

JANUARY—1978

PENNSYLVANIA

Angler

the
Keystone State's
Official
FISHING·BOATING
Magazine...

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SUMMING IT UP



The January issue of the Pennsylvania Angler has traditionally contained the Annual Report for the fiscal year which ended last June. Because of the time needed to summarize and assemble the statistics, and the lead time needed for publication, the printing of the Annual Report is delayed until the end of the calendar year. The natural tendency would be for our readers to suppose that in these comments we are really summarizing our "boasting" and "complaining" for the calendar year which just ended. Such is not the case but we certainly hope that the readers of this publication will take the time to read in detail the contents of that Report because it is the closest most of our stockholders come to really getting an understanding of what a relatively small but complex organization does with their money.

The 1976-77 fiscal year was not a year for sitting back and relaxing. It seems that the speed at which the world turns over must have tripled recently . . . or else we're getting old. We have been more and more involved with activities that somehow seem to be just on the fringe of our purview but yet take so much time. Our involvement with the Mid-Atlantic Fishery Management Council and the time spent in trying to provide input for the implementation of fishery management plans from three miles offshore to 200 miles out will, down the future years, certainly affect Pennsylvanians indirectly; in many ways we look for direct benefits from the protection and intelligent management of anadromous fish. We're involved in long-range planning and interfaces with all of the environmental agencies and organizations, and we don't dare miss any of these because of the possible effects on the resources we have sworn to protect.

We have had some breakthroughs this year inside Pennsylvania which we think are worth writing home about. The fish ladder over the Fairmount Park Dam, in downtown Philadelphia, should be completed next May, enabling anadromous and indigenous fishes to migrate upstream and down. When that's finished, we'll go after the dams upstream.

Our inventory and classification project is showing more and more evidence of water quality improvement and we're going to defend that with everything we have. We're finding young-of-the-year bass in the Monongahela River just off Charleroi — that river was not much more than an open sewer laden with industrial wastes toxic to anything alive just ten years ago! We're even going to stock esocids, members of the pike family, in the Ohio River from Pittsburgh downstream since that water has shown dramatic improvement.

The renovation and updating of our fish cultural stations continues toward our goal of modernizing and making more efficient the production units that are such a vital part of our programs.

So far, so good.

We regret that our attempt to secure a license increase has stalled in the Senate. House Bill 792 passed the House of Representatives handily in October, with a vote of 160-33, but has been stalled in the Senate Committee on Environmental Resources and cannot possibly be considered in time to make the approved increase effective in 1978. This is going to have a serious impact on our activities for 1978 and 1979. We can only hope that the sportsmen who benefit from our programs will continue their support to keep us fiscally sound in the face of continuing inflation and personnel costs.

All in all, it's been a good year and my hat is off to our loyal and dedicated employees as well as the people on the outside who help us in so many ways.

Ralph W. Abele,
Executive Director

Pennsylvania Angler

Pennsylvania's Official Fishing & Boating Magazine

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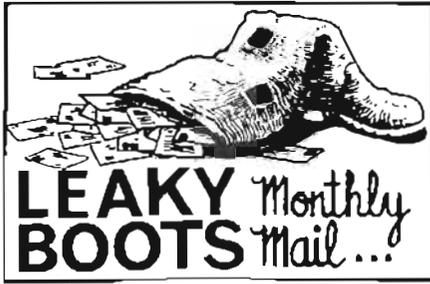
ON THE COVERS:

There is little argument about the yellow perch being just about the tastiest morsel ever to grace the dinner table and this little gamester provides plenty of action all season.
Photo by Russell Gettig, Staff Photographer

Back Cover: Later on, as ice becomes thicker power augers like the one being used by Dr. Dale Steventon on Bradys Lake become a welcome piece of equipment to ice fishermen all over the Commonwealth. Photo by Tom Fegely

James F. Yoder, Editor

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MIGHT WORK . . . MAYBE

Couldn't sleep . . . got up and decided to catch up on my reading: the October Angler. The "Leaky Boots" comments on float stockings and license fee increases started the old gears turning. It is surprising how clearly one thinks at 5:00 a.m. I usually am in bed at this time unless preparing to go hunting or fishing (you may reverse the order if you wish).

Anyway, I have recently begun kayaking and it just hit me that this might be an excellent way to stock certain trout streams. The water is usually high in spring and it is amazing how shallow the water can be for a kayak to pass. If the trout were put in small nets and dropped across the kayak like saddle bags, the kayaker could release a netful at the nice holes along the stream, and meet the truck at the next bridge. (What do you think?) I know there are not many kayakers and that is one of the things I like most about it (no crowds), but I will be the first volunteer.

On the question of license increases: I agree with Dr. Witherspoon 100%. I also ski and I pay \$11.00 a day for that privilege. Maybe the complainers should compare their license fee cost to bowling, golf, etc. I also find and pick up many littered cigarette packs along the stream which may indicate that many of the fishermen are allowing the equivalent price of their fishing or hunting license cost to go up in smoke without considering that cost.

Keep up the good work. I enjoy your magazine and we now receive it in the school library where I teach.

BUD COLE
Northampton

What do I think about kayakers releasing "a netful . . ." ? *With which hand?* Ed.

PLAGUED BY THIEVES!

I am a deaf mute, 68 years old, crazy about fishing. I always use live minnows, size 3" to 6". I catch 20 to 30 minnows for 5 hours of fishing. I riveted my name and address tag on the bucket and hid it in a spring brook . . . nobody was watching

me. I went home, I returned 3 days later to pick up the minnow bucket and found somebody had been stealing all of the minnows out of the bucket. I blew my temper, wanting to shoot the thieves. I installed a padlock on the bucket—now the thieves stole everything, bucket and 25 minnows all gone! I read "Keeping Minnows," by Kenneth Hassler in the July issue of the Angler and I am thinking of keeping the minnows in a tank in the basement of my home. Which is the best tank: glass, fiberglass, polyethylene foam or galvanized—size 15 to 20 gallons, to keep live minnows in all year? I think it was a mistake to put my name and address tag on the bucket; the thieves will follow me wherever I go fishing for the minnows!

ALLEN SPONSLER
Altoona

The "best" tank, Allen, is largely a matter of personal choice and application. If you've got a cool spot to keep it in, you won't need the insulating qualities of a foam tank; if not, this might be a consideration. Metal tanks would seem to be the strongest—should you have to move the tank frequently—glass would undoubtedly be the cheapest to obtain, if you watch the classified ads for a second-hander someone is "unloading" at a fraction of its original price. Ed.

HAPPY ENDING—

When I found my boat missing from its moorings at Colyer Lake last September, I gave it up for lost. Nevertheless, I reported the theft to our local Waterways patrolman, Paul Antolosky, and to the State Police at the Rockview Barracks.

I'm glad to report that the police took the theft very seriously, even though the old boat wasn't worth much. They subsequently called me twice, first to gather a more complete description and then to explain their tracing procedures.

Finally, in the middle of October, Mr. Antolosky called to say that a local fisherman, Nick Lambert of Boalsburg, finding my boat floating on the lake, had taken it home and notified the Commission of its whereabouts. Apparently someone had jimmied the lock, used the boat and then set it adrift.

As for the conscientiousness of the State Police and the thoughtfulness of Messrs. Antolosky and Lambert, I hope these facts speak for themselves.

JOHN SWINTON
State College

BACALAO . . .

I have been reading the *Angler*, but might have missed this subject. I'm looking for something on salting fish like the Indians and Portuguese do so it ends up like Italian Bacalao—which is codfish.

I don't want brine and smoke methods. It looks like salt and air cure so it is good for a long time. How long in salt—per pound of fish—and what kind of salt?

Maybe Leaky Boots readers could help. The Morton Salt Company could not.

GLENDON L. EVANS
547 S. Muhlenberg St.,
Allentown, Pa. 18104

BASSING BUFF—

Having read your July issue of the Pennsylvania Angler, we appreciate the article by Mr. Howard A. Bach. We think an article of this type enlightens the general public to two important points in our B.A.S.S. program which are the "Safety In Our Boats" and "Don't Kill Your Catch."

Again we thank you for carrying this gentleman's article.

CHUCK BEST, President
The Happy Hookers Bass Club
North Irwin

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NOTES *from the streams*

PROOF POSITIVE—

While on a recent patrol and inspection trip along the Fish-For-Fun section of Penns Creek, Supervisor Owens and I were greeted by a "Boy, am I glad to see you!" from a pajama-clad cabin owner.

Inquiring as to why this was so, he informed us that a bear had visited his cabin sometime during the night and he wanted us to "bear" witness to this fact because his friends wouldn't believe his story.

As part of our service to the sportsmen and public, we most certainly will attest to his tale as being the absolute truth for there on the freshly painted porch were the bear's tracks and a part of the window sash which bore either claw or fang marks!

Incidentally, the owner and his wife said they were sleeping so soundly that they never heard the marauder, proving that in a spot like Penns Creek one can find complete peace and relaxation.

*Frank Kulikosky
Assistant Supervisor
Southcentral Region*

WOULD YOU BELIEVE?

While boarding a small runabout on the Allegheny River last Labor Day for possible overloading, Deputy Waterways Patrolman Lavsa told one of its seven passengers about the water in the bilge at the transom. She replied that it was OK as they had been bailing it out all day.

After I checked the registration, I was about to ask to see the PFD's and check the capacity plate—when the boat sank. We got the people aboard the patrol boat and, with the assistance of another boater, got lines attached to the bow that was still above water. I towed the boat to the surface and the other boater came alongside and got in the boat with a bucket and bailed it out as I pulled it. I then took it to shore and took the owner down river to get his car and trailer, knowing that this was one person who would never overload a boat again. It seems that experience is the best teacher of all.

*G. T. Crayton
Waterways Patrolman
N/Allegheny County*

ILL-MANNERED POODLE!

While I was on boat patrol last September, a vessel came by pulling a water skier who was not wearing an approved personal flotation device. It turned out that the boat contained a man and his wife, their two sons, and their little poodle. As I pulled the patrol boat alongside to take the information regarding the violation, the poodle jumped from their boat into the patrol boat, ran into the cabin, "watered" the base of one of the seats, ran back out and jumped back into their boat. Now I have heard of people training pets to do their business in the neighbor's yard, but this is ridiculous!

*Don Kingery
Deputy Waterways Patrolman
Allegheny County*

GUEST APPEARANCE?

Although we have never heard him play, one of my deputies claims he plays an accordion. Therefore, I cannot attest to his skill as a musician. He threatened my well-being if I mention his name, but I have to tell you what his four year old son Johnny suggested. Johnny said, "I have an idea, Daddy! Why don't you put on your Fish Commission uniform, take your accordion and go on the Gong Show?"

*Don F. Parrish
Waterways Patrolman
Beaver County*

SPARSE HACKLE!

Early in the year I was working at the West Penn Sport Show in Pittsburgh, Pa., at which time I was in the booth selling fishing license. An elderly gentleman was filling out his application and asked me if it were alright to put "V.L." for the color of his hair.

Naturally, I asked him what would "V.L." stand for. His reply was "very little" . . . he was almost bald!

*Robert L. Kish
Waterways Patrolman
Cambria County*

HIGH FLYIN' "FISH"!

Dave Brown from Westfield told me of an experience he had while fishing with his son on Pine Creek at night last year. Dave and his boy went to the creek well before dark and made ready to fish after dark with large night flies. After darkness had fallen, Dave was making a cast on a long hole and just as he thought the fly should be landing on the water he felt quite a tug on the line. He said there was no splashing, but he had something on the line and it was sure acting funny. He kept taking in line and when he retrieved enough to get the hook and leader pretty close to the reel, he found he did not have a fish at all . . . he had a bat!

*Raymond Hoover
Waterways Patrolman
Tioga County*

LETHAL JOLT—

A late season thunderstorm proved to be hazardous to the health of some muskies that were found lying on the surface of Marsh Creek Lake. Lightning struck the lake several times and after the storm was over six legal-sized dead muskies were floating on the water.

*R. A. Bednarchik
Waterways Patrolman
Chester County*

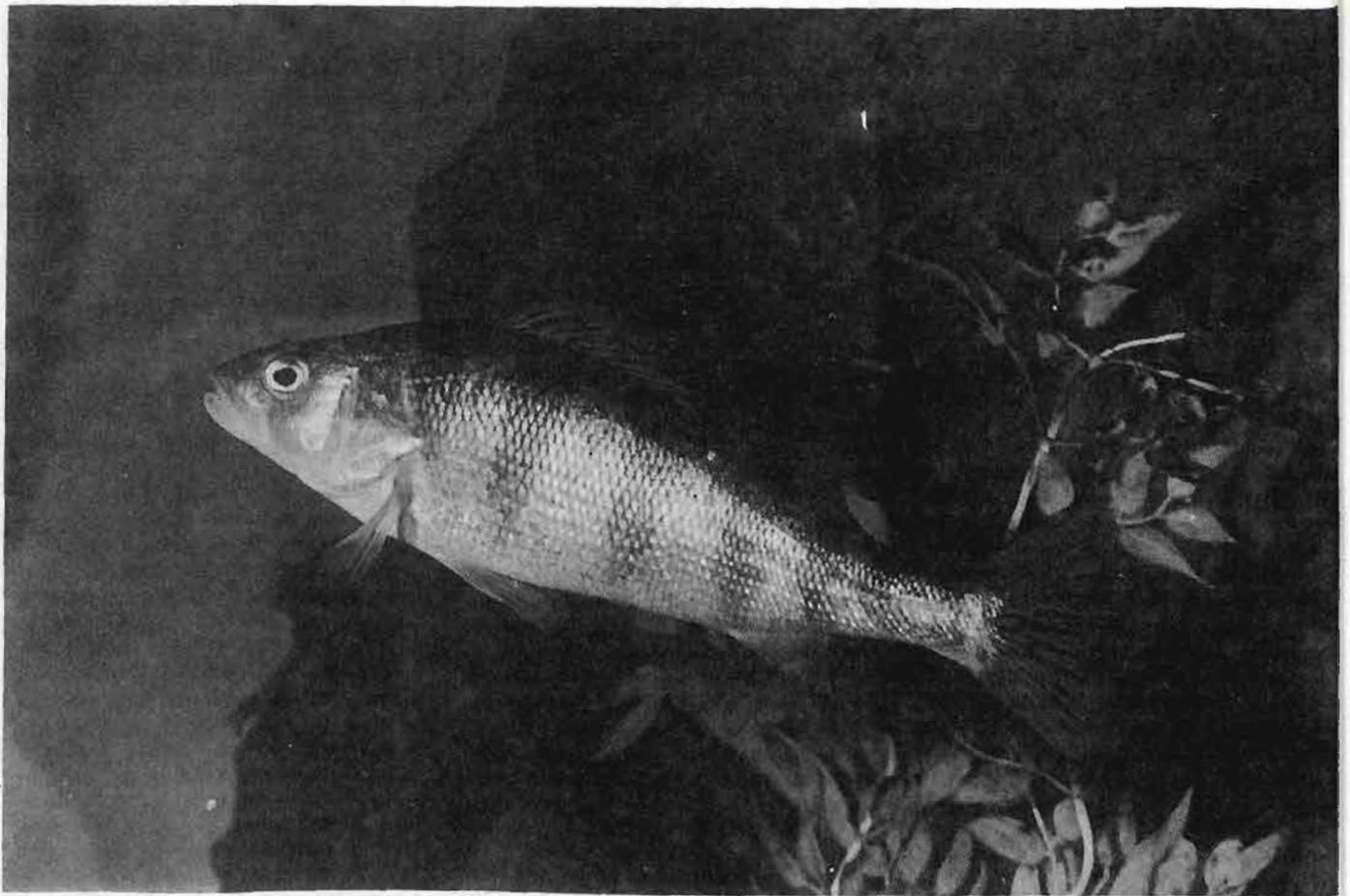
NEW MODE!

If you have never heard of a "bikeboat," you might in the near future—if the inventor of this wonder is successful.

"Bikeboat" might not be the official name of this new approach to transportation on water, but it is appropriate since that name describes it accurately.

Deputy Tom Kamerzel was the first to witness this strange creation as the inventor tried it out on the Lehigh Canal. He pedaled down to the canal on a regular bicycle to which some sort of apparatus was attached on the rear. This "apparatus" turned out to be pontoons which he sat on the water and inserted the bike into so that the bike was floating upright on the water. The inventor then hopped on the bicycle seat and began pedaling. This action turned a small propeller in the rear pontoon which moved the vessel along. When you are through boating, you pack the whole thing together and "pedal" on home.

*Fred Mussel
Waterways Patrolman
Lehigh County*



Note the extended pectoral fin on this yellow perch which acts like a boat oar.

Taking A Closer Look

by Tom Fegely

Too often we view fish merely as something to be battled on the end of a rod or devoured at the supper table. By the time we finally get to take a close look at it, a fish may be lying lifeless in a creel or, if released, is soon gone from our view.

Unlike birds and mammals, few people ever get the chance to be "fishwatchers" except where large

aquariums provide the occasional opportunity.

As I sit typing this, I can stare across my desk at a colorful pumpkinseed hanging suspended in my built-in fish tank. His paired pectoral and pelvic fins paddle back and forth to maintain balance while the blue dorsal fin moves in rippling waves. Only when I drop a morsel of earthworm into the water does he move from his corner with a flip of the tail, returning to his territory with equal speed and unwasted motion.

A fish's pectoral fins, besides aiding in the maintenance of balance, also serve a function similar to the bow-planes on a submarine. If tipped downward while the fish is swimming, the fish will dive. If pointed upward, the fish will climb.

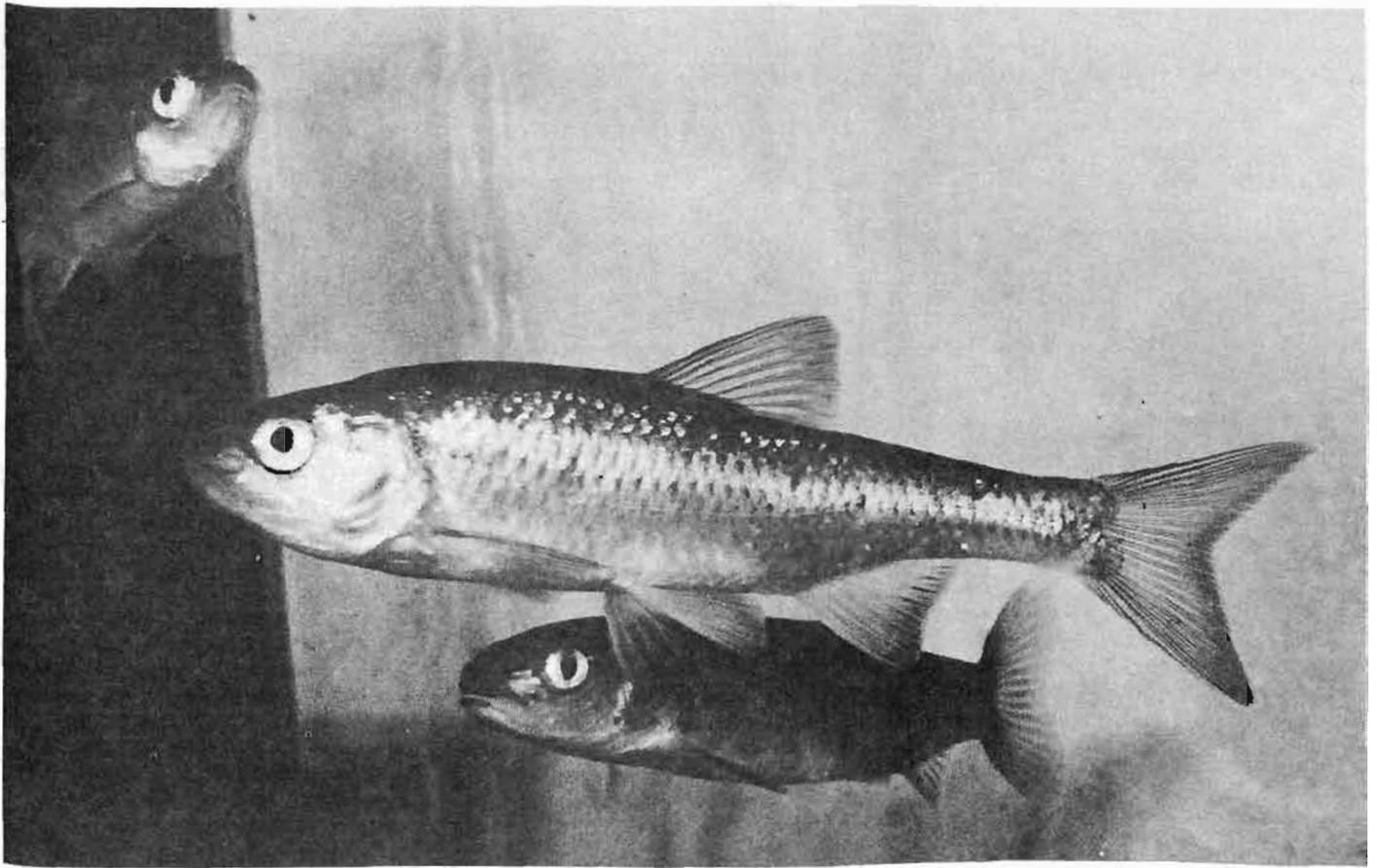
The pelvic fins play a similar but probably less important role. Along with the pectorals, they enable a fish to steer and brake. Extended like a boat oar, one at a time, a fish is able to turn and tip in any direction or, folded, maintain a straight course for

maximum speed.

In primitive fishes, like gars and sturgeons, the pelvic fins are located far to the rear of the body. In sculpins, they are oversized and function to help maintain position in swift waters by wedging between stones. In some fishes they are absent entirely.

The beauty of all this is that every fin on a fish's body coordinates with the others to control stops, starts and turns. In a flying bird, the twists and turns and the beauty of a rudder-like tail or twisted wing can be seen through binoculars. Fish seldom provide such close scrutiny but they nevertheless exhibit similar grace and form.

If a speedy smallmouth were to apply the brakes only with its pectoral and pelvic fins, it would quickly find itself topsy turvy. To counter this force, other fins are also brought into play. Some fish like muskies, pike and pickerel wouldn't have as much of a "tipping" problem because their pelvics are situated well back on their undersides and can counteract the



These shiners maintain their positions with a constant movement of their fins.

force of the pectorals.

The dorsal, anal and caudal (tail) fins also play some part in stopping and turning. A tail fin thrust upward can help counteract the over-efficient forefins.

The prime purpose of the dorsal and anal fins is to keep the fish vertical while swimming—particularly at low speeds. Like riding a bicycle, a slow-moving fish might actually begin to topple without the keel-like action of these two fins.

In a few unique instances, such as with bowfins and eels, the long dorsal fin moves in graceful "S" waves and actually propels the fish forward.

But the caudal fin is the main locomotion organ. By rapidly whipping it back and forth, a fish can control its speed and some can actually shift into reverse with the tail's action.

Most anglers would be hard-pressed to accurately estimate the speed at which a fish swims. A trout frightened from beneath an overhanging bank, or a bass spooked from its shoreside lair both seem to move off in a tremendous burst of speed.

Actually, scientists have determined that a bass' top speed is only about 12 miles per hour. Its cruising speed, that which it can maintain for a longer period of time, would naturally be slower.

A brown trout, which swims at about five miles per hour, can accelerate to a faster speed when in pursuit of a minnow or in grabbing a floating fly. Fish which make long migratory journeys, like salmon, can keep up sustained speeds of 7-10 mph and are able to make a short burst at 50 percent faster. A leaping salmon could, therefore, accelerate to 15 mph prior to leaping over a falls.

Scientific experiments show that some fish, including trout and small-mouth bass, secrete a special slime that actually decreases friction and dissolves away as a fish swims at high speeds. Friction and turbulence are thereby reduced as if a fine oil were used.

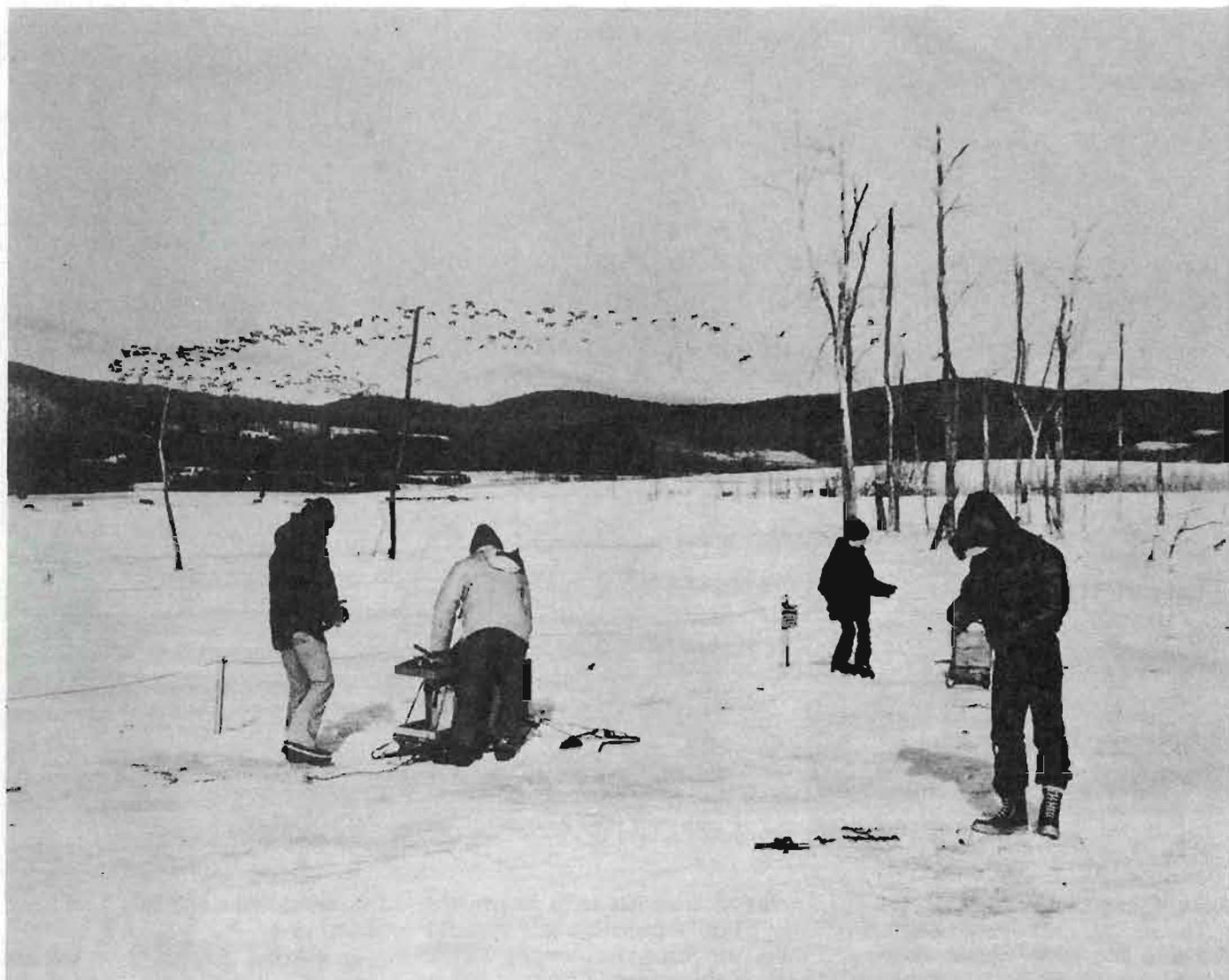
Fish possess either a "soft" or "hard" dorsal fin (sometimes referred to as rays). Trout, salmon, minnows and suckers possess soft rays. Sun-

fish, perch, pike and bass have hard, or stiff rays.

In general, the soft-rayed fish are jumpers and the spiny-rayed fish are not. Of course, as with everything designed by nature, there are exceptions such as the hard-rayed small-mouth which is a renowned leaper.

The force which propels a fish through the surface to grab a fluttering insect or to tail-walk on the end of a line in attempting to throw a hook is the end result of rapid swimming. Just as the fish is about to break water, it adds a final thrust of the tail and shoots upward like an unleashed rocket. Many fish, like pike, which are not natural jumpers, will employ their tricks when hooked and their lives are at stake.

No, not too many of us take note of all these mechanics when fighting a fish nor will the knowledge help to fill our creels. But by understanding the many factors that influence how high a fish can leap or how fast it can attack a plug, we will all come to better understand and respect these creatures which bring us so much joy.



Ice Fishing at Middle Creek

by George E. Dolnack, Jr.

photos by the author

We heard the geese before they came into view. They were headed in and some tumbled freely to quickly lose altitude. Then they set their wings and glided in for a landing on the water that had been kept ice-free by the movement of other Canadas. Considering that we were standing on seven inches of solid ice and were in the grips of one of our coldest winters, this was no small feat.

Below the ice, another drama was unfolding. A pickerel bored in on a minnow that made a desperate attempt to evade its menacing jaws. As the toothsome predator grabbed the small fish across the back, the flag on the tip-up tripped. Spotting the signal,

Ice fishermen were having a ball on the day the author visited Middle Creek Lake. Here, Earle Gamble, of Lebanon, displays his mixed catch of bass and chain pickerel.



an angler started toward it, his ice creepers biting into the hard surface as he ran.

When he reached the tip-up, he pulled it gently out of its hole and placed it on the ice. Then he palmed the line and fed it out as the pickerel moved off with its meal.

Soon the line went slack, indicating that the pickerel stopped and was preparing to turn the bait around in its mouth before swallowing it head first. The angler got set, and payed out a little more line as the fish started to ingest the minnow. Then the fisherman set the hook with a sharp jerk on the line. Shortly, the 18-inch pickerel joined three fat bass that were already on a stringer.

This scene and variations of it was repeated many times at the Middle Creek Wildlife Management Area located on the Lebanon/Lancaster County line just off Route 897 between Kleinfeltersville and

Cocalico. Since its dedication in 1973, Middle Creek has fast become a favorite with southeast anglers.

A good supply of bass, pickerel, crappies and bluegills can be found at Middle Creek. And one need only visit the impoundment during freeze-up to see firsthand how productive it is.

Water depth here averages 3½ feet with a maximum depth of 13 feet. The top bait is minnows fished about 6 inches off the bottom. Lures like white bucktails, yellow bucktails, Rapala ice jigs, and Swedish pimples are also used with good success.

Ask any angler when is the best time to fish Middle Creek and they'll probably say, "When the fish are biting." While there is no set pattern on the lake, some anglers prefer fishing from early morning through noon. Others find the hours between noon and 2 p.m. productive. And I've seen the fish hit from 2 p.m. to 4 p.m. So take your pick and your chances.

A fence divides the lake into two portions. The larger area is reserved for waterfowl propagation and the other, about 35 acres, for public recreation.

Most ice fishermen cut their holes just off the fence line. Once you get a look at the fish they are pulling out here, you'll know why this is a favorite area. But this is not to say that other spots are not productive. In just a few minutes one afternoon, I watched Carl Wolf, of Ephrata, yank three flopping bass onto the ice using yellow bucktail near the breast of the dam.

Year-round angling is available at Middle Creek. Manually propelled boats can be used on the lake from the middle of May thru mid-September. Shoreline fishing is permitted anytime.

For more information, contact Resident Manager, Middle Creek Wildlife Management Area, RD#1, Newmanstown, Pa., 17073.

Winter Crappies

by Fredric Doyle



"There are two kinds of fishermen," said the man, blowing on his bare fingers. "Some sit around all day among a flock of tip-up waiting maybe for a walleye or a northern. Or maybe just sitting. Now, take me, I go for a whole stringer full of half-pounders. Maybe not the heart-pounding action of a lunker flopping up through a hole in the ice; but, for me, a lot of *little actions*: bluegills, perch, crappies."

He sat on a little cross-legged stool, hunched over a hole in the ice. His rod was a three-foot section of an old fly rod fitted with a butt and a reel full of monofilament line. The rod was also tipped with a six-inch length of spring steel. The slightest movement of the rod set the tip quivering. The jig, feathered with a wisp of marabou feather, was suspended six or eight feet below. It fluttered like a grass-skirted Polynesian maiden.

"Mind if I set up here?" I asked, indicating a space a rod or so away from him.

"Free world," he said, "help yourself."

Silently debating the validity of this observation, I looked about . . . there were a number of holes drilled through the ice in this area; many were frozen solid—twenty-nine inches of clear ice! Other holes, recently vacated, were capped with a thin shell of frozen water. Kicking open one of these holes I baited my hook with a live minnow and dropped it into the water. I, too, was blowing on my bare fingers. Having forgotten my minnow bucket seine I had to plunge my hand into the icy water of the bucket to scoop out my bait. After about a half-hour without any action I walked over to the man who was scoring regularly.

"Try these," he said, noting my empty stringer.

"Jigs with wax worms?"

"Yes, here's the secret, jigs with wax worms," he said, handing me several jigs from his tackle box.

"Thanks a lot, but . . ."

"Never mind, keep them. If you want to make some for yourself just get some long shanked hooks, some BB shot and a few strands of marabou feathers. Heat the shanks of the hooks before you bend them so they won't break. The shank must hang horizontally."

All the while the tip of his rod was quivering. He kept blowing on his bare fingers as he changed his rod from hand to hand. Unlike fishing schools I was being instructed by a veteran in the fine art of ice fishing. I had no one breathing down my neck nor a curious crowd of onlookers to cheer or jeer my efforts.

It was cold. The '77 winter was doing its best to clear the lake of anglers. The wind, with a below zero factor, swept across the lake slushing the fishing holes. Occasionally the ice cracked, roared like distant thunder, reverberating and echoing from the surrounding hills.

"And another thing," the man said. "See that stump over there along the shore?"

"The one pointing in our direction?"

"Yes. Well, that was a rock oak tree that slid into the lake. The roots were undercut by the waves and it toppled into the water. The park rangers couldn't drag it out so they cut off the butt and left the top. The branches and twigs makes a hiding place for minnows and crappies . . . safe from the muskies and northers."

Suddenly he stood up. Raised his short rod above his head and added another crappie to his stringer.

Returning to my stand, and having

no wax worms, I had to depend upon my live minnows. In spite of the man's advice, live minnows had always paid off for me. Bait, I reasoned, is a matter of confidence in the kind of bait that you use.

Other anglers were there, too; some standing amidst their tip-ups, others hunched over, studying the dark depths of the lake through the little round windows where a bobber signalled a nibble. Some anglers, methought, should have been home sitting by a warm hearthstone; but, the urge, the ancient angling urge had driven them forth to battle the elements and bring home their share of provender for the tribe. A satisfaction that only a true angler can experience.

Ice fishing is like no other department of angling, and one of the most enjoyable. In spite of the cold, I never have heard of any ice fisherman suffering from hypothermia.

While this angling episode occurred at Shawnee State Park, the basic techniques can be used in any stream or lake. Find a brushy spot, fallen trees, clumps of reeds, or a sharp drop-off from the shore and there you will find crappies. And, there you will find a lot of "*little actions*." While the man with the jigs and wax worms scored much better, I did manage to catch a half-dozen crappies with my live minnows. Also a fourteen-inch yellow catfish.

The early winter twilight began to blur the distant shorelines thus ending one more day of angling to add to the long, long stringer of days of angling to look back upon with quiet satisfaction.

The Annual Report of the Pennsylvania Fish Commission

During the 112th year in the history of the Pennsylvania Fish Commission, the Board met four times: July 12, 1976 in Harrisburg; October 4, 1976 in Erie; January 17, 1977 in Harrisburg; and April 18, 1977 in State College. Under the Administrative Code the Pennsylvania Fish Commission consists of "nine competent citizens of the State who shall be appointed by the Governor by and with the advice and consent of two-thirds of all the members of the Senate. Eight members of the Commission shall be persons well informed on the subject of conservation and restoration, and one shall be an experienced boatman to hold office for terms of eight years each and receive no compensation for their services."

The details of our activities for the past fiscal year which follow show another busy year of diverse activities. There are 416 salaried employes and some 600 special waterways patrolmen, plus a small number of temporary summer help to accomplish an amazing number of complex and varied activities. Noticeable in this report is the concentration on updating and renovating our facilities, particularly in the hatchery system and our access areas. While funding from the Project 500 bond issue is still available we make the most use of the nonrecurring funds for the benefit of the fishing and boating public.

The progress on our comprehensive inventory and classification of all the waters of the Commonwealth continues and it is still one of the most promising programs ever undertaken. Sportsmen and those of the general public who are able to take the time to watch these proceedings are amazed at not only the unbelievable variety of species and their numbers, but also the professional abilities of our fisheries management teams.

Our law enforcement officers, by their alertness and constant dedication to the protection of the resources have been Pennsylvania's best defense against degradation of Commonwealth waters in spite of constant threats. Well-meaning, but ill-designed and unsupervised projects called "stream restoration" that repeatedly follow high water have devastated many of our headwater streams in spite of our attempts. But, the cumulative effects would have been much worse without the persistence of the Thin Green Line in preventing this.

We have been pleased to note more progress in our anadromous fish restoration programs with the Fairmount Park Dam fish ladder designed and engineered

by our own people now authorized for construction by the City of Philadelphia. Our testimony before the Susquehanna River Basin Commission and the Federal Power Commission, insisting on restoration of natural fish runs in the Susquehanna River and its drainage, we think, is beginning to pay off.

With the enactment of the Fishery Conservation and Management Act of 1976 (200-mile bill) Pennsylvania, by its membership in the Mid-Atlantic Fishery Management Council has taken an equally active part with the other coastal states in developing fishery management plans not only for the marine fish from three miles offshore out to 200 miles, but certainly has exerted its influence in protecting those anadromous species that want to live part of their lives in Pennsylvania waters. Management Council meetings take about one-eighth of the Executive Director's time and the schedule does not look any lighter down the future years.

As the Commission saw the problems of inflation and higher personnel costs affecting our operating balance, we began last fall with a 5% cut in operating expense straight across the board. At the same time we asked the General Assembly for a general license increase of \$1.50 and a juvenile license. At this writing, the juvenile license has been amended from the bill and, in fact, because of the General Assembly's preoccupation with the General Budget, no fishing license bill has been passed and the time is running short. With increasing demand on our fiscal resources, we can ill afford to let a whole year pass without this potentially higher income, but can do little about it without the cooperation of the General Assembly.

Record fish production, record participation by the fishing and boating public, and record sales of fishing licenses and boating registrations all show tremendous support by the public for our programs and activities. The preference surveys conducted last year showed overwhelming support for every one of our programs, and we believe that the public will in turn support our needs for additional revenues to continue these same activities. We look forward optimistically to a future of continued success based on outstanding support and cooperation we have received from the public.

RALPH W. ABELE
Executive Director

Office of Information

Working under the direction of the Executive Director, the Office of Information consists of a director, publications editor, magazine editor, conservation education specialist, staff photographer, exhibits technician and artist, aided by a secretarial-clerical force of six persons. Its primary function is to aid all Commission personnel in keeping the public, particularly fishermen and boaters, informed about fishing and boating opportunities in Pennsylvania. New this year in basic functions has been the start of a public information and education program concerning amphibians and reptiles, especially those that are classified as rare or endangered.

Because of its small size and modest budget, the Office of Information relies heavily on the cooperation of outdoor writers, newspaper and magazine editors, radio and television program directors to inform millions of readers and viewers about fishing and boating in Pennsylvania. Some 75 news releases were issued to these outlets during the year. In addition, the public information staff, field officers and other Commission staff members worked directly with reporters and writers on story assignments to cover Commission programs in fishery management, propagation and law enforcement.

PUBLIC APPEARANCES

As in all efforts to keep the public informed, the information communicated to the general public through the news media is supplemented and, in many ways, made more effective by direct contact between citizens and Commission employees. The major portion of this direct contact is made by the Commission's field officers and hatchery workers. A summary of these activities appear in the reports of the Law Enforcement Division and the Division of Fisheries.

PUBLICATIONS

"When to, how to and where to" questions were answered through various pamphlets, booklets and other publications distributed in response to mail requests, at exhibits and shows and club meetings attended by Commission personnel. Two major books were added to the Commission's list of publications this year. "Techniques of Fly Tying and Trout



Office of Information staff had a major role in coordinating "Expo 77," a Fish Commission-sponsored educational program held in Nanticoke.

Fishing" was written for the Fish Commission by George Harvey, recognized everywhere as a master fly tyer and one of the country's foremost fly-tying instructors. Available at \$1.50, the book guides the novice fly tyer through step-by-step instructions to tying his own flies and then, in its second section, provides instruction on how to fish for trout using the flies he has just learned to tie.

Also new this year is the "Pennsylvania Angler's Cookbook." Compiled from recipes submitted by readers of the *Pennsylvania Angler* magazine, this unique cookbook, which costs \$2.50, contains some 300 different ways to prepare fish. Among those items produced and distributed free of charge in single copies was a new pamphlet, "Pennsylvania's Poisonous Snakes." The natural history and identifying characteristics of the timber rattlesnake, massasauga rattlesnake and copperhead are reviewed.

A wide range of information and educational material is prepared by this office to answer thousands of requests from residents and nonresidents alike, regarding fishing and boating opportunities in the Keystone State.

PUBLIC SERVICE ANNOUNCEMENTS

One 60-second and one 30-second public service television "spots" were produced during the year. Aimed at improving angler relations with landowners and reducing litter — the leading cause of

posted land along rivers, streams and lakes — prints were distributed to 28 television stations across the state.

PENNSYLVANIA ANGLER MAGAZINE

Dealing with fishing and boating in Pennsylvania, exclusively, the magazine reaches more than 50,000 homes each month. Free-lance writers' accounts of successful journeys to Keystone waterways serve as a month-by-month guide to "where to go" for seasonal fishing. Augmenting these stories are technical articles written by staff members of the Division of Fisheries for the enlightenment of Pennsylvania's fishermen; and, for the boater, periodical messages of boating safety appear.

EXHIBITS

Office of Information staff had a major role in coordinating "Expo 77," a major Commission-sponsored educational program held in Nanticoke. Free to the public, over 12,000 people viewed the 26 displays and manned information booths during a three-day period.

A major number of the Commission exhibits used at the National Boy Scout Jamboree in Moraine State Park were designed, installed and manned by staff members. Exhibits and other educational aides were supplied to 44 sites in Pennsylvania during the year. These sites included fairs, sports shows, shopping malls and de-

partment stores.

The staff presented over fifty educational programs to teachers, elementary, secondary and college students, fraternal, civic, park and recreation groups during the year. These included movies, slide talks, fishing and filleting demonstrations.

CONSERVATION & ANGLER AWARDS

Six hundred eighty senior and junior fishing awards were sent to Pennsylvania anglers who creeled trophy fish and 104 "Husky Musky" awards were sent to those who caught muskellunge over forty-

five inches in length. The Commission awarded 372 Conservation Awards to youths who assisted in projects to conserve and improve our aquatic resources. Twenty-six Conservation Service Awards were presented to adults who aided the Commission in its many activities and programs.

MAIL & TELEPHONE

By far the leading demand on time and expense of the Commission's public information staff is required in answering mail and telephone requests for information from legislators, fishermen, boaters

and other citizens interested in the work of the Commission. Sometimes running at a peak of over 60 phone calls per day and more than 100 letters and postcards, the Office of Information handled a total of over 25,000 such requests during the year. Most of these involve selecting, packaging and payment of postage for sending one or more of the Commission's free pamphlets, booklets or other printed material. Many, however, require research and writing of personal letters in trying to serve the needs of legislators, government officials, sportsmen, students, teachers and other citizens living in Pennsylvania and surrounding states.

Bureau of Waterways

GENERAL

The Boating Advisory Board, chaired by Nicholas Apfl, met twice during the year. The Advisory Board is comprised of five knowledgeable boatmen appointed by the Governor. Its function is to advise the Commission on matters regarding boating equipment and operations. During the year the board offered recommendations concerning special regulations on Lake Williams and Lake Redman in York County, Shenango River Lake in Mercer County, and Treasure Lake in Clearfield County. In addition, the board recommended that Regulation 4.10, "Rules of the Road," be amended to prohibit the operation of vessels within 100 feet of water siphons, intake towers, and bridge piers, due to the safety hazard involved to boaters. These recommendations were adopted by the Commission.

1977 marked the first full season of operation for Waterways Patrolmen on the tidal waters of the Delaware River in Philadelphia, Bucks, and Delaware Counties. In later 1976 the Commission became the sole state agency enforcing waterways regulations in these areas, having assumed the responsibility from the Delaware River Navigation Commission.

This past summer the city of Johnstown was hit by one of its worst floods in history. Southwest region law enforcement personnel, assisted by a number of their deputies, voluntarily rushed to Johnstown within hours after the flood waters hit the city and its surrounding communities. They participated in rescue operations, established road blocks, patrolled to prevent looting and assisted local authorities in efforts to restore law and order. Division officers remained in the area for over a week to assist in locating victims and to in-

spect and clear debris from the lakes and streams throughout the watershed.

A Civil Service Exam was given during the year to secure qualified applicants for the position of waterways patrolman. 897 applicants took the written exam and over 100 were given oral exams. A certified list of those eligible for employment was established and forwarded to the Commission by the Civil Service Commission. The Commission used this list immediately to fill vacancies in Montgomery and Lebanon Counties.

All supervisors, assistant supervisors, waterways patrolmen and many special waterways patrolmen are now performing their duties in a new uniform as prescribed by the Commission. The new uniform is more distinctive than in the past and is making our officers more "visible" to the public.

Plans were made during the year for the Fish Commission to take over the boating registration functions, in the past held by the Department of Revenue. The two agencies jointly sponsored legislation

transferring the registration function to the Commission with a tentative take-over date set for January 1, 1978.

The Fish Commission's new Walnut Creek Boating Access and mooring basin on Lake Erie became operational this year. The facility contains parking spaces for from 160 to 280 cars and trailers (See report of the Division of Engineering), launching facilities for up to six boats at a time, boarding docks, and for the first time at any Commission facility, overnight mooring docks for 72 boats are available on a per night rental basis. The facility is equipped with a high intensity storm warning light that can be switched on instantly by the National Weather Service at first radar sight of an approaching storm.

Law Enforcement Division

This past year, division personnel continued to maintain an effective fish and boat enforcement program. As in past years, an increase in the number of

The Waterways Patrolman's role in maintaining good landowner relations is often responsible for keeping waters open to the public.



persons apprehended for violating the fish or boat law was recorded. The total number of prosecutions reported for the year (1976 comparative figures in parenthesis) was 7,560 (7278). 4,988 (4862) were for violations of the Fish Law, 2,580 (2416) for boating violations. In addition to prosecutions, 2,808 (3,498) warnings for fish violations and 4,734 (4564) warnings for boating violations were issued. A total of 27,440 (18,192) boats were boarded during the year with 20,126 (12,130) meeting legal requirements.

To keep the public apprised of the latest developments in fishing and boating, Commission policies and other items of interest, field officers continued to carry out an intensive public relations and education program. This included the presentation of boating schools, fishing schools, the manning of displays and exhibits at sport shows, malls and fairs, appearances at sportsmen's clubs, schools, church, scout and civic organizations. The total number of appearances was 2292, with 394 films and slide programs being shown. In-service training with emphasis on the Commission's Public Relations Program was conducted at Lamar. Division personnel continue to provide fishing and boating information to the public via telephone, written correspondence, newspapers, radio and television.

The Law Enforcement Division continued its efforts to preserve water quality and to maintain and improve fish habitat. Through the Commission's stream and lake improvement program, district personnel assisted many sportsmen's clubs, Scout groups, Youth Conservation Corps and others in installing and providing advice for the installation of steam improvement devices. Involvement by sportspersons is on the increase as more concern is being shown for habitat improvement. A number of late improvement projects were also undertaken in an effort to improve habitat for warmwater species. Many groups have shown interest in the Adopt-A-Stream Programs and our officers assisted by directing groups in litter cleanup and other waterway improvement projects.

Efforts to preserve water quality included the investigation of 308 water pollution cases during the reporting period. Many of these incidents involved a considerable amount of time for investigation as they required taking water samples, counting dead fish and other aquatic life destroyed as the result of deleterious substances entering our waterways. Also, the sources of the pollution had to be found so that proper action could be taken against offenders. Most pollution incidents were investigated in cooperation with the Department of Environmental Resources and many prosecutions were made jointly,



Two of these "theaters-on-wheels" provided person-to-person contact with over 32,000 people at state parks, marinas and sporting events.

with some cases referred to DER for corrective action.

Other duties involved the investigation and review of encroachment applications which included pipeline crossings, dam construction, bridge construction, sewer construction and myriad of other projects which may effect Commonwealth waterways. A review was made of 680 deep and strip mine applications, with field officers submitting comments on the effects of mine water drainage on fish and aquatic life.

District officers continue to play an active role in the many programs conducted by the Soil Conservation Service and the Federal Disaster Assistance Administration. These programs involve the removal of undesirable materials deposited in streams after a flood and the stabilization of stream banks to halt further erosion and flood damage. Waterways patrolmen insure that any work done is with minimal damage to fish habitat, fish and aquatic life.

Watercraft Division

177,000 watercraft were registered in Pennsylvania during 1977, a 4.7% increase over the previous year. Nearly three-

fourths of the boats registered were 16 feet or less in length.

Twelve new patrol craft were purchased for the Commission fleet and five were phased out of service. Six outboard runabouts and a cartopper are now operating on lakes and small impoundments of the state. Two flat-bottomed river boats, equipped with outboard jet units will be seeing duty on the Lower Youghiogheny and upper Susquehanna Rivers. The Commission's patrol fleet now numbers 146 watercraft.

2,700 capacity plates were issued during the past year, bringing the total number of boaters participating in this program to 28,500.

BOATING SAFETY EDUCATION

The Fish Commission's two mobile boating education vans were again on the road this past season. Two deputy waterways patrolmen were employed full time to operate the vans on special assignment as Information and Education Specialists.

Portable generators and public address systems were added to the van inventory of equipment which added greatly to their range of operation. Loaded with safe boating literature and equipped with projection

facilities the two "theaters-on-wheels" were popular attractions at state parks, marinas, shopping malls and sportsmen's functions. This season the two operators made contact with over 32,000 people. The vans' primary function to provide person-to-person contact on the scene makes them a valuable part of the Commission's boating safety program.

Again in 1977 one of the major vehicles of our boating safety education program was the *Pennsylvania Basic Boating Text*. This course and text rolled into one is an 80-page comprehensive basic safety and skills development book with a 50-question final test and four answer cards include to encourage all boating members of the family to take part in the course. The book had been mailed in 1976 to every registered boat owner in the Commonwealth. This year, continuing the program, a copy of the course was forwarded to each new boat owner upon registration of the craft for the first time.

Noting with concern that the trend in boating fatalities has turned toward small

craft, particularly operating on rivers and streams, Commission watercraft safety personnel focused on two areas during 1977. A new publication, *Sportsmen and Small Boats*, was produced by the Commission using grant-in-aid funds provided by the United States Coast Guard. The sixteen-page booklet, subtitled "Some Tips on Water Survival," illustrates some of the common hazards encountered by hunters and fishermen when using small boats. Particular emphasis in places on cold water boating and on operating on rivers and around dams. 500,000 copies were printed for statewide distribution through Commission district personnel, with a two-year supply provided the Pennsylvania Game Commission for inclusion in their Hunter Safety program.

BOATING ACCIDENTS

Boating accidents reported on Commonwealth waters continued the decline which began the previous year, with seventy-two accidents reported as com-

pared to 100 the year before. Personal injuries were reported at 31 compared to 49 in 1976. Property damage was almost halved, at less than \$70,000.

Fatalities remained on a plane with last year's record low, with 22 boating-related drownings reported during the year. The boating fatality figures for the 1970's compare as follows:

1970 — 35	1974 — 31
1971 — 26	1975 — 39
1972 — 53	1976 — 21
1973 — 38	1977 — 22

More than two-thirds of the fatalities occurred in nonpowered craft — canoes, rowboats and johnboats. Sixteen of the twenty-two happened on rivers and streams. The year's most tragic accident occurred on the Perkiomen Creek when four young people, aged 17-23, drowned in a single canoeing accident as their craft capsized at the base of a dam. Although all four persons were reported to be good swimmers, there was no personal flotation devices on board and the victims quickly succumbed in the cold February water.

Bureau of Fisheries and Engineering

Division of Fisheries

The Division of Fisheries is organized into four sections: Fisheries Management, Fisheries Research, Coldwater Fish Propagation, and Warmwater Fish Propagation. These four sections administer nearly all aspects of Pennsylvania's recreational fishery.

FISHERIES MANAGEMENT SECTION

The activities of the Fisheries Management Section were directed at three major areas of responsibility: coldwater fisheries; warmwater fisheries; and reptiles, amphibians and endangered species. A Warmwater Unit Leader was appointed and an Area Fisheries Manager was appointed for Area 7 (Middle Susquehanna River drainage). These appointments complete the statewide assignment of fisheries managers to geographical areas and permit implementation of an effective warmwater fisheries management program.

Fiscal year 1976-1977 marked the second year of the catchable trout phase of the inventory and classification program. During this year, 190 streams were surveyed. This means that in the past two years a total of 261 catchable trout



streams have been inventoried. This total constitutes 25.6% of all stocked trout water (lakes and streams) and 28.2% of stocked streams.

A federally funded warm water fisheries management project was developed during the last three months of the fiscal year, and this project will become active in fiscal year 1977-1978. The project includes six major areas of interest: lake inventory, warmwater stream inventory, angler demand analysis, program development, technique evaluations and program promotions. The objective of this project is to develop management by fishing resource category within five years.

The Commission has been assigned the responsibility for managing all of the Commonwealth's reptiles and amphibians. The Commission is also the responsible agency for meeting federal requirements and providing information relative to rare and endangered species of fish, amphibians, reptiles and aquatic organisms in

Pennsylvania. In order to adequately meet these responsibilities, a management program is being developed for reptiles, amphibians and endangered species. During this fiscal year, a program coordinator for reptiles, amphibians, and endangered species was designated; a checklist of all amphibians, reptiles and fish of Pennsylvania developed; a tentative classification of the status of these species (rare, threatened, endangered or peripheral) developed; and qualified experts asked to serve on advisory boards for consultation and advice on specialized programs.

A number of specific field studies and projects were completed or continued on schedule. These include: (1) Study to evaluate the effects on highway construction and the rerouting of the stream on Blockhouse Creek continued; (2) the semi-annual monitoring of the trout population in Big Spring Creek, Cumberland County, continued; (3) an inventory of Falling Spring Branch, Franklin County, led to a

cooperative habitat improvement program involving landowners, sportsmen's groups and the Commission; (4) efforts to establish smelt in selected lakes continued; (5) trout spawning in a tributary to Penns Creek were tagged to determine contribution of such streams to the fish population in larger streams; (6) the American shad restoration feasibility study of the Schuylkill and Lehigh Rivers was terminated with the recommendation that efforts be continued to gain shad passage to the Schuylkill River; and (7) a study of the water quality and fish stocks in the Pennsylvania waters of Lake Erie was continued.

During the fiscal year, division biologists conducted a total of 236 stream surveys, 50 lake surveys, and made approximately 14 pollution checks. Staff also engaged in a number of other activities related to fisheries management, including processing of 303 applications for use of aquatic herbicides, review of 135 applications for scientific collector's permits, participation in the Susquehanna River Anadromous Fish Restoration Committee's efforts; participation in the Delaware River Fisheries Technical Committee; and offering testimony at a variety of hearings regarding matters which could affect the aquatic resource. Staff biologists also took an active role in a number of conservation education programs and attended a number of meetings and conferences on subjects directly relating to fisheries science or sport fishing.

FISHERIES RESEARCH SECTION

The Fisheries Research Section continued to concentrate on problems associated with fish culture. The research effort is divided into five major fields of interest; fish pathology, fish cultural techniques, water chemistry, hatchery effluent studies, and whirling disease research.

Fish Pathology —

A total of 257 diagnostic investigations were conducted during the 1976-1977 fiscal year. The most frequently diagnosed problems, in order of prevalence, were: bacterial gill disease, furunculosis, bacterial hemorrhagic septicemia, external parasites, and IPN virus. Other problems encountered included gas bubble disease, ammonia toxicity, drug and chemical toxicity, environmental stress and dietary deficiencies.

Fish cultural Techniques —

Work continued on the Amur pike and Amur pike hybrid project. Several lots of Amur pike hybrids have been held to maturity and photographed. The Amur pike x northern pike hybrid is fertile and a male of that cross was used to fertilize muskellunge eggs this year. A manuscript on the Amur pike hybrids, done in con-



Conveyor used for fish loading results in saving of time and manpower.

junction with Dr. E. S. Crossman of Canada, has been accepted for publication in a scientific journal.

Efforts continued at the Van Dyke Anadromous Fishery Research Facility on the Juniata River. By October 1, 1976, more than three quarters of a million American shad fry and fingerlings had been released from Van Dyke. By June 30, 1977, another 81,000 fry had been released from Van Dyke and sufficient eggs had been received for a potential release of approximately a million by the fall of 1977. During this fiscal year, a utility company operating a hydroelectric station on the lower Susquehanna provided funding for operation of the Van Dyke facility.

A federally funded project was established to study the effects and relative success of feeding several dry, milled feeds to tiger muskellunge. Results of this study should provide coolwater fish culturists with (1) information on rearing techniques, (2) indication of problems involved with diets now available and which might be the best diet, (3) an idea of the effects, if any, of a dry feed on the internal organs and general condition of coolwater fish.

Water Chemistry —

During the 1976-1977 fiscal year, 811 samples were submitted to the Benner Spring water quality laboratory for analysis. A total of 7,616 physical, chemical and bacteriological tests were performed.

Effluent Studies —

Four Pennsylvania Fish Commission hatcheries (Big Spring, Oswayo, Pleasant Gap and Tionesta) were evaluated as to

the effectiveness of their effluent wastewater treatment systems. Sampling was conducted on a monthly basis with each sample series representing an appropriate composite. Sampling locations consisted of representative sites so that each waste treatment structure could be evaluated and realistically compared.

Fish culture stations with DER industrial waste or sewage treatment permits with compliance limitations were monitored. Efficiency studies were conducted at each wastewater treatment facility. Monthly water quality monitoring reports were also required at some facilities. These were completed and submitted to the appropriate regional DER office. Also, federal discharging permit (NPDES) applications for all Pennsylvania Fish Commission hatcheries have been submitted to the EPA regional office in Philadelphia.

Whirling Disease Research —

The five-year, federally funded study of whirling disease was completed. The final report and results have been submitted. It was concluded that: whirling disease probably cannot be transmitted by transfer of disinfected eggs, no drugs are effective in control of the disease, some chemicals are effective in disinfecting raceways and ponds against whirling disease and ultraviolet radiation is effective against the disease organisms suspended in water. Very sensitive diagnostic and staining techniques were developed as a result of this project. Plans are being developed for continuing study relative to the susceptibility of various species of salmonids and to the fate of the disease in natural environments.

COLDWATER PROPAGATION SECTION

The Coldwater Propagation Section includes all trout rearing activities in Commission hatcheries as well as responsibility for the cooperative nurseries.

Fish Commission Hatcheries —

The section hatcheries stocked 1,786,551 pounds of trout, including 4,465,833 adult trout averaging 9.48" in length and 1,804,560 trout fingerlings. This production was achieved despite construction and renovation at the Huntsdale and Benner Spring Stations. Despite rising operating and labor costs, the cost per pound of trout produced was only slightly greater than in the previous fiscal year. Nine fish cultural stations contributed to the trout stocking effort.

The Commission's Lake Erie salmon program continued to be successful with emphasis on coho salmon smolt production and chinook fingerling production. A total of 1,614,907 salmon, including 978,925 chinook fingerlings, was released

into Lake Erie tributaries and Presque Isle Bay.

Cooperative Nursery Branch —

The branch continued to play an important role in the Commission's effort to actively involve Commonwealth sportsmen in enhancing their own sport. The growth of the program and the effectiveness of the CO-OP propagation effort merited recognition of the branch as a major production operation and was included in the Trout Propagation Section. The Cooperative Branch, through Commission hatcheries, provided 1,061,990 fingerling trout, 100,000 eyed brook trout eggs, 195,000 eyed brown trout eggs, 280,000 green walleye eggs, 6,000 largemouth bass fry, and 6 quarts of daphnia to sportsmen's sponsored nurseries. A total of 139 sportsmen's clubs sponsored 170 units (166 trout and 4 warmwater) in 49 counties. Cooperative nurseries stocked trout in 701 water areas in 52 counties and warmwater fish in 8 water areas in 4 counties. Cooperative nursery stockings included 864,542 trout, 2,783 largemouth

bass, 1,038 sunfish, 3,840 yellow perch, 400 bullheads, and 250,000 walleye fry.

WARMWATER PROPAGATION SECTION

The Warmwater Propagation Section produced a variety of fry, fingerling and adult fishes in response to the needs of fisheries management programs. Significant advances were made in techniques to rear tiger muskellunge and walleye in tanks and raceways utilizing artificial diets. The new intensive culture building and raceways at the Huntsdale Fish Cultural Station were placed into production of coolwater fishes (muskellunge, tiger muskellunge, and walleye) for the first time. The contribution of these modern rearing facilities will be reflected in the following year's production total as most of the fish will be stocked in late summer and fall of 1977.

The results of propagation efforts of all Fish Commission fish cultural stations are summarized in the accompanying table.

FISH STOCKED BY STATE HATCHERIES ONLY DURING FISCAL YEAR JULY 1, 1976 to JUNE 30, 1977

SPECIES	FRY		FINGERLING		ADULT		GRAND TOTAL	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight
TROUT								
Brook Trout.....			432,200	9,999	916,309	346,688	1,348,509	356,687
Brown Trout.....			602,300	5,650	1,536,167	593,597	2,137,487	599,147
Rainbow Trout.....			754,800	20,467	1,966,759	787,930	2,721,659	808,397
Palomino Rbw. Trout.....			1,460	146	37,495	20,645	38,955	20,791
Lake Trout.....			13,700	724			13,700	724
Steelhead Trout.....					10,103	805	10,103	805
TOTAL TROUT.....			1,804,560	36,886	4,465,833	1,749,665	6,270,393	1,786,551
SALMON								
Coho.....			635,955	38,740	27	70	635,982	38,810
Kokanee.....			536	13			536	13
Chinook.....			978,925	3,759			978,925	3,759
TOTAL SALMON.....			1,615,416	42,512	27	70	1,615,443	42,582
GAMEFISH								
Chain Pickerel.....			650	65			650	65
Largemouth Bass.....	34,000		38,900	809	869	885	73,769	1,694
Muskellunge.....			113,221	8,031			113,221	8,031
Northern Pike.....			27,700	1,016			27,700	1,016
Smallmouth Bass.....								
Walleye.....	59,300,000		257,420	621	3,827	7,301	59,561,247	7,922
American Shad.....	828,250		41,453	139			869,703	139
Amur Pike Hybrids.....			252	17	12	40	284	57
Striped Bass.....			195	7			195	7
TOTAL GAMEFISH.....	60,162,250		479,791	10,705	4,708	8,226	60,646,749	18,931
PANFISH								
Black Crappie.....			14,500	33	8,957	7,325	23,457	7,358
Bluegill.....					4,573	2,129	4,573	2,129
Brown Bullhead.....					16,429	12,859	16,429	12,859
Carp.....					2,401	7,716	2,401	7,716
Channel Catfish.....					5	8	5	8
Sunfish (Common).....			5,170	21	2,830	580	8,000	601
White Crappie.....								
Yellow Bullhead.....								
Yellow Perch.....			7,500	244	3,539	1,358	11,039	1,602
White Bass.....					216	162	216	162
TOTAL PANFISH.....			27,170	298	38,950	32,137	66,120	32,435
FORAGE FISH								
Sucker.....					2	3	2	3
TOTAL FORAGE FISH.....					2	3	2	3
GRAND TOTAL.....	60,162,250		3,926,937	90,401	4,509,520	1,790,101	68,598,707	1,880,502

Division of Engineering

The Engineering Division is responsible for the development, improvement and maintenance of the physical resources and facilities owned or controlled by the Commission. The division's expenditures for the fiscal year 1976 totaled \$3,810,000. Funding was from the following sources: Commonwealth Land and Water Conservation and Reclamation Act (Project 500) — 42%; Fish Commission Fish Fund — 25%; Federal Aid in Sport Fish Restoration (D-J) and Anadromous Fish Conservation Acts — 21%; and Fish Commission Boating Fund — 12%. The division's projects were all part of Commission programs for the administration of Pennsylvania's recreational fisheries and fishing and boating public use facilities. The emphasis this year was primarily on those programs for public access areas, hatcheries, and the restoration of river fisheries.

In April, 1977, continuance of the Commission's effort in its own capital development and improvement projects relative to the responsibilities of the newly established Commonwealth Department of General Services was defined in an agreement of understanding between the two agencies. Essentially, the Commission will continue its own in-house engineering and architectural design services and force account construction activities. However, future contracted projects involving expenditures of more than \$25,000 will be administered by the Department of General Services. The agreement gives the Commission the benefits of being able to continue to carry out its development program with its own experienced personnel.

The division's principal project under the access area program for the year was the renovation and expansion of public facilities at the Walnut Creek Access Area on Lake Erie. The project consisted of the construction of a bituminous paved road and parking lot system, boat launching ramp, and small boat harbor of refuge. The capacity of the parking lot was increased from 60 to 160 cars with boat trailers and 280 without, and overflow capacity was provided for another 100 cars and trailers on designated lawn areas. Simultaneous boat launching and retrieval capacity was increased from two to six. A 228' x 287' small boat harbor was developed and a floating dock system with overnight berthing for 72 boats of up to 20' length was installed.



Every attempt is made to provide access to fishing and boating waters with as little disturbance to natural settings as possible.

This is the Bradys Bend Access Area, Allegheny River, Armstrong Co.

The Commission's Walnut Creek Access Area has become the mecca for many Lake Erie walleye and salmon fishing enthusiasts. Because of that, during the six to eight weeks in the fall when the salmon "run," the expanded facilities are already being used to capacity. The cost of the project at Walnut Creek, including engineering, was \$671,600. Of that total, \$250,000 came from a U.S. Fish and Wildlife Service D-J Act grant, \$45,000 from the Commission's Boating Fund, and the balance from Commonwealth Project 500 funds.

The Engineering Division also began design work on a \$250,000 multi-purpose building for the Walnut Creek Access Area. The building will house modern public rest rooms, visitor's areas, fish cleaning facilities, and an attendant's office. Appurtenant to the project is the development of a potable water supply and on-site sewage disposal systems. It is anticipated that the project will be funded with Federal Bureau of Outdoor Recreation, Commission Boating, and Commonwealth Project 500 funds.

Other access program construction projects completed during the year were the Conneaut Lake Access Area, Crawford County, and the Goldsboro Access Area on the Susquehanna River, York County. At Conneaut Lake a paved parking lot for 42 cars with boat trailers, and a boat launching ramp were constructed. This was a Commonwealth 500 project and cost \$129,000. At Golds-

boro a paved parking lot for 50 cars with boat trailers, a boat launching ramp, and a floating boat boarding dock were constructed. This was also a Project 500 development and cost \$111,500, with the Commission's Boating Fund sharing \$3,600 of that cost. The Commission is planning further expansion of the Goldsboro facilities due to increased demand for additional vehicle parking and boat mooring capacity. Five lesser improvement projects completed were the enlargement, regrading and paving of the parking lots and boat launching ramps at the Mifflintown, Muskrat Springs, Greenwood, Thompsontown, and Walker Access Areas along the Juniata River in Juniata and Perry Counties.

Plans were completed and construction started on two new access areas. One is located on Bessemer Quarry Lake, Lawrence County. Estimated project cost is \$58,000 with funding shared 25% by the Commission's Fish Fund and 75% by a U.S. Fish and Wildlife Service D-J Act grant. The other access facility under construction is at Bradys Bend on the Allegheny River in Armstrong County. Estimated project cost is \$77,000 with funding shared 50% by the Commission's Boat Fund and 25% each by the Commission's Fish Fund and a U.S. Fish and Wildlife Service D-J Act grant.

The division's staff drew up the plans for two future access areas on the Susquehanna River. Those areas are scheduled for construction early next year. One is

near Mabantango, Snyder County, the other at Fort Hunter, a suburb of Harrisburg, in Dauphin County. The cost of each will be shared by the Commission's Fish and Boat Funds, and a U.S. Fish and Wildlife Service D-J Act grant.

Division personnel acting with the Commission's Real Estate Division specialists investigated eleven sites on waterways throughout the Commonwealth as possible locations for new fishing and boating access areas. Also, inspections and surveys were conducted at six existing access areas for data needed to plan for future renovation or improvement projects: The partial rebuilding of the road into Meadow Grounds Lake, Fulton County; establishment of a new right-of-way into the Ebensburg Reservoir, Cambria County; and the repair of erosion and ice damage at the Oil City Access, Venango County. In addition, other tasks included conducting final inspections in connection with the bond requirements of three previously completed contracted construction projects.

During the year, hatchery development and renovations exceeded all other programs in both capital costs and engineering complexity. Three major projects were completed, construction continued on a fourth, and engineering began for a fifth. Construction and renovation project, funded by a Commonwealth Project 500 grant, was substantially completed on June 30, 1977. The division's staff spent a year designing the project, while construc-

tion, which was mainly by contract, took two years. In addition to modern trout projection units and appurtenant water supply and drainage structures, a large part of the project was specifically designed for the culture of "coolwater" species: muskellunge, pike, and walleye. With the development of the "coolwater" facilities the Commission can undertake, along with its existing trout and warm-water production programs, a distinct new program to propagate and stock cool-water species.

The second hatchery project completed during the year was the development of the Fairview Fish Cultural Station, Erie County. The project, which was designed by the division's staff and constructed by public contract, spanned about two and one-half years and was substantially completed in November, 1976. This totally new facility contains a building for taking and fertilizing salmon eggs and a concrete raceway series for the later stage of rearing salmon fingerlings to smolt, which are released into Lake Erie. The intervening process of hatching the eggs and rearing the resultant fry to fingerlings is conducted at the Linesville, Crawford County, and Tionesta, Forest County, Fish Cultural Stations. The Fairview project cost a total of \$834,000 of which \$461,500 was funded by a Commonwealth Project 500 grant and \$372,500 by a U.S. Fish and Wildlife Service Anadromous Fish Conservation Act grant.

The third hatchery project was the re-

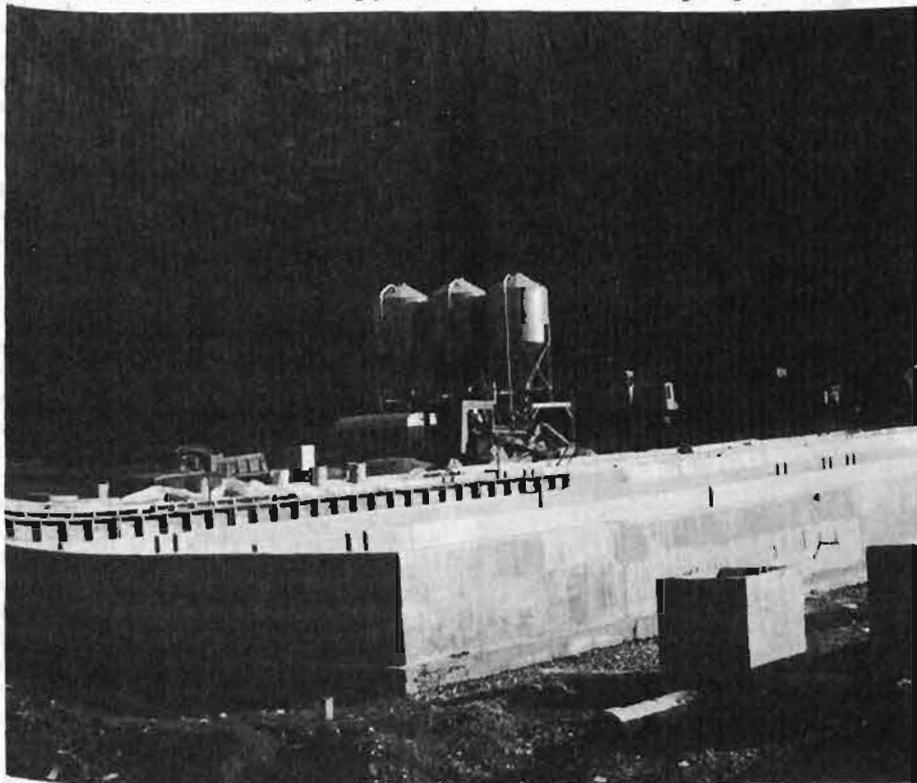
construction of the Lower Spring Creek Unit of the Spring Creek Fish Cultural Station, Centre County. This project consisted principally of the replacement of earthen raceways used for trout production by concrete raceways, and addition of a well water supply and aeration structures, and provision of waste treatment facilities. The project, which was both designed and constructed by division personnel, covered a period of three years and was completed in December, 1976. Project cost was \$1,100,000 which was completely funded by a Commonwealth Project 500 grant.

Of interest is a minor project, the Van Dyke Shad Station on the Juniata River in Juniata County, which was completed in May, 1976 by the division's engineering and construction personnel. This project consisted of the development of pilot or experimental shad hatchery. The facility is primarily a "barrel and pond" operation, costing under \$50,000 to develop. Development was funded by the Commission's Fish Fund and a special grant of \$34,000 from the Pennsylvania Power and Light Company is supporting this year's operation.

The fourth major hatchery project of the year, the reconstruction and renovation of production facilities at Benner Spring Fish Cultural Station, Centre County, by division construction forces, continued through the year. The project, begun last year, is expected to be completed in three years. The new facilities replace an obsolete system of earthen raceways and ponds and will be used for the production of trout and coolwater species. The project also includes the conversion of the ground floor of the Benner Spring Research Building into a "hatchhouse" and the addition to the building of a wing containing a "wet lab." The estimated cost of the project is \$1,600,000 of which \$700,000 is funded by a Federal Bureau of Outdoor Recreation grant, \$50,000 by a Commercial Fisheries Research & Development Act grant, and the balance by a Commonwealth Project 500 grant.

The fifth hatchery project undertaken by the division's staff was the engineering and design work required to renovate the Pleasant Mount Fish Cultural Station, Wayne County. The first phase of the project consists of the replacement of the station's obsolete system of earthen raceways and ponds by modern concrete raceways and ponds designed for trout and coolwater species production. The second phase will include the renovation of the station's hatchhouses and other buildings. Construction of the project will be by public contract and is expected to begin by the middle of next fiscal year. The estimated cost of phase one is \$1,300,000 and phase two \$400,000. Funding of the

These are the Benner Spring production facilities undergoing renovation.



project is anticipated to be by Federal Economic Development Administration and Commonwealth Project 500 grants.

For years the Commission has promoted a program to construct fishways over the dams on the Susquehanna and Schuylkill Rivers for the purpose of restoring the natural runs of shad, herring and other fisheries which the dams prevent. At long last, the first sign of success appeared during the year when the City of Philadelphia applied for a Federal Economic Development Administration grant of \$425,000 to construct a fishway over the first dam, the Fairmount Park Dam, that blocks fish passage on the Schuylkill River. The Commission's Engineering Division in cooperation with the U.S. Fish and Wildlife Service during the year produced plans and specifications for the fishway. Construction of the fishway is scheduled to begin in November 1977. The Commission's share of the project is estimated to be \$40,000 and is jointly funded by the Fish fund and the U.S. Fish and Wildlife Service's Anadromous Fish Conservation Act.

With the exception of planning and design work for rebuilding the dam at Reinings Pond, Wayne County and Ford Lake, Lackawanna County, the division's tasks for the Commission's fishing lake program were largely limited to property surveys. The division surveyed and/or handled property-related requests at: Mauch Chunk Lake, Carbon County; Lily Lake, Luzerne County; Keystone Lake,

Armstrong County; Minsi Lake, Northampton County, and Kahle Lake, Lehigh County. For the near future, the division's tasks on the lake program will largely be confined to necessary maintenance and improvement work at existing lakes.

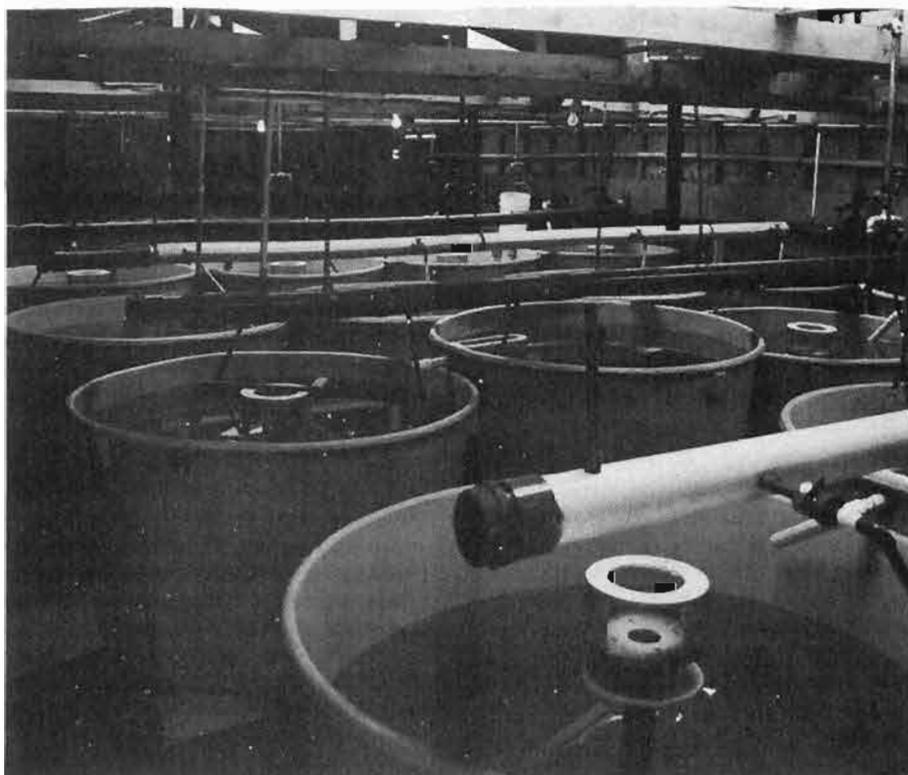
Additional projects performed during the year were: development of conceptual designs for renovation of the Stackhouse School and Administration Building, Centre County; inventory of all pumps in the hatchery systems; construction of a walleye rearing marsh at Nockamixon Lake, Bucks County; construction of a patrol boat shelter at Raystown Lake, Huntingdon County; construction of groins to control erosion along the lake shoreline at Walnut Creek Access Area, Erie County; property acquisition survey of spring-filled gravel pits adjacent to the Fairview Station, Erie County; demolition of a hazardous unused mill building on the grounds of the Cedar Springs Station, Clinton County; and many miscellaneous tasks such as rewiring Commission buildings, installing heating system, installing gasoline tanks and pumps, repair of domestic water systems, construction of display units and panels for exhibits, installing office partitions, reshingling roofs, and installing fencing and steps at permanent salmon collecting facilities on Lake Erie tributary streams.

The Fish Commission is one of the several Commonwealth agencies responsible for the protection of Pennsylvania's water resources, and the Fisheries Envi-

ronmental Services Branch of the Engineering Division bears a large part of the Commission's share of that responsibility. The branch's function is to protect and improve those streams, lakes, and waterways in which the Commission stocks or fosters fish life. It carries out its duties both in conjunction with other governmental departments or agencies in close cooperation with private conservation groups. During the year, branch personnel attended public meetings held by the Corps of Engineers for flood control projects, taught conservation education classes, attended hearings on pollution cases, provided technical assistance to groups performing stream improvement projects, planned stream bank stabilization and channel change projects, participated in meetings with other agencies to control strip mining, and inspected pipeline stream crossings. It reviewed, making recommendations when necessary, a total of: 785 Department of Environmental Resources dams and encroachment permit applications; 1,264 DER permits; 607 mine drainage permit applications; 502 sets of highway plans; 1,012 Corps of Engineers public notices; 384 Environmental Protection Agency public notices; 80 plans of DER stream improvement projects; 9 proposed Delaware River Basis Commission projects; 633 State Clearing House projects; and 15 miscellaneous permits and applications.

Besides responsibility for carrying out the Commission's capital development projects, the Engineering Division is responsible for the routine maintenance of the Commission's statewide public use facilities and various operational units. Those include 228 public fishing and boating access points, 37 of which are cooperatively maintained under agreements with local municipalities or other organizations, 56 public fishing lakes owned or controlled by the Commission, and 17 public fishing stream segments. In March 1977 the number of the division's sectionally located maintenance crews was increased to five with the creation of a new unit operating out of the Pleasant Gap Fish Cultural Station, Centre County. The crews during the year, additionally performed routine maintenance at 3 law enforcement regional offices, 2 area fisheries managers offices, and 2 salmon weirs. The crews were also called upon to assist in the maintenance and operations of the Commission's fourteen fish cultural station complexes and four propagation lakes. The division's expenditure for maintenance in this fiscal year was funded with \$143,000 from the Boat Fund and \$369,000 from the Fish Fund. Of the latter amount, approximately \$158,000 will be shared by a U.S. Fish and Wildlife Service D-J Act grant.

An interior view of the Van Dyke Research Station for Anadromous Fishes.



Bureau of Administrative Services

During this fiscal period, the operations of the bureau in the administrative coordination and implementation of the Commissions services functions continued to become increasingly critical. This was, and continues to be the case in the areas of total Commission budgeting and financial analysis as a result of the need to meet ever-increasing operational costs and, at the same time, meet the growing need to provide fishing and boating recreation opportunities throughout the Commonwealth.

Administrative functions of the bureau in addition to the budgeting and financial analysis functions already described include: land and water acquisition, federal aid coordination, issuance of special permits and licenses, automotive services, affirmative action, purchasing and procurement, planning, retirement, duplicating and printing services, inventory records, personnel and payroll, training, retirement counseling, central files, mail processing and messenger service, warehousing, other incidental functions and the production, shipping and accounting functions for all fishing licenses sold by issuing agents. Fishing license sales again increased over the sales of previous years, and additional increases are anticipated for future years, clearly indicating increasing public awareness of fishing as a rewarding form of outdoor recreation.

LAND & WATER ACQUISITION

The principal responsibility of the Real Estate Division is securing land and water rights for public fishing and boating purposes. The division is likewise responsible for the routine management of these rights following acquisition.

The continuing demand by the public to acquire water-oriented recreational lands for their private use not only has caused a steady increase in land values, but also has drastically reduced the number of developable sites.

Confronted with limited acquisition funds, the Real Estate Division continued with its efforts to secure in fee, and by long-term leases, agreements with municipalities, water authorities, redevelopment authorities, state and federal agencies and industries owning waterfront properties.



The Fort Hunter Access Area on the Susquehanna River, Dauphin County.

Some of the major acquisitions and lease agreements completed or worked on are as follows:

Stream Acquisition:

Susquehanna River, Dauphin County (Halifax Access, 12.27 acres); Fort Hunter Access (1.985 acres); North Branch Susquehanna River, Wyoming County at West Falls (2.527 acres); West Branch Susquehanna River, Clinton County at North Bend (8.05 acres).

Additional land being considered for acquisition at Lake Silkworth in Luzerne County (3.0 acres), and land was acquired at the Huntsdale Fish Cultural Station (0.236 acres) for hatchery expansion.

Cooperative Lease Agreements:

Tidioute Borough, fishing and boating access to the Allegheny River, Warren County; Pardee Beach (renewal), fishing and boating access to the Delaware River, Monroe County; Montoursville Borough, fishing and boating access to the West Branch of the Susquehanna River, Lycoming County; Keystone Lake (renewal), five boating and fishing accesses on lake, Armstrong County; Elizabeth Township, boating and fishing access to the Youghiogheny River, Allegheny County; Van Dyke anadromous research agreement with DER, Juniata County; Northeast Fisheries Management office agreement, Pike County; Special Use agreement with Gateway Clipper, Inc., Allegheny County; Raystown Lake Fish and Motorboat Law Enforcement agreement, Tioga County; Conestoga Trail Association agreement on Speedwell Forge Lake with Lancaster

Hiking Club, Lancaster County; Reining's Pond photogrammetric survey agreement with PennDOT, Wayne County; Rockview State Correctional Institution agreement (various research projects), Centre County.

Right-of-Way Agreements:

Tidioute Access, Warren County, with Tidioute Borough; Walnut Creek Access, Erie County, with Pennsylvania Electric Company; Jacobs Creek, Fayette County, with West Penn Power Company; Kahle Lake, Clarion and Venango Counties, with North Penn Gas Company; Speedwell Forge Lake, Lancaster County with Denver and Ephrata T&T Company; Minsi Lake, Northampton County, with Metropolitan Edison Company and County Commissioners.

In addition to the above 27, stream improvement project leases were processed, 46 special use permits were reviewed and processed and over 53 access area investigations were conducted all throughout the Commonwealth.

SAND & GRAVEL ROYALTIES

The Pennsylvania Fish Commission received \$208,439.85 in royalty payments from dredging companies operating in Commonwealth waters during the 76-77 fiscal year. Cumulative receipts since the passage of Act 225 (Fiscal 70-71) amount to \$1,745,779.12. Although this amount reflects a \$19,262.50 increase over the prior year, we do anticipate a steady decline in this revenue due to the phase-out of dredging on the Upper Allegheny River ordered by the Department of Environmental Resources.

**MISCELLANEOUS
LICENSES & PERMITS**

The Miscellaneous License and Permit Section reviewed and issued the following:

Regulated Fishing Lake	272
Artificial Propagation	168
Live Bait Dealers	545
Transportation	79
Net Permits	221
Scientific Collector	172
Draw Down	148
Dynamite	26

The following applications were reviewed and acted upon in conjunction with other Commonwealth agencies:

Mine Drainage	748
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PERSONNEL

The following are the highlights of some of the accomplishments of the Personnel Office:

Labor Relations: The new AFSCME Agreement was implemented. Contract briefings were held for supervisory personnel. New seniority units were established for purposes of promotion and furlough. The Master Agreement was amended to provide more liberal use of compensatory time instead of direct payment for overtime.

Training: A six month orientational training program was developed and implemented for newly appointed fish culturists. The purpose was to provide overall exposure to nearly all areas of fish culture and provide superintendents with a better way of evaluating employees.

Classification: 95 positions were reviewed to insure correct classification. A compensation study was prepared and implemented for management employees. New specifications were prepared for 7 classes.

Employment: Proposals were sent to CETA prime sponsors resulting in approval of grants for \$92,000 for temporary employees in Erie, Potter and Wayne Counties.

Transactions: 887 transactions were fully processed by the Personnel Office. Over 2,000 transactions were processed.

Benefits: 49 retirement estimates were prepared and 11 individual retirement counseling sessions were held. 246 other cases involving benefits were handled.

The average salary complement during the fiscal year was 416 — a reduction of 6 positions from the previous fiscal year. For permanent positions during the period, 11 appointments and 15 separations occurred.

FEDERAL AID

The section on Federal Aid Coordination prepared and presented ten new projects* and seven new project segments to existing projects** during the year ended June 30, 1977. Total federal reimbursements and grants for the year were \$1,400,279.38. Billings to the federal government, outstanding at the end of the year totaled \$97,644.46. Total reimburse-

ments were distributed as follows:

Fish Fund	\$577,038.38
Boat Fund	200,667.00
Project "500" Fund	622,574.00
Total	<u>\$1,400,279.38</u>

Documentation was executed during the year on the following existing and new projects.

	<i>Planned Cost</i>	<i>Anticipated Reimbursement</i>
Anadromous Fish Act		
**Coho (AFS-5-6)	\$160,000.00	\$80,000.00
**Brandywine Shad Study (AFSC-4-8)	750.00	500.00
**Delaware River Research (AFS-2-11)	5,000.00	-0-
*Fairmount Dam Fish Ladder (AFS-7-T-1)	40,460.00	20,230.00
	<u>\$206,210.00</u>	<u>\$100,730.00</u>

Fish and Wildlife Restoration (D-J)

**D-J Maintenance (F-30-D-12)	\$250,087.00	\$187,565.25
*Bradys Bend Access Area (F-54-D-1)	77,000.00	28,875.00
*Bessemer Quarry Lake Access Area (F-55-D-1)	58,000.00	43,500.00
*Fort Hunter Access Area (F-58-D-1)	24,984.00	9,369.00
	<u>\$410,071.00</u>	<u>\$269,309.25</u>

Commercial Fish Act

**Commercial Effluent Study (3-242-R-3)	\$58,323.00	\$43,742.25
*Wet Lab-Benner Spring Research Station (3-272-C)	200,000.00	50,000.00
*Commercial Fish Study, Lake Erie (3-283-R-1)	63,500.00	47,625.00
	<u>\$321,823.00</u>	<u>\$141,367.25</u>

Federal Land & Water Conservation Fund (BOR)

**Statewide Outdoor Recreation Plan — Update — Phase II — (42-00482)	\$80,000.00	\$40,000.00
*Benner Spring Fish Cultural Station — Construction & Renovation (42-00456) (Stage I)	1,179,100.00	\$589,550.00
	<u>\$1,259,100.00</u>	<u>\$629,550.00</u>

**U.S. Department of Transportation
(U.S. Coast Guard Grant)**

**Boating Safety Program (1701-42)	\$145,999.00	\$145,999.00
	<u>\$145,000.00</u>	<u>\$145,999.00</u>

Fish & Wildlife Act of 1956

*Coolwater Diet Test Study (Contract 14-16-0009-77-045)	\$33,600.00	\$33,600.00
*Whirling Disease Study (Contract 14-16-0009-77-060)	16,875.00	16,875.00
	<u>\$50,475.00</u>	<u>\$50,475.00</u>

**U.S. Department of Commerce
(Fishery Conservation & Management Act of 1976)**

*Mid-Atlantic Fishery Management Council (Contract 04-7-158-44028)	\$7,000.00	\$7,000.00
	<u>\$7,000.00</u>	<u>\$7,000.00</u>

GRAND TOTALS	\$2,400,678.00	\$1,344,430.50
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Comptroller's Office

The Fish Fund balance as of June 30, 1977, rose to \$5,719,428.46, an increase of \$389,483.99 over the previous fiscal year.

Total revenue received amounted to \$9,024,412.28, an increase of \$546,868.26 over the previous fiscal year. This was due primarily to an increase in resident fishing license sales and an increase in Federal Aid for fish restoration.

Expenditures and commitments during the 1976-77 fiscal year totaled \$8,754,267.33. This figure represents a \$714,267.33 increase over the previous fiscal year, due mainly to increased salaries and employe benefits as well as the higher cost of fish food, utilities, motor vehicles and land acquisition.

In reviewing the future needs of the Fish Fund, it should be pointed out that although the balance of the Fish Fund is higher this year than the previous year, this trend will not continue. Expenditures

for current operations are increasing at a level considerably higher than the anticipated revenue to be received from current sources. In order to maintain the solvency of the Fish Fund for as long as possible, the current year's budget has been cut to the bone, only the most essential items are included. However, this is a temporary measure; it will be necessary to obtain additional revenue as soon as possible if the Commission is to avoid more drastic cuts in programs and services in the near future.

The results of operations for the Boating Fund for the 1976-77 fiscal year indicate a net operating increase of \$326,575.13 which brings the amount available for commitment and expenditure as of June 30, 1977, to \$3,828,335.91. Receipts totaled \$2,204,983.73 which was approximately the same as the previous year. Expenditures and commitments totaled \$2,013,189.37 which represented an increase of \$195,793.42 over the previous fiscal year. Increased salary and employe benefits make up the largest part of the increase in costs over the previous year.

As indicated above, the Boating Fund again increased in total. The short range outlook is encouraging for continued

stability. The combined resources of the Boating Fund and the Fish Fund have provided Pennsylvania with one of the best fishing and boating locations in the country.

EARMARKED FUNDS

Act 458, Session of 1963, printed under Section 290 of the Fish Law, provides that the sum of fifty cents (50¢) from each resident and nonresident fishing license fee, senior licenses excluded, be expended for "(1) the acquisition, leasing, development, management and maintenance of public fishing waters and of areas for providing access to fishing waters and the carrying out of lake and stream reclamation and improvement; (2) the rebuilding of torn out dams; and (3) the study of problems related to better fishing, but in no event shall any of the funds be used for propagation of trout." In order to meet this requirement of the Fish law, a minimum expenditure of \$477,500.00 for the above stated purposes was necessary. Actual expenditures were \$1,669,522.24, resulting in the Fish Commission spending \$1,192,022.24 more than the required minimum for these activities during the fiscal year.

The Project 500 is a statewide bond issue passed by the legislature in 1968 for the conservation and reclamation of the land and water resources of the Commonwealth. During the 1976-77 Fiscal Year, the Fish Commission expended and committed \$2,218,954.45, for a cumulative total of \$20,721,567.08 expenditures and commitments to date from the inception of the Project 500 Fund.

FISH FUND	AMOUNT AVAILABLE FOR COMMITMENT & EXPENDITURE	JUNE 30, 1977
Amount Available for Commitment and Expenditure, July 1, 1976.....		\$5,329,944.47
Plus: Prior Year Adjustment — Cancellation of Prior Commitments.....		119,339.04
Adjusted Amount Available, July 1, 1976		\$5,449,283.51
Results of Operations — 1976-77 Fiscal Year:		
Total Revenue Received	\$9,024,412.28	
Less: Expenditures and Outstanding Commitments.....	8,754,267.33	
Net Operating Increase.....		270,144.95
Amount Available for Commitment and Expenditure, June 30, 1977		\$5,719,428.46
BOATING FUND		
		JUNE 30, 1977
Amount Available for Commitment and Expenditure, July 1, 1976.....		\$3,501,760.78
Plus: Prior Year Adjustment — Cancellation of Prior Commitments.....		134,780.77
Adjusted Amount Available, July 1, 1976		\$3,636,541.55
Results of Operations — 1976-77 Fiscal Year:		
Total Revenue Received	\$2,204,983.73	
Less: Expenditures and Outstanding Commitments.....	2,013,189.37	
Net Operating Increase.....		191,794.36
Amount Available for Commitment and Expenditure, June 30, 1977		\$3,828,335.91

FISH FUND — REVENUE JULY 1, 1976, TO JUNE 30, 1977

Resident Fishing Licenses — Regular.....	\$6,629,050.00
Resident Fishing Licenses — Senior.....	164,371.50
Nonresident Fishing Licenses.....	505,275.50
Tourist Fishing Licenses.....	122,811.50
Other Licenses — Commercial Hatcheries, Private Lake Fishing Fees, etc.....	24,796.50
Federal Aid for Fish Restoration, Research, and Flood Damages.....	577,038.30
Interest on Securities and Deposits.....	258,125.40
Income from Sand & Gravel Dredging.....	208,439.80
Fish Law Fines.....	174,684.40
Pennsylvania Angler Subscriptions and Sale of Publications.....	133,521.00
In-Lieu Payments of Erection of Fishways.....	75,000.00
*Other Revenue.....	69,013.60
Sale of Used Autos and Other Vehicles.....	37,225.00
Rental of Fish Commission Equipment.....	25,305.20
Contributions for Restocking Streams.....	19,754.10
TOTAL REVENUE	<u>\$9,024,412.20</u>

* Other Revenue consists of refunds of prior year expenditures, boat mooring permits, gas and oil royalties, services and inspection agreements using Fish Commission personnel, etc.

FISH FUND REVENUE — \$9,024,412.20

Resident Fishing Licenses	75.3%	
Nonresident & Tourist Fishing & Other Licenses	7.2%	
Federal Reimbursements	6.4%	
Interest Income	2.9%	
Income from Sand and Gravel Dredging	2.3%	
Fish Law Fines	1.9%	
Sale of Publications	1.5%	
Contributions, Other Revenue	1.0%	
In-Lieu of Fishways Payments	.8%	
Equipment Rental, Sale of Vehicles	.7%	

FISH FUND — EXPENDITURE & COMMITMENT BY DIVISION

Executive Office.....	\$89,451.60
Comptroller Services.....	124,966.70
Administrative Services.....	699,462.50
Land and Water Acquisition.....	127,395.00
Information & Education.....	359,874.50
Legal Services.....	16,010.30
Propagation.....	3,794,539.50
Fisheries Management.....	557,787.40
Research.....	242,417.40
Engineering and Development.....	682,354.90
Environmental Services.....	69,493.60
Maintenance.....	368,848.20
Law Enforcement Services.....	1,558,532.30
Fish Fund — General Operations — Total	<u>\$8,691,134.40</u>
Dept. of General Services — General State Authority Rentals.....	62,132.80
Treasury Department — Replacement Checks.....	1,000.00
TOTAL	<u>\$8,754,267.30</u>

BOATING FUND — REVENUE JULY 1, 1976, TO JUNE 30, 1977

* Transfer from Motor License & Liquid Fuels Tax Fund	\$1,015,901.73
Motorboat Registration Fees — Fish Commission	768,595.58
Motorboat Registration Fees — Delaware River Navigation Office	9,325.42
U.S. Coast Guard Grant for Boating Safety Program	200,667.00
Interest Received on Securities	166,062.93
Motorboat Fines	35,432.00
Issuance of Capacity Plates for Boats	6,111.14
Sale of Used Autos and Other Vehicles	1,925.00
Miscellaneous	962.93
TOTAL REVENUE	<u>\$2,204,983.73</u>

* Act 65, Session of 1931, as amended March 12, 1957, provides for an annual transfer to the Boating Fund, the amount of the liquid fuels tax paid on liquid fuels consumed in the propulsion of motorboats and other motocraft on the waters of the Commonwealth, including waterways bordering on the Commonwealth.

BOATING FUND REVENUE — \$2,204,983.73

Transfer from Motor License and Liquid Fuels Tax Funds	46.1%	
Motorboat Registration Fees	35.3%	
U.S. Coast Guard Grant for Boating Safety	9.1%	
Interest Income	7.5%	
Motorboat Fines	1.6%	
Other Sources	.4%	

BOATING FUND — EXPENDITURE & COMMITMENT BY DIVISION

Executive Office	\$9,785.00
Comptroller Services	36,800.00
Administrative Services	97,550.00
Land & Water Acquisition	54,655.00
Boating Safety-Information & Education	91,837.50
Legal Services	3,072.88
Engineering and Development	330,037.61
Maintenance	142,635.00
Law Enforcement Services	730,313.86
Boating Services	239,952.15
Boating Fund — General Operations — Total	<u>\$1,736,639.00</u>
Department of Revenue — Collecting Motorboat Registration Fees	254,894.82
Department of Transportation — Delaware River Navigation Office	18,670.69
Department of General Services — General State Authority Rentals	1,984.86
Treasury Department — Replacement Checks	1,000.00
TOTAL	<u>\$2,013,189.37</u>

Note: Effective September 7, 1976, Act 197 transferred all activities and responsibilities of patrol boat operations of the Delaware River Navigation Office to the General operations of the Boating Fund, Pennsylvania Fish Commission. All items stated in this financial report in re Delaware River Navigation Office relate to transactions occurred July 1 to September 6, 1976, and include snagboat operations which were assigned to Department of Commerce on the effective date of this Act.

PENNSYLVANIA FISH COMMISSION
CLASSIFICATION OF EXPENDITURES & COMMITMENTS
(Incurred July 1, 1976, to June 30, 1977)

	Charged to FISH FUND	Charged to BOATING FUND	Combined Funds Expenditures & Commitments
PERSONNEL COSTS:			
Salaries and Wages	\$4,641,931.17	\$763,711.22	\$5,405,642.39
State Share — Employee Benefits	1,254,286.57	168,752.46	1,423,039.03
Travel Expenses	97,097.26	24,786.18	121,883.44
Purchase of Uniforms, Clothing, Footwear	35,818.18	10,610.25	46,428.43
OPERATING EXPENSES:			
Fish Food	656,705.79	-0-	656,705.79
Utilities (Heat, Water, Electricity)	337,781.34	9,187.60	346,968.94
Printing	191,612.44	95,188.36	286,800.80
Vehicle Maintenance — Gasoline, Oil, Repairs, etc.	228,727.46	39,551.84	268,279.30
Payments to Other State Agencies for Services Rendered	194,428.99	59,829.12	254,258.11
Machinery and Equipment Repairs and Building Upkeep	113,449.27	34,521.04	147,970.31
Other Supplies (Educational, Office, Laboratory)	72,790.10	33,555.65	106,345.75
Telephone Expenses	76,757.01	29,497.01	106,254.02
Maintenance of Fish Commission Buildings and Grounds	71,243.01	15,910.14	87,153.15
Rental of Buildings for Offices and Storage	58,443.77	27,089.02	85,532.79
Consulting Fees for Research, Land Appraisals, etc.	40,934.19	15,236.58	56,170.77
Postage	42,688.14	13,136.46	55,824.60
Maintenance and Rental of Office, Xerox, Tabulating Equipment	36,437.70	7,492.99	43,930.69
Insurance—Liability, Surety, etc.	22,784.61	9,329.00	32,113.61
Grants to Outside Organizations for Research or Services	10,600.00	-0-	10,600.00
CAPITAL INVESTMENTS (Purchases):			
Purchase of Passenger Vehicles, Trucks, Powered Boats	187,859.38	43,167.02	231,026.40
Access Area Development and Improvements to Lakes & Streams	7,861.32	185,544.18	193,405.50
Consideration Costs of Lakes and Streams Acquired	127,395.00	54,655.00	182,050.00
Building Improvements to New and Existing Structures	56,073.35	50,416.05	106,489.40
Machinery and Equipment for Fisheries Management, Hatchery Operations, and Land Improvements	92,389.51	-0-	92,389.51
Other Equipment — Office, Scientific, Aquatic	35,038.90	45,471.83	80,510.73
Pa. Fish Commission — General Operations — Total	\$8,691,134.46	\$1,736,639.00	\$10,427,773.46
Collecting Motorboat Registration Fees	-0-	254,894.82	254,894.82
General State Authority Rentals	62,132.87	1,984.86	64,117.73
Delaware River Navigation Office	-0-	18,870.69	18,870.69
Treasury Dept. — Replacement Checks	1,000.00	1,000.00	2,000.00
TOTALS	\$8,754,267.33	\$2,013,189.37	\$10,767,456.70

THE ANGLER'S NOTEBOOK

by Richard F. Williamson

FISH FACT: It is not just the temperature of overly warm water that makes fish listless—oxygen content declines as water temperature rises. In fact, the oxygen can become so depleted that fish become ill and in extreme cases die.

If you shun wire leaders and swivels and tie the lure directly on the monofilament line in fishing for pickerel and pike, a word of caution: Cut off at least six inches of the line and retie the lure after you catch one of these toothy fish. These teeth may not actually sever the line, but they frequently chafe and weaken it.

No angling kit is complete without a selection of weedless lures and some weedless hooks for bait fishing. Weedy spots harbor good fish. So do places where brush has fallen into the water. And it is tough fishing such spots with unguarded points.

To make a bass fly rod leader, get three coils of leader materials, one of ten pounds test, one of eight, and one of six. Use a three-foot piece of the ten pounds test to make the butt of the leader, a three-foot piece of the eight pounds test to make the center section, and a three-foot piece of the six pounds test to make the tippet.

Branches of fallen trees or heavy brush, standing above the water level, are bass targets. Usually masses of limbs or vegetation exist under the water surface, and there is where the bass lie. Cast as close as possible to the stick area or throw a weedless lure right into the mess. If you do not get hung up occasionally, you are not getting your lure close enough.

Rocket taper and weight forward lines are an abomination for casting short distances. The heavy end of the line is heavy enough that the angler working at close range is actually fishing entirely with the heavy section. Lines of these tapers are intended for long-distance casting with wind-resistant lures, when the heavy end of the line will carry the lure 50 or 60 feet.



A hooked bass leaps into the air in an effort to free itself. What to do? You can give the fish slack line, so that it has no direct pull; you can tighten the line hard to pull the fish off balance. Or (and this is a tough one) you can put the tip of the rod down into the water and reel fast, to block the leap.

Hooks equipped with weedless devices need a quick and hard response to set the hook on a strike.

Winter is the time to make repairs on your fishing tackle and to store up replacements for lures and gadgets that have worn out or been lost. Such a task is also a delightful way to use spare time between fishing seasons.

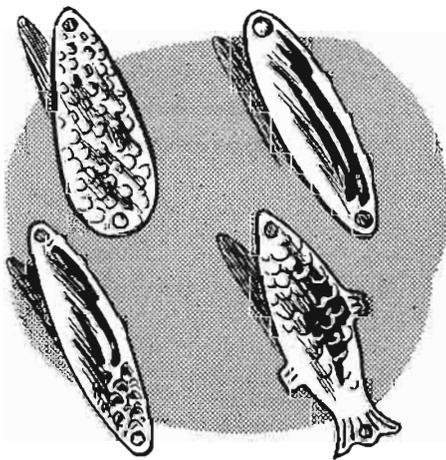
Learn to use plastic worms. They were designed basically for bass fishing, but they also will take pickerel, northern pike and walleyes. Usually they are fished on bottom, but they also are effective over weeds that grow deep. Small worms are more easily handled, and it also helps if they have weed guards on the hooks or are rigged with the hook point buried in the body of the worm. Plastic worms that float are effective in shallow water.

Rust is the penalty for letting metal lures and other fishing tackle remain wet for long periods. Don't store tackle away while it is wet. Expose all metal to the air and let it dry thoroughly. Particular attention must be given to lures dressed with hair or feathers, since these materials hold dampness longer.

Too much oil on fishing tackle can do more harm than good. A single drop of light oil is enough for the bearings of a casting reel. A cloth that has been saturated with oil should be used to lubricate the working parts of a single-action or spinning reel and the shafts on which spinners revolve.

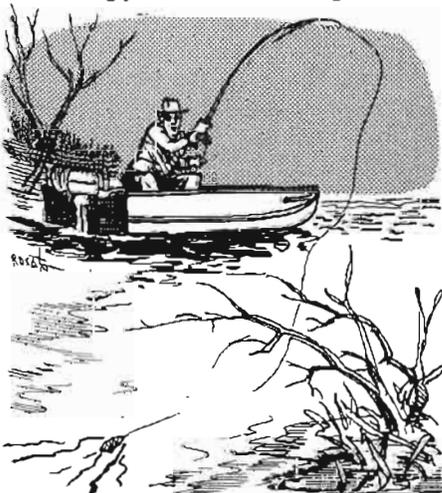
Leader sink hard to find in your local store? Make your own by working liquid detergent and soap powder into a paste.

Bass plugs with propellers attached should not often be moved over the surface at a steady pace. On well-made plugs the propellers turn with the slightest twitch of the rod. The best method usually is to retrieve the lure with gentle twitches and short draws to make it look like an injured and struggling minnow.



Never go pickerel, pike or bass fishing without some spoons. These lures, which are made in a large variety of sizes, shapes and colors, are the best imitations of minnows and other forage fish ever made. They can be fished shallow or deep, slow or fast, or with a steady or erratic retrieve. Some are equipped with single hooks, often weedless, and others with treble hooks. Incidentally, tiny spoons will take big trout.

(more "notes" on page 32.)



Hewitt's Venerable Skater

by Chauncy K. Lively

photos by the author

Few men have been more influential in the development of fly fishing in America than the late Edward R. Hewitt. During a long life, devoted mainly to angling and matters piscatorial, he made many contributions which ranged from progressive ideas about tackle to new philosophies of fisheries management, a field in which he often acted as a consultant. His camp on the Neversink River in the Catskills was his proving ground and it became a veritable laboratory for his many brainchildren.

The Bivisible was perhaps Hewitt's best-known dry fly but close behind was the Neversink Skater. Skaters belong to the long-hackled spider/variant family of dry flies but they display some distinctive features which set them apart from the others. All have hackles with barbules at least twice the length of the standard specified for dry flies of a given hook size. Strictly speaking, true variants have short, stubby wings while spiders have none. Spiders may or may not be dressed with tails; but, like variants, generally sport bodies of floss, fur, quill or tinsel. On the other hand, the Hewitt version of the skater may be termed a tailless, bodyless spider, bearing only hackle wound at the

midpoint of a small, regular shank hook.

It was many years ago when I first read about the Neversink Skater and I was frankly skeptical that it could ride upright without falling over on its backside. But it wasn't long afterward that I had an opportunity to watch Russ Malone use this type of fly on the Lackawaxen River and I promptly became a believer. As Russ so effectively demonstrated, the skater does sometimes alight flat on the water but it is easily pulled upright with a gentle twitch of the rod tip, after which it rides beautifully. Once upright, the points of the vertical barbules penetrate the surface and the hackle literally secures a toehold in the film, with the tension of the leader stabilizing the fly's posture.

The Neversink Skater is an extremely light, high-riding fly and Mr. Hewitt found it most effective when skittered across the surface in short strokes, hence its name. On windy days, particularly when a steady downstream wind is blowing, the Skater may be used to advantage with a light line and long leader. The trick is to stand upwind of a likely pocket, holding the rod tip high to allow a minimum of line to touch the

water. The wind will do the rest, lifting the fly off the water and dropping it like thistledown. By changing the rod's angle the fly may be made to dance over several likely spots from a single position. Greasing the entire leader is an aid in this kind of fishing because even a partially submerged leader will inhibit the free action of the fly. It is almost like dapping, with the wind acting as the angler's ally. The Skater is also effective when fished dead-drift, particularly on high water when trout are normally difficult to raise to the dry fly.

Skating a long-hackled dry fly across the surface places demands on the hackles not ordinarily required of conventional flies and particular attention should be accorded both the selection and application of the hackles in the Skater. The best hackles for this purpose are the spades, the short, long-barbuled feathers found along the edges of a cape. Most hackle feathers are slightly concave on their dull sides and this characteristic is used to advantage in the Skater. Using unwaxed thread, preferably nylon, the two hackles are tied in and wound with concave sides facing each other. They are then pressed firmly together and the result is a rigid unit with the two hackles supporting each other.

The Honey Skater was Mr. Hewitt's favorite for the Green Drake hatch and he used it with great effect on Spring Creek near Bellefonte. Other useful colors are black, brown and dun. There is a short movie, available to sportsman's clubs, entitled "Hewitt and the Neversink", which shows the old master at work. In his characteristic, hunch-shouldered stance, he fishes his Skater below a dam and raises some of the most awful leviathans imaginable. Some he lands; others he breaks off, scratches or misses and each time he comes up empty you can see an "expletive-deleted" curl from his lips. But the reaction of those big browns to his Skater is enough to raise the hackles of the most blasé of dry fly fishermen.

Dressing the Skater:

Left — Select two spade hackles (your choice of color) with barbules of a length to produce a fly of half-dollar diameter.

Right — Clamp a size #16, regular shank hook in vise and tie in unwaxed nylon thread behind midpoint of shank.

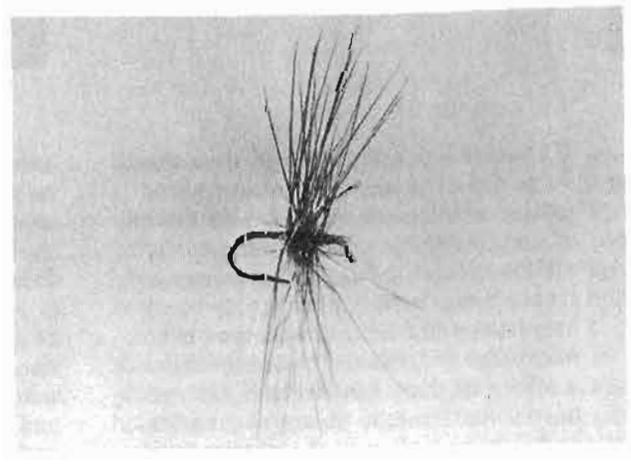
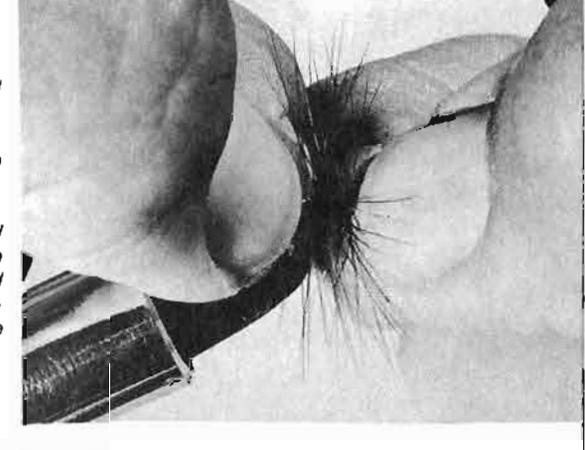
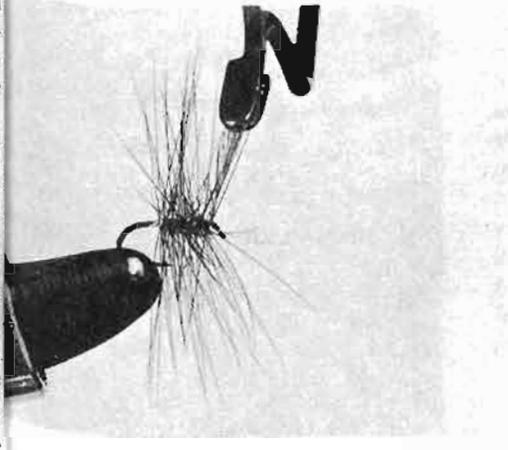
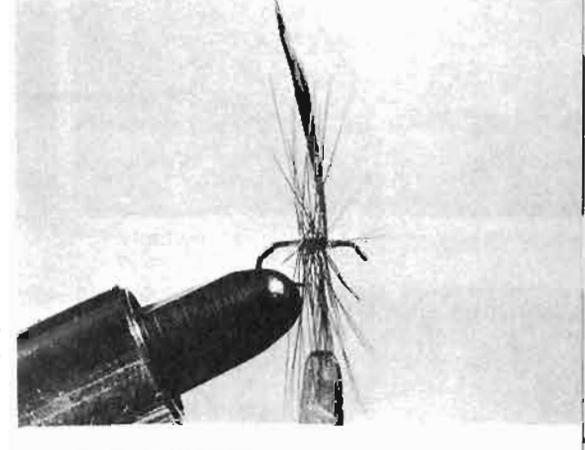
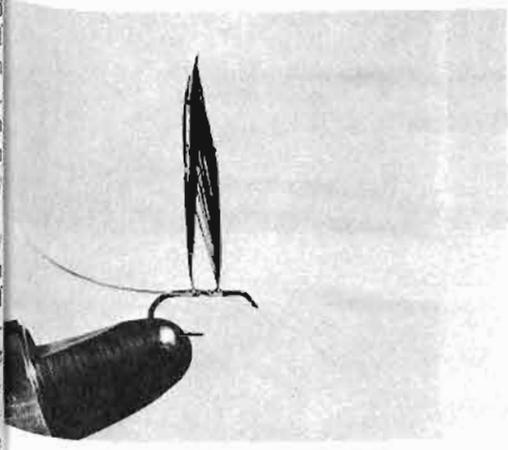
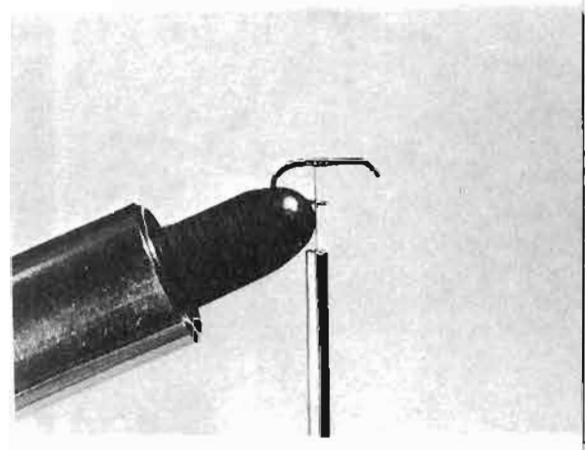
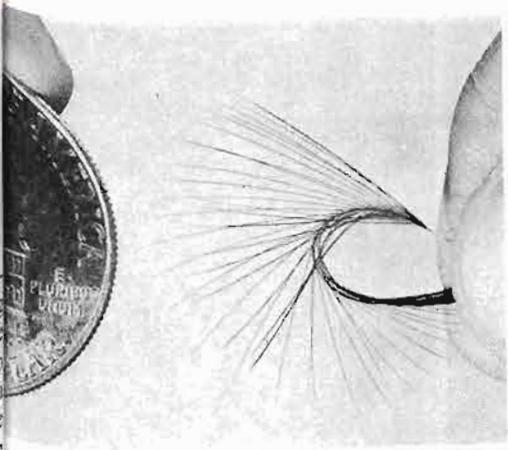
Left — Tie in rear hackle perpendicular to shank with concave (dull) side facing eye. Bend stem toward rear and bind along shank with three turns. Bring thread forward of hackle about 1/8" and bind front hackle with concave side facing rear hackle. Then bend stem forward and secure along shank with three turns. Move thread to rear of front hackle and trim off excess stems.

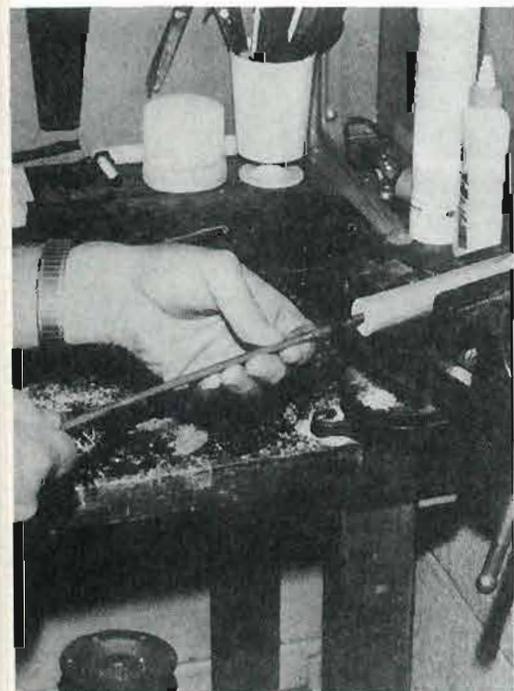
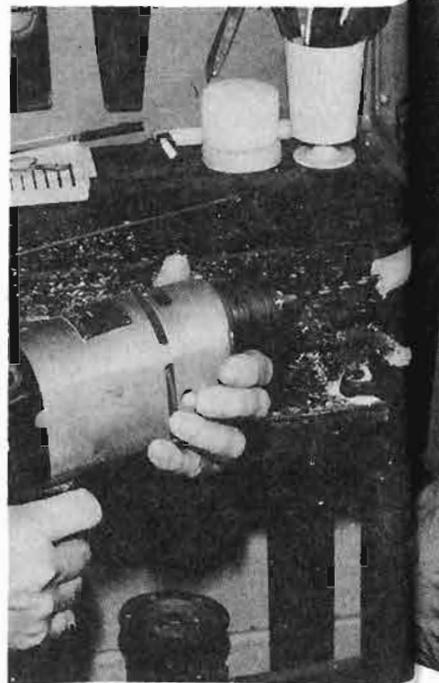
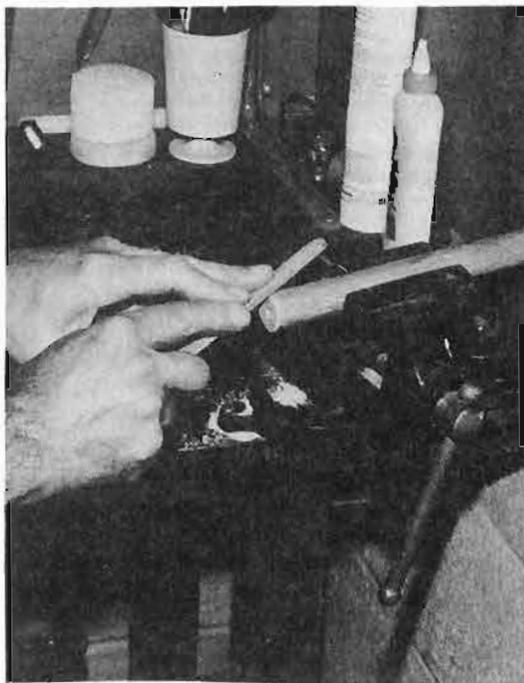
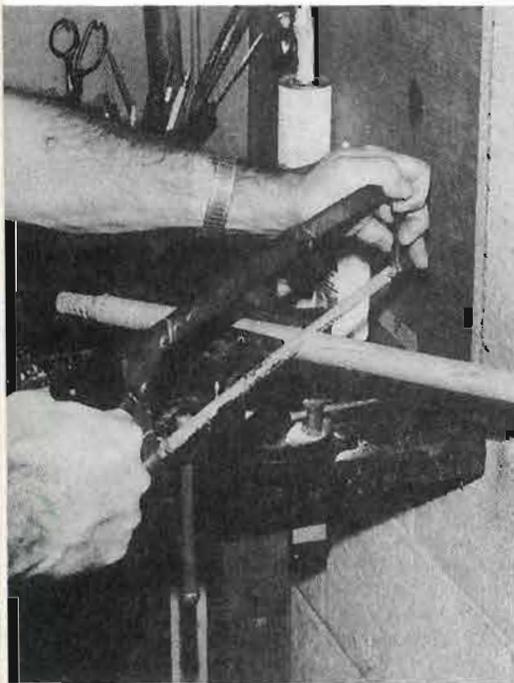
Right — Wind rear hackle in close turns to rear of front hackle and tie off. Trim off excess hackle tip and wind thread forward of front hackle.

Left — Wind front hackle and tie off behind eye. Trim off waste hackle tip and half-hitch thread.

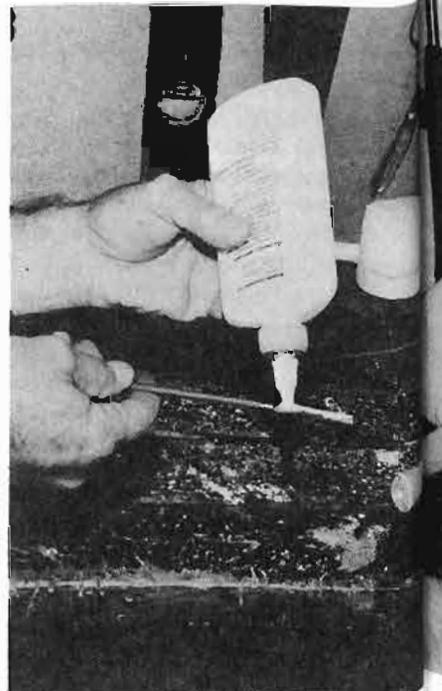
Right — Press hackles firmly toward each other.

Below — The compressed hackles should now be positioned near midshank. Then wind thread to eye, whip finish and remove unused thread. Finally, after applying head lacquer to finish windings, the Skater is completed.





Cut off a 10 to 12-inch piece of broom handle, top left, for the hand grasp of the ice fishing rod. Then, file or sandpaper the edges smooth, top center. Drill a hole about 4 inches deep down the center of the handle, top right. The hole should be just slightly larger than the butt section of the rod tip. Before gluing, check rod tip section for fit in hole, left. Apply glue to butt of rod tip and down into hole in handle. Finally, insert tip into hole, right.



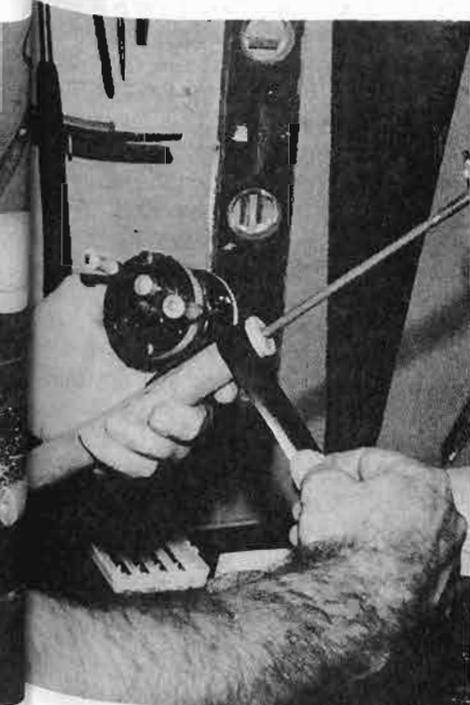
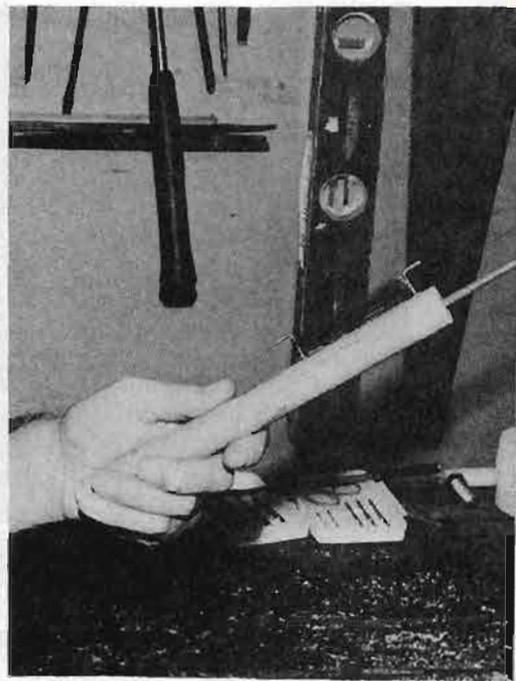
Make your own **ICE ROD** by Gerald Almy

If you're like most anglers, over the years you've accumulated a motley assortment of odds and ends of useless fishing tackle: broken rods, malfunctioning reels, plugs minus a treble hook, bobbers too big to be of use, fishing line heavier than you ever use, plugs and spoons that never drew a strike in their ignoble lives. If you have a spare rod tip among these odds and ends that doesn't match any butt

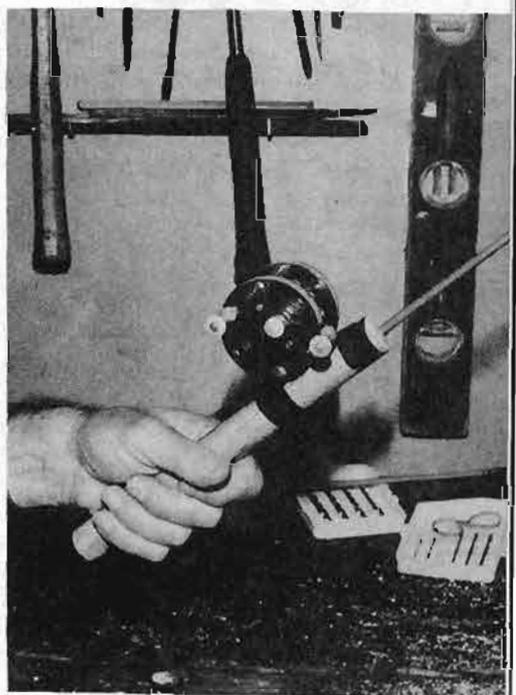
sections, or one that has been discarded as you stepped up to higher quality equipment, it's possible to make a top-notch ice fishing rod from it for just a few pennies.

Materials needed consist of a piece of discarded broom handle or a dowel, the spare rod tip, a pair of L-shaped screw hooks for line holders, and glue.

First make the hand grasp for the rod. A broom or mop handle works



"L" shaped screw hooks, top left, can be used for line holders when fishing for small fish. To install screw hooks, drill two small holes to start the threads, top center. Hooks should point in opposite directions to hold line, top right. If big fish are a possibility, you'll want to allow them to take out line when making a run. An old reel can be taped on with electrician's tape, left. At right is shown the completed ice rod, ready for action.



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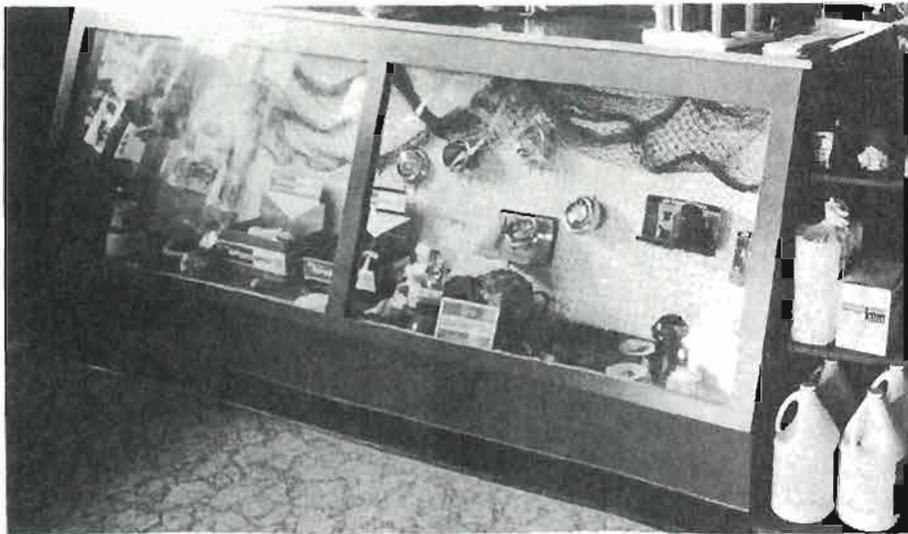
excellent for this. Cut off a 10- or 12- inch section of the pole and file or sand the edges smooth. Drill a hole in the end of the handle, barely larger in diameter than the butt end of the rod tip, approximately 3-4 inches deep, to fit the butt of the rod tip into. (The male ferrule on the rod tip can be removed, if you prefer.) Squeeze glue in the hole and on the butt of the rod and force the rod snugly into the

handle.

There are two choices for finishing the rod. The first one should be employed when there is a possibility of hooking large fish where you may need to pay line out to keep them from breaking off. This involves simply fastening a reel to the hand grasp with electrician's tape. This will hold the reel securely in place.

If you are just fishing for panfish or

small trout, two L-shaped screw hooks, which sell for about 7¢ each, can be added to the upper part of the rod handle. The 1½-inch size is best for most rods. Simply drill two small holes to start the threads and screw in the hooks so that they end up pointing in opposite directions, 3-4 inches apart. Line can then be wrapped around the hooks for storage while not in use.



When purchasing a new boat you can save a good deal of money, says the author, by adding those optional accessories yourself—later on.

Ashore & Afloat

by Gene Winters

The fact that inflation and unemployment continue to plague the country will turn few heads. If you're tempted to say, "Oh, no, not another gloom and doom story," hang in there. I may be able to find a couple of rays of sunshine if you're wrestling with the decision about buying a new boat.

I wanted to get a better understanding of the degree to which the nation's economics were affecting the boating industry and the public. To this end, I spent many hours this past fall making the rounds of marine dealers, marinas, trade shows, and visiting boat manufacturers, including two here in Pennsylvania.

Dealers reported most of any 1977 sales decline came mainly in the high ticket merchandise — the big vessels normally acquired by companies and corporations, or the very rich. Many dealers are convinced the day of countless sales of 65-foot yachts to business has peaked and is definitely on the way down. While manufac-

turers discount this, and it's hard to dispute them when you see the big ones rolling off their production lines, the corporate profit squeeze is on and, more importantly, recent changes in tax laws and IRS interpretations of business expenses have started an irreversible big ticket sales slump.

There was also some sales decline at the other extreme: rowboats and johnboats had slipped (an exception was canoes, which increased in sales). Popularity of boats in the 16-21-foot range continued, tainted only by pockets of unemployment and lack of financing capital for buyers. In many cases, the same dollars were being spent but shoppers had to scale down from weekenders and daycruisers to windshield-wrapped runabouts in some cases.

On the average, it appears the smaller of the small boats are increasing about 10-15% a year in cost. Percentage of increase on larger vessels, in the 32-45-foot range is a lot harder to determine. I know a couple who had a new (ten-month-old) 32-footer that caught on fire and was destroyed. When they went to replace it, they found the same model price had increased over three thousand dollars. But that was only part of the story. The manufacturer, because of increased production and labor costs, had changed almost two thousand dollars worth of accessories from standard to optional at extra cost. So, keep a close eye on the price tag on the boat of your dreams and the other eye on the list of standard features in-

cluded in the base price. Both can change overnight.

Several years ago, I knew a fellow who got all excited about an ad for a boat in the 26-30-foot range selling new, in fiberglass for *under* ten thousand dollars! He got *me* excited, too, and we both started really thinking . . . no, *dreaming* about this boat. Finally, unable to resist its lure any longer, he took off one day, direct for the factory. I have never seen a man more discouraged and disillusioned than he when next I saw him. The boat, advertised at more than five thousand dollars less than comparably sized vessels, was available for under \$10,000. However, that price did not include an engine, which was a \$4000 powerplant optional extra. And, even more astonishingly, that price did not include the fiberglass finish, the gel coat! Supposedly, this was to allow a customer to select hull and interior colors, so long as they were chosen from (only) three the manufacturer made available. Within three months of the first appearance of the \$10,000 ads, there was a price increase of five thousand dollars. (Did the Federal Trade Commission or a governmental agency enter the picture?) For the new, increased price, I don't know if you now got the finished gel coat or not. I was no longer interested in this company at any price.

It is no secret, however, that even reputable manufacturers are tearing their hair out trying to save a buck. But, then, who can blame them . . . aren't we all? Years ago, when boatbuilding was a one-man business, pride of workmanship took the sting out of unrealistically low profits. Today's boatbuilder is more often than not a college educated executive who, while still intent on quality, is determined to be paid for workmanship and quality and still turn a fair profit. He may be housed in a corporate office in Dallas, New York, Seattle, or Miami — hundreds of miles from the plant — but he is trying to keep the lid on spiraling prices to minimize customer resistance while maintaining quality. He is demanding and usually getting more efficient production. Automation, new materials, improved techniques, and new approaches are proving largely successful.

On the other hand, there are new

forces at work, not necessarily evil, that are playing havoc with the best of intentions. Soaring corporate liability premiums because of recent regulations and interpretations of product liability are approaching the percentages that doctors now face for malpractice insurance. Workman's compensation rates are increasing; in some places to unexplainable highs. Environmental requirements, noise abatement programs, worker contamination exposure policies . . . all adding up at a rate that makes a calculator blow a fuse.

While I said all the news in this article would not be grim, there is going to be a point where all the best management, technology, new materials, and intentions in the world will simply not be able to hold the line. While last year's price increases followed the average 10% inflation rate, the overall price increase in the last four years was about 20-35%. A new round of petroleum price increases (of which fiberglass and plastics are a by-product), whether brought about by the oil cartel, the producers, the government, or simply supply and demand, would be reflected almost overnight on the marketplace.

All of which brings us around to the old axiom, "You oughta buy now." During the cold months of winter, if you can find a boat that meets your dreams and fills your needs at a price you can live with, better snap her up. You'll probably save at least ten percent compared to spring's prices for the same model. If you're shopping in the five to ten thousand dollars class, that amounts to five hundred to one thousand dollars in savings for moving now. In addition, many dealers offer substantial discounts during the cold months in order to generate some cash flow.

I had lunch recently with a national sales manager for a boat manufacturer. During our "don't quote me by name and company" conversation, he explained that few prospective boat buyers of smaller size vessels, in the 16-26-foot range, consider ordering a boat with or without the features and accessories they've determined appropriate — they tend to buy right off the showroom floor. This is fine, he pointed out, if they get what they find at the right price. Buyers of larger

vessels usually *have* to order as few dealers have the space or capital to carry every model of every make they merchandise.

At the time the order is written up, most boaters are swept away as the dealer runs through the list of available (at extra cost) options and apparently can only say "yes". Many times these options are not needed or necessary to operate the boat properly or safely; and, they could be added later, at less cost, payday by payday. Look at a typical price list of options. See, for example, how much such-and-such make compass sells for — manufacturer-installed. It may be \$45; but, sitting on the dealer's shelf is the exact same compass priced at \$23 — not installed. Buy it from the dealer and install it yourself and save almost fifty percent.

It's not that the manufacturer of the boat is out to rob you, it's just that he has to pay a skilled worker (and don't forget fringe benefit costs, insurance, etc.) to install it. A worker that could be helping to produce a twenty thousand dollar boat is installing a compass that sells for under twenty-five dollars!

"What I'm trying to advise without saying it," my contact summed up, "is: don't buy expensive options from me that you can buy cheaper and easily install yourself." His theory, he went on to explain, is any item that can be installed or put on a boat with screws, nails, or adhesive *after* the boat is manufactured and delivered, should not be ordered from the manufacturer. "Unless it must or logically should be installed as the boat is being manufactured because of an access problem later, buy it from the marina or a discount mail order house."

I wasn't really about to let him off the hook after that last remark so I politely grabbed his jacket as we arose to leave.

"Discount mail order?" I looked him squarely in the eyes. "Isn't that hitting a little below the belt with your dealers?"

It was his turn to pause for a moment.

"Not really," he replied. "Sometimes it means the difference between making some kind of a sale or none at all. The amount of financing money available may restrict the buyer. Take off some of the goodies (for him to add

later) and you may make a few bucks and really help him at least get the boat he wants. In other words, for both parties, a piece of the pie may be better than no pie at all: Besides, the manufacturer is really not all that interested in selling fire extinguishers, compasses, toilet holders, and so forth."

I questioned him immediately about the fire extinguisher inclusion; his reply was to the effect that the small size and capacity placed aboard and universally accepted is woefully inadequate for a fire on board a boat . . . a fact that is hard to challenge. "A manufacturer," he continued, "makes many items available only for convenience, regulatory reasons, appearance, or to deliver a total concept boat package. But a manufacturer has to sell a lot of cigarette lighters, at any price, to make the same amount of return on his investment as he'd get doing what he set out to do: build boats. "As far as buying discount, some dealers and manufacturers alike appear to try to make a killing on each item. Maybe the buyer is, for this reason alone, justified for going discount whenever and wherever he can, mail order or otherwise. Besides, the manufacturer and dealers, if they are any kind of business people at all, buy where *they* get the best price consistent with quality and service. Why should the consumer be expected to seek any less? Why must he, alone, be made to feel like a third-class citizen if he tries to save a dollar legally?"

I left the restaurant and headed home. As I drove, I tried to sort through the sales manager's remarks. To a large extent, they made sense. Yet, I thought, if this is truly the feeling in the industry, why was he so insistent on remaining anonymous? But it was hard to deny, if a prospective boat buyer took the list of available options, scanned it with an eye towards the unneeded items, or those he could purchase and install himself, it just *might* be possible to save hundreds of dollars! And, if he bought right now, in midwinter, and saved another five hundred or so . . .

It couldn't be that simple, I assured myself. It just couldn't be that easy to save hundreds or thousands of dollars on buying and equipping a new boat . . . *or could it?*

Northcentral Region Supervisor Miles D. Witt Retires—

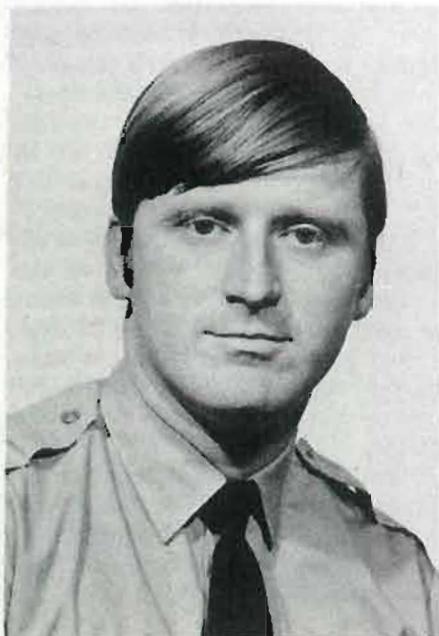


After 22 years of service in a variety of assignments, Miles D. Witt retired from Commission service October 21, 1977. Mr. Witt began his service as the Commission's district officer for Bucks and Northampton Counties in 1955.

One of the pioneers in float stocking of trout in Pennsylvania, in 1963 Miles Witt personally built one of the first float boxes to be used in his district, beginning a system of trout stocking which has gained more favor each year with Keystone State fishermen.

Promoted to Assistant Regional Supervisor of the Southeast Region in 1966, then Supervisor in 1967, Mr. Witt served there until the present Northcentral Region was established in 1973. He had served as Supervisor of the latter Region until his retirement.

Assistant Supervisor Paul F. Swanson Assumes Post—



Paul F. Swanson, a 1967 graduate of the Fish Commission's H.R. Stackhouse School of Fishery Conservation and Watercraft Safety, was appointed district officer for Centre County, serving later in that same capacity in Western Erie County.

In 1971 Mr. Swanson was promoted to Watercraft Safety Officer for the Commission's Northwest Region, a post he held until promoted to Assistant Supervisor of the Northcentral Region in 1973. Very active in stream improvement and restoration, Paul Swanson's writings on the work done on the streams of northcentral Pennsylvania have appeared in the *Angler* on a number of occasions. He assumed the supervisory post upon Mr. Witt's retirement.

More . . . Angler's Notebook (continued from page 25.)

A plug or fly rod lure begins working for you the instant it touches the water, so never be in a hurry to work a surface lure out of a likely looking spot. Bass often hit lures lying motionless while an angler lights a smoke or works out a backlash on a casting reel.

Fish hit hard, but monofilament spinning lines stretch; so, strike hard once or twice to drive the hook past the barb into the flesh of the fish.

Matching rods, lines and lures is im-portant for successful spincasting. Ultralight rods are designed to handle lures weighing one-sixteenth to one-quarter ounce; medium action rods, lures of one-quarter to one-half ounce, and heavy duty rods, lures heavier than one-half ounce. And, the lighter the lure, the lighter the line that must be used with it.

Too many bass anglers ignore streamers, although they use artificial lures of other types. Streamers imitate minnows, which are one of the favorite foods of bass.

A guide for spinner sizes: No. 0 for panfish, No. 1 for brown and brook trout, and No. 2 or No. 3 for rainbow trout and bass.

Cast after cast can be made with a plastic worm into the same target area because the worm makes very little disturbance when it falls on the water and when it is being retrieved. It may be good tactics to make only one cast with a plug at a particular spot before moving to another, but with the plastic worm three or four casts can be made in the same area, and a strike can come on the final cast.

Two good times to study streams: Late summer, when the water is low and the "structure" of the stream can be easily seen; and spring, when the marks of winter can be observed.

New patterns and types of trout flies appear in great numbers, but the angler should not forget old friends. Such faithfuls as the Coachman, March Brown, Hare's Ear, Quill Gordon, Pink Lady, Yellow Sally, and Hendrickson, to list a few, still are powerful trout attractors.

PENNSYLVANIA FISH COMMISSION DIRECTORY

State Headquarters: 3532 Walnut Street, Progress, Pa. (Mailing Address: PO Box 1673, Harrisburg, Pa. 17120)

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Assistant Attorney General
Peter J. Ressler

Administrative Assistant
Howard T. Hardie

Comptroller
Edward T. Durkin

Office of Information

Willard T. Johns, Director 717-787-2579

Conservation Education, Stephen B. Utsh
Special Publications, Larry Shaffer

717-787-7394
717-787-7394

Pennsylvania Angler, James F. Yoder, Editor
Angler Circulation, Eleanor Mutch

717-787-2411
717-787-2363

BUREAU OF FISHERIES & ENGINEERING

Edward R. Miller, P.E., Assistant Executive Director

Robinson Lane, Bellefonte, Pa. 16823 Tel. 814-359-2754*

(*Unless otherwise indicated, all offices within this bureau may be reached at this same address and telephone number.)

Fred W. Johnson, Water Resources Coordinator 717-783-2808

(Office at State Headquarters, 3532 Walnut Street, Progress, Pa.)

Dennis Ricker, Administrative Officer*

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Warmwater Production Section, Shyrl Hood, Chief
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Research Section, Vincent Mudrak, Acting Chief

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Cooperative Nursery Branch, Robert Brown, Chief*

FISH CULTURAL STATIONS

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814-359-2754

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814-683-4451

Box 127, Linesville, Pa. 16424

BENNER SPRING, William Kennedy, Superintendent
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OSWAYO, D. Ray Merriam, Superintendent

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REGIONAL LAW ENFORCEMENT OFFICES

NORTHWEST, Walter G. Lazusky, Supervisor 814-437-5774
Mailing Address 1281 Otter St., Franklin, Pa. 16323
Location 1281 Otter St., Franklin, Pa. 16323

SOUTHWEST, Thomas F. Quarters, Supervisor 814-445-8974
Mailing Address RD 2, Somerset, Pa. 15501
Location On Lake Somerset, Somerset, Pa.

NORTHCENTRAL, Paul F. Swanson, Supervisor 717-748-5396
Mailing Address Box 688, Lock Haven, Pa. 17745
Location 129 Woodward Ave. (Dunnstown), Lock Haven, Pa.

SOUTHCENTRAL, Richard Owens, Supervisor 717-436-2117
Mailing Address RD 3, Box 109, Mifflintown, Pa. 17059
Location On Route 22, 3 miles west of Mifflintown, Pa.

NORTHEAST, Clair Fleeger, Supervisor 717-477-5717
Mailing Address Box 88, Sweet Valley, Pa. 18656
Location On Harris Pond, Sweet Valley, Pa.

SOUTHEAST, Norman W. Sickles, Supervisor 717-626-0228
Mailing Address Box 6 Elm, Pa. 17521
Location On Speedwell Forge Lake, on Brubaker Valley Road

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(State Headquarters)

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Purchasing (Harrisburg), Avyni Richardson 717-787-2732

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