

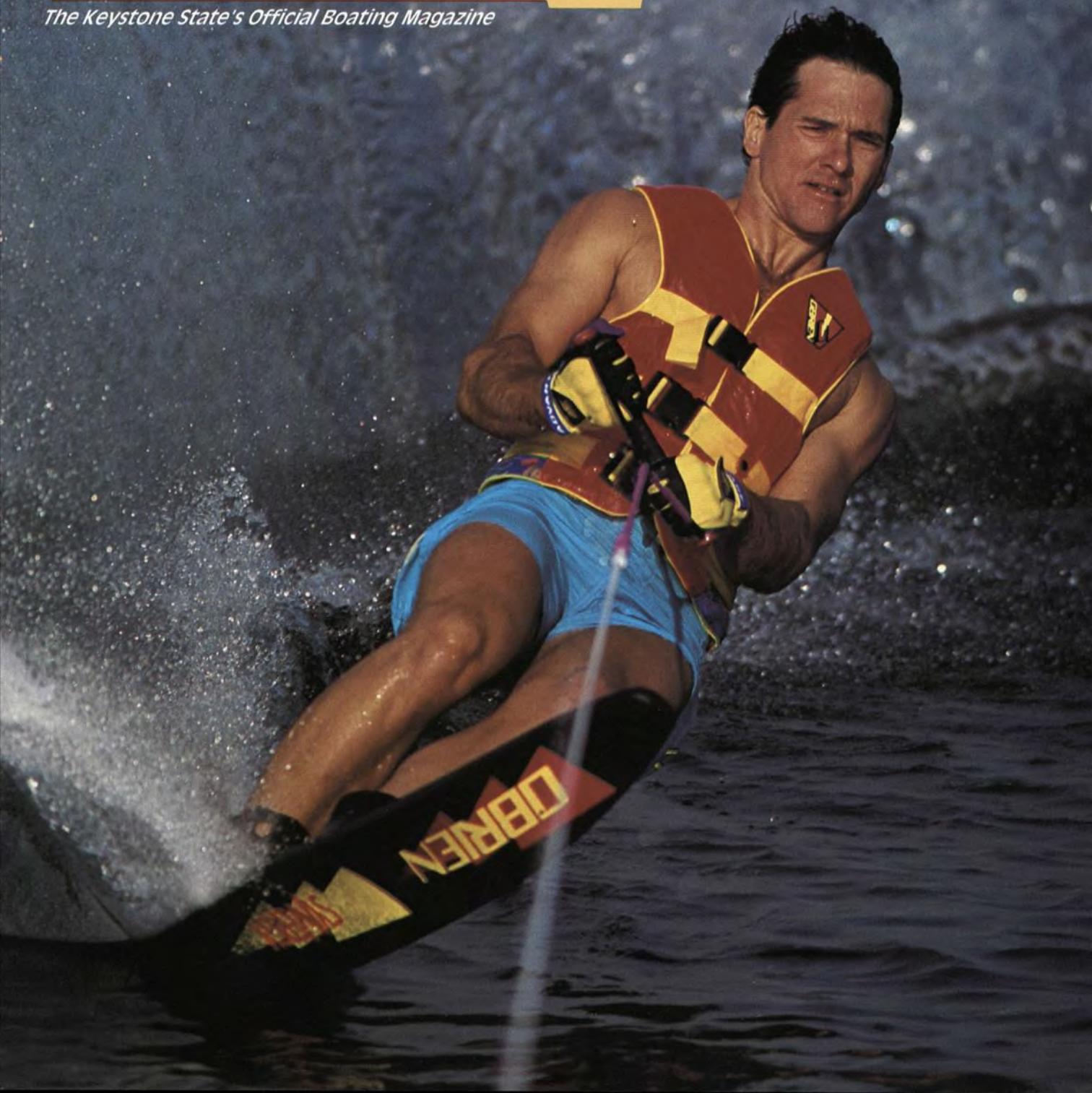
Summer 1992

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BOAT

Pennsylvania

The Keystone State's Official Boating Magazine



An Important Step for the Future of Boating



John Simmons

Director

Bureau of Boating

Pennsylvania Fish & Boat Commission

On December 12, 1992, House Bill 1107 was signed into law. Boat registration fees were increased for the first time in nearly 30 years and the name of the Commission was changed to the Pennsylvania Fish and Boat Commission. By changing the name of the Commission to the Fish and Boat Commission, the Legislature recognized the importance of boating to the citizens of the Commonwealth. Whether you fish, water ski or cruise, your boat has become an important part of your recreational experience. Each year over 2.5 million people go boating. Only swimming, hiking, biking and fishing had greater participation levels.

In 1963, the year the Commission was officially given authority over the Pennsylvania boating program, only 78,000 boats were registered. Since then, boating has grown steadily. Today over 302,000 boats bear Pennsylvania registrations. To accommodate this growth, additional launching facilities had to be provided. New laws and regulations had to be written. Methods to provide additional law enforcement had to be found to maintain control over the use of the water. Boating safety education programs had to be developed so that the great number of people new to boating could learn the rules of safety and courtesy.

During the development years of the boating program, expansion of the registration base and additional revenue sources, such as the return of the tax paid on fuel used in boats, Projects 500 and 70, Federal Aid for Fish Restoration and the U. S. Coast Guard boating safety assistance programs, all helped defray the costs associated with the increased services. Unfortunately, the cost to provide services began to outstrip available resources during the latter part of the last decade. Costs continued to rise, but the small increases in revenue from each new registration were not sufficient to keep up with the demands each new boat placed on the system.

When determining the amount of increase to request from the Legislature, the Commission estimated that the increased boat registration fees would have to bring in about \$3.5 million annually or about \$2.3 million more than previously collected. This amount was needed to fund current programs and to meet inflationary pressures. The Commission has identified several major areas, based on requests of the boating public, where additional effort will be made.

•**More safety patrols/regulatory enforcement.** Ten additional fulltime officers will be hired along with 20 seasonal officers to help patrol the busiest waters of the Commonwealth. The Commission will also increase the compensation of deputy waterways conservation officers.

•**Expand boating safety education.** Financial grants will be made available to schools to encourage them to incorporate boating safety programs into their curriculums. Additional education specialists will be hired to coordinate programs in the various regions of the state.

•**Improve and maintain boating access areas.** The Commission has developed 300 boat launch sites. These areas provide a place to park vehicles and a ramp to launch boats. Additional revenues from the boat registration fees will ensure the continued acquisition and development of new access areas and the improvement and maintenance of current facilities.

•**Aids-to-navigation program.** The Commission oversees a program in which over 1,700 aids are currently deployed by state and federal agencies and private parties. These navigational aids include buoys, signs and other markers. Important maintenance and systematic tracking of this program will be implemented to improve boating safety.

Act 1991-39 was an important step for the future of boating in Pennsylvania. It provides recognition of the sport and the funding to take it into the next century. The boaters of the Commonwealth were behind our efforts all the way. You have our continuing pledge that the new revenue will be used to increase your enjoyment and safety, and to ensure that boating will always be a premiere recreational activity for the citizens of Pennsylvania.

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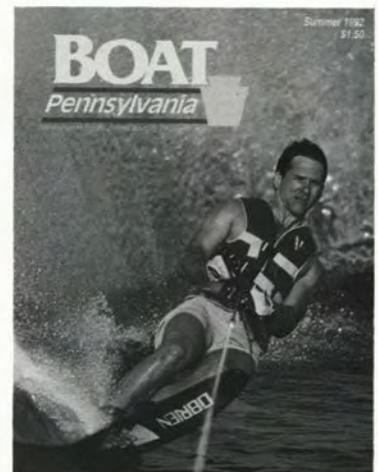
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This issue's cover, photographed by Tom King, shows one fun summer activity that Pennsylvanians appreciate. If you'd like to enjoy water skiing more, check out the article of practical ideas on page 28. No matter which kind of boat you use, the article on page 4 explains which gauges you need, and on page 16 you'll find some valuable ideas on maintenance. You know that VHF radio in your boat? Do you really know how to use it, especially in an emergency? Better check out page 24 just to be sure. Paddlers can find three fun places in the three articles beginning on pages 6, 14 and 26, and for all boaters, the ideas on page 12 show you how to predict the future.





Which Gauges for Your Engine?

by **Bob Stearns**

When we're on the road, we depend on a speedometer to tell us how fast we're going, and for the most part the seat of our pants tells us how well the vehicle's engine is performing. To be sure, there are gauges on the dash, and all of us have learned to watch at least one of them very carefully—running out of fuel can be both inconvenient and embarrassing. The smaller minority among us may even pay some attention to oil pressure and engine coolant temperature, or possibly even the battery charging indication in whatever form it may be. Usually we recognize only that something's wrong when the engine starts missing badly or quits, or when the radiator boils over.

On land, rarely are any of those problems more than an aggravating bother, although sometimes a bit expensive, too. If the vehicle stops completely, you might have to walk to a telephone or flag down a passing cop to call for a tow. Most of the time you can get the critter to limp to the nearest service station.

Boats are a lot different. On the water, service stations (marinas) can be scarce or far away. Walking to a telephone is obviously impossible. A VHF radio helps, if you have one. The Coast Guard and other

law enforcement agencies responsible for patrolling waterways seem never to be around when you want them, too.

Even though the seat of your pants can tell you a great deal about your boat's overall performance, even serious engine problems can all too easily go undetected. Unlike the relative smoothness of the highway and the quiet of the inside of your automobile, boats bounce around a lot and tend to be very noisy. Short of blowing a connecting rod, unless the engine quits entirely, or at least slows down considerably, you very likely won't hear or notice anything wrong. Your attention is already divided among too many confusing elements—the noise and motion, enjoying the sights, eating a sandwich and exchanging war stories in very loud voices with your companions.

If you operate in muddy or shallow water, consider a gauge to indicate the engine block temperature and the cooling system's water pressure.

So when it comes to boat engines—outboard, stern drive or inboard—only the right gauges can provide an immediate measure of how well your engine is doing. Yet, all too often we tend to skip an important gauge or two to save a few bucks, especially when it comes to outboard engines. But considering the cost of even today's bigger outboards, say, 50hp and up, the extra outlay for a few critical gauges should be thought of in terms of insurance. No inboard or stern drive skipper would ever think about doing without the basic instruments on the dash or console.

My own personal rule says that if the engine is mounted permanently (as opposed to portable/removable, like a small kicker), it should be "protected" with the proper instrumentation. And if the boat is open so that the gauges are exposed to the elements, they deserve protection, too.

Gauge "musts"

You don't need a lot of instruments. A tachometer is at the very top of my list, followed by a battery condition meter (voltmeter). If the engine is a 4-cycle, oil pressure is probably as important as a tach. And some sort of overheat warning is right up there near the top of the list. I like the audible

type for overheat, as long as there's a way to test it.

Many of today's outboards have an overheat warning horn, and some even have an overheat rev limiter that automatically reduces rpms to a low level. The overheat horn is fine as long as there's a way to test it. I like the auto-test type that beeps or blats briefly when the ignition key is turned on, so you know for sure it's still working. Outboards so equipped are less likely to need a temperature gauge, except under special conditions.

An engine hour meter helps if you're serious about scheduled periodic maintenance. It's sort of the marine version of your car's odometer.

Tachometer

Back to the tach. It can tell you a great deal about what's going on with your engine—even whether or not you have the right propeller. It can save the engine from a premature death through accelerated wear.

All engines have a cruising speed that yields the best fuel economy and the least engine wear. That speed is measured in rpms, as well as mph, and it may actually include a range of rpms. Outboards, for instance, if fitted with the right propeller, usually hit their best fuel economy at around 4,000 revs. The rpm "window" where good fuel economy and minimal engine wear occur simultaneously might be from as low as 3,000 to as high as 4,500. The actual size of the window depends on both the engine and the boat.

A boat that barely has enough power to get on plane obviously has a small window, perhaps only a few hundred revs wide. If it takes full throttle to stay completely on plane, you surely don't need any gauges to tell you that the engine won't be around for very long.

Throttling back so that the engine must forever struggle in an effort get the boat "on step"—and yet never quite makes it—only means constant hard labor and accelerated wear. Better to drop all the way back to the hull's best displacement speed. You'll save a lot of fuel, too. Halfway on plane is fuel economy at its absolute worst.

The tach can also serve as a speedometer of sorts, if you know the boat's actual speed at several important rpms (for ex-

ample, best cruising speed).

If the propeller has too much pitch, the engine won't be able to reach the top of its rated rpm range at full throttle. This means it will always be laboring more than it should, even at cruising speed. It is doesn't have enough pitch, the results are obviously serious over-reving at top speed and accelerated wear.



If your rig is properly propped, you can use the tach regularly to check the health of the engine. I do this by running at full throttle for just a minute or so, on the way back to (and not far from) the dock or ramp, at the end of the day's outing. I look for any significant non-load-related drop in top rpms. Even just a little unexplained loss at the top, perhaps a few hundred revs, can indicate a potential problem, particularly if it is persistent over several trips in a row.

The cause might be nothing more than dirty spark plugs, but it could also be the precursor of an ignition problem, or something even more serious, like a tiny crack in a piston ring or a cylinder wall. Even just a little compression imbalance between cylinders can increase the wear factor.

I've been using the momentary full-throttle test to check my boat engines for almost 30 years now, and I've yet to have the procedure cause any problems.

When it comes to boat engines—outboards, stern drives or inboards—only the right gauges can provide an immediate measure of how well your engine is doing.

Voltmeter

A battery condition meter (a voltmeter) helps indicate whether or not the charging system (alternator, etc.) is doing its job. It also provides a relative indication of how fully the battery is charged. A big drop in voltage after the engine is started indicates a charging problem or very weak battery. If the battery is fully charged and the alternator is OK, the meter will indicate 13 V or more, for example. The more you use it, the more familiar you'll get with its little "messages."

Engine block temperature gauge

If you often operate in muddy or very shallow water, consider a gauge to indicate the engine block temperature and possibly even the cooling system's water pressure. A plugged cooling intake or passage will probably show up on one of these gauges before the overheat horn squawks, if you keep an attentive eye on the instruments.

Fuel gauges

Fuel gauges can help for obvious reasons, especially if there's no way to sound the tank with a stick. Just don't use the gauge to operate off the bottom fourth of the tank—they aren't always that accurate.

Keeping mental track of time and distance is probably just as good, if you're careful. Know the fuel tank's usable capacity and check the gauge against that each time you fill it.

In spite of frequent advertisement to the contrary, I have yet to find any gauge that is completely waterproof if it's out in the open where it gets the full radiation of the midday sun, mixed in with spray (especially salt spray) and occasional rain. If they're mounted on a horizontal or sloping surface, the situation is considerably aggravated by the retention of water on the dial face by the bezel. I've seen a lot of so-called fog-proof gauges become unreadable in minutes when it starts raining.

Good gauges aren't cheap, and they sure don't last long once they begin to leak or fog. For a while a leaky gauge might even look just fine, yet still be functionally impaired. Fortunately, that's an easy problem to prevent. A clear-plastic cover is all it takes. If you can't buy one that's ready-made, you might have to go for a custom job. But even that's well worth the cost in the long haul.





Padding the Friendly Allegheny

by Mike Sajna
photos by the author



Standing on the bank at Franklin looking out over the vast expanse of the Allegheny River, I am struck once more with the apprehension I felt when my would-be partners backed out, and I realized the only way I would be able to make the trip would be alone. Everybody is always ready for an adventure until the time actually arrives.

"What are the rapids like?" I ask again, as Jim Schafer and his brother, John, two friends from the Pittsburgh area, load their canoe.

"They're not bad," Jim, who has made the trip before, reassures me once more. "The only ones you might have trouble with are the falls at Emlenton. And you can always get out and walk around them."

The word "falls" does not make me feel any better. But they are two days away. I tell myself Jim is right and that I'll cross that bridge when I get to it. I climb into my canoe and shove off.

In a moment, we are rounding a bend toward a gravel island and ominous-sounding riffle. My heart beating a tattoo, I slip down onto my knees, and focusing as best I can over the bow, dip my paddle from side to side as we bob past a wading fisherman and into a deep pool.

"That's about as bad as it gets," Jim tells me.

"That's it!" I answer happily. "I can handle that!"

And so can anybody else. Even the most novice paddler can easily negotiate the Allegheny River between Franklin and Emlenton, so congenial are its long flats, deep pools and gentle riffles. But that is only one of the many charms of the river as it flows through the southern half of Venango County.

Western Pennsylvania was once among the most heavily industrialized regions in the world. It is difficult to find a large river anywhere on the windward side of the Allegheny Mountains that is not lined by towns, highways or hulking manufacturing plants. A few miles worth of empty, scenic river can be found here and there, but nothing to rival the 34 miles of the Allegheny that flows from Franklin to Emlenton.

Of the country along the stretch, the French explorer Father Joseph Bonsecamps wrote in 1749, the mountains are "sometimes so high that they did not permit us to see the sun before 9 or 10 o'clock in the morning, or after 2 or 3 in the afternoon...Here and there, they fall back from the shore, and display little plains of one or two leagues in depth."

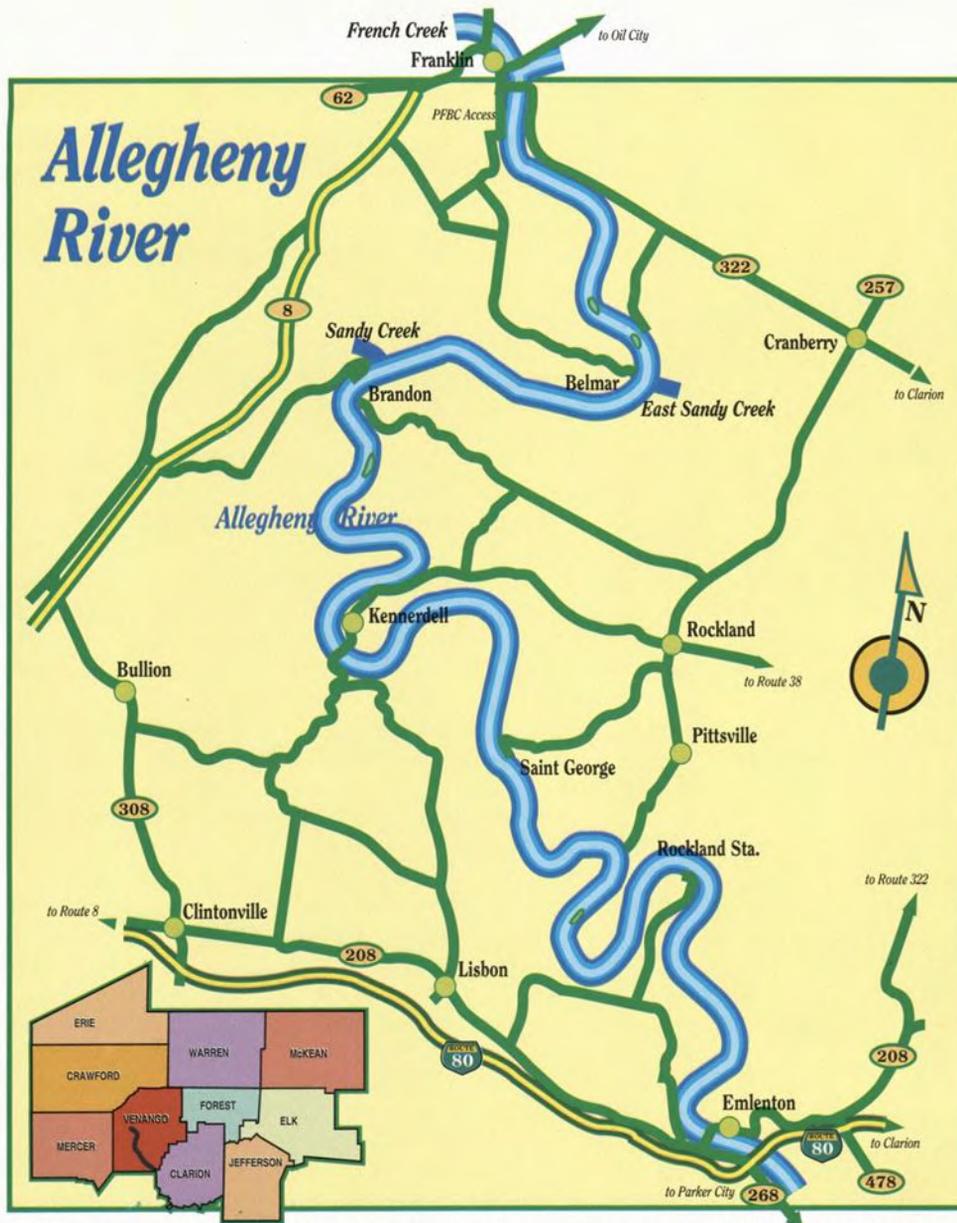
Although the virgin forests above the river have been cut and replaced by second-growth timber, a railbed laid and abandoned, and scatterings of summer cottages added to its banks, the Allegheny's appearance in this stretch remains remarkably similar to what Bonsecamps saw almost 250 years ago.

For hours our only companions are birds, fish we surprise in the clear pools, occasional groups of other canoeists and fishermen who have driven down the railbed in hopes of bettering their luck.

Indian God Rock

Surrounded by the rugged beauty of the mountains and soothing flow of the water, it is easy for the mind to drift. I fail to notice Jim signaling me to pull into shore until the current coming off one of the many gravel islands that dot the river catches me. Unable to fight the current alone, I let it carry me to a cobble beach below and then walk up the railbed to find my friends examining the "Indian God Rock."

"In the evening, after we disembarked, we buried a 2nd plate of lead under a great rock, upon which were to be seen sev-



Although he has been studying Indian petroglyphs for more than 30 years, Swauger says he does not even know how the God Rock got its name. He presumes whoever applied the name thought the symbols on it were religious, but he has found no way to support that assumption.

Neither can he say how old the carvings are. He doubts they go beyond 1200 A.D., though, and believes whoever made them stopped before the middle of the 18th century when written records that might carry explanations begin to appear. The only things he knows for sure about the carvings are that they exist and some of them, the very faintest, were made by early Indians.

Back on the river, I rig my fly rod with a popper and cast toward a rocky bank. Immediately a smallmouth takes it. For a moment, I picture one fish after another grabbing the bug. But that vision soon gives way to the usual reality. Catch a fish on the first cast and chances are good that's the only fish you'll see all day. Again and again, I cast into the bank without producing a single strike. Then finally I give up, slip the rod under the canoe's cross braces and move on.

State forest land

Small collections of cottages cling to both banks until the end at Brandon, about two miles below the God Rock, where the appearance of Kittanning State Forest clears the west bank of all human habitation.

In the 1970s, the state purchased over 3,000 acres in the area with the idea of creating Allegheny Gorge State Park. Funds to develop the tract never became available, and the land became a state forest. With adjoining State Game Lands 39, it now protects 4,000 acres covering six miles of river bank.

A primitive camping area stands within the forest and is marked with a rustic sign. But with roughly 20 more miles of water ahead, we push past Kennerdell.

While I put up the tent, Jim and John concoct a dinner of noodles, rice, carrots, potatoes and canned chicken. We top off the meal with apple cake and start to drift into a stupor, until two brightly colored ultralight planes suddenly appear, skimming along the surface of the river. We stare as the planes disappear around the bend, and then finish the day watching the sky glowing orange and pink above two fishermen in a bass boat.

At first we refuse to acknowledge Jim's calls and only bury our heads deeper in our sleeping bags. We can hear splashing, but think it belongs to fish far out in the river.

"I'm telling you guys I got one," Jim shouts again.

"Yeah, yeah. Sure," John answers, sounding like a brother who has been tricked before.

But Jim won't stop calling. Finally, I crawl out of my bag through the tent door. Outside the river is solid fog. Even Jim, standing

eral figures roughly graven. These were figures of men and women, and the footprints of goats, turkeys, bears, etc., traced upon the rock. Our officers tried to persuade me that this was the work of Europeans; but, in truth, I may say that in the style and workmanship of these engravings one cannot fail to recognize the unskillfulness of savages. I might add to this, that they have much analogy with the hieroglyphics which they use instead of writing."

Travelers along the Allegheny have been fascinated by the Indian God Rock at least since Father Bonnacamps wrote those words. During the 19th century the sandstone boulder, about nine miles below Franklin, even became a popular stopping point for excursion boats. Names with dates reaching back to the 1870s, well-known logos and other symbols, much of it meant to fool visitors by imitating what the carver believed the Indians would have cut, cover the stone to testify exactly how big an attraction the rock has been over the centuries.

"I am the world's authority and I have no idea what the carvings mean," says Dr. Jim Swauger, curator emeritus of anthropology at the Carnegie Museum of Natural History in Pittsburgh. "I don't think anybody does. There are a lot of people who will give you explanations. They'll tell you the snakes mean enemies, or the snakes are messengers to the gods. They can be most anything you want to make up because we just don't know."

next to the canoes about 20 feet away, is hazy. The fish, though, comes across clearly.

"Holy cow!" I shout.

"I told you it was a nice one," he says.

The fish, a smallmouth, measures 18 1/2 inches and we guess about four-and-a-half pounds. It is the largest bass any of us has caught in years. After a long day of paddling our arms and shoulders are feeling the effects of too much time spent at desks. Our spirits, too, are somewhat less than elated about facing another 17 miles or so of seemingly flowless pools. Quickly we break camp and push off.

As we round the bend below Kennerdell, Jim points out the abandoned Kennerdell Tunnel, a more than 1,000-foot-long bore drilled by the Allegheny Valley Railroad to avoid some of the river's twists and turns. Then we drift apart to pass the morning taking in the sights and waiting for whatever might happen along.

When sunlight finally reaches the river, we lash our canoes together and settle back to drift and swap stories. The sound of rushing water makes us wonder if we should separate for the "rapids" ahead. But when we reach them, they again amount to nothing, and we decide not to bother. We make the run without the slightest problem and return to our stories.

Above Rockland a series of loops makes the river flow first to the northeast and then the southwest, then almost directly north and almost directly south, providing a reminder of when the Allegheny was actually three separate rivers.

"There was what we would now call a 'lower' Allegheny that started up in Elk County," says John Harper, chief of the Geological Survey's Oil and Gas Geology Division in Pittsburgh. "It flowed down into the Monongahela, so it did what the whole Allegheny is doing now. The 'middle' Allegheny started around Warren and flowed past Oil City and out the channel of what is now French Creek into Lake Erie. The 'upper' Allegheny, what is now the headwaters of the Allegheny, started on the east side of Warren County and went out through New York into Lake Erie around Dunkirk. It might have exited through Chautauqua Lake."

What brought the three Alleghenys together was an Ice Age some 350,000 to 555,000 years ago. Glaciers up to a mile thick descended from Canada and barred the "upper" and "middle" rivers from draining into Lake Erie. The waters at first formed lakes along the face of the ice and then reversed course, joined and headed south. The loops around Rockland mark a point of high ground the river had to overcome to find its present course.

When Jim says he has a compass in his pack we tell him to take it out so we can trace the changes in the river. Soon, though, we become totally confused, unable to agree from one moment to the next where north stands, and we give up.

Wind tricks

The constant change in direction also plays tricks with the wind, probably the toughest obstacle to navigation on the stretch. One time it blows from behind us, the next it is a head wind. Most of the time, naturally, it seems to be a head wind. We have to dig our paddles deep to make progress and what should be fun becomes work.

Then, when the wind shifts to our backs, Jim holds up his shirt and we spontaneously rig sails by slipping the paddles through the arms of our shirts and holding them aloft. The rig works and we sail on laughing and joking until we reach the next loop and the wind rushes us again.

Such changes in direction also make it difficult to gauge where we may be on our journey—or where the "Falls at Emlenton" might

lie. Jim tells us we are getting close so many times we begin to tease him about his sense of distance.

When the falls finally appear, they are almost indistinguishable from a dozen other riffles we've already seen. We run them wondering why such an inconsequential little rush of water is called a "falls." Maybe in higher water they would rate a classification, but in the summer they are nothing but another welcome push on the slow-moving Allegheny.

For a time, we even doubt we've gone through the falls. But then the smell of petroleum overcomes everything and the appearance of a refinery welcomes us to Emlenton, the last stop on one of the friendliest, unique and primitive stretches of major river in Pennsylvania.



Accesses and Services

Access to the Allegheny River at Franklin is available from the Fish and Boat Commission's Franklin Access below the Route 322 bridge along Elk Street. The town can be avoided, though, and the distance to Emlenton shortened, by following Route 322 east toward Clarion for a mile or so and then taking a dirt road to the right that leads to an abandoned railbed off which access is available.

The distance between Franklin and Emlenton is about 34 miles. Canoeists should set aside at least two days to make the entire trip. Three days is easier on the back and arms. It's also a better way to go on the mellow, slow-moving water for anyone planning to spend time fishing, photographing, bird watching or exploring the river's banks.

For paddlers with only a day to spare, the stretch lends itself to a number of shorter trips. You can float slightly more than five miles by putting in at Franklin and taking out at Belmar, opposite the mouth of East Sandy Creek. Four more miles can be added to the day by continuing on to the Fish and Boat Commission's Fisherman's Cove Access at the mouth of Sandy Creek.

The next take-out point after Fisherman's Cove is the Commission's Kennerdell Access, approximately 16 miles below Franklin. Following Kennerdell is St. George, five miles downriver, and then Rockland, three miles farther on. A little over four-and-a-half miles later comes an opportunity to strike land along T-510, and then five miles later Emlenton, almost 18 miles down river from Kennerdell.

Campers, of course, have to carry their own shelter and food. Day trippers can find plenty of restaurants, food stores and lodging of various sorts in Franklin. Kennerdell and Emlenton also have accommodations, but on a much more limited scale.

Lodging

Franklin Motel, 1421 Liberty Street, Franklin, PA 16323.
Inn at Franklin, 1411 Liberty Street, Franklin, PA 16323.
The Barnard House B & B, 109 River Avenue, Emlenton, PA 16373.
Idlewood Motel, Routes 8 & 62, Franklin, PA 16323.
Quo Vadis B & B, 11501 Liberty Street, Franklin, PA 16323.

Campgrounds

Kennerdell Camper Court, R.D. 1, Kennerdell, PA 16374.
Gaslight Campground, R.D. 2, Box 10, Route 208, Emlenton, PA 16373.

Canoes

Canoe rentals are available from: Halltown Marine, Sugar Creek Road, Franklin, PA 16323.

A Light on PFDs

by George Poveromo

I remember waves progressively building to five feet. They were fairly well-spaced, so staying out on the lake wasn't dangerous, just uncomfortable. The surprise came, however, as we approached the ramp and discovered cresting five-footers, aided by the 30-knot wind. We considered going to another access, but the setting sun eliminated that opportunity.

I also remember Bob Colvin, one of the most experienced boat handlers I've known, passing out life jackets and orders to don them. He was set for his run and wanted all prepared for the worst. "There's no time or state of mind after a mishap to equip yourself properly to survive. When a boat is under power, things

happen too quickly. Either you're set to hold your own in swift currents or high waves, or you suffer the consequences."

Colvin explained all this back at the dock after a safe and uneventful execution. But those words still bear as much authority today as they did on that blustery outing 12 years ago.

Perhaps it's such a heightened awareness, and the extra caution heeded when conditions are obviously deteriorating, that accounted for a recent U.S. Coast Guard statistic that revealed that only 10 percent of reported boating accidents occurred in rough or very rough conditions, compared to about 75 percent in calm or choppy waters where boaters may have been more unsuspecting. That recent report logged 896 fatalities, of which more than 80 percent weren't wearing a personal flotation

device (PFD). Three most common causes of boating fatalities were capsizing (37 percent), falls overboard (24 percent) and collision with another boat or object (14 percent).

What many boaters consider worthy PFDs, and their definition of "quick accessibility," may prove surprising. Some are weathered, mildewed and just plain inadequate. I recall a 50-grand,



tricked-out, offshore-bound center console charter boat carrying only four ripped throw cushions. Not only did the gear prove that the captain's "common sense" was purely rumor, but that the boat was an illegal means of transportation. A type II personal flotation device is designed to keep your head above water and in a position that permits proper breathing. An average adult requires only seven to 12 pounds of artificial buoyancy to remain afloat, and virtually all approved PFDs carry that amount.

However, to make the proper choice, one must understand the five types approved by the U.S. Coast Guard and which apply to different kinds of boating.

The selection should parallel the type of boating you are most likely to pursue.

If activity is limited to heavily populated bays or sounds, where odds are favorable for an early rescue, a type III design may be sufficient. This vest-like jacket is really a flotation aid. It's comfortable, stylish and designed for calm, near-shore waters because they are not designed to turn an unconscious person face-up. A type II jacket (near-shore life vest) is a notch above the type

III because it's sized for easy donning and is designed to turn an unconscious person to a vertical and slightly backward position. Both types carry about 15.5 pounds of buoyancy.

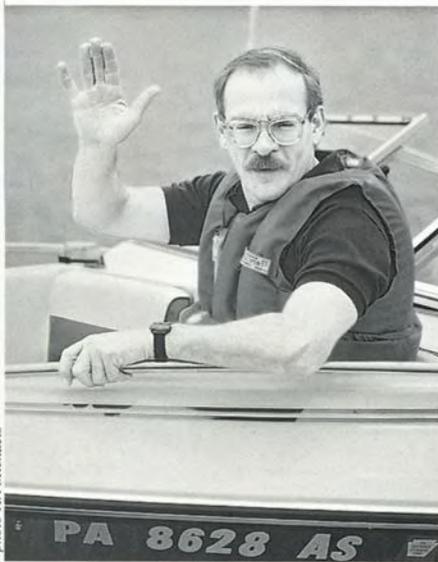
A type I PFD has the greatest buoyancy (22 pounds minimum) and is made to turn most unconscious persons in the water from a face-down position to one that's vertical and slightly backward. This type is designed for extended survival in

rough, open water and where there will likely be a delay in rescue. Some offshore anglers even opt for the increased buoyancy of the merchant marine version, a more commercial, open-water preserver.

Type IV constitutes the throwable devices—boat cushions, ring buoys, etc. They're not designed for wear. They are made to be grasped by the user in a person-overboard situation. At least one Type IV device has to be aboard every vessel 16 feet and over. It's the law.

Type V is for special purposes (mostly commercial) and includes work vests, deck suits and inflatable hybrids. They contain about 17 pounds of buoyancy.

PFDs are constructed with a variety of flotation foams. All Coast Guard approved jackets should get the job done, but comfort and longevity may



photos: Art Michaels

depend on their contents. Polyethylene is a less expensive foam with reasonably good flotation characteristics. Its drawback is its rigidity or stiffness. Kapok, a vegetable fiber, is soft and comfortable, but it absorbs water and loses its buoyant properties if its bag is punctured. PVC is a foam used in some top-of-the-line brands because it offers substantial comfort (softness) and durability. Ensolite is just one form of PVC. It's produced by Uniroyal. Airex is a more expensive PVC, which molds snugly to a body because of its softer base.

According to Tim Rath of Stearns Manufacturing, quality PFDs aren't really that expensive. Children's designs ballpark between \$19.00 and \$25.00, most type III vests fall between \$22.00 and \$50.00 and the type I offshore PFD runs between \$30.00 and \$50.00. Reflective tape for added visibility and rescue whistles are worthy options.

Fortunately, PFDs have finally become stylish, fueling a trend from the inexpensive "horse-collar" preservers to modern designs. A sporty look and increased comfort have more boaters wearing their jackets. Although the Coast Guard and PFD manufacturers encourage boaters to wear their vests at all times, the hard truth is that most won't unless they believe they're in a threatening situation. For those who subscribe to the latter, vests should be donned if sea or inlet conditions are questionable. And that includes boating in heavy, pitching seas where you'll be leaning on, or near, the gunwales, and in fog, rain and other low-visibility conditions.

PFDs should be accessible in less than

15 seconds, not stuffed below an anchor or wedged between storage boxes. Prime storage is within the console of an open boat, or inside a large cockpit-based cooler. The insulated chest protects the PFDs and keeps them handy, and its buoyancy can also keep a dispatched boater afloat.

All straps should be free of tangles and semi-adjusted so that a boater need only don the vest and tug on a line for a secure fit. Adults have plenty of latitude in selection, but children require a personalized fitting to check snugness and the device's inability to slip over the chin or ears (accomplished by lifting the child up by the shoulders of the PFD). Crotch straps help keep the device in place. Children's sizes are in accor-

dance with their weight and chest measurements, and if a child does not swim, a type II child or infant device is necessary to keep the face up in the water. It's also sound practice to acquaint kids with a PFD in a swimming pool and an adult's responsibility to make them mandatory wear during any boating activity.

No matter how much sportiness has been incorporated into a boat, no one should set forth with inadequate safety gear. Understand the basics of PFDs, select them accordingly and keep them as handy as your water skiing gear or fishing tackle. One day that insight and reasonable expense may prove to be the investment of a lifetime.



TYPE I



TYPE II



Types of PFDs

TYPE III



TYPE III



TYPE IV



TYPE V

graphics: Ted Walkie

Weather-Watching is Family Fun

by John R. Whiting

There are three ways boating family members can enjoy the pleasures of doing their own weather forecasting.

- Watching the sky and the clouds, observing the wind and the dew...for the old adage *Red sky at morning, sailors take warning, red sky at night, sailor's delight* is one of the dozens of accurate sayings.

- Watching the weather maps in the daily paper and on television, listening to the radio weather channel, and learning to see the weather coming (usually from the west).

- Observing. With a few fascinating instruments, family members can have all the hobbyist's special ways of observing the details of the weather. Our family—father, mother and three daughters—has done this for years.

Whether you're at home planning a boating weekend or a vacation cruise, or out on the water, knowing what's coming is more than just the satisfaction of being able to predict the future: It's a safety measure, and it's fun.

Weather all around you

Anyone who goes out on the water should observe a few weather basics. These are practical and common-sense, but not everyone understands them.

First, always have a sense of which way the wind is blowing, relative to you and your boat, and as you gain more experience, as a compass direction. One of the conventions to remember is that the wind is al-

ways named by the direction it is coming from, not the direction it is blowing toward. A north wind comes from the north, a sou'wester blows out of the southwest.

In contrast, a boat's course is known by the direction it is heading and currents are known as the direction they are heading. A southerly current is going south, but a southerly wind is coming from the south.

Having a feeling for the force of the wind is also part of good seamanship. Whether

you are leaving a dock or coming into one, you want to think about how strong the wind is, and which way it is blowing, before problems arise.

Second, keeping your eyes open and your senses alert can let you know what is going to happen hours before it does. People who worked on water, sailors and fishermen, knew this centuries ago. They put it in rhyme.

*Wind from the East, could be a beast.
Red sky at night, sailor's delight.*

Both these rhymes are full of truth. A rosy sky at sunset does indeed foretell a good day coming.

Using available information

There's a lot more weather information all around us than most people ever use. Here are some tips to go with the daily weather maps in your newspaper and the maps you see on television.

In Pennsylvania, and in eastern United States, weather patterns tend to move from west to east. The weather in Ohio today will be arriving in the Lake Erie region of Pennsylvania tomorrow and in another day will be in the Poconos. Yes, an easterly wind is bad news, but that's because the bad weather systems tend to whirl in a counter-clockwise direction, around a low, at least in the Northern Hemisphere.

So you can watch the weather maps for a few days before a planned vacation on the water and see how the weather patterns



PF & BC photo

are developing. Indeed, you will soon notice that weather in Pennsylvania tends to follow a weekly cycle. If it rains on Wednesday this week, it will most likely rain next Wednesday.

This kind of knowledgeable observation helps you better understand the weather forecasts you hear. As you follow a television weather forecast, try to put as much emphasis on the maps and the changing weather systems as you do on the words of the forecaster. Every now and then you will find you are ahead of the spoken predictions.

Besides the regular television and newspaper forecasts, one of the best sources of weather information is the continuous radio broadcasting of the National Weather Service (NWS). Weather radios, pre-set to receive these broadcasts, are inexpensive and easy to use. The broadcasts are repeated constantly, and although you may have to listen to a few minutes of weather summaries now and then, you'll get the marine weather and the general weather pretty quickly, very completely, and with more accuracy than most people realize. Make written notes.

Your own weather station

Just like making your own observations of clouds, adding a few instruments brings out the amateur forecaster that seems to reside in the hearts of most boating people.

Here's the reason: Your own instruments and observations make it possible for you to do two things that any lover of the outdoors likes to do:

- Localize the forecasts for the very place you are and the very body of water you will be going out on.
- Visualize the weather systems as they approach.

For example, if you have been watching weather maps for a while, you know by now that there are several observable items that appear on them.

One is the letter L, which means a low pressure area, usually bringing uncomfortable weather, like rain. The letter H, for a high pressure area, is most often associated with good weather. You see these weather systems move across the map of the United States, you see how they influence the weather. Now, as you set up your own mini-weather station, you will be able to watch these lows and highs as they approach.

Another characteristic symbol on weather maps is the front, the line of changing weather. Observe closely and you see cold fronts, for example, bringing low pressure areas and storms along with them as they move from west to east.

Thus, a basic instrument is one you probably already have—a thermometer. The rise and fall of the temperature is one of the keys to forecasting, and a thermometer is important for making yourself comfortable. Cold air down from a thunderstorm cloud can be felt or measured as much as three miles ahead of the storm itself. Or how many extra sweaters to take along for the weekend on the water, of course, has a lot to do with family comfort.

A weather vane is fun to watch and can tell you the wind direction, and sometimes gives you clues to the wind's strength. You can see how gusty winds keep the vane moving.

A barometer, to show air pressure, is a standard weather instrument. Many fancy-looking barometers with dials have words on their faces: FAIR, CHANGE, RAIN or whatever. Just consider these words ornamental, to give innocents something to read. The only significant information

showing on any kind of barometer is whether it is high or low, and even more important, whether it is changing and how it is changing.

For example, an approaching thunderstorm makes the barometer drop fast. So does an approaching hurricane or winter gale. You guessed it—there's a little low pressure area with every thunderstorm, and your own barometer can note its approach.

Another clue to an approaching thunderstorm is in your portable radio. An increase in static on a summer afternoon is a very handy sign that an electrical storm is brewing a few miles away.

Precision instruments

Precision weather instruments make all this more fun as well as more accurate. One of these displays indoor temperature, humidity and barometric pressure. A more sophisticated one reads indoor and outdoor temperature, wind speed and direction, and wind chill. You can add a rain collector and programmable alarms, and you can even link up your instruments to your computer.

Let's look at how some of these sophisticated instruments show you what's going on outside. In the case of barometric pressure, it's the same outdoors as indoors, but of course, temperature is another thing.

Some instruments have a small screen, much like a large-size calculator or digital clock. But on this screen the electronic works put up a number of displays: Barometric pressure, with memory recall; outdoor temperature from -50 degrees to 140 degrees as well as the highest and lowest temperatures reached; wind direction in degrees, wind speed up to 126 mph, wind chill to -134 degrees and the low wind chill as well; all highs and lows recorded, with time and date; alarms for temperature, wind speed and wind chill; clock (12- or 24-hour); and date.

A special barometric trend arrow shows at a glance if pressure is changing.

One ever more elaborate system has extra features, like a memory recall for the barometer as well as a barometric trend alarm for a change greater than .02 inches of mercury in an hour.

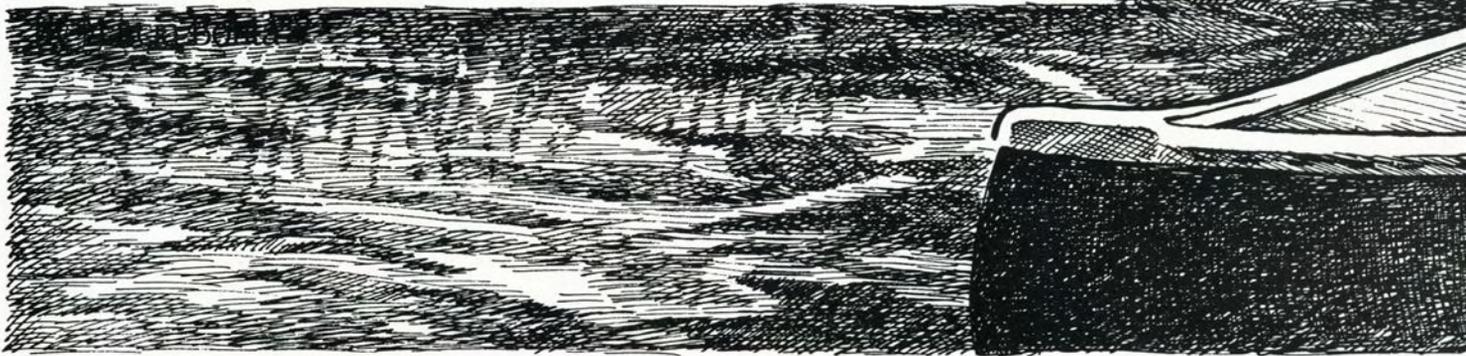
There's a switch on the monitor to show either metric or U.S. units of measurement, a way to measure outside humidity and dew point, and even a way to graph the measurements on your computer.

Keeping track of the weather is as old as going down to the sea, so it's no wonder that many boaters have taken up weather-watching with increasingly more sophistication.



Photo: Art. Michaels

Paddling on Conneaut Marsh



The water came within inches of the road the day we launched our canoes onto Conneaut Marsh. It had been raining for weeks, filling the marsh to capacity. But on this May morning the sun shone and a stiff breeze ruffled the water.

Eight of us, members and spouses of the Pennsylvania Outdoor Writers Association, were eager to see what Conneaut Marsh in southern Crawford County had to offer. Known locally as Geneva Marsh, this 5,619-acre wetland stretches 13 miles between Conneaut Lake and French Creek. It is also State Game Lands 213.

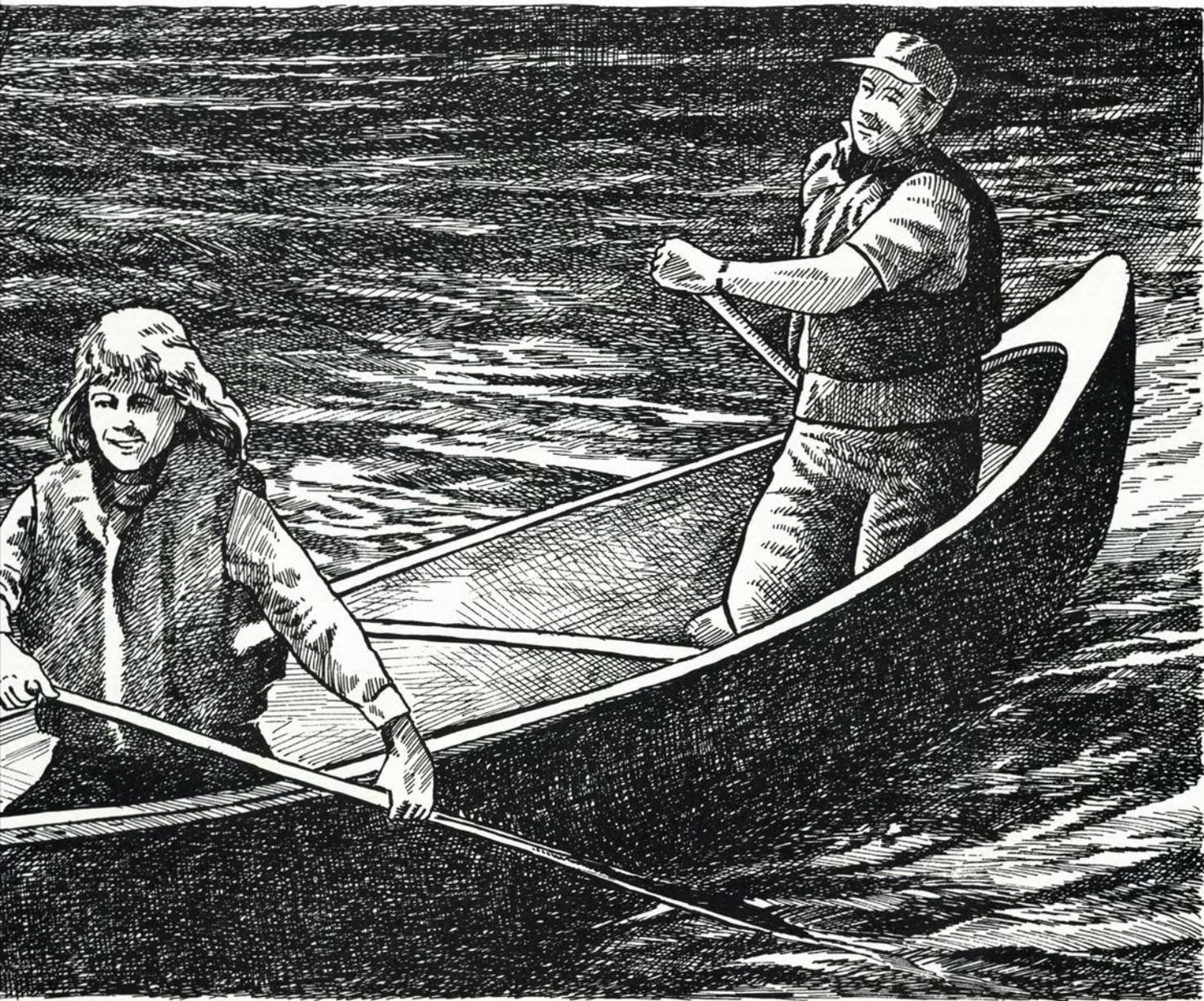
"Conneaut" is the English spelling of the Iroquian *Konn Knu Yaut*, which means "melted snow water lake." But more rain than snow had fallen on both the marsh and the lake during the winter and spring of our visit. As part of the glaciated Allegheny Plateau in northwestern Pennsylvania, the long, flat-bottomed valley containing the marsh had been filled with glacial outwash during the Illinoian and Wisconsin Ice ages

17,000 years ago. Conneaut Lake itself, Pennsylvania's largest natural inland lake, is classified by geologists as a "kettle lake," because it was formed in a deep depression left when a huge ice block, surrounded by sediment, melted.

Today, Conneaut Lake covers 938 acres and is the major source of the marsh's water. The marsh, which is flat in appearance, is actually 1,060 feet above sea level and is encircled by rolling uplands 1,300 to 1,400 feet high.

Conneaut Marsh can be a confusing maze to the uninitiated, but there is a navigable channel for canoeists. It runs from Geneva Dike near the town of Geneva to the Mud Pike bridge turnaround, a route through the open pond and into the wooded swamp that is easy to negotiate during high water.

Our guide, Bill Randour of the Western Pennsylvania Conservancy, had an easy familiarity with the marsh because of the role his organization has had over the years in helping the Game Commission acquire two key parcels of the area. The first piece, 684 acres of the marsh's western edge in 1976, includes the outflow of Conneaut Marsh. The second, 175



acres on the marsh's eastern edge in 1981, contains the only section of Conneaut Outlet that has not been channelized or dredged.

Conneaut Marsh, like so many of our nation's once bountiful wetlands, was tampered with back in 1868 when the Pennsylvania legislature passed an act providing for the draining of the marsh. A stream dredging machine was purchased and a channel eight feet deep and 16 feet wide was dredged from the lake to within 2 1/2 miles of French Creek. Then the marsh was drained and cattle grazed up to the edges of the channel.

According to local residents, the marsh remained a meadow until humanity once again interfered by building a causeway across the marsh for Route 19 in the 1920s. But other land use changes also helped the meadow revert to the marsh it had once been. The channel had filled in over the years with soil washed in from surrounding farmlands. Ditches dug in the fields and along the new roads and highways caused rainfall once held in the soil to flow directly into streams and marshes.

This reversion to its natural state must have pleased a wide spectrum of outdoor people—fishermen, who know the marsh as a good place for northern pike and largemouth bass, hunters and wildlife watchers.

Throughout the marsh, we were often accompanied by unseen reptiles and amphibians—turtles that sank out of sight before we could identify them, bullfrogs whose muted courtship roaring reverberated from marshy vegetation, and spring peepers with their high-pitched “songs of spring.” But the silent northern water snakes were not shy. Frequently snaky heads emerged from the water and swam beside our canoes, and every overhanging limb seemed to hold a snake basking in the sunshine.

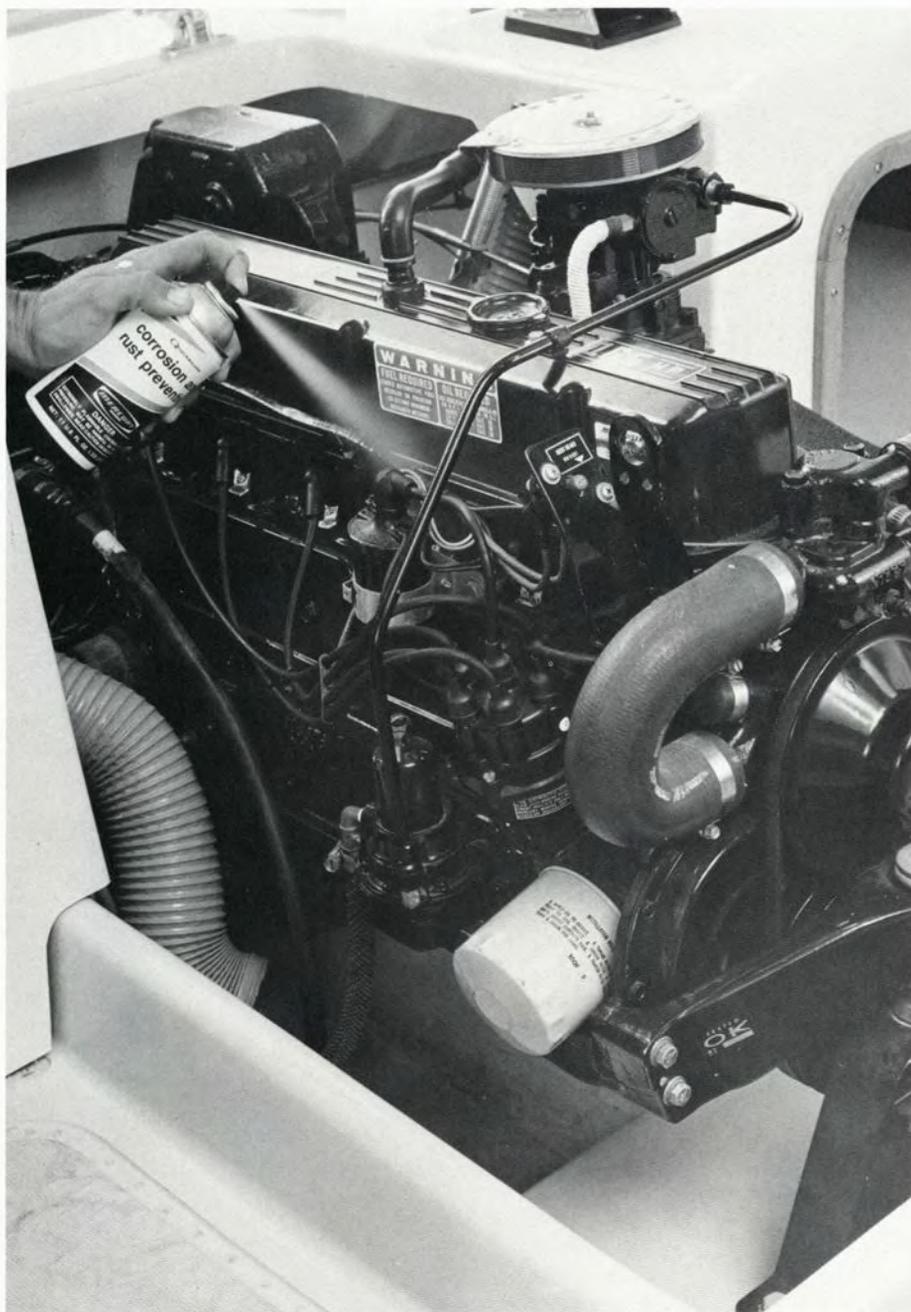
As with every wild creature we saw that day, we watched but did not interfere. Each had its reason for being. Each fit into that niche we label “marsh.” They, like us, were celebrating the first balmy day of spring.



illustration - George Lavanish

PRESERVING Your Investment

by Bob Stearns



Spray your engine's powerhead two or three times each season with a moisture-displacing lubricant like CRC or WD-40.

For many of us, a boat is perhaps our second greatest investment, exceeded only in value and cost by the home we live in. So very likely you had to do some serious saving to afford it, as well as undertaking some significant financial obligation to buy it. It only makes sense, then, that this major investment in both time and money deserves all the preservation and protection you can give it.

Think of that investment not only in terms of what it cost you to buy it, but also in terms of its ultimate trade or resale value when you eventually decide to move on to another boat. In addition, keep in mind the value of your own time, especially in terms of boating days lost when you had to make unexpected repairs.

A well-maintained rig obviously has a much higher resale value. It follows that regular, periodic maintenance performed when it should be done is the best preventive medicine when it comes to both breakdowns and preservation of value. Don't put off doing those little things as soon as they are needed, rather than wait until something goes wrong, because then it takes a lot more time—often with an expensive repair bill—to get back on the water.

It is rarely possible to turn a sow's ear into a silk purse, but it is all too easy to convert a fine boat into a floating (barely!) hogsty.

I remember boating a few years ago on a picturesque lake. I was a guest aboard a boat that was so horribly filthy that no self-respecting pig would have even considered using it as a wallow. I think you get the picture. I doubt that it had been cleaned in the last 100 trips or so. Besides taking a lot of the fun out of the day's activity, everything I put down in that mess quickly became almost as filthy. Clothing, tackle, cameras, everything! Very few of the items that should have worked did work. Each time we moved we had a devil of a time getting the motor started. The depthfinder was virtually useless.

It would have required many, many days of hard work—to say nothing of some serious repair bills—to get everything right in that floating garbage can. Possibly more than the resale value of the rig, it had been allowed to deteriorate that far!

Mistreated boats are a common sight. Any trip to a large marina or busy weekend launch ramp sadly reveals many examples, many boats so badly neglected that enormous value has been lost forever. The point is that there's just no reason that should ever happen. Especially when you consider that today the equipment we buy is better than ever,

and requires far less maintenance than it did even 10 or 15 years ago. So why let things go? It just doesn't take that much time to properly care for your rig.

Most Pennsylvanians boat in freshwater. Those who also trailer their rigs to saltwater spots have many times more maintenance problems because of the briny's destructive effect on just about anything. Still, there are those things that must be done to keep everything going, even when boating in the most pristine freshwater.

Owner's manuals

When someone gets a new engine or other piece of gear, it's just human nature to be so eager to get it into use that we usually don't take much (if any) time to read the owner's manual. Even though it might sound a little trite to some, the real truth is that a little time invested in its reading before trying to use that equipment could save a lot of time and expense later on.

Actually, the smart way is to read the manual twice—once before the first use, when it's a surety it won't be studied thoroughly, and then perhaps some evening when you're not in a hurry. The second reading will answer many questions that are sure to come up, and you'll also retain a great deal more valuable information.

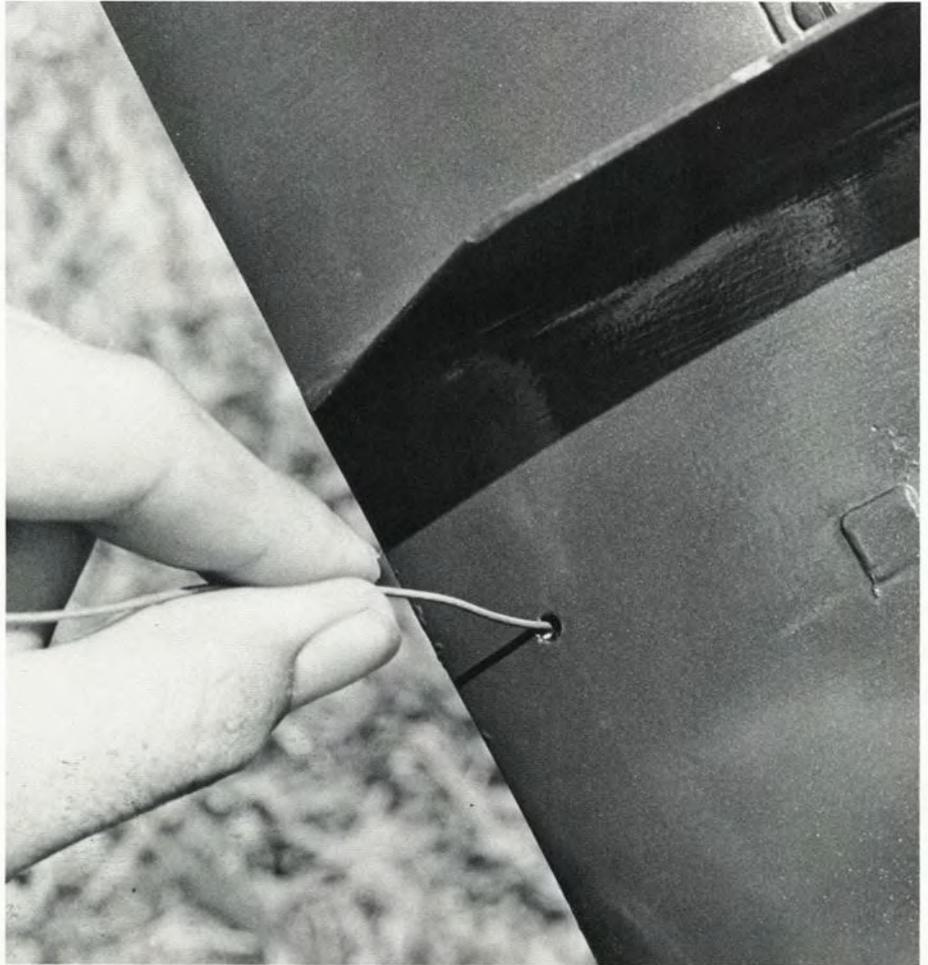
Pay careful attention to maintenance schedules, and by all means do keep the manual in a handy place so that you can refer to it when necessary. Plastic zip-closing storage bags are useful for this purpose. The heavy duty variety is best.

Even the little things can lead to a lot of trouble. For instance, failing to replace spark plugs at the prescribed intervals may cause expensive powerhead damage. Misfiring can soon lead to damaged crankshafts or connecting rods. Or failure to lubricate important linkages and moving parts can lead to seizure of those components.

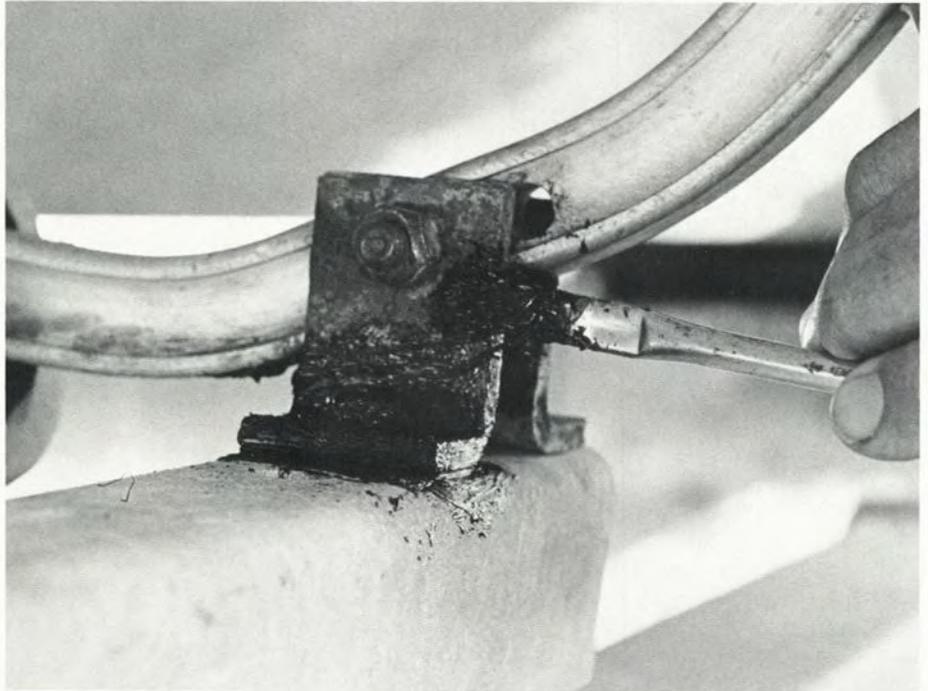
As a rule, such problems have an altogether unpleasant habit of showing up only after you're as far from the ramp as you plan to go that day. In the current light of reduced Coast Guard participation in non-life-threatening strandings, you just might add a hefty towing bill to your problems.

Or, for example, if you use your outboard a lot in silty water, consider having the water pump replaced every other year or so, rather than waiting for it to just quit. The risk in this situation is that eventually it becomes so worn that it fails to pump sufficient water to cool the powerhead—even though its output might still look OK to you.

Pay close attention to the propeller. If



Use a stiff wire to ensure that the lower unit drains aren't clogged.



Paint grease into the trailer corners where water tends to puddle.

Greasing the prop shaft wards off corrosion and keeps the shaft's moving parts free of dirt, thus reducing wear. It's a good idea to service your engine's lower unit at least once a season.



it's damaged, have it repaired immediately. Ditto if it's significantly worn, because your cruising rpm will gradually climb, causing premature wear in the powerhead and higher fuel bills than normal. If the prop is bent or broken, excessive vibration can cause a lot of internal damage, too.

It's a good idea to remove the cowlings two or three times per season and spray the powerhead with a moisture-displacing lubricant, such as CRC, WD-40, or one specifically recommended by the engine manufacturer. Check the wiring to ensure that everything is connected, and confirm that the insulation is in good condition. If it's cracked or cut, have that wire replaced.

It's also a good idea, even in freshwater, to wash the cowlings and engine lower unit with soap and water when they begin to accumulate a noticeable amount of film and dirt. Washing helps preserve the finish, which goes a long way toward keeping the resale value up. A little wax now and then never hurts, either.

Hull hints

As for your boat, even though such modern materials as fiberglass, Kevlar and aluminum are tough, and the boats they're constructed for are designed for many, many years of uninterrupted service, reasonable care and maintenance is still very much mandatory. My experience has been that the single biggest factor in extending the life of your boat is to keep it protected from the elements when it's not in use. Sun, wind and rain can do a frightful amount of damage

in just a year or two, if the boat is constantly exposed to them.

At first the deterioration is primarily cosmetic. The gel coat or finish fades, and then it begins to develop tiny hairline cracks. If the finish is not too far gone at this point, it can sometimes be restored by the careful use of a rubbing compound. Otherwise, the hull may need expensive refinishing.

If weather exposure deterioration continues past the cosmetic point, structural damage eventually begins to occur. No, the fiberglass or aluminum won't rot, but in the case of fiberglass, serious cracks begin to occur in those areas of the boat that have wood as a structural backing. These areas include the transom, inner flooring and gunwales. Water seeps in through those cracks, and before long the wood begins to rot.

There's also a tendency for the fiberglass to delaminate in those areas. The affected area quickly develops a weak, spongy feel. Repairs, if even practicable, become brutally expensive.

An aluminum boat cannot rot, but any wood backing does. This isn't as serious as internal wood rot in a fiberglass hull. Nevertheless, it still must be repaired, especially if it's in the transom. And meanwhile, the hull itself, because of the deteriorated finish, becomes pretty sad-looking.

Covering the boat

Obviously, keeping the boat under cover is the best way to prevent this kind of problem. The ideal location is inside storage,

such as your garage. Otherwise, figure out some alternate way to keep the boat covered, even if it has to be some sort of tarpaulin.

Actually, a tarp, if rigged right, is a good way to protect your investment. It doesn't have to be expensive. You can buy a fabric-reinforced plastic tarp of sufficient size to cover the average 16-footer, including the engine, for under \$60. If rigged properly, even a relatively inexpensive tarpaulin will last for several years.

A custom-fitted canvas cover costs two to three times more than a good reinforced plastic tarp, but it should last somewhat longer and is better for trailering, if you wish to tow the boat while it's covered. A word of caution when selecting a plastic tarp: Make sure it is fabric-reinforced against tearing and sagging. A cheap unreinforced plastic (especially clear, like a shower curtain) tarp could wind up doing more damage than it prevents.

Tarp tricks

There are several things that should be done to make any tarp work most effectively as a boat cover. First, there must be vents, or at least openings at the ends, to ensure adequate air circulation. It should also be properly supported so that water cannot puddle and eventually find its way through the material into the boat. It should also be securely tied so that it cannot blow off in a strong wind. Part of a tarp's function is to keep leaves and other trash out of the boat, as well as rain.

It's also a good idea, even when the boat is covered by a tarp, never to leave it outside without propping up the trailer tongue high enough to drain any water that might collect inside. The weight of too much standing water can eventually do structural damage. Any significant amount of water can also cause staining, mildew and mold. The electrical system might eventually be damaged by the excessive humidity, too.

Fiberglass finishes last longer if they're waxed now and then. It's a big help if you do this at least at the beginning and end of the boating season.

Trailers

How about your trailer? Most of the better makes today have either a galvanized or epoxy/urethane finish (or both), so unless it's been repeatedly submerged in saltwater, rust won't be a problem. There are, however, some areas that might still rust in spite of the finish, whatever it might be. Those areas are inside the frame where water can puddle, such as in weld seams and joints. It's worth the trouble to examine your trailer carefully from time to time, and if you spot any problem areas, dry them carefully and paint a generous amount of waterproof grease into those locations. If these areas are covered completely, they will be protected for years that way.

Leaf springs

Every year or two it's a good idea to mix some heavy oil (90W or STP) with mineral spirits—half and half is fine—and with a brush paint the mix into the leaves of the trailer springs. Usually every other sea-



photo: Art Michaels

son is enough to protect the springs from rust for the life of the trailer—unless, of course, you submerge the trailer each time you launch and recover the boat. Then it should be done at the beginning of each season.

Repack the wheel bearings at least once a year. If you submerge the trailer frequently, invest a few bucks into those fittings that allow grease to be injected directly into the wheel bearings with a grease gun. It's important to read and follow the instructions carefully that come with those fittings. Otherwise, you might accidentally cause damage to the very bearings you wish to protect.

Changing and servicing inner hub parts is tricky because those moving parts have close tolerances and require precision tools to remove and install them. If you're unsure how to perform these tasks, let your dealer do the work.

Don't forget to lubricate the trailer rollers at least once per year with a good-quality waterproof grease. If you submerge the trailer, twice as often won't hurt. Also, check the trailer lights periodically. Be particularly on the lookout for water collecting inside the light housings. Rust damage to the light fixtures will rapidly follow once water sits in there. Also check the plug-in connector for those lights, both on the trailer and on the tow vehicle. Spray them several times per year with a moisture-displacing lubricant to ensure that they always make solid electrical contact.

All of this is part of a simple routine for taking care of your rig that with use quickly becomes second nature. The bottom line is obvious. In the long run you'll spend less time and money keeping things right, and that translates to more time and fun on the water—which is really what this is all about in the first place.



Grease your motor's mechanical steering push-pull rod at least once a season and it'll last far longer.

The Alfred Thomas

by Frank T. Dale

Our Delaware is a schizoid river, its personality split cleanly at Trenton Falls. Below Trenton it is a deep saltwater thoroughfare bustling with ocean-going commerce. Philadelphia, its centerpiece, is a major seaport and a home base to ships of the U. S. Navy. Above Trenton the river is quite different. It is shallower, its flow frequently inconvenienced by rapids and rifts. Before bridges were built, wagons could ford the river at certain points without the teamster risking wet feed. The history of steamboat transportation on the Delaware River reflects this duality in an emphatic way.

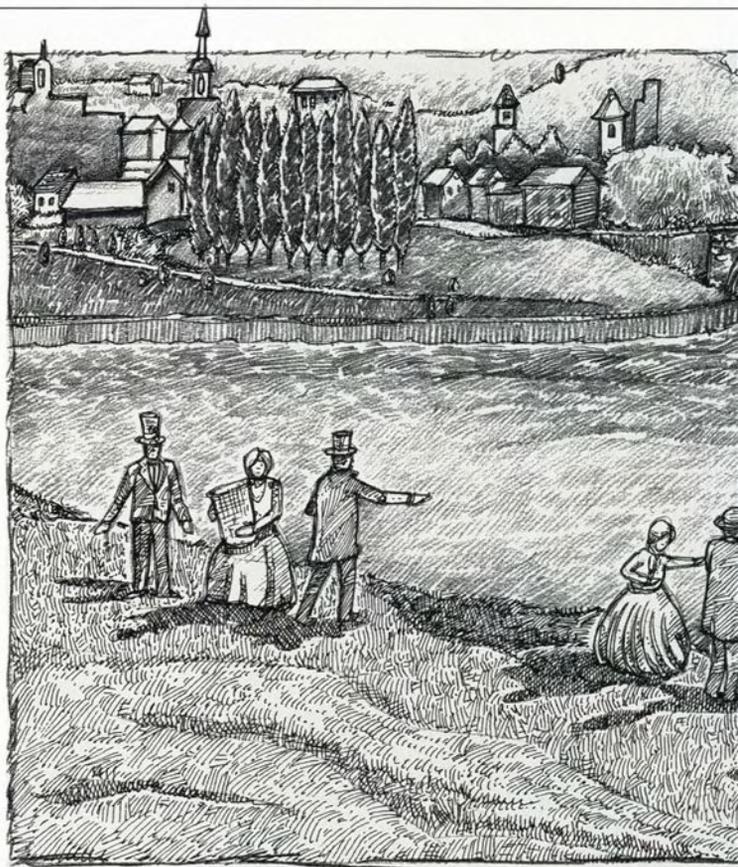
The first steamboat to appear any place in the United States was operated in the waters of the lower Delaware beginning in 1787, almost 30 years before Robert Fulton's craft appeared on the Hudson River. The Delaware steamer was the brainstorm of an eccentric clockmaker from Trenton named John Fitch. Fitch's colorful career included making and losing a fortune as a silversmith, selling liquor to Washington's troops at Valley Forge, and his capture by Indians while traveling on a flatboat on the Ohio River.

While a captive of the Indians he conceived the idea of a steamboat, designed to be propelled by paddles such as those used by his Indian captors. After his release, he returned to New Jersey, built his steamboat, and was awarded a franchise to operate it on the lower river. Fitch fought many dragons, rum among them, and eventually lost his monopoly on the Delaware. But he established steamboat transportation on the river for both freight and passengers.

Steam vessels on the river above Trenton were much slower in coming. At various times in the first half of the 19th century companies were formed and franchises awarded by state legislatures for steamboat routes on the upper river. Typical was the *Major William Barnett*, a flat-bottomed steamer of 100 feet in length. This vessel carried freight and passengers between Phillipsburg/Easton and Lambertville where there was a rail connection.

This large craft had trouble negotiating rapids in this section of the river, especially in times of low water. It occasionally ran aground and had trouble keeping to a schedule. In the 1850s it was replaced by a smaller steamer called *Reindeer*, a sternwheeler, but before the end of the decade, this craft, too had ceased operation.

One final attempt was made to conquer the upper river by steam. In 1859, the Kittatiny Improvement Company was formed by three Belvidere citizens; Judge William Sharp, Richard Holcomb and Alfred Thomas. Sharp and Thomas were prominent in both political and business circles in the county seat, and they had been instrumental in establishing the first county fair at Belvidere. Holcomb ran a successful milling operation from his grist mill on the Pequest River. The articles of their corporation stated that the purpose of the enterprise was to improve the river for steamboat traffic between Belvidere and Port Jervis, and when this section of the river was deemed navigable, even at low water, to operate a regular steamboat service between the two cities, a distance of some 60 miles.



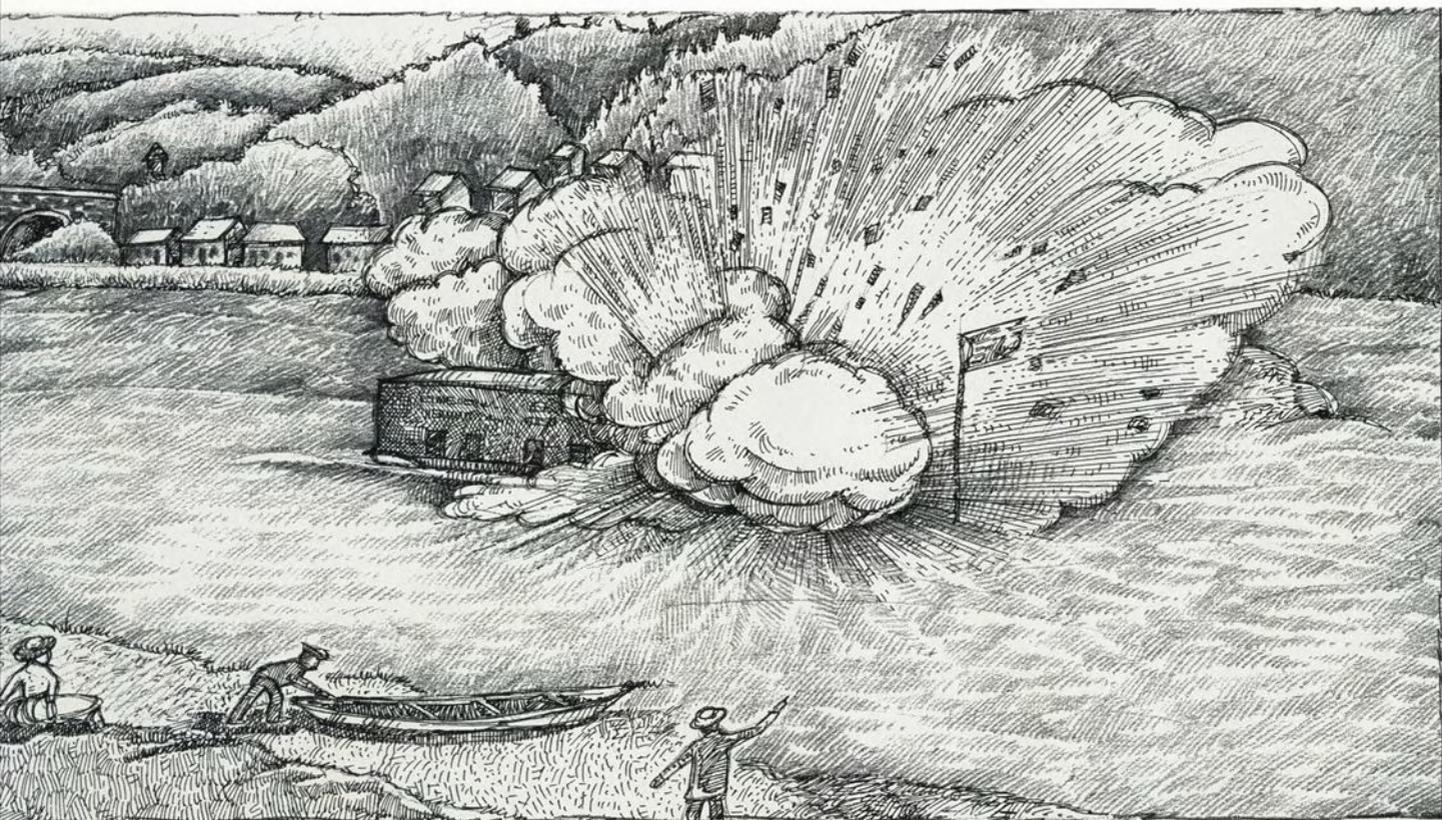
The corporation was given a 30-year monopoly on steamboat operation on this section of the Delaware with the obligation to "dredge, crib, riprap, and otherwise maintain the river in its area of operation." Their steamboats, however, could not interfere with the movement of other types of river craft such as timber rafts, Durham boats and ferries.

River improvements

On August 2, 1859, officers of the corporation and William Parks, a river expert, explored the upper Delaware in a Durham boat. Although water was at the year's low, this group determined that with some expense the river here could be made navigable for steamboats, even in periods of extreme low water. Work on river improvements was begun immediately. This action was cheered by people living along the river. Land transportation was sketchy in the wilderness area through which the upper river flowed, and these isolated farmers anticipated the coming of the steamboat with great enthusiasm.

While river improvements were progressing, contracts were let for the construction of the hull and engines. Thomas Bishop of Easton was selected to build the hull. His boatyard was located on the north bank of the Lehigh River, a mere half-mile from its juncture with the Delaware. Bishop was considered to be one of the preeminent boat builders in the area. Work was started immediately. A sternwheeler, the boat was to be 87 feet long, 15 feet, six inches wide, and about 75 tons burden. It was to be a

Affair



“double-decker.” The boat was christened *Alfred Thomas* after one of the owners.

The two engines and the boiler were designed and built at the Wells Machine Shop in South Easton. The work was done under the supervision of engineer Samuel Shaeff. Shaeff, 45, of Easton, would be chief engineer on the *Alfred Thomas* during its initial run up the river. His 21-year-old son, George, would serve as his fireman.

By the first of the year, boat, engine and boiler were completed and assembled, and on January 15, 1860, the vessel was given a trial run on the Lehigh. Things did not go well and when the trial was over, several changes were made to the engine and boiler. Apparently, a long-standing enmity existed between Bishop and Shaeff, and Bishop warned *Alfred Thomas* that the boiler and engines were still “not right.” Thomas then hired another engineer named Fowler, from Belvidere, who inspected the engines and boiler, recommended improvements, and when they were made, gave the boiler and engines a clean bill of health. This final approval was given on March 5. The boat would make its maiden voyage the next day.

Maiden voyage

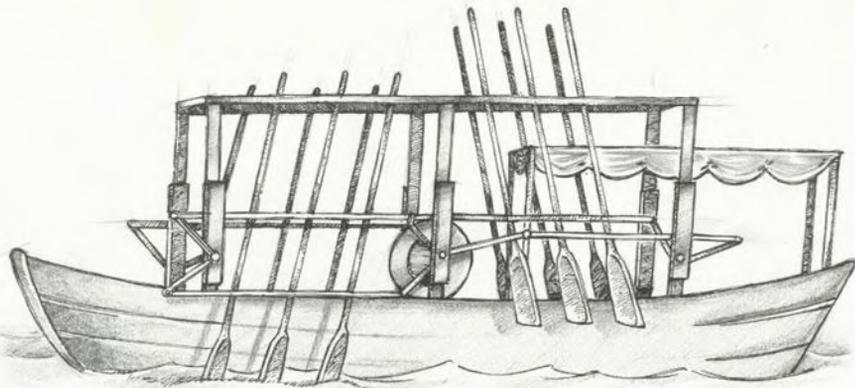
On the morning of Tuesday, March 6, 1860, the *Alfred Thomas* steamed from Bishop’s boatyard destined for her home port at Belvidere. Getting there would involve passing through some major rapids, especially at Foul Rift, but spring freshet was at its

peak and the depth of the water in the river would help get the boat over the boulders and ledge rock. Negotiating these rapids below Belvidere was a one-time ordeal. Once the craft reached the county seat, it would operate upriver only, and would face just minor rifts thereafter.

With *Old Glory* flying from the upper deck, and nearly 100 passengers crowded aboard, the vessel steamed proudly down the Lehigh toward the Delaware. The day was springlike and cheering crowds lined the river’s banks. In anticipation of the coming conflict, many believed the little steamer represented the naval and engineering superiority of the North. Among those on board at this time were the delighted owners, Sharp, Holcomb and Thomas, the builder Bishop and his employees, and of course, engineer Shaeff and his son, George—captain and crew.

Then as now, a dam spanned the Lehigh where it enters the larger river. Before reaching this obstruction the boat exited the Lehigh via an outlock and entered the hard-flowing Delaware. At the outlock, the ever skeptical Thomas Bishop insisted that he and his workers be put ashore. He didn’t think the craft would perform well in the stronger current and he wanted to distance himself from an embarrassing failure.

The craft then proceeded upriver, struggling somewhat, but making progress with enough excess steam for an occasional blast of its whistle. The boat passed under the covered Northampton Street Bridge, connecting Phillipsburg and Easton, and then turned toward the Pennsylvania shore. Here it docked at a temporary pier at the foot of Spring Garden Street at Keller’s Hotel. Here, lunch



Depicted in this illustration is a boat used on the Delaware during pre-Alfred Thomas days. The Alfred Thomas disaster ended attempts to treat the Delaware River as if it were the Mississippi River, with its steamboats and paddlewheelers.

was served and most of the passengers left the *Alfred Thomas*.

From this point the boat would proceed to Belvidere, never to return. Some 32 passengers, however, were on board for this last leg of the journey. Upriver from the pier at Keller's just above the spot where Bushkill Creek enters the Delaware, Getter's Island occupies the very middle of the river. The island is long and lies low in the water. The high banks here on both the Pennsylvania and Jersey shores look down on it. Excited crowds lined both banks of the river. The clearest channel around the island was on the Jersey side, and soon the vessel was in it laboring against the powerful current.

The *Alfred Thomas* had almost cleared the island, but at its upper end, the rapids, enhanced by the spring flood, were more than the little craft could manage. The vessel hung there for some 10 minutes, steam pressure registering about 60 pounds. Then Shaeff decided to let the craft drop down in the current and then into an eddy near the island, there to build up enough pressure in the boiler to enable it to force the rapids. When the craft reached the eddy, a rope was tied on shore to keep the bow of the boat from swinging out into the current. Everyone wanted to help. Several passengers helped fireman Shaeff in cutting boards and throwing the pieces into the boiler firebox. Men with poles, among them Stewart Beatty, were holding the craft into the shore, although as it turned out later some thought the craft had run aground and they were trying to push the craft away from the shore. Arthur Kessler was attempting to throw a rope to one of the many small skiffs that hovered around the ship. Those with nothing to do seemed to be running first to one side and then the other, causing the vessel to rock and tilt ominously. Judge Sharp, Joe Losey and the senior Shaeff were all clustered around the pressure gauges.

In about 20 minutes, pressure in the boiler had risen to 125 pounds and somebody, a passenger apparently, rang the bell to start the paddle wheel turning.

Explosion

The spring-like temperatures that day caused many housewives on both sides of the river to open their windows wide, and to them the explosion seemed especially loud. People from as far away as Belvidere and Washington claimed to have heard it. Some thought it was an earthquake; others suspected Confederate sabotage. Those lining the banks of the Delaware, however, had no doubt about what had happened: The *Alfred Thomas* had fragmented before

their very eyes. The steam boiler, located in the bow of the boat, had burst.

Almost immediately after the explosion the *Alfred Thomas* began to float downstream, flag still flying. The boat finally came to rest against a pier of the railroad bridge and remained there for several days until it was towed back to Bishop's boatyard.

Soon after the calamity crowds of people rushed to Getter's Island, among them several physicians. Here a first-aid station was set up and the injured treated. From here, too, several bodies of the victims were taken to the old courthouse in Centre Square, where the soldiers' monument now stands and later removed to their homes.

The next day, Wednesday, March 7, 1860, the coroner of Northampton County called a jury to investigate the accident and to determine its cause.

People who were on the *Alfred Thomas* at the time of the explosion—Buck, Able, Burrell and Alfred Thomas—told their stories. Thomas, who was also involved in the design and construction of the craft, testified to some of the problems in the trial run but stated that he believed they had been corrected.

Thomas Bishop, the hull builder, was vehement in his criticism of the dead engineer. He told the jury that he had warned the owners of Shaeff's incompetence and told them that the boat engines and boiler were not performing properly, and that they replied, "We'll try it and see."

Several steam engineers, former railroaders, testified that the boiler was not strong enough to withstand the pressures involved and that the gauges were placed incorrectly, and hence could not accurately record the steam pressure.

Finally, Doctor T. Green testified that as the boat pulled away from the island, just before the catastrophe, cold water from the river was pumped into the overheated boiler. He stated that this condition would create steam pressure of 750 pounds per square inch, that this rapid formation of steam "would exert the force of gunpowder."

All of the testimony, whether pertaining to the design of the boiler or the operation of the engines, incriminated Samuel Shaeff, who could not defend himself, nor could any refutation be offered by the only other crewman, his son.

The final rebuke was issued a short time later when the much respected publication, *The Scientific American*, reviewed the testimony and other evidence and concluded: "There is no mystery as to the cause of this explosion; the boiler was managed as with an intent to commit suicide."

But if, at the hearing, Samuel Shaeff was blamed for the disaster, with the passage of time rivermen came to realize that the real malefactor was the river itself, and never again would commercial steamboat travel be attempted on the river above Trenton.

The *Alfred Thomas*, however, lived on. Thomas Bishop rebuilt the hull, new engines and boiler were installed, and the craft was banished to do ferry service on a remote stretch of the Schuylkill River. And soon, when the peninsular campaign of the Civil War got under way, the steamer was called to active duty running supplies up the James River to Union troops in front of Richmond. Little *Alfred Thomas* had its moment of glory, after all.

Survey Shows Need for More Ramps

Gaining access to the nation's waterways can entail long trips and long waits in many parts of the country, according to boating facilities experts. Correlating recently compiled data that counts just 18,696 public boat launching ramps from coast to coast with more than 16 million boats in use today suggests that as many as 800 craft vie for each access point. "Many states have done a commendable job providing access, but the statistics indicate much more needs to be done," says National Marine Manufacturers Association's (NMMA) Facility Development Director Ron Stone.

Findings of the NMMA Boat Ramp Survey, completed in December 1991, show that a majority of public ramps—60 percent—serve inland lakes or ponds and 27 percent access rivers. These facilities are funded and managed most often by state governments (37 percent), local governments (16 percent) and federal agencies (14 percent). The top 10 boat launch ramp facility states are, in order, Minnesota (2,321 locations), Wisconsin (1,610), Michigan (1,101), Washington (898), Oregon (801), Texas (742), Illinois (655), California (644), South Carolina (536) and Pennsylvania (494). By definition, each facility has at least one launch lane, though some have as many as 15, and adjacent parking facilities for tow vehicles and trailers.

"Progressive state and local planners are learning that the same benefits that accrue to marina facilities are shared with their launch ramp cousins," explains Stone. "Building berths or ramps actually increases demand because the quality of the boating experience improves. With increased use comes benefits to local economies where water-bound outdoorspeople shop, gain sustenance, seek service, and spend and raise tax revenues."



Photo-Art Michaels

The Summary of Boating Regulations 1992 is mailed with each new and renewed boat registration. If you'd like an additional copy, it is available by writing to: Boating, PA Fish & Boat Commission, P.O. Box 1673, Harrisburg, PA 17105-1673.

BACKTALK

Argue with the Fish & Boat Commission. Applaud us. Advise us. The Commission invites you to write letters to the editor in this space if you have an idea on *Boat Pennsylvania* content, a question about the Commission or about boating, or a helpful idea for boaters. Address correspondence to: The Editor, *Boat Pennsylvania*, P.O. Box 1673, Harrisburg, PA 17105-1673. Letters are edited for clarity and space considerations.

Canoeing guide

Canoeing Guide to Western Pennsylvania and Northern West Virginia is a 480-page book published by the Pittsburgh Council American Youth Hostels (AYH). The updated and revised guide describes locations and covers all types of canoe and kayak trips (270 trips and over 3,000 miles) in this area. The information for the book was obtained over the last eight years from the experiences of skilled AYH leaders. The new guide is available for \$13.95 plus \$1.50 postage for the first copy and 50 cents for each additional copy (Pennsylvania residents please add 84 cents sales tax). Dealer rates and club discounts are available. To obtain a copy, or for more information, contact: Pittsburgh AYH Books, 6300 Fifth Avenue, Pittsburgh, PA 15232. The phone number is (412) 261-1500.

Weather for Boaters: Know Before You Go

High winds, rough water and thunderstorms can quickly turn a pleasant day of cruising or water skiing into a struggle to stay afloat.

The best way to handle adverse weather is to avoid it. Before going out, check the weather forecast. The National Weather Service issues marine forecasts every six hours. These forecasts include predictions for winds, seas, weather and visibility.

When weather warnings are in effect, determine whether you can operate your boat safely. Have the proper equipment aboard—a sturdy anchor and appropriate length of line, paddle or oars in case of engine failure, and visual distress signals to avoid stranding.

Check weather forecasts frequently on channels WX-1, WX-2 and WX-3, which broadcast continuously on your VHF radio. These days, hand-held VHF radios are

common, so even small-boat owners can carry them conveniently. Heavy static on an AM radio may indicate nearby storms.

Weather forecasting is not a perfect science. There is no substitute for the traditional practice of scanning the horizon for changes in wind, waves, water and sky.

Watch for dark, threatening clouds indicating a thunderstorm, or any steady increase in wind or waves.

The transition from a small cloud into a dark, turbulent, electrified storm can take as little as 30 minutes. Strong, gusty winds and heavy rain with thunder and lightning will probably follow soon.

Determine the distance, in miles, of an approaching thunderstorm by counting the seconds between the lightning flash and the thunder clap and dividing by five. For instance, if it takes 10 seconds to hear the thunder, the storm is about two miles away.

If you get caught in a thunderstorm, pinpoint your location on a chart before heavy rain reduces visibility to zero. Watch for other boats or obstructions, secure hatches and ports, strap down or stow in lockers all loose gear, and make sure everyone is wearing a life jacket.

When the storm hits, try to take the first and heaviest gusts of wind on the bow. Approach waves at a 45-degree angle to keep the propeller underwater and reduce pounding. If there is lightning, unplug the radio and electrical equipment, keep away from metal objects, and stay low. Place fishing rods flat on the boat deck, and lower antennas.

For a free brochure, *Weather for Mariners*, write to BOAT/U.S. Foundation, 880 South Pickett Street, Alexandria, VA 22304.

EMERGENCY Communications

by Cheryl Hornung

What would you do if your boat broke down several miles offshore on Lake Erie? Would you use your flares right away if no other boats were in sight? Or would you wait until you saw another boat? Suppose no one saw your flares. What would you do then?

That's easy—call the Coast Guard on your VHF radiotelephone!

The main tool of communications for many large-water boaters is the VHF (Very High Frequency) radiotelephone. With a VHF radio, boaters can communicate with other boaters, commercial vessels, the Coast Guard, lock tenders and draw bridge tenders.

License

You need a station license from the FCC (Federal Communications Commission) to operate a VHF radio. This license must be renewed every five years and must be displayed near the radio. When you purchase a VHF, make sure the dealer gives you Form 506 for a ship station license. Fill out the form and mail it to the FCC. The Coast Guard checks for VHF licenses during routine boardings. Violators are reported to the FCC for warnings or possible fines up to \$1,000.

Channels

Although there are many VHF channels, recreational boaters have access to only a few. Before using a VHF, know which channels are authorized for use. The FCC clearly spells out VHF procedures. Never use obscene language or falsify distress calls on a VHF radio. Listed below are some channels used by recreational boaters and the specified use of that channel.

Channel Specified Use

- 06** Safety messages, ship-to-shore.
- 09** Working channel, ship-to-shore.
- 13** Calling commercial vessels, lock operators and draw bridge tenders on low power.

16 Monitoring and hailing frequency; call Coast Guard; establish general contact; transmit emergency broadcasts.

22 Coast Guard working channel.

24 to 28 Hail marine operator; make telephone calls.

68, 69, 71, 72, 78 Working channels.

There are also marine weather (WX) stations on at least one channel. They constantly broadcast the latest available weather information for your area.

To use the VHF, turn the radio on. Turn the squelch knob until you hear static and then back off on the setting until the static stops. Adjust the volume. Locate the HIGH/LOW button on your unit. The high power broadcasts over a greater distance than low. Use high only after trying first on a low frequency. To talk, pick up the microphone. Hold the lever or key down to broadcast or give a message. To call another boat, place the mike close to your mouth, hold down the key and speak slowly and clearly. Name the boat you are calling three times. Then identify your boat and the call sign that the FCC gave you. The call sign is the letter "K" plus your boat registration number. If you own a documented vessel, you would use "KUS" plus the documentation number.

There is a phonetic alphabet that can be used to repeat letters. Ask the other boater to respond and then switch to another channel such as 69. Try to reach them first on low power.

The other boater should acknowledge your call on Channel 16 and also mention switching to channel 69. As soon as you establish contact, switch to another channel. When the conversation is over, the sign off command is "out."

Broadcasting emergency information

There are also procedures for broadcasting emergency information. Channel 16 is the emergency channel and must be kept free of idle conversation. "Mayday, mayday, mayday" means your boat is sinking or someone on your boat has a critical injury.

"Pan, pan, pan" (pronounced "pahn") means that the boat is in less serious trouble.

Here is the proper Mayday Procedure:

- Turn the radio to Channel 16 on high frequency.

- Key the microphone and say, "Mayday, Mayday, Mayday. This is the (boat name and call sign, spoken three times). Mayday.

"We are located at _____." (State the nature of your distress—boat sinking, collision, fire, etc).

"Our vessel is (describe type, length, color, etc).

"I will be listening on Channel 1-6. This is (boat name and call sign)."

The Coast Guard will probably respond on Channel 16 and then have you switch to Channel 6 to continue the conversation.

"Over"

"Over" signals the end of a transmission. You are waiting for a response. It means go ahead and transmit. "Out" signals the end of a transmission and that no answer is expected.

Keep channel 16 clear for the free flow of radio traffic. Remember that it is used only for distress calls or to get another boater's attention. If you cannot reach a boater, don't keep calling for more than 60 seconds at a time. Wait at least two minutes before trying again. After trying three times to raise the other boat, wait 15 minutes before calling again.

If you are calling a nearby boat, lower your VHF power. This permits more access to the channel by boats farther away and allows fewer people to hear your conversation. Remember that talking on a radiotelephone is like talking on a party line. The FCC has local monitoring stations to make sure operators are not abusing the airwaves. The Coast Guard also helps gather evidence of violations.

The standard VHF radio used to be a dash-mounted box that let boat operators dial a channel, key a mike and talk to another boater with the rest of the world listening in. Today there are many types of VHF radiotele-

Black Willow Water

The argument over who would paddle first had barely settled when the questions began to fly.

"What are those bubbles? Are fish making those?"

"Why are those dead trees standing in the water?"

"Is that poison ivy growing out of that rock?"

Anybody who has ever spent time with kids in the outdoors knows the routine. Even for adults who have the answers, the rate at which

the questions arise can be dizzying. For parents who know little about the outdoors and who were only hoping for a nice day in the fresh air with the family when they left the house, the kids' curiosity can end up being downright aggravating.

This time, though, I had a plan. Like learning that money doesn't grow on trees by having to earn some themselves, children seem to retain knowledge best when they are actively involved in acquiring it. So instead of simply trying to explain what we were seeing, I tell them only to wait and look for signs.

"Signs? What kind of signs? What do they look like?"

A few minutes later the answer appears in the form of a square brown sign with a boat on it and the number one. We paddle up to the rocks to which it is attached and the kids begin to read:

"A rock is a natural solid aggregate formed by minerals. There are three basic types of rocks—igneous, sedimentary and metamorphic. The cliff rock in front of you is primarily made up of sandstone and shale, two types of sedimentary rock..."

Reading on, they learn that rocks get their names from how they are formed. Igneous rock is created by the cooling and hardening of lava and magma, sedimentary rock by fusing together particles of old rock, and metamorphic rock by combining the other two. Then they are urged: "The next time you pick up a rock, take a closer look. You may be able to tell how it was formed."

Such nuggets of knowledge are something walkers are accustomed to finding in hiking guides and on plaques placed at intervals along popular park trails. They add interest to a walk in the woods by pointing out unusual aspects of the land, identifying flowers, trees and historic sites.

But aside from some general descriptions of the surrounding country and warnings about rapids and rocks, canoeing guidebooks are generally devoid of such information, as are waterways

used by paddlers, except for the Loyalhanna Lake site of the Black Willow Water Trail.

Located in northcentral Westmoreland County, Loyalhanna Lake is one of 16 U.S. Army Corps of Engineers flood control reservoirs in the Pittsburgh District. The dam that created the 400-acre impoundment was begun in 1939, halted for World War II, and then completed in 1950.



The Black Willow Water Trail was created in the late 1970s by Corps personnel stationed at the lake. It quickly became such a hit that in 1979 it was awarded an honorable mention in the national Chief of Engineers Design and Environmental Awards Program of the Corps of Engineers.

Today, the trail runs for a little over one mile and contains 15 stations marked by signs with numbers. Along with explaining the surrounding terrain, the trail guide also serves as a mini-course on the area's flora and fauna, especially for children. It is available free of charge at the dam office and boat launch area.

At Station 14, the "Jigsaw Puzzle Tree," for instance, the life cycle and use of the sycamore are related. "The sycamore tree has bark that flakes off in pieces that resemble a piece of a large jigsaw puzzle. The sycamore is conceded to be the most massive tree in the eastern United States. Some may live to be 500 to 600 years old. Indians used the massive trunk to carve out canoes. One was reported to be 65 feet long and weighed over 9,000 pounds, not one for the car top..."

Among the most fascinating stops along the trail, for both children and adults, is the "Indian

Turnpike," which provides a glimpse at the Indians who once lived along the stream, including a translation of the name Loyalhanna, "an Anglicized version of the Indian name 'La-el-hanne,' which means 'Middle stream'..."

To help attract wildlife to the trail area, Corps personnel have built and placed nesting boxes for squirrels, wood ducks, swallows and eastern bluebird along the route.

Ranger Mark Keppler, who is in charge of the trail, says canoeists can expect to see various species of ducks and geese if paddlers are quiet. The 3,722 acres of public land that surround the lake also hold a large population of wild turkeys that frequently show up along the shore.

Because it is too small for motorboats and water skiing, the best area for birdwatching is above the Bush Recreation Area near

Trail

by Paul Olenin

where Loyalhanna Creek begins to back up into a lake and the trail starts. The farther up the stream channel canoeists travel, the better their chances of seeing birds and other wildlife.

Along with the trail guide, visitors can also obtain free pamphlets on birds of the area, summer and fall wild flowers, and mushrooms.

and "Willow World," a homage to the willow tree from which the trail is named.

No matter where you paddle or what you find on Loyalhanna Lake, remember that as of May 1990 personal flotation devices must be worn by boaters on all Corps of Engineers projects in the Pittsburgh District. The regulation applies to all people on board all boats less than 16 feet in length and all canoes, all children under nine years of age and all non-swimmers.

"That's a definite requirement," say Keppler. "We stop a lot of people without personal flotation devices. In an average summer we probably stop between 40 and 50 boats to tell them about the PFD regulation."

For canoeists and boaters who like to leave their crafts to explore the banks, Keppler has another warning. "If you get out on the shoreline in the summertime you're almost sure to get poison ivy," he says, "because it grows like grass on the sides of the hills."

In addition to the Black Willow Water Trail, the Corps at Loyalhanna Lake also seeks to appeal to families and novice outdoor lovers with a "Rent-a-Tent" program that allows visitors to experience camping without making a big initial investment. For a nominal fee, equipment is provided for up to six individuals.

"We supply the tent, the electricity, the canopy, the cooler, the hot plate, the sleeping pads and the lantern," according to Keppler. "It's all one package deal. We take reservations on that, but that's the only thing we take reservations on."

The "Rent-a-Tent" program has been so popular that the Corps this year expanded it to include three different sites on the lake. A campground host or ranger is also usually available to answer questions and provide assistance to both novice and experienced campers.

Canoes cannot be rented at the lake, but Appalachian Trails, an outfitter located nearby, does have rental craft.

Of course, identifying rocks, learning about fish habitat and watching birds is only the real world. Kids have a way of seeing other things along the trail, too.

"Look at the dog sitting on its butt," I hear, as we near Station 8, "Wearing down a Cliff."

"Oh, yeah. But it's not sitting on its butt. It's on its hind legs."

I stare hard at the cliff, squint and twist my head to try to change the light. Still I see only rough sandstone. Where

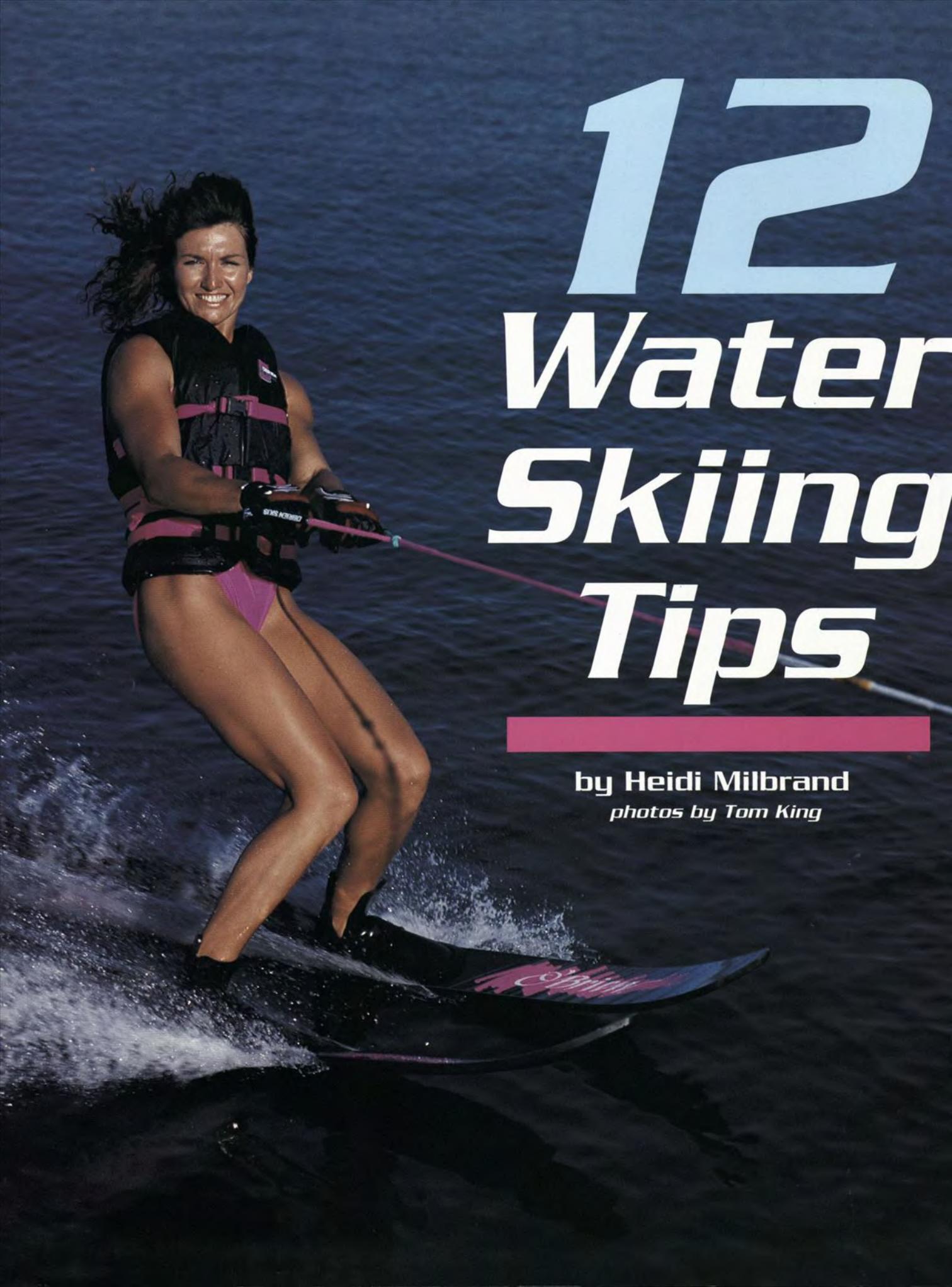
they see a dog, I have absolutely no idea. Then in quick order they pick out a fish and a face. I don't see those, either. I can only smile and marvel at the imagination of kids, until the inevitable question arises.

"Is it time to eat yet?"



1. Tailwater Access Area
2. Damsite
3. Kiski Group Camping Area
4. Bush Recreation Area
5. Sportsmen Parking Lot
6. Sportsmen Parking Lot
7. Christopher's Parking Lot
8. Mooring Access Parking Lot
9. Andrico Access Parking Lot
10. Inflow Access Area
11. Oasis Access Parking Lot
12. Sanderson Access Parking Lot

Other stops on the Black Willow Water Trail include the "Wattery Grave," which explains why dead trees cover the shore in places; "King Ivy," an entertaining warning about poison ivy; "Fish Attractor," a lesson on how old tires can be used to improve fish habitat; "Hidden Landslide," which looks at siltation and erosion;



12 Water Skiing Tips

by Heidi Milbrand
photos by Tom King

Preparation is the key to enjoying your water skiing this summer. It is disheartening to launch your boat and have engine trouble or put your skis on and discover that they're cracked or that they have become sharp-edged. It's also most disappointing to get up out of the hole and enjoy yourself for a few minutes only to pull a hamstring or strain a back muscle, sidelining you for weeks.

Summer has arrived, so use these helpful hints to make your water skiing safer and more enjoyable. Whether you're the operator, the skier, the observer or someone just learning to ski, these hints can help you increase your skills and have more fun.

1 Get in shape. After a long winter and a layoff from water skiing, it is very important to condition your body so that straining muscles does not become a daily activity, not to mention risking more serious injury. You can strengthen, stretch and condition the upper and lower body by doing simple exercises without having to buy a \$500 membership in a health club.

Lower body conditioning should involve bike riding and jumping rope. Upper body conditioning involves pushups and a weight training program. A water skier's upper body must have good strength to hold onto the rope for long periods and strong legs to withstand rough water and long periods of standing. Remember also that the better shape you're in, the less likely you will sustain injury.

Stretching is important because it prepares the muscles for activity and helps reduce the risk of injury. The book *Stretching*, by Bob Anderson, is an excellent reference. Check it out in book stores or at the library. Remember that water skiing is an athletic pursuit, and you should prepare and condition yourself accordingly.

2 Make sure your boat is safe. Not only does the skier's body need to be in shape, but the skier's boat also needs to be in shape and safe. The boat needs to have adequate power and speed. The boat should also have a ski tow hook that elevates the rope from the propeller and aids the skier in positioning the rope. Remember that anything you attach should be secured with no loose bolts or stray materials.

Service your boat regularly during the entire year. In this way, you get better gas mileage and you actually spend less money on regular maintenance than you do on emergency fix-ups.

3 Learn to ski from experienced people. Learning the fundamentals of skiing from an expert is important when first trying the sport and when you want to increase your skills. Hit-and-miss learning is the hard way. In the long run it takes longer and you stand a greater chance of sustaining an injury.

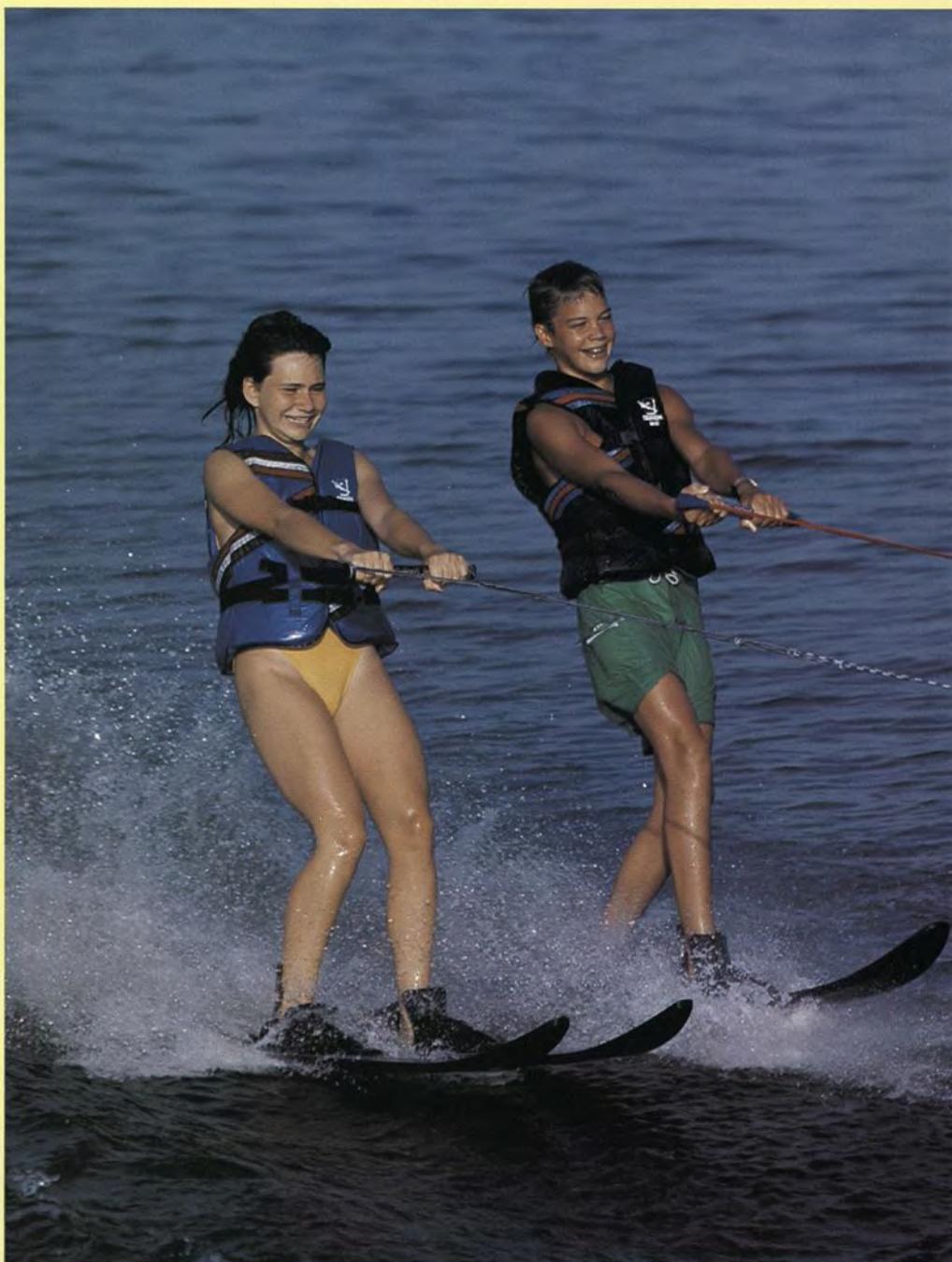
4 Learn hand signals. Make sure all the people on board understand the signals between the boat and skier, especially the observer. When under way there is no other way to communicate. A quick re-

view before each outing reinforces this idea. The hand signals shown on page 31 are all you need.

5 Boat with experienced people (towing, picking up, helping to prepare the skier, and so forth). A competent boat operator is an important consideration and essential when learning new skiing techniques. The boat operator needs to work well with the skier. Hand signals usually are used among the boat operator, the observer and the skier.

A skilled boat operator comes off the throttle when the skier falls or sees that the skier is having a problem. If the skier is losing ground, the boat operator should pick up speed and maintain a constant speed.

Picking up the downed skier is equally important. Approach a fallen skier into the wind or current. This increases maneuverability at slower speeds and prevents the boat from being carried





into the skier when he tries to board. Keep the fallen skier on the operator's side of the boat (starboard) when making the final approach. In this way, the operator can see the skier at all times.

The boat operator must also make sure all the passengers are seated before getting under way. The operator is responsible for the safety of everyone aboard the boat, including the water skier's safety.

6 Make sure your skiing equipment is in good shape and is right for the job. Your skis should not be cracked or have sharp edges that could injure the skier in a fall. The bindings should be in good shape, too, and they should fit properly. Keeping the bindings free from dry rot is important. Keep them out of direct sunlight and dry them thoroughly after a day's use.

When skiing with children, the bindings need to fit their feet snugly. Check with manufacturers or local dealers who sell children's bindings to eliminate the problem of bindings that don't fit.

Make sure the tow rope is coiled neatly and that it has no tears or knots. Do not pile anything on top of the rope because this makes the line wear more quickly.

7 Develop good technique on the water. Keep the knees bent, back straight, arms straight, and handle low, and use your body to lean.

Check your equipment to make sure it's in serviceable condition. Coil the tow rope neatly after each trip, and make sure it isn't knotted or torn.

When under way on the skis, a common fault is to bend forward and remain straight-legged. Proper control is impossible when your legs are straight and stiff. While bending your knees, crouch a little and keep your back straight and your head up. It is important that the knees absorb the shock of the waves instead of your back receiving the brunt of all the work.

Your center of gravity is also lowered, which lets you recover the proper body position after going over larger waves. Proper position also means less space between you and the water if you fall.

While skiing straight ahead, keep the handle at waist level and your arms flexed, ready to pull in or extend the handle slightly with changes in tension in the line.

Use your body lean to control the angle of your ski edges. The edges of your skis act as a full-length keel. The angle of the ski edge in relation to the surface of the water and the direction of travel determines if you speed up, slow down or just coast. How fast you go depends on how hard you lean in the direction toward which you are angled.

Water Skiing Signals

8 Learn to handle rough water and waves. If rough water is a problem, ski to the right or left inside the waves (or the boat wake). This helps you learn control over your skis and prepare you for waves that will follow.

9 Check the area through which you are going to ski before you go. This lets you become familiar with the "lay of the land." If you're the boat operator, once on the water, check the area ahead of you before you "take off." It takes most boats longer than usual to reach planing speed when towing a skier, so your vision may be obscured by the bow for a slightly longer period than usual. Don't watch the water skier at this time—that's what the observer is for. Watch where you are going.

10 Observe safe, skillful rules of towing. A boat towing a person requires a lot more room to maneuver than other boats. This calls for alertness and planning. If an evasive maneuver becomes necessary, the best choice may be to cut the throttle immediately. It is better to let the skier down in the water than to endanger anyone else. Your towing the skier does not grant you special privileges when it comes to boating courtesy, common sense, and the rules of the road.

Remember also that towed devices respond differently. A towed inner tube, knee board and the ever-increasing variety of "pull toys" cannot be controlled by the rider as much as someone can control water skis. Be extra careful when turning or coming close to the shoreline.

11 Be a competent observer. The observer is an important part of the water skiing team. The observer must be competent and must be in a position to see the skier. The observer is the main communication link between the operator and the skier. The observer gives instructions to the skier, allowing the operator to devote all his attention to operator responsibilities. Relaying speed adjustment messages to the operator is the duty of the observer. The observer is also responsible for assisting the skier into the boat and retrieving the tow rope and other equipment.

The observer must know the hand signals used in water skiing so that the observer can quickly and accurately relay messages between the skier and the driver.

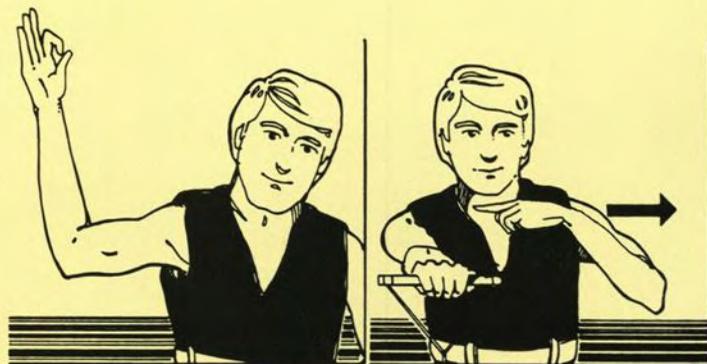
12 Observe skier responsibilities. As a skier improves his ability, the skier gains control over speed and turning ability. Knowing how to swim and being comfortable in the water, as well as wearing a type III PFD, is important. The skier must be alert for swimmers, wakes, partially submerged objects, rafters or anything that might come between him and the boat.

Skiers must wear PFDs. Take special precautions, such as wearing a wetsuit or drysuit, if you ski in cold water.

Skiers should relax and make a smooth water entry if they know they are going to fall. They should avoid falling forward over the top of the skis. Sudden stops can be made by sitting on the back of the skis and dragging your hands. Never ski when tired. Exhausted skiers invite trouble.

When down, skiers must hold one ski out of the water in an upright position to warn approaching boats that a skier is in the water. It also makes it easier for the operator to see you and return to pick you up.

All in all, have a terrific time on the water. But remember the skills involved to make each trip fun and safe.



Speed OK

Cut motor



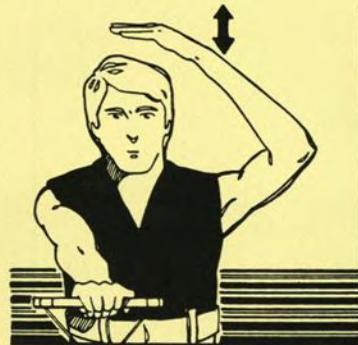
Turn



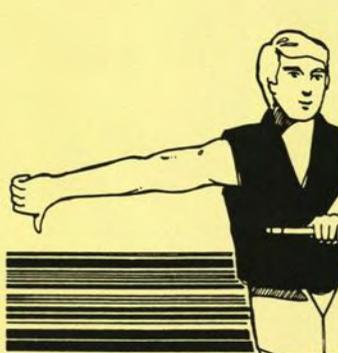
Speed up



Stop



Back to dock



Slow down



Skier OK



SUMMER FUN

Engaging gauges *page 4* Mindful maintenance *page 16*
Promising paddling *pages 6, 26* Winning water skiing *page 28*
Caring communications *page 24*