Coming across my desk in November from the Conservation Foundation was the report, “State of the Environment 1982.” Although announcements of the report were available in June, the initial remarks by Foundation President William K. Reilly had to be endorsed by the Board, which includes industrialists and financiers who are often supportive of the President. The 34-year-old nonprofit research group, highly revered for its studied avoidance of politics and confrontation, makes some strong statements in the 439-page report: “The bipartisan consensus that supported federal protection of the environment for more than a decade has been broken by an administration that has given priority to deregulation, de-federalization, and defunding domestic programs.”

The report, covering environmental problems ranging from soil erosion to acid precipitation and wildlife extinction, found the administration’s policies “wanting across the board.” There have been no reactions from the administration, but based on past experience I believe they will misinterpret the conclusions of this valuable report, or as they did with proponents of the nuclear freeze, write them off as “communist troublemakers.” Although the public in poll after poll has indicated in strong numbers that it prefers stricter regulations, the consensus of the public should not be mistaken for intense concern. As one pollster puts it, “People tend to vote the way they think you want them to and for what sounds right, and they avoid negative stereotyping.”

The Clean Air Act, for instance, does not permit the consideration of costs when setting standards for the protection of human health. Still, the Reagan administration asked the Congress to relax pollution standards designed to protect human health if the costs are too high. Pressures are just not being put on the administration to get off this unhealthy kick. The key point is that the majorities in every group study oppose any effort to put cost constraints on environmental regulations that protect human health, and study after study by economists conclude that environmental protection has no direct relationship to the general level of employment in this country.

It seems that the administration, influenced highly by the military-industrial community, has a shortsighted outlook that depends on yearly statements (and now with electronic data processing, monthly statements) when making policy for the future — often without any seeming concern over future generations. The proposal of Edwin Mease in 1980 to dispose of 500 million acres of public land to pay the national debt, when much of this land has no land-use plan in existence, is a classic example of the shortsightedness of those in power in the federal government. Opposing them does no good because they seem determined to dispose of public lands by sale or by undermining the authority of the managing agency.

Thus, as the Conservation Foundation’s comprehensive report exposes the threats that loom larger, we are left with nothing else but to appeal to the legislative branch of the government, the Congress and the Senate, to bail us out of policies that threaten to destroy not only wild natural beauties that have taken the earth’s entire life to develop, but that threaten even the human health of those who live on this earth.
Ice Fishing Secrets of Pennsylvania Anglers

In response to solicitations last August and September in Pennsylvania Angler, readers offer their tips to ice fishing success.

Seeing Is Believing by Francis X. Sculley

The Medusa, or freshwater jellyfish, is more common in Pennsylvania than you may think.

Cold-Weather Walleyes by William R. Holmes

The author's ideas on river fishing for walleyes in cold weather can help you increase your catches of these critters.

Choose the Right Fishing Rod by C. Boyd Pfeiffer

If you're in the market for a new fishing rod, this information could help you get the best rod for your money.

River Rescue Conference

Rivers are often dangerous to rescuers as well as to those who need help. The Fish Commission is paving the way for teaching rescuers how to save lives without endangering themselves.

Emerging Nymphs by Chauncey K. Lively

In sizes 12 to 18, this closed-cell foam fly attracts trout by acting like a wet-dry fly suspended in the surface film.

Easy Add-On Panel Space by Howard A. Bach

Small-boat consoles often provide little panel space for switches and electronic gear. Here are ideas on how to increase your boat's panel space.

What's New with PLAY? by Steve Ulsh

The Pennsylvania League of Angling Youth (PLAY) is growing. Here's an explanation of how to join in on the fun.

Perch can provide some pretty dependable ice fishing action for beginners and seasoned hard-water anglers. Our cover this month, painted by Robert O'Donnell, Jr., depicts what's waiting for you under the crust. See page 4 for more information.
Information in this article was contributed by readers of Pennsylvania Angler in response to solicitations in the August and September issues. Pennsylvania Angler regularly seeks reader input on a variety of topics. For this month’s subject, see the “Currents” section beginning on page 20.

Remember

When you go ice fishing, don’t forget that you need to display a valid 1983 fishing license. Here are some other reminders:

• Ice fishing equipment may include a maximum of five tip-ups or any combination of five devices. These may include not more than two lines fished by rod or by hand.
• Ice fishing holes may not exceed 10 inches in diameter, or 10 inches between the farthest points of a rectangular hole.
• Don’t forget to remove shelters and shanties from Fish Commission lakes when you’re through fishing for the day.
• For more details, consult your summary of fishing regulations and laws.
If using tip-ups at several holes, clear a path to each hole, put on ice skates, and combine fishing with skating. You can get to an active hole quickly on skates, much faster than you could travel on foot. — Robert Everest, Yardley, PA

A household food strainer is an excellent tool for keeping ice holes open and clear of newly-forming ice. — Robert Everest, Yardley, PA

Light strikes can easily be detected with this rig. Tie on tightly to your line a small rubber band, and clip off the ends. Put a small bobber on the line below the rubber band, but don't let the clip on the bobber crimp the line. Leave the bobber clip offset so the line slides freely through it. Place the rubber band so that your line reaches the desired fishing depth. Your bait returns to the same depth each time with this rig, and light strikes can be detected by watching the rubber band and bobber. — Reggie Wright, Bloomsburg, PA

Obtain a map of lakes you frequent for ice fishing, and locate depths and feeder streams. Start fishing near feeder streams, and move tip-ups toward holes and obstructions — Richard Salnier, Lansdale, PA

Depth finders are valuable aids in locating fish. Most portable models “see” through ice. Find creek channels in your favorite lake because these areas often hold schools of fish all winter long. — Dennis Slifer, Boyertown, PA

Rig tip-ups with about 30 yards of 20- or 30-pound-test braided nylon line with three to four feet of monofilament line on the end. You can set the hook much better with nylon line, and it won’t break on the sharp edges of the hole as you lift a lunker. — Dennis Slifer, Boyertown, PA

For the best fishing results, use the proper hook size. For bluegills, I use sizes 10 or 12; for crappies, size 4; and for perch, bass, and walleyes, sizes 4 or 6. — Bernard S. Dean, Cherry Hill, NJ

The key to using an ice auger effectively and quickly is keeping it sharp — and I mean razor sharp, like grandpa treated his straight-edged razor. After cutting a few holes I always touch up the blade. — Bernard S. Dean, Cherry Hill, NJ

Make a “wrist muff” to be worn between your shirt-sleeves and gloves by cutting off the foot portion of old hunting socks. This keeps your wrists and palms warm while your fingers are free to manipulate baits and gear. — David A. Kovalchik, Edwardsville, PA

Thread an old shirt button onto braided nylon tip-up line to mark water and bait depth. Position the button on your line so that it marks the best fishing depth. — David A. Kovalchik, Edwardsville, PA

Chewing tobacco or snuff cans make excellent containers for storing maggots, mealworms, wax worms, and other baits for ice fishing. They fit nicely into pockets and hold just enough bait for a day’s fishing. (Tobacco chewers should be careful not to get their cans mixed up.) — Bob Wilherding, Pleasant Gap, PA

Depth finders are valuable aids in locating fish. Most portable models “see” through ice. Find creek channels in your favorite lake because these areas often hold schools of fish all winter long. — Dennis Slifer, Boyertown, PA
Boot cleats prevent slipping on the ice. You can make boot cleats by bending the edges of scrap metal pieces that measure 1 1/2 inches wide and 2 1/4 inches long. Cut two holes in the cleat, and strap them to your boots. — 
Sammy Everett, Harrisburg, PA

My safeguard for thin ice is a pine board 10 feet long, 10 inches wide, and one inch thick. I pull the board along with me by a rope that's attached to the board through a hole drilled in the wood. I tie the other end on my wrist. If I go through the ice, I can roll out onto the board. Pulling it is no chore, and it can be used as a sled to carry your tackle. — 
Bernard S. Dean, Cherry Hill, NJ

A raised flag on a tip-up indicates a bite, but not always a hooked fish. If the flag goes up on your tip-up, take the line in your hand and feel for a bite or a nibble, as you would with a fishing rod in open water. Set the hook, and retrieve the fish hand-over-hand; you don't have room to play the fish. — Nicholas Harvey, Shamokin, PA

Here's an idea for a simple sled. You need five-eighth-inch or three-quarter-inch plywood glued and nailed for the box. Getting old skis may be a problem, but if you live in a skiing area, the task is simpler. Contact skiing facilities and stores for old skis, and check garage sales. — Timothy Snook, Garry Pike and Robin Shaeffer, Dover, PA.

Hook minnows just under the dorsal fin for tip-up action. They will remain alive and active in this way for many hours. — Vito Degrigoli, Harrisburg, PA

The only ice fishing guides in Pennsylvania we could find are Len Faulkner and Rick Bennett of Ice Angles, Inc. They specialize in guiding novice hard-water fishermen, so beginners may want to contact them. Phones: 215-539-8579 or 215-469-6160.
Keep your feet warm for that extra hour or two on the ice. Before you leave the house, put an extra pair or two of felts inside your shirt. When your feet get cold, change the felts by putting on the warm ones, and place the cold ones inside your shirt for warming. — Bob Biggie, Reynoldsburg, PA

Hard-boiled eggs make excellent hand warmers. Place them in your pockets, hot from the boiling water. They hold heat for a surprisingly long time, and when cooled, they make a tasty snack. — Richard A. DiLiberto, Jr., Hazleton, PA

Cut a hole in a nine-inch disposable pan, and paint it flat black. Then place it upside down over the hole. This will keep holes from freezing without using anything else. — Timothy Snook, Dover, PA

Store monofilament leader on snelled hook holders to keep the line straight. Leaders stored on tip-ups tend to curl. This places the bait wrong in the water, and minnows and other live baits tangle easily in the curled line. — David A. Kovalchik, Edwardsville, PA

Use the smallest bobber you can find for trout fishing. While jigging, put the bobber on the ice near the hole. A light strike yanks the bobber in the hole. — Paul R. Sivak, Binghamton, NY

Always wear a hat when ice fishing because most body heat is lost through the head. — Sammy Everett, Harrisburg, PA

Get two three-pound coffee cans, and cut the top off of one of them, and cut both ends off the other. Weld them together using the one-holed can on top, and put some kind of metal handle on. Lighted charcoal in this “stove” keeps your hands warm for hours. — Brian Wade, Beaver Falls, PA

Ice Fishing Heater
Seeing is Believing

by Francis X. Sculley

Four times within the past three years I have encountered freshwater jellyfish in southern Potter County waters. Known to zoologists as *Craspedacusta sowerbyi*, but more commonly known as the Medusa, the little marine animal is on the increase in all of Penn's Woods, though few recognize it when it is encountered.

Though the Medusa resembles something right out of science fiction, it is about as dangerous to humans as a well-aimed custard pie. In miniature, it has all the equipment of its ever-dangerous cousin of ocean beaches. Its stinging tentacles—several hundred in numbers—are used to capture minute plankton, which it then devours.

The freshwater jellyfish is usually about the size of a quarter, and the marine oddball moves in an up-and-down motion by the contraction and expansion of its bell-like hood. They are often seen in large numbers, slightly offshore. Swimmers will often surface among a school of them—usually setting records getting to shore.

Sometimes the little animals will invade a hatchery. Utterly fascinated, trout will gorge themselves on the invaders.

To those who think the jellyfish invasion is unheard of, it has been known in America since 1908, and it has been reported in 30 states, as far north as Maine. It inhabits small lakes and ponds, slow moving streams, and swamps.

Francis X. Sculley, a freelance writer-photographer, has lived in Pennsylvania and studied the state's wildlife for more than 50 years.
A gust of arctic air whirled a small pile of leaves from shore out into the river as I chewed the ice out of my top guide for the zillionth time. "I must be crazy to be out here," Dad complained.

He was probably right, I thought. Only 12 lonely degrees of mercury were all that showed on the thermometer earlier this morning as my father, brother, and I pulled the boat out of the barn, heading for one of our favorite walleye spots on the Susquehanna River. Suddenly a shout from the front of the boat woke me to reality.

"Something hit my minnie!" It was my brother, Tim, eyes riveted to his pole tip. "Still on; he feels nice," he murmured, as he gently fed line out to the unseen fish below. "Here goes . . ." Zing, whined the drag, as the fish put a healthy bend in the rod.

"Yep, a walleye; nice one, too! Get the net ready!"

Soon a familiar white-tipped tail rolled near the surface and Tim added number three to his stringer, a fat 18-incher. With mock sincerity he asked, "You guys want off on shore to warm up? I'll fill out the rest of your limits for you."

Splat! A wet shiner bounced off his shoulder.

Prime walleye season

It was the same old story. We were the only ones fishing within sight that sunny February afternoon. This particular trip we launched from the Hornbrook Park ramp above Towanda, but few anglers are seen at any of the access areas we frequent, once the weather turns cold. It seems most anglers are aware that fishing picks up as the temperature goes down, but they are turned off by the weather, leaving a lot of prime Pennsylvania walleye water in its most productive season virtually untouched!

First things first

Fishing for walleyes in the winter is basically similar to the sport in any other season with a few important differences. The most obvious is the air temperature. Essential to the sport is warm clothing. Many a trip is ended prematurely due to cold fingers, feet, and toes. A little common sense can make a world of difference.

Keep extremities warm! Add a couple of pairs of snug (not tight) insulated socks, and finally, an oversized pair of thermal boots with felt liners. Long Johns, insulated underwear, and something canvas or vinyl on the outside to break the wind should keep your legs warm. A similar arrangement goes over your chest—a hooded outer garment, a pullover hat, and a hot seat add the final touch. Save your heaviest coat for last and leave it off until you get into the boat. This prevents your becoming overheated and perspiring on the way and then quickly chilling once you settle down in the boat to fish.

Gloves are a problem because the warmer the glove, the less sensitive it is to the gentle tap-tap of a walleye strike. I compromise by putting a warm mitten on my reeling hand and alternating the other in and out of a
pocket containing a liquid-fuel hand warmer.

A word of caution: All these clothes make treading water nearly impossible. Be sure to move with extra caution and keep your boat adequately supplied with approved flotation devices. Wearing a PFD is best.

**Tackle**

Winter tackle is basically the same as that used in the warmer seasons. I prefer a medium-light spinning outfit with eight-pound-test to 12-pound-test line. The lighter line is more sensitive; however, the heavier line becomes necessary to avoid losing a lot of tackle where the bottom is coarser and when larger fish are anticipated. It is important to use good-quality line because economy-buy line tends to lose a lot of pliability and becomes susceptible to nicking in the subfreezing temperatures.

**Bait and lures**

We have had good results with both live bait and lures, but the actual key to success is the presentation: It has to be slow! I believe here is where bait nudges ahead because most lures lose action as the retrieve speed is decreased.

Shiners, chubs, and suckers work equally well, especially in the larger sizes of four to seven inches. Fish them with a single size four or six hook, lightly impaled through the lips. Clamp enough splitshot on the line to keep the bait swimming just off the bottom. It is worthwhile to mention that a small 39-cent dipnet in the minnow bucket becomes priceless when the wind-chill factor is around zero.

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- **Lead-headed jigs** are our number-one choice when it comes to using artificials. We cast and tie our own. A sparse dressing of white or yellow bucktail or a soft rubber skirt in purple, yellow, or white work best. Jigs with lighter weighted heads (1/8-ounce to 1/2-ounce) are easier to fish with and have more action on a slow retrieve. A splitshot or two clamped 15 inches in front of the jig allows the proper depth to be reached and seems to hang up less frequently than a single heavy jig.

**Fishing strategies**

Trolling is not as productive in the winter months because the bait simply moves too fast. Generally it is best to anchor the boat slightly above and parallel to the spot you intend to fish. Cast at an angle upstream, gently working the bait down with the current, allowing it to swing out behind you and hang for a few minutes before retrieving it. Get to appreciate what the bottom "feels" like, a developed skill all accomplished anglers have, because there is only a subtle difference between the nonstop bumps of the splitshot bouncing along the bottom and a walleye strike.

What you will feel is your bait suddenly stopping, as if hung up; but, rather than a solid tug from a stationary rock, there is a rhythmic tap-tap-tap as the fish mouths the bait, slowly drifting along with the current. At this point, when fishing bait, flip open your reel bail and permit enough line out to avoid any unnatural tugs on the minnow. It is difficult to say exactly how long to wait before setting the hook. It will vary with bait size and the size of the fish. Trial and error is the only way to find out, but be patient — walleyes move slowly this time of year.

**Where to find walleyes**

Cold-weather walleyes are not always found in the same locations they haunt in the warmer seasons. This is especially true in larger bodies of water. In the summer and early fall, walleyes stay in the deeper pools avoiding the bright sunlight and warmer water temperatures. In the late fall and winter, walleyes still avoid sunlight, but they do not necessarily go into deeper water to do so.

To capitalize on this idea, try fishing in the morning and afternoon, close to the bank shaded from the sun. These are invariably the coldest spots on the river, but you will find the walleyes more cooperative without the sun in their eyes. When the sun is directly overhead, fish where there is ample bottom structure, especially around large rocks, or in any shady spot you can find.

I recall one sunny afternoon spent beneath the old Tunkhannock Bridge. We caught walleyes as long as we fished in the bridge shadow, but we could not get a bite 10 feet above or below the 25-foot-wide band of shade! The school of fish moved with the sun throughout the day, as did the shadow, and the fish were in over 10 feet of water.

**Late-season hotspots**

Other good spots later in the year as spawning time approaches are the inlets of streams that empty into the river. In February and March these are prime locations to latch onto a real trophy fish. One year, on back-to-back trips, my brother and I landed a 30-inch walleye and a 30-inch musky respectively in the mouth of Fishing Creek below Bloomsburg.

Other excellent areas include Wapwallopen Creek, and Tunkhannock Creek and Bowman’s Creek inlets. When fishing these areas, venture a distance upstream; especially if the river is high and muddy. The shallow pools and undercut banks where we net bait in the summer become backed up by the river, creating beautiful hideouts of less turbid stream water that attract not only walleyes but smallmouth bass and muskies, too. A bonus in hitting these hotspots is that most can be fished effectively without the use of a boat. It pays to have a local friend keep watch, because during cold spells those smaller streams often freeze over completely.

Wherever you go, dress warmly, be careful, and don’t forget your thermos of hot coffee. You will find the competition scarce and the walleyes willing.
Have you heard the one about the difference between a rod and a pole? About $50. The point is that good fishing rods cost, and part of that expense covers the specific characteristics built into the rod to let it do a certain task in casting, fishing, and fighting fish.

While certain general characteristics of different kinds of rods are widely known, there are important factors to consider in all rod types so you can get the maximum from your purchase and the most from your fishing time.

**Materials**

The first consideration is the rod's material, because it markedly affects the cost of any rod. In some cases, picking a sensitive graphite or boron rod can do a lot for your casting distance, accuracy, and sensitivity of what the lure is doing, and these rods can help you detect quickly a nibble, bite, or pick-up of a worm.

In fly rods, graphite or boron can add distance to the cast so that you can reach spots beyond your previous casting range.

C. Boyd Pfeiffer is the author of Tackle Craft.
By the same token, a light, limber graphite rod can help you detect strikes of a nymph tumbling down through the current, while the quick-reacting material can help in setting a hook when a smallmouth takes a Zonker or when a trout pulls a dry fly under the surface.

Class and structure fishing

Just recently, a sales manager of a major rod company admitted that glass is the best rod material for structure fishing with spoons in lakes. The same could be said for much jig fishing, working a spinnerbait or weedless spoon in shallow bass cover, as well as for much Lake Erie boat fishing. The increased sensitivity just isn't a must in these types of fishing.

Equally important is the stiffness of the rod. Ricky Greene, one of the B.A.S.S. pros on the tournament circuit, rigs his rods differently for different types of bass fishing and balances the rod stiffness and type with the pound-test of the line. He uses six-pound test on some of his spinning tackle, but does not use it on his stiffer casting rods because the line will snap when he sets the hook.

Aside from the obvious factor of picking a rod that matches the line — light, limber rods for casting light lines and heavier, stiffer rods for casting heavier line — there are other important considerations. For example, to work a topwater lure it is important to use a stiff rod so that the lure reacts immediately when you jerk the rod to work the lure. A soft or limber rod bends sharply before causing any reaction in the lure, thus requiring more effort to work the rod with poorer results.

Stiff rods are important for working jigs or bucktails, popping bugs, and similar surface lures.

Furthermore, for big plugs and tough fish, such as muskies or pike, it is important to have a rod built like a pool cue — to cast the heavy plugs, to work the lure, and to set the large hooks.

Lifting power

Stiffness can also be translated into lifting power, needed when fishing deep or to get big fish to the surface for landing or gaffing. When fishing for trout and salmon in Lake Erie, while downriggers are conventionally used to get the lure to the fish, a stiff rod with plenty of power in the butt section is required to lift the fish from the depths. A limber rod in this situation only prolongs the fight and fatigues the angler, and can result in a lost fish or broken tackle.

Below, rods vary greatly in how limber or how stiff they are. With identical weights on the ends of the lines, the rod on top is much more limber than the one below. Gear the rod stiffness toward the kind of fishing you do, the lure type, and the size of the fish you intend to catch. At right, this angler is bringing a shad to the net with a medium-action fly rod. The light, limber rod suits these thin-mouthed fish because the rod "gives" more while playing the fish.

Limber rods

Limber rods are important in casting small lures long distances with no effort, and the small, sharp hooks on these tiny lures used with spinning tackle usually make the hook-setting capabilities of the stiffer rods unneeded. Obviously, this works best with small spinners, tiny crankbaits, or other lures that don’t have to be worked as do jigs or topwater lures.

Fishing rod length

Rod length is important regardless of the type of tackle. In fly fishing, many small-stream anglers go to very light rods for working small, brush-lined streams where a short rod helps control the fly line. This works fine, but some anglers in the same condition opt for a very long.
light rod to "dap" a fly on the
surface of each pool by poking the
rod and a long leader through holes
in the brush. This tactic is especially
successful for fishing nymphs where
line control and fly location are
important to hook striking fish.

For spinning or casting tackle,
standard lengths are about six feet
to 6\(\frac{1}{2}\) feet for spinning rods and
5\(\frac{1}{2}\) to six feet for casting rods. Both
are optimal for most fishing, but
there are times when longer and
shorter rods are helpful. More and
more casting rod anglers are
perfecting underhand casts, which
lob a lure just as far as overhand
casts but give it a lighter, more
delicate drop on the water than the
traditional overhand cast. In these
cases, more anglers are working
from the casting platform of a bass
boat where there is great clearance
between the deck and the water.
Even so, too long a rod results in
the lure hitting the water on the cast,
which interferes with casting
accuracy and distance.

Rods for trolling
When boat fishing such as trolling
on Lake Erie, too short a rod makes
controlling a fish and keeping the
line from touching the boat side
difficult. Too long a rod makes
landing a fish difficult by making it
hard to control the fish at the side of
the boat for landing with a net or
gaff. Most anglers like rods about
seven feet long as a compromise to
control the fish, yet get it close
enough to land quickly and surely.

Rods and lures
Lure range must be considered in
any rod selection, even when picking
a fly rod. With fly rods, the line is
cast and the fly just goes along for
the ride. The size of the quarry
determines the size of the fly, and
the size of the fly determines the size
line that must be used to carry the
fly. The line in turn determines the
size of the rod. Thus, a rod designed
for and used with a four-weight line
just won't carry or turn over a heavy
bass bug.

Each casting and spinning rod is
designed for a lure range in which
the rod performs best. Too light a
lure with a heavy rod forces you to
cast as if you were lobbing an apple
on a stick, while too heavy a lure for
a light rod loads the rod, makes it
sluggish during the cast, and might
even damage the rod.

Rods and where you fish
Where you fish also determines
how heavy or light a rod you need.
For example, when fishing for
stripers suspended in Raystown
Lake's open water, you can go with
light tackle. There is little that the fish
can tangle in unless it runs deep. It
is possible to use ultralight tackle for
the fish, provided you can cast or jigg
effectively. Still, the same fish found
in the treetops 25 feet down or
deeper in the same lake might wrap
the line around a limb immediately
after hitting the lure, unless a heavy
rod is used to horse it into open
water. Largemouth bass taken from
the same lake are frequently found
in treetops or in trees cabled to the
bank, and similar heavy rods with
matching line must be used to keep
the fish from knitting a doily with
the line if the rod is too limber to
ger them out of the cover. Casting
for bass along weedy shorelines
requires similar tackle to get the fish
out of the salad.

Suitable rods for all Pennsylvania
fishing are available, and all
manufacturers provide sufficient
information in catalogs or on rod
logos to allow for an intelligent
choice. To make that intelligent
choice and to get the best rod for
your fishing, consider all the factors
involved in your fishing and all the
variables available in modern fishing
rods.

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Emergency rescue personnel are sometimes criticized and at times become the object of a rescue themselves when they are not trained to deal with moving water. However, for rescuers with the basic information and training in river rescue, the risk can be predicted and avoided. A river rescue conference stresses boating and water safety practices with heavy emphasis on planning and training, focusing essentially on the rescuer's safety. The Pennsylvania Fish Commission's Bureau of Waterways was assisted by 19 other state and national organizations in its River Rescue Conference, held September 23-25 in Harrisburg.

On-the-river self-rescue in a current, powerboat maneuvering through moving water, shallow-water rescue techniques, and low-head dam rescue demonstrations were highlighted. The 120 conference participants also explored rescues using lines from shore, night and dive rescue considerations, cold-water near-drowning information, and the use of innovative equipment. The Commission's goal was that the rescuers achieve not only a higher level of competence in making effective water rescues, but that the attendees return to their local organization and help educate their communities in the basics of boating and water safety. Conference speakers included fire and police department training officers and representatives of boating and water safety organizations.

All the methods of rescue were demonstrated and practiced on the Susquehanna River at low water level. This minimum amount of current allowed the rescue students to execute successfully the techniques at low levels of risk to their safety.

In the photo on this page, conference coordinator Virgil Chambers, Boating Education Specialist with the Pennsylvania Fish Commission, discusses riverside details with Randy Francis, river rescue expert with Ohio's Division of Watercraft. At top of next page, assuming a position with feet at the surface pointed downstream and staying on your back increases chances of survival in a hazardous current. It is important not to attempt standing in moving water at knee-deep levels or deeper. The possibility of foot entrapment is great, even in slow-moving water, and being knocked down and pinned...
under the surface has accounted for a number of deaths on rivers during the past few years. Above left, a special land-and-water vehicle brought in by the Reading Fire Department makes an approach to a low-head dam less risky. Unfortunately, a rescue craft like this one is not always readily available. Above right, instructors and students ready boats for rescue maneuvers in the river's open water.

Drowning and PFDs

Drowning is the second leading cause of accidental death in the U.S. up to age 44. It is the third leading cause of accidental death for all ages. National Safety Council statistics indicate that about two-thirds of all those who drown could not swim or were poor swimmers, and did not mean to enter the water. Most were involved in an activity other than swimming—fishing or boating—and most were fully clothed when they accidentally entered the water.

Pennsylvania boating safety statistics, which match Coast Guard data, indicate that over 85 percent of the people who died in boating accidents would not have perished had they been wearing a PFD.
At right, rescuers with their feet up ride a hose through the churning waters of a low-head dam's spillway. Far right, Randy Francis explains how a fire hose and pressurized air cylinder, standard fire rescue equipment, have been combined to form a unique, new water and ice rescue device. Below at left, salvaging boats pinned in rocks or butted against river obstructions is common for river rescue personnel. The force keeping a boat pinned in this manner is great. The boat braces across the current with the open side upstream. When moving a pinned craft, rescuers need to know where the water is exerting the greatest force. The rescuers tie off the boat so they can roll it away from the point of the pinning water pressure. Here rescuers practice this technique. Below at right, Joseph Greene, Boating Education Specialist with the Fish Commission, instructs conference students in moving-water rescue.

The Commonwealth of Pennsylvania has over 4,500 miles of rivers and streams, affording almost limitless opportunity for boaters and fishermen. On the river, however, sport should never conflict with common sense and safety considerations.

The inherent dangers of river activity require that certain precautions be taken. Safety in and on the water is based on education and skill. For free publications that detail safety information concerning river use, contact the Publications Section, Office of Information, Pennsylvania Fish Commission, P.O. Box 1673, Harrisburg, PA 17105-1673.
The emergence of the mayfly nymph to the winged subimago, or dun, is a remarkable process. Not only does the insect's appearance change dramatically, but the subaquatic nymph is abruptly transformed and equipped by nature to live in the aerial world. Emergence may occur in several ways:

- The nymph ascends to the surface, where the transformation takes place in the air. This mode is utilized by most mayflies.
- Emergence occurs either on the stream bottom or a few inches beneath the surface, after which the dun either floats to the surface or crawls out of the water on a stone, aquatic plant, or other projection. Epeorus species commonly use this method.
- The nymph crawls partially or completely out of the water on a protruding rock, log, or plant, and the dun emerges from the water. This mode is similar to the emergence of most stoneflies and is common among the mayflies of Isonychia and Siphlonurus.

Surface emergence, the first method described above, is greatly significant to the angler because nymphs are particularly vulnerable at this time. When it is time for one of these nymphs to emerge, it either

1. Clamp a regular-shank standard-weight hook (sizes 12 to 18) in the vise and tie in 6/0 prewaxed tan thread at the base. Strip the barbules from three small, brown hackles and tie in the ribs as a tail. Apply a dubbing of medium-brown fur to the tying thread, and wind it forward to form a tapered body ending at the thorax position, as shown.

2. Cut a strip from a plastic foam sheet (closed-cell type) slightly wider than the body. Cut a notch in one end and tint the strip with gray marking pen. Tie in the strip in front of the body with the notched end extending over the back.

3. Hold the forward part of the strip over the shank, and wind the thread forward in spaced turns, ending behind the eye.
swims voluntarily to the surface or is buoyed upward by internal gases. When it reaches the surface the head and part of the thorax break through the surface film. Penetration of the tough film is made possible by the hydrofuge property of the thorax—a water-repellent characteristic similar to waxed paper.

Once penetration is made, the strong surface tension grips the nymph and holds it at the surface while emergence occurs. The skin along the back of the thorax first splits open and the wings begin to unfurl. Then, by arching its body, the insect frees its legs and tail until the newly-emerged dun stands on the surface, often using its nymphal shuck as a raft.

Actual emergence may span only a few seconds, but if the insect has difficulty extracting its tail and legs, a minute or so may elapse before the dun is able to fly away. In water covered with scum the surface tension is weakened and the nymph may experience further difficulty trying to suspend itself in the film. Obviously, surface-emerging nymphs are easy prey for trout, and they come to know the visual image of the larvae hanging tails-down at the surface.

Trout, plucking nymphs from the underside of the surface film, are sometimes troublesome to the unsuspecting angler because the rise forms are generally similar to those made when waterborne duns are being taken. The angler sees duns on the water and the rings of rising trout, ample justification for fishing the dry fly. Yet when his best offerings are refused the angler often becomes convinced that his floaters are deficient or his presentation is faulty. When trout show this kind of behavior it’s best to stop fishing and watch the water awhile. Duns floating over a persistent riser without disappearing signal that the trout are probably taking emergers.

To represent the surface-emerging nymph properly, the artificial should float with its thorax in the surface film while its abdomen angles downward. It is really both wet and dry, and its attitude in the water is not readily achieved in conventional nymph dressings.

Some years ago I dressed an emerger pattern with a thorax of spun caribou hair, trimmed to shape, and it produced the desired effect. Although the pattern was successful, dressing it was a tedious chore, particularly in small sizes. In the past year I’ve been experimenting with some of the new plastic foam materials in sheet form and find them wonderfully adaptable to fly making where buoyancy is required. These materials are used extensively in packing. The plastic foam sheeting I’ve found most useful is the closed-cell type, recognizable by its surface sheen, and it is soft, pliable, and one-sixteenth-inch thick. Although it is white, it is easily tinted to a desired color with a permanent marking pen.

The dry/wet emerger is a general emerging mayfly nymph pattern utilizing a single strip of plastic foam as wing stubs and thorax, providing the required buoyancy in the forward part of the fly. Although medium-brown dubbing is prescribed for the body, the color may be altered to represent specific nymphs ranging from tan to olive. Useful sizes are 12 to 18.

Prior to fishing the dry-wet emerger, I first work a little dry fly dressing into the wing stubs and thorax; then I swish the abdomen through the water to soak the fur thoroughly in the rear half of the fly. It’s a small detail that ensures the pattern will assume the correct posture on the first cast — and that’s important.

In addition to its use in mayfly emergers, plastic foam lends itself equally well to dressing midge and caddis pupae. We’ll explore these in future columns.

4. Fold the foam strip back over the previously bound foam, and wind the thread back to the base of the wing stub in spaced turns.

5. Apply a little more fur dubbing to the thread and wind it over the bound foam to form a thorax.

6. Pull the free end of the foam strip over the thorax and tie it off behind the eye. Trim the excess. Then tie in a few partridge hackle fibers for the throat, whip finish, and lacquer the head.
The LAW and YOU

Q: When fishing through the ice, must I be near my tip-ups?
A: Since 1980 tip-ups have had to be under the immediate control of the person using them. Because tip-ups are designed to signal when a fish strikes, immediate control has two factors: sight and distance. In every case the tip-up must remain in sight of the person using it. Distance varies with topography, ice conditions, and physical ability of the angler to reach the tip-up quickly.

Q: How do I measure my catch to determine if it exceeds the minimum size limit?
A: The legal length of the fish caught in Pennsylvania is determined by measuring the total length, the distance from the tip of the jaw with the mouth closed to the tip of the caudal (tail) fin.

Q: How can I assist the Fish Commission in apprehending persons who violate the fish and boat laws?
A: Report unsafe boating operation and unsportsmanlike conduct to your district waterways patrolman or nearest regional law enforcement office. Note the date, time, location, and if possible, other facts such as a person's age, physical description, his vehicle license number, and so forth.

River Clean-Up Project

Larry L. Kohler (left), Leesport Borough Council President, Victor Yarnell (middle), Schuylkill River Greenway Association Managing Director, and Paul Felton (right), Association Liaison, discuss the Association's annual CLEAN-UP MONTH campaign. The project began three years ago to scour the Schuylkill River's Berks County shorelines. The campaign initially yielded 10 truckloads of litter, and after this year's project, the clean-ups will be relegated to normal daily policing. The Schuylkill River Greenway Association chose April as the target month for this year's campaign.

Patrolmen Awarded Commendations

On Saturday, April 25, 1982, Waterways Patrolman Lee Tilton and Deputy Waterways Patrolman Dean Fountain were patrolling the Delaware River in one boat, and Boatswain Sam Staffieri and Deputy Waterways Patrolmen Ralph Ciancaglione and Steven Tipton were patrolling in another boat, while the liner Queen Elizabeth II was visiting the Port of Philadelphia.

Late in the afternoon, a 37-foot cabin cruiser with 11 people aboard suddenly exploded and caught fire within several hundred yards of the Commission patrol boats. The officers sped to the scene and assisted the Philadelphia Police Department's patrol vessel in removing victims from the burning boat and rescuing several people from the frigid water.

The officers' swift and heroic action saved the lives of five seriously injured passengers and prevented possible additional injuries.

At a special ceremony in Philadelphia's City Hall, Mayor William Green presented the officers and other assisting citizens with Philadelphia Police Department commendations.

Angler Volumes Available

A very limited number of bound copies of Pennsylvania Angler Volume 51 (January 1982 through December 1982) is available. They contain the year's 12 issues and are hardbound in black with gold-colored inscription.

Bound volumes are offered on a first-come-first-served basis. Each is available for $20 for nonsubscribers and $15 for subscribers (include magazine mailing label numbers with order). Make checks or money orders payable to the Pennsylvania Fish Commission and send orders to: Publications Section, Pennsylvania Fish Commission, P.O. Box 1673, Harrisburg, PA 17105-1673.
I must admit that reviewing *Keeping Warm and Dry* was not something that I was looking forward to. After all, we all know about hypothermia, right? And all of us have been in the woods and on the streams long enough to know how to dress. I thought reading this book would be like reading a catalog. Boy, was I wrong.

It didn't take me long to find out that the author's treatment of what otherwise would be an extremely boring subject was both interesting and informative. I think his opening remarks in Chapter 2 are indicative of the idea that “all this jazz is fine, but why don't you tell us what to wear?”

In fact, the author says, “It would sure simplify my life if I could sit down, type up a list, and take the money and run. Neat.”

Obviously, Roberts did not take the money and run. The book is informative, amusing, and interesting. Without sounding absurd, it even makes good fireside reading. A better book on a life-saving subject you will not find anywhere. I find the author's treatment of the subject so unique that I would recommend the book to everyone who ventures out of doors in elements that have deteriorated below 75 degrees in the shade on a bluebird day.—Dave Wolf
Angler Seeks Oral History Contributions

Are you 60 years of age or older and have you been fishing in Pennsylvania for at least 50 years? If so, Pennsylvania Angler would like to talk with you about your earliest memories of fishing in the Keystone State. Our goal is to compile an oral history of fishing in Pennsylvania, the first of its kind, and we'd like to tape record your recollections.

If you can contribute, send us a postcard that includes your name, address, telephone number, age, and a brief description of your earliest fishing experiences in Pennsylvania. Also let us know the best time of day for us to call you.

Address postcards to The Editor, Pennsylvania Angler, P.O. Box 1673, Harrisburg, PA 17105-1673. The deadline is March 31.

"Notes From the Streams"

Back by popular demand, “Notes From the Streams” will again appear in the pages of Pennsylvania Angler. The column will not be published every month, but will be included as a feature article in the magazine, thus providing more thorough coverage of topics. Look for it this spring.

Anglers Notebook

By Richard F. Williamson

A deer hair mouse must be worked correctly to produce. Begin the retrieve as soon as the lure touches the surface of the water, but move it only a foot or so in a gentle swimming motion. Then stop the lure, let it rest quietly for a few seconds, and make another slow move. Continue this method until you retrieve the mouse. The lure thus behaves as a real mouse would if it fell in the water.

Don't cast directly into an area where you think a trout, bass, or pickerel may be holding, because such a cast would probably spook the fish. Instead, cast upstream and let the current carry the lure to the fish.

Your dry fly has floated past the spot where you think a trout is waiting and you are ready to pick up the fly and cast again. Before you pick up the fly, give it a gentle twitch. A trout, which you can't see, may be following the fly, and a twitch of your offering may induce the fish to strike.

Curly-tailed plastic grubs and worms make jigs effective and easy to use. This combination doesn't have to be pumped over the bottom to make it appear alive. The jig can be retrieved with an even, slow motion. The curly tail produces all the action.

There is no mystery in the idea that fish prefer cold water. Cold water often contains more oxygen than warmer water, and the fish are more comfortable in the cooler water.

When you catch a big bluegill, be very quiet and careful, and you'll probably hook more in the same area. Bluegills are not loners — they like to share good resting and feeding spots.
Dear Mr. Wolf:

I am pleased to hear you are searching for a wearable-type personal flotation device (PFD). Many boating anglers believe that a seat cushion is all they need; as far as the law is concerned, they are correct. However, for safety considerations, a cushion device, particularly on the river, could be risky, especially if the boat capsizes or the angler falls out of the craft without the cushion in hand.

The problem is that most retailers do not carry in their inventory the atypical sizes. They can be ordered if the dealer is interested in selling the product and having you as a customer. It takes only a few minutes to place an order. Still, many PFDs today are not sold just in small, medium, or large, but include chest sizes. Ask the salesman to be sure to include your correct chest size, thus ensuring a proper fit.

Virgil Chambers
Boating Education Specialist

Dear Mr. Hilbert:

Mauch Chunk Lake and Beltzville Lake, while geographically close, are quite different in their fisheries. Mauch Chunk Lake has been stocked with muskellunge, walleye, largemouth bass, chain pickerel, channel catfish, black crappie, and trout. Our 1981 inventory indicated a good fishery for walleye, largemouth bass, channel catfish, and black crappie. The limiting factor to the fishery appeared to be the lack of adequate cover. No evidence of muskellunge, walleye, or channel catfish reproduction was documented.

The Mauch Chunk Recreation Authority and the Summit Hill Fishing Association have been actively involved in the installation of catfish spawning devices and habitat improvement structures. (See “Mauch Chunk Lake: From the Bottom Up” in the August 1982 issue of Pennsylvania Angler.) Walleye cannot successfully spawn unless there are adequate gravel and rocky shoal areas. We found Mauch Chunk Lake to be lacking in suitable spawning areas. Muskellunge have not been reported to spawn outside of their natural range, so reproduction is not expected. It should be noted, however, that survival of fingerling plants has been excellent.

Mauch Chunk Lake is shallow, and during the summer, water below the epilimnion is devoid of oxygen so that survival of trout is questionable. The fall stocking of trout is a popular program. These trout will survive to be caught throughout the winter and spring. With the advent of Operation FUTURE, trout have become available for such programs when the demand exists.

Tiger muskellunge, walleye, and channel catfish are stocked in Beltzville Lake on a regular basis. Tiger muskellunge will not reproduce because they are sterile hybrids. Channel catfish may not be successfully reproducing due to low water temperatures and poor spawning habitat. Walleye have not reproduced there, even though there is suitable habitat.

The main forage in Beltzville Lake is the alewife. The source of introduction is a mystery for which I do not have the answer. Recent studies indicate that the alewife is of questionable value as a forage fish. The alewife has been shown to feed selectively on zooplankton, which ultimately affects the food supply of other fish.

Craig W. Billingsley;
Area Fisheries Manager

February 1983
Kokanee Salmon Return

Upper Woods Pond, set in the majestic woodlands of Wayne County, is the target of experimentation with kokanee salmon.

The Pennsylvania Fish Commission initially stocked kokanee in the lake in 1956, and its success was immediate. But by the early 1970s, the yellow perch and shiner populations took over the lake. The result was stunted populations of those fish and virtually no kokanee to be found.

As part of a reclamation project for Upper Woods Pond, the Fish Commission put rotenone in the lake on September 13 to remove excess numbers of yellow perch and shiners. Rotenone is a chemical that selectively kills fish by stopping the transfer of oxygen through the fish's gills. The objective was to achieve selective, not total, kill. Enough rotenone was poured into the lake to reach sufficient depth and surface area so that numbers of yellow perch, sunfish, shiners, and bullheads were substantially reduced. These fish would have been in direct competition with the kokanee and brook trout that the Commission is trying to re-establish.

The poisoning was a complete success. Thousands of small, stunted yellow perch, sunfish, shiners, and bullheads were retrieved after the single application of rotenone. The chemical does not affect birds or mammals that might feed on killed fish.

Six weeks after the poisoning, Commission personnel placed in the lake live boxes containing hatchery fish, to assure that the poison had dissipated and the pond was once again suitable for stocking.

On November 10, the lake was restocked with 20,000 kokanee ranging in size from four inches to six inches. "Success of the program depends on whether or not anglers abide by the regulations," said Marty Marcinko, Commission biologist. Marcinko was referring to the no-baitfish restriction at Upper Woods Pond. Commission biologists fear that if baitfish were reintroduced into the lake, they would eventually compete with the salmon and once again create a crowded condition.

A new creel limit of eight kokanee per day with a seven-inch size limit should also help the program.

The use of rotenone in reclaiming lakes has not been widely practiced in Pennsylvania, but under the Commission's new management program Operation FUTURE, the chemical is giving new life to one of the Keystone State's lakes.
Rope has always been an indispensible part of boating, and today's boater is faced with the decision of what kinds of rope he should have to meet his boating needs.

Basically, there are two types of rope: synthetic and natural-fiber. Because boaters are primarily concerned with small boats for recreational purposes, the synthetic material meets all the needs. In fact, today's synthetics are stronger, smoother, and more pliable than any of the ropes made of natural fibers. The most common of the synthetics are the polyolefins (polypropylene and polyethylene), nylon, and dacron.

Each kind of rope has advantages and disadvantages. In selecting the kind of rope you need, consider what it will be used for.

Flexibility is one of the most desirable characteristics of any good rope, regardless of its use. Rope that is easy to tie with the ability to hold a knot is critical in any application. Line that is too stiff or difficult to handle will not hold knots well and may cause problems with securing equipment.

Line also becomes increasingly less pliable if not kept clean. Dirt and sand get between the strands of the line, reducing flexibility and causing abrasion, which leads to premature wear. Although keeping your line free from contact with mud or sand may not be possible, rinse the line with clean water and hang it to dry after each use.

Nylon, the stronger of the synthetics with its resistance to abrasion, moisture, and chemicals, makes a highly popular rope for most boating needs. Characterized by high elasticity, nylon stretches as much as 40 percent of its length before breaking. However, this elasticity may be undesirable in some applications. For example, sailboat rigging should not have line with that kind of elasticity, due to the critical nature of setting sails and adjusting the rigging. Mooring lines, however, need the elastic property to help absorb the shock of wave motion while the boat remains docked.

Any rope under heavy tension can be extremely dangerous if it breaks. The loose ends can fly back with a whipping action, causing serious injury to anyone in the way. Nylon is additionally dangerous because of its greater elasticity and whip-back possibilities.

Dacron is nearly as strong as nylon but has far less elasticity. It is the sailor's choice of line. Dacron still has the resistance to abrasion and chemicals, but possesses an additional resistance to the ultraviolet radiation of sunlight. With quality comes expense: Dacron can be nearly twice the price of nylon.

The polyolefins, which include polyethylene and polypropylene, have a distinct advantage over the other synthetics: They float. Floating line is important in ski tow or rescue use. It does not easily get tangled underwater in propellers, and skiers in the water are less apt to get caught in the line.

A disadvantage of the polyolefins is that they are more susceptible to organic (bacteria and other aquatic organisms) breakdown. In addition, polyethylene is a much stiffer and slippery material, and harder to tie and manipulate. You will pay a higher price for the more useful polypropylene line.

Whatever rope you use, common-sense care of your line keeps it serviceable for many years, but neglect may contribute to a costly and dangerous situation.
Easy Add-On Panel Space

by Howard A. Bach

Small-boat consoles are not noted for their large amount of panel space. By the time various switches, a tachometer, and a speedometer are added, there is little remaining room to add other accessories. The remaining space is often backed by the steering hardware, wiring, or some other impediment that makes the area unsuitable.

Adding a switch or two is easy enough, but what if the desired add-on is another instrument or a set of controls for electric or electronic gear? These items require a substantial amount of panel space. You don’t just find it available in most cases.

And here is the clincher: What if you are good with electric wiring and fond of switch controls for troubleshooting? Maybe you also like an indicator light here and there to show when a system is turned on, or to alert you to trouble in a system. These devices require even more panel space.

There is an easy way to handle the panel space problem, and it gives a professional-looking appearance. Make your own add-on panel space from eighth-inch aluminum sheet or strong plastic sheet such as quarter-inch plexiglass. Both are easy to work and provide rigid panels. Aluminum is harder to work, but it is stronger and easier to install, and can be painted to match decor.

Getting started

Start with a sheet of paper and draw the circuit you wish to install, as a planning chart to select the needed accessory electrical devices. Purchase all needed components and lay them out on another sheet of paper to determine the spacing required. Check your boat and decide the shape that will best fit the space available for adding panel space. Then arrange the components for the most efficient and attractive grouping. Draw in the components full-scale and use the paper as a template to lay out the panel.

It is then a simple matter to cut the stock to size and saw and drill the various openings for the devices to be panel-mounted. Also drill the holes for the mounting screws, which fasten the new panel to the existing panel.

Painting

When the new panel is ready for mounting the components, paint it with a gray primer, followed by the appropriate color paint. Spray cans and automobile paint are the easiest to use, and these paints dry fast.

Wiring

Wiring can be done with a common ground, but my preference is a separate pair of wires for each circuit, with the circuits emanating from a common pair of tie points behind the console. This arrangement makes the electrical system easier to trouble shoot, work on, and change.

In the case of switches, they commonly come with screw terminals. If available, those with solder terminals are much better. Screw terminals tend to vibrate loose in time, usually just when you most need that electrical circuit. Or the electrical contact deteriorates in time, interrupting the circuit. A good solder joint, on the other hand, lasts the life of the wire.

Another product to avoid is the tap-in connector that bites through the insulation to make contact with the wire. This contact is poor. Give
it some exposure to changing
temperatures and the dampness that
characterizes the boat environment,
and the connection goes bad. It is
much better to make a tap-in
connection by stripping a short
length of the primary wire and
wrapping a few turns of the
secondary wire to the bare spot.
Then solder the joint to make a
secure connection and tape the joint.

My own panel project evolved
when I ordered a new graph
recorder for my boat. With it I
purchased a new flasher as well.
Because they were to be mounted
atop my console, and space did not
allow two large housings, I selected
a panel-mounted flasher, but set it in
a console mount. That meant the
controls for the flasher would have
to be installed in the boat panel.

Because it is not possible to
operate both depth finders at the
same time, it made good sense to use
a single power lead with a switch to
select the desired unit. And it
seemed like as good a time as ever
to add the surface temperature gauge
I had bought months earlier.

The temperature gauge occupied
the most space, so it was the
centerpiece of the new panel. It has
its own switch and fuse, each of
which requiring panel space.

The depth finders each have their
own fuse as well, and a double-pole,
double-throw, center-off switch was
used to control the current to the
units. The chart recorder has its
controls integral with the chart
cabinet, but the flasher controls were
mounted on the panel.

The final item for the panel was a
small red indicator lamp to show
when current is on to the graph.
This ensures that the graph cannot
easily be left running, an action that
could result in wasting graph paper.

Though each depth finder comes
with an in-line fuse holder, these can
be a nuisance if it is necessary to
change a fuse in the dark, or when it
is raining. Panel-mounted fuses are
much better and easier to trouble-
shoot.

Battery monitor
I had no sooner completed the
panel when I ordered a monitor to
check the condition of my batteries.
This necessitated a new panel for the
monitor and its fuse. However, the
monitor has a single set of contacts
for a single battery. To make it
suitable for both the marine battery
and the trolling motor battery, I
added another double-pole, double-
throw, center-off switch, allowing me
to monitor either battery.

In actual use I generally keep the
tester turned on to the trolling
battery to spot reduced power. For
this reason, the final addition to the
panel was a green indicator light to
show that the trolling battery is on
the line.

Occasionally it is preferable to
bend an add-on panel for better fit
or appearance on the console. I
encountered this problem on the
electrical systems monitor, which is a
large box behind the panel. It
interfered with the cooler I slide
beneath the console. Eighth-inch
aluminum does not bend easily for
the home craftsman. In lieu of
having it bent at a sheet metal shop,
it can be bent easily if you first saw
across the bend mark with a
hacksaw, keeping the cut even and
cutting no more than halfway
through. When the cut is made, the
panel can be bent to the proper
angle in a workshop vise.

Alternatives
There are alternative means of
providing added panel space,
depending on the arrangement of the
boat. One possibility for my surface
temperature indicator was to mount
it in a step in the deck, remote from
the console but easily visible from
the driver's seat.

Another means of mounting
added instruments or controls is by
mounting them in brackets on the
console, where such mounting
hardware is available, as it was for
my flasher. Or a suitable plastic or
metal box can be bolted to the
console. Such boxes are available
from electronic supply stores, and
can be painted to match the boat's
decor. Also, if added sealing is
desired, one of the silicone sealants
is excellent for this purpose.

Lack of panel space should never
be the reason for doing without
some needed or desired instrument
or electrical addition to the boat.
They can be installed with add-on
panels. Aside from the savings in
installation costs and the pride of
having designed and installed the
equipment, there is no better
troubleshooting preparation than
completing the installation yourself.
Best of all, troubleshooting can be
made simpler with the added switch,
fuse, or light that is rarely part of
dealer-installed options.
PLAY (Pennsylvania League of Angling Youth) is for kids. It was started by the Pennsylvania Fish Commission in 1980 to help children learn more about fishing, boating, and the need to protect and preserve the aquatic resources of Pennsylvania.

Prompted by thousands of letters each year from boys and girls asking questions about fish identification, fish habitats, angling techniques, boating, and boating safety, as well as requests for information on frogs, snakes, salamanders, turtles, lizards, and toads, the Commission developed PLAY to distribute this information to large numbers of kids, in addition to providing the one-to-one relationship of an individual reply.

PLAY is not intended to be a profit-making program for the Commission, but there is a $2 yearly membership fee that covers the cost of materials and postage. Each child who becomes a member of PLAY receives a package of fishing and boating materials, which contains an assortment of publications, a colorful jacket emblem, a membership card, and an invitation to submit any questions to the “Tackle Box” for a personalized answer. A newsletter is also mailed quarterly to each PLAY member.

In 1983 PLAY will reach even more youngsters with the mailing of a free-of-charge four-page color newspaper to every fourth, fifth, and sixth grade student in Pennsylvania public schools. In addition, PLAY fishing tournaments will be held at some selected waterways throughout the state.

PLAY is endorsed by the Pennsylvania Department of Education as a useful educational tool for teaching environmental education, something of value in developing citizens who are concerned with the wise use of our natural resources.

Vince McLaughlin of Mars, Pennsylvania, recently donated 100 hand-tied self-designed flies to the PLAY program. He calls them “Bill’s Flies” and they’ve caught fish from Pennsylvania to Alaska. Why “Bill’s Flies”? The following letter explains why.

Steve Ulsh is the Fish Commission information specialist in charge of the PLAY program. The fish pictures that illustrate this article were drawn by second-grade students at Linglestown Elementary School. We thank them for their contributions. For their cooperation Pennsylvania Angler also thanks their teachers, Mrs. Pogue, Room 14; Miss Fisher, Room 15; and Mrs. Bruno, Room 17.
Dear Sir:

In 1942 my wife and I took our son Bill on a fishing trip to Fisherman's Paradise in Centre County. In those days an angler was allowed to keep one trout. Then, as now, fishing was restricted to flies only.

Our family had taken fishing trips to Bellefonte on a number of occasions and both my children, Barbara and Bill, had seen the Paradise, but until this time neither had fished there.

This day was to be Bill's first chance, and armed with a seven-and-a-half-foot fly rod, automatic reel, an E level floating line, and a sizable lunch, he was initiated into the watery world of the fly fisherman.

In planning Bill's fishing trip, I knew that the attention span of a six-year-old boy would be short, and in order to lessen the time between strikes or get one in a hurry, I decided to tie a special fly for Bill. Using a number six hook I made the body out of clipped deer hair about the size of a honey bee and added some over-sized grizzly hackle.

His mother and I watched from the bank as Bill picked out a wide pool and following my instructions, cast his special fly upstream. The first cast produced no action, nor did the second or third. By now Bill was beginning to realize that trout strikes don't come as fast and furious as those provided by bluegills.

A rabbit on the far bank now became the center of Bill's attention as it scampered up a hillside, and while Bill's fly floated downstream, he called, "Hey Dad, look at that rabbit over there!" Almost simultaneously a big brown trout rose from a tangle of brush and took the fly.

"Bill," I yelled, as he still watched the rabbit. My cry initiated an automatic reflex, which set the hook and the battle was on. It now became a test of endurance between an excited six-year-old boy and an equally excited fish with a gallery of cheering bankside anglers.

As the fish tired, a new problem arose: The rules of the Paradise required that each angler net his fish, and Bill was now completely involved in bringing his trophy shoreward. I placed Bill's landing net in the water and instructed him to stand on the handle while guiding the fish into it.

When the big trout finally came to bay, Bill dropped his rod, scooped up his netted prize, and ran up the bank to me. An elderly bystander remarked, "That's about as even a match as I've ever seen."

Many years have since gone by. I'm now retired and Bill is 46. We've fished together often, and still do. I wouldn't trade the days we've spent together for anything, and now I'm getting additional joyful moments fishing with Bill's kids.

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**NEW PLAY?**

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**Membership Application**

**PENNSYLVANIA LEAGUE OF ANGLING YOUTH**

(Memberships are $2 each) 

Member's name (please print) 

Address: Street, City, State, Zip Code 

Have you ever gone fishing? Yes ___ No ___ 

What kind of fish do you like to catch? 

Which do you like most — fishing in a lake, or in a stream? 

As a member of PLAY, do you promise to use good outdoor manners and to obey the Fish Law and rules? 

Signature of adult sponsor _ 

check money order enclosed in the amount of $ _
The American Eel

by Michael L. Kaufmann

Few fish species capture the imagination of biologists, naturalists, and fishermen as do those that migrate to and from the oceans. If the habits of salmon species are the best known of the ocean migrants, then those of the American eel, Anguilla rostrata, are the most mysterious. It becomes readily apparent that these are no ordinary fish when one discovers that, in contrast to salmon, adult American eels are catadromous; that is, they migrate in autumn from fresh water and coastal areas to spawn at sea.

The American eel is distributed from southwest Greenland to Labrador, south along the North American coast to Bermuda, the Gulf of Mexico, Panama, and the Caribbean islands. Inland it occurs from the Mississippi River drainage east and northeast to the Great Lakes and to the Atlantic Ocean. Eels are distributed throughout Pennsylvania, but they are most abundant in the Delaware River basin, where no main-river dams are present to inhibit upstream migration of juveniles.

Evidence suggests that adult American eels spawn in or south of the Sargasso Sea, an area of the Atlantic Ocean located east of the Bahamas and southwest of Bermuda. Nothing is known about spawning behavior, but adults probably die following spawning, because no return migrations of adults to fresh water have been recorded.

Sometime following hatching, larval eels begin a yearlong migration from the southwest part of the North Atlantic to tidal marshes, estuaries, and fresh waters. During this first year of life larval eels, or leptcephali, are transparent and ribbon-like. They maintain these characteristics until the first winter or upon approaching coastal waters, at which time they undergo a metamorphosis. The larval eels now take the form of 2.4-inch to 2.6-inch transparent adults and are known as glass eels. Pigmentation develops gradually. By the time the young eels reach coastal rivers they are 2.5 inches to 3.5 inches in length, fully pigmented, and are called elvers. Males remain in tidewater areas while females ascend rivers and streams, often in great numbers.

Mass upstream migrations of elvers have been well documented. Although somewhat inconspicuous as they swim along river bottoms, they suddenly become highly visible in fascinating numbers upon reaching obstructions like dams and waterfalls. Attempts to scale the structures are made with undulating movements. So strong is their drive that they are reputed sometimes to move overland at night during storms or through dew-laden grass to bypass small dams.

Beginning in mid-May and continuing into June, elvers by the thousands ascend the Fairmount Fishway on the Schuylkill River in Philadelphia. During temporary shutdowns of the fishway, elvers unsuccessfully attempt to scale the vertical concrete walls through the remaining trickling water in what is an impressive, unstoppable urge to migrate.

American eels may live longer than nine years in rivers, streams, and lakes. They swim freely along river bottoms, through shoreline rock interstices, and into silty lake bottoms in search of prey. Although eels are voracious carnivores, they grow slowly, feeding mostly at night on a variety of fish and invertebrate life, including insect nymphs, crayfish, snails, and earthworms. Female eels have been measured at lengths exceeding 48 inches, while males seldom exceed 24 inches. Large females weigh up to 16 pounds.

When fully grown, female eels descend the rivers, mostly at night, and are joined by migrating males in the tidal zones. Both sexes stop feeding, change from an olive to black color, move out to sea, and disappear. Nothing is known of their habits beyond this point in their life cycle.

Adult American eels are vulnerable to predation by marine species such as sharks, swordfish, and striped bass, but in fresh water it's likely that larger eels have few enemies. Elvers, on the other hand, provide forage for a number of marine and freshwater fish as they migrate through coastal and inland waters in great masses.

In North America, eels are popular food fish with those used to their appearance, while in Europe they're considered a connoisseur's item. Eels are captured by hook and line, eel pots, gigs, fyke nets, and weirs. In Pennsylvania, commercial cel weirs have operated on the Delaware River, supplying domestic markets. Smoked eels are purchased readily at European open-air markets and are sometimes sold on street corners by boisterous vendors waving eels held high in each hand at passers-by. Certainly more is known about the palatability of this mysterious fish than about its habits, but if you ask a connoisseur, an eel's good taste is all that matters.

Michael L. Kaufmann earned a bachelor of science degree in biology from Penn State and a master of science degree from Clarion State College. He is a fisheries biologist in the Commission's Fisheries Management Section.