well.

Finally, he was able to fish cooler shaded water throughout the middle of the day, when most anglers are off the stream, conserving their efforts for the more popular bewitching morning and evening hours. This compounded his recreational pleasure, because he loved to have a stream to himself. If he decided to fish into the evening, he would head for the big pool in the nearby river, and experience rising trout and angler companionship.

Like Steve, most of us simply don’t have the time to fish nearly as often as we’d like. You might say old Steve had it made, but remember, he paid his dues for 40 years, discovering what he now enjoys in an angling experience. If you follow Steve’s lead, you could shorten the time it takes to reach that point.

May 1987 27
Lake Trout Rehabilitation and

by Robert M. Lorantas

The lake trout represents Lake Erie's only native salmonid. Current population levels are maintained solely by hatchery releases. These releases are concisely executed as part of a plan for the rehabilitation of lake trout populations to self-sustaining levels in eastern Lake Erie.

Biological management and monitoring responsibilities associated with this effort extend beyond state and national boundaries. Indeed, the lake trout plan constitutes a functional part of a much more comprehensive plan: "A Joint Strategic Plan for Management of Great Lakes Fisheries," which provides a formal basis and common strategy for this rehabilitation initiative. This plan, through the forum of the Great Lakes Fishery Commission, provides for unified approaches to conservation and management by fishery conservation agencies in Pennsylvania, New York and the province of Ontario. The need for a close working relationship among these agencies is apparent.

How do lake trout, sea lamprey control, and strategic management plans fit together? In basic terms, the provisions of the lake trout plan call for release of 160,000 yearlings annually into eastern Lake Erie. Additionally, the plan recommends limiting mortality of these stocked trout where possible. Limiting mortality includes (1) limiting mortality caused by fishing through the imposition of conservative creel limits (the creel limit for lake trout in Lake Erie is two fish per day) and (2) limiting sea lamprey induced mortality. Sea lamprey inhibit the building of spawning stocks of lake trout by parasitizing them near the age at which they are first able to spawn.

It is important to recognize that lake trout are a slow-growing late-maturing salmonid. They reach spawning age in approximately 4.5 years. However, assessment surveys indicate that relatively few fish survive to reach this age. Increasing the number of spawning-age fish represents a key element in restoration objectives.

Efforts to control sea lamprey have added benefits in that survival of non-native salmon and trout released into Lake Erie will be enhanced because these species also serve as hosts for the parasitic sea lamprey. Voluntary collections made by anglers fishing Lake Erie produced 65 sea lamprey in 1986, of which 29 were attached to coho salmon, 9 to steelhead trout, 8 to lake trout, 4 to brown trout, and the remainder to a variety of other species. These statistics point out that all salmonids released into Lake Erie are vulnerable to attack by sea lamprey, and thus, their abundance depressed by the sea lamprey's destructive habits. Laboratory experiments have shown that a single sea lamprey could kill 40 pounds of fish in its 12-month to 20-month parasitic feeding stage.

Additional details that showed a need for sea lamprey control throughout Lake Erie were presented in the August 1986 Angler. This need for action extended to three Pennsylvania tributaries that contained spawning sea lamprey populations: Raccoon, Crooked, and Conneaut creeks. In October of 1986 the U.S. Fish and Wildlife Service in cooperation with the Pennsylvania Fish Commission initiated sea lamprey control in these three Lake Erie tributaries. Recall that juvenile
Sea Lamprey Control

Above, the treatment operation involves picking up killed lamprey to determine their numbers.

Sea lamprey remain burrowed in stream sediments for 3 to 7 years before becoming free-swimming and parasitic. As sea lamprey undergo transformation to the parasitic stage, they leave stream nursery areas and migrate downstream to the lake. The selective lampricide, TFM, used to kill sea lamprey in Pennsylvania, was directed to juvenile sea lamprey in stream sediments. TFM selectively kills lamprey with minimal or no effect on fish or other stream organisms.

Activities associated with treatment began approximately 2 years before the introduction of TFM into streams. Initially, U.S. Fish and Wildlife Service survey crews documented the distribution of sea lamprey within these stream systems using electrofishing sampling gear specifically designed to collect lamprey larvae. Concise delineation of sea lamprey distribution enabled TFM application crews to be directed to the upstream-most areas of infestation.

Once application sites were established, a team of chemists and biologists determined the concentration of chemical that effectively killed sea lamprey yet had little or no effect on stream fishes. The procedure used to make this determination was called a "bioassay" and involved examination of the effects of various concentrations of TFM on sea lamprey and stream fish, such as rainbow trout.

After appropriate dosages were determined, metering devices were set up at application sites. Stream flows were subsequently checked and metering devices calibrated to deliver the appropriate dose. A "dry run" was then conducted using a harmless dye. Concentrations of the dye were measured at downstream locations, which resulted in fine-tuning of the metering devices. This careful preparatory work ensured that minimum amounts of lampricide were used and that effects on non-target organisms were minimal or nonexistent.

With all preparatory work complete actual applications of TFM were started. As a final check, concentrations of TFM were periodically measured at downstream locations using sophisticated techniques such as liquid gas chromatography.

After an application time of 12 to 24 hours, juvenile sea lamprey succumbed to the effect of the lampricide and were picked up by collection crews. In Pennsylvania before application of TFM, quantities of sea lamprey were collected and marked by U.S. Fish and Wildlife Service survey crews in Conneaut Creek. Subsequent collections yielded a ratio of marked to unmarked sea lamprey, which permitted estimation of the total number of sea lamprey in the stream system. An estimate of 400,000 to 500,000 sea lamprey inhabited this system in Pennsylvania.

With treatment complete, sea lamprey populations have been reduced to five percent or less of their former abundance. These reductions should be sufficient to enhance survival of lake trout as well as survival of introduced salmon and trout.

This account of lake trout rehabilitation and sea lamprey control began with a description of initial planning efforts. The ultimate goals of that planning aim for a harvestable surplus of wild lake trout for enjoyment by future generations.

Robert M. Lorantas is a fisheries technician in the Fish Commission Lake Erie Research Unit.

May 1987 29
Conservation Leadership Schools

If you are aged 15-17, the Pennsylvania Conservation Leadership Schools offer you the opportunity to spend two weeks in the mountains of central Pennsylvania learning about forestry, wildlife, water quality, and more. The schools are held at the Stone Valley Recreation Area of Penn State, in the middle of 7,000 acres of field, forest and streams in Huntingdon County.

While living in comfortable 4-person wall tents with floors and bunks, students participate in 2-week sessions that involve activities such as forestry (timber management), water quality assessment, wildlife studies, conservation projects, building working energy projects (such as a full-scale usable solar shower or solar oven), herpetology, dendrology, caving, wild edibles, canoeing, fishing, and much more.

The cost for two weeks is $160. Session I is July 5 to July 18 and Session II is July 19 to August 1. For more details, contact: Penn State University, 109 Grange Building, State College, PA 16802. The phone number is 814-865-3443.

If you like the action of your favorite fishing pole but the cork handle doesn’t fit your hand, trim it down with a file and smooth it out with sand paper. You can custom taper the handle and include a thumb notch if you wish.

If you use a rod case that holds several poles, rubber band the two sections of each rod together for less wear during traveling, easy unloading, and to prevent damage a butt section may cause to guides on a fine tippet.

When stripping line off a fly reel, and during the cast and retrieve, run the line under the index finger of your rod hand to maintain constant control and quick hook setting response.

A small roll of duct tape in the tackle box can be very useful for emergency guide wrap repairs, for taking the place of a broken reel locking ring, and for repairing a broken landing net.

Film in 35mm size comes packed in a small, watertight plastic container that can help you organize different-sized hooks, sinkers, and flies, and keep matches ready for emergency use. Camera stores usually give you the used empty containers free of charge.

After the main run of shad has passed your favorite fishing spot, good shad fishing usually still exists. Many spawners inhabit the pools without traveling farther upstream. They can be caught in the early morning and evening on larger darts in high water and smaller darts or spinners in low water.

When threading line on your fly rod, to prevent missed guides or having to begin again because of dropping the smaller leader, grasp the fly line just above the leader-line connection and thread both through the guides at once.

Fish in discolored water and after dark are not leader shy, allowing the use of a heavier leader or monofilament line. The stronger line gives you a better chance at landing the bigger night-feeding fish and allows you to horse them from weeds and cover.

Tackle boxes that are noisy when you are digging for equipment can scare the fish you are after. Thin strips of cork or indoor-outdoor carpeting placed in each tray and a piece glued to the bottom of the box quiets the noise and increases your chances for success.

When working lures from a boat, don’t lift the imitation immediately from the water at the end of the retrieve. Working the lure in a figure eight alongside the boat may prompt a following fish to strike.
Retiring Commission Executive Director Ralph W. Abele (left) was honored by members of the Susquehanna River Anadromous Fish Restoration Committee (SRAFRC) at their annual meeting in Baltimore on March 10, 1987. SRAFRC Chairman Howard N. Larsen (U.S. Fish and Wildlife Service northeast director) presented Abele with a mounted American shad, a fitting commemoration of his 15 years of dedication and persistence in efforts to restore this species to the Susquehanna River.

Outdoors Speakers Listing Available

The Outdoor Writers Association of America, Inc. (OWAA) has a speakers listing available on a wide variety of outdoor subjects. Many of the 200 speakers combine their talks with slide shows, films, videotapes, or demonstrations. They are available to schools, colleges, clubs, outdoor shows, and exhibits. The listing contains the following information: name, address, phone number, availability, preferred audience, subjects, 1986 fee, and expenses. The listing is divided into five categories plus a miscellaneous section that covers everything from edible plants to outhouses. The categories are:

- Fishing/Boating/Tackle
- Hunting/Firearms/Dogs/Legislation
- Conservation/Environment/Nature/Wildlife
- Photography/Writing/Journalism
- Camping/Backpacking/Hiking/Travel

To receive the 1986 OWAA Speakers Listing, write to OWAA Headquarters, 2017 Cato Avenue, Suite 101, State College, PA 16801.

Awards for the 1986 Biggest Fish of the Year were presented last February 9 at the Eastern Sports Show, in Harrisburg. Award winners attending were (left to right): Herbert Morgan for a 9-pound, 10-ounce largemouth bass; David Cuomo for a 6-pound, 8-ounce smallmouth bass; Dennis L. Clouse for a 15-pound, 6¾-ounce rainbow trout; Nicholas Maydak for a 35½-pound carp; Bruce E. Tyson for a 29-pound, 2-ounce flathead catfish; Dang Labelle for a 40-pound musky; Leroy Hoggard for a 2-pound bluegill; William Adams for a 3½-pound sauger; Rodney E. Frye for a 22-pound, 11-ounce chinook salmon; and R. W. Hafer for an 11-pound, 10-ounce palomino trout.

Correction

The front cover picture on the April 1987 Angler was incorrectly credited to Commission staff photographer Russ Gettig. The photographer was Joe Reynolds. Pictured was Jim Hare releasing a rainbow trout he fooled on a Greene County stream. We regret this error.
June

is for fishermen in Pennsylvania

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June 1-7 National Fishing Week

June 6
Day on the River
Fish-for-Free Day

A public event sponsored by the Pennsylvania Fish Commission to show and tell the Wonders of the Commonwealth's rivers and how to enjoy them. It's a day for the family, so come join us at

Fort Hunter, Harrisburg

"Take a friend fishing in Pennsylvania"