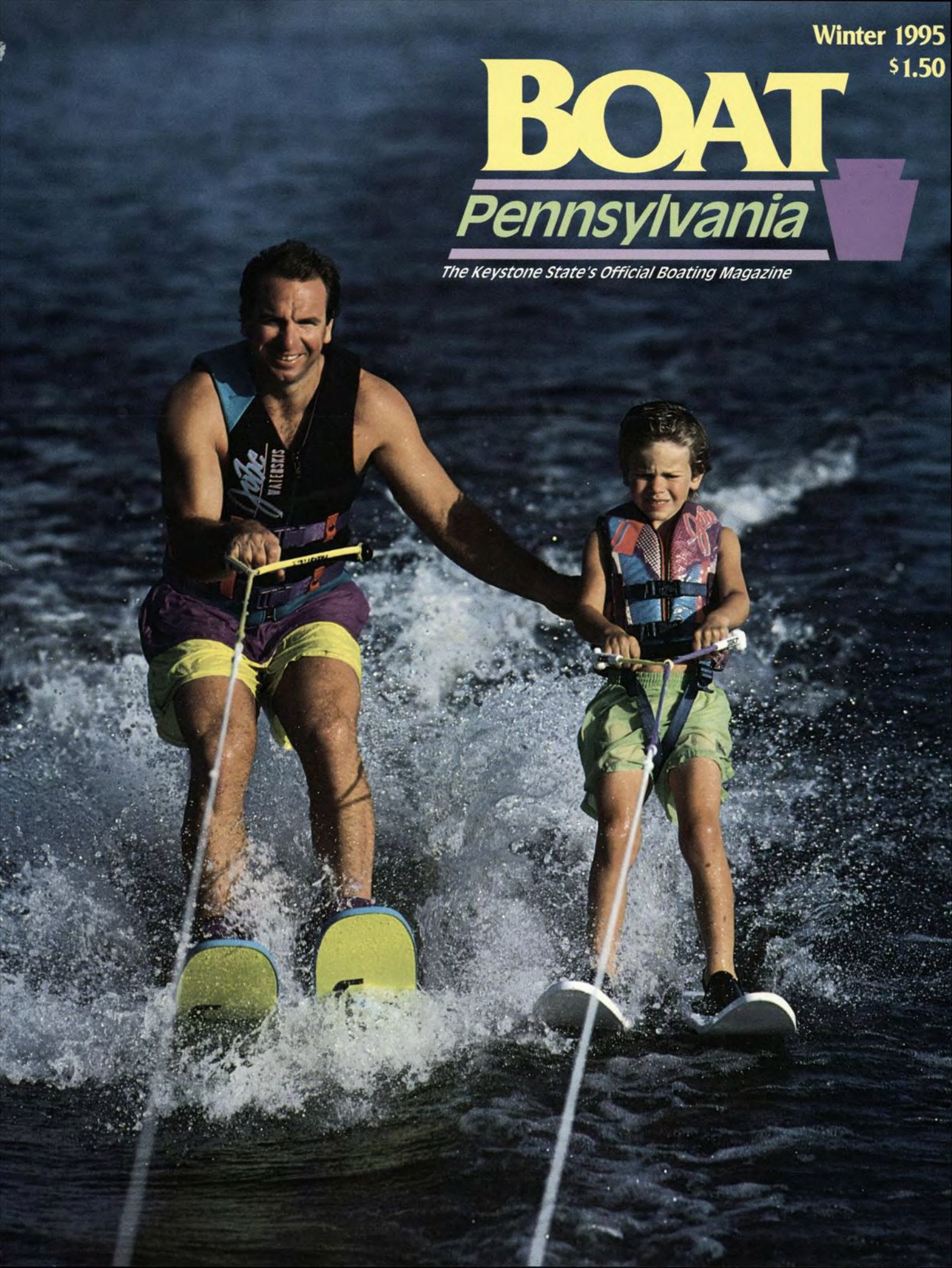
Winter 1995
$1.50

BOAT Pennsylvania

The Keystone State's Official Boating Magazine



Viewpoint

Surging Numbers

John Simmons
Director
Bureau of Boating
Pennsylvania Fish & Boat Commission

The year 1994 was good for boating. The summer was warm but not too oppressive. Generally, the weekend weather cooperated throughout the year, providing many enjoyable days for hundreds of thousands of Pennsylvanians to ski, fish or just cruise and relax.

The number of registered boats reached a record high. After a one-year hiatus during which there was no increase in registration numbers, the number of new boat registrations soared. Increasing by almost 10,000 registrations, over 321,000 boats were registered during 1994. Some of these new boat registrations came from unpowered boats registered to use Commission facilities. Many of the remainder of the new boat registrations came from a continuing interest in personal watercraft. At this writing, we don't have a complete analysis of the year, but over 3,000 more of these craft were registered last year, bringing the total number to over 12,000. These watercraft are fast becoming the boat of choice for the next generation of Pennsylvania boaters.

The number of boaters who have taken advantage of the various education class offerings also increased during the year. About 8,000 students received certification. Even though this number is increasing, it is not nearly enough. With over 321,000 registered boats, we have a long way to go toward our goal of an educated boating public.

Four boating program specialists were hired to increase the number of boaters attending boating safety classes. The Legislature considered several bills that would establish mandatory education requirements for Pennsylvania boaters. None of the bills was reported out of committee, but interest is growing. Voluntary education remains the choice of most legislators and the Commission, but the lack of interest by boaters makes the continuation of this policy uncertain. If boating is to continue to grow as it has, boaters must begin to accept that they cannot do without formal education. We hope that more boaters take advantage of opportunities to learn more about how to enjoy their sport safely.

Fifteen boaters lost their lives in accidents this season–up from nine in 1993. No single group of boaters is responsible for these tragedies. The age of the victims ranged from 15 to 80. The boats ranged from 8-foot vinyl rafts to a 26-foot auxiliary sailboat. Five victims were in unpowered boats, three of which were inflatable. Fatal accidents happened both during daylight hours and in the middle of the night. Some were on busy waters; others occurred when no other boats were around. In five of the accidents alcohol use was indicated. Twelve victims fell overboard or their boats capsized. Cold water was a factor in most of the accidents.

Two common factors can be identified in all these accidents. The first is that the victims ended up in the water unexpectedly and without their life jackets. In the last issue I reported some recent changes in the PFD rules. In almost all of the boating accidents, the victims probably would have survived had they worn their PFDs. Most were operating in conditions where there was no excuse why one was not worn. Boating accidents can be prevented if boaters would use a little common sense and wear their PFDs when appropriate.

The second factor is that these victims did not receive any boating safety training. Winter boating safety classes are under way in many areas. More will be available between now and the next boating season. Think about your safety and that of your family. Take a boating safety class.

Information on a program near you may be received by contacting the Commission Area Boating Program Specialists: Northwest Area, Keith Edwards, 814-336-2426; Southwest Area, Mike Petrosini, 412-781-6116; Central Area, Heidi Milbrand, 717-834-9073; and Eastern Area, Mike Roush, 215-862-0280.

Boat Pennsylvania (ISSN0888-1561) is published quarterly by the Pennsylvania Fish & Boat Commission, 3532 Walnut Street, Harrisburg, PA 17109. Subscription rates: one year, $6; single copies are $1.50 each. Second class postage is paid at Harrisburg, PA. **POSTMASTER**: Send address changes to: *Boat PA* Circulation, Pennsylvania Fish & Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000. For subscription and change of address, use above address. Please allow three months for processing new subscriptions, renewals and changes of address. Send all other correspondence to: The Editor, *Boat Pennsylvania*, P.O. Box 67000, Harrisburg, PA 17106-7000. Editorial queries and contributions are welcome, but must be accompanied by self-addressed, stamped envelopes. Material accepted for publication is subject to Pennsylvania Fish & Boat Commission standards and requirements for editing and revising. Submissions are handled carefully, but the publisher assumes no responsibility for the return or safety of submissions in his possession or in transit. The authors' views, ideas and advice expressed in this magazine do not necessarily reflect the opinion or official position of the Pennsylvania Fish & Boat Commission or its staff. The Pennsylvania Fish & Boat Commission receives federal aid in sport fish restoration. Under appropriate federal acts, the U. S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, age, sex or handicap. If you believe that you have been discriminated against in any program, activity, or facility as described above, or if you desire more information, please write to: The Office of Equal Opportunity, Department of the Interior, Washington, DC 20240.

BOAT Pennsylvania

Winter 1995
Vol.12 No.1

The covers

This issue's front and back covers were photographed by Tom King. This winter, think carefully about the kind of oil and gas you use in your boat. Better read the vital information beginning on page 4 to make sure you don't risk unnecessary breakdowns and repair bills. Similarly, check out the article on page 10 for hot tips on how to care for your boat battery, and read the information on page 14 and 18 to care for your boat properly. No matter what kind of boat you own, wearing a PFD is the safest course, but if you don't wear a PFD, knowing exactly how to put one on in the water is the next best thing. Beginning on page 16 you'll find step-by-step instructions on how to do that. Finally, do you own a personal watercraft (PWC)? Pennsylvanians are registering more and more of these kinds of boats. Check out page 7 for the details on where in central Pennsylvania to use your PWC.

PRINTED ON RECYCLED PAPER

Are You Using the Right GAS and OIL?

by Bob Stearns

photo-Dan Martin

If your outboard is 40 hp or larger and you are not using the right combination of gasoline and oil, you are looking right down the double barrels of serious engine damage and huge repair bills. That's the reason the major outboard manufacturers recently got together and formulated an entirely new version of the oil you mix with your gas.

There are two gasoline problems, and they can cause a lot of expensive damage. Both of them come about because of the lower quality of fuel we get from the pump these days, a downward trend that's the rule for the last decade or so. One of them threatens the very life of your engine if it is a 2-cycle outboard. The other problem causes both 2- and 4-cycle engine difficulties that seriously threaten your fishing and boating time.

If your outboard is 40 hp or larger and you are not using the right combination of gasoline and oil, you are looking right down the double barrels of serious engine damage and huge repair bills.

The most alarming problem comes from carbon buildup around the piston rings. As it accumulates in the cylinders, more and more gets under the rings and forces them progressively farther out of their grooves in the pistons. Outboard engineers call this "ring jacking," and its ultimate consequences are quite unsettling, to say the least. As the rings are jacked higher and higher, the friction between the ring surface and the cylinder wall increases, and so do cylinder wall temperatures, until something has to give. Eventually it's the powerhead, usually damaged so badly that a complete replacement is the only option. The situation is preventable.

The other predicament appears in the form of gummy varnish deposits in the carburetor, something that once was a problem only if we failed to store the engine properly during a long off-season. But nowadays that can happen in just a matter of weeks, especially in warm and/or humid climates. It's worse in the southern half of the U.S., but even Pennsylvania doesn't escape.

To combat the carbon/varnish situation, all major outboard manufacturers (OMC, Brunswick, Yamaha, Suzuki) have banded together to develop, thoroughly test and formulate a new 2-cycle oil. Each company will package the oil under its own outboard brand name, such as Evinrude, Johnson, Mariner, Mercury, Suzuki, Yamaha, etc., and all of them will carry a new identification label: TC-W3.

These dilemmas have primarily come about because of gradual changes in the way gasoline is now refined. Keep in mind that gasoline is primarily formulated for highway, not marine, use (e.g., recreational boating uses less than three percent of the gasoline made in the U.S.). And the quality of crude oil is generally down somewhat because we've used so much of the better grades from the world's known reserves. Add the escalating demand for gasoline on the road, which means refineries are squeezing an extra gallon or two from each barrel of crude. This further lowers the quality of the gas because of "heavier" elements now extracted from the crude that would otherwise be converted to other kinds of fuel or perhaps oil and grease lubricants.

In some cases, problems resulting from the lower quality gasoline may be further aggravated by modern outboard design. Many of today's higher performance inline 3s, V-4s, V-6s and V-8s are built to run a little hotter to develop more horsepower from less fuel. This both saves on engine weight and increases fuel efficiency. And because the alloys used in current engines are designed to handle the extra heat, durability isn't reduced. But more immediate damage is possible when a lower quality fuel is factored in, because the additional heat can also contribute to more rapid carbon buildup.

There's a big difference between the lowest grade of gasoline and the so-called "mid-grade" blends. The lower grades, usually pump-posted as 87 octane, have little in the way of the helpful additives that combat carbon and varnish problems, especially in boating applications. So even though an 87 octane rating is more than sufficient to develop your engine's full horsepower, according to the top outboard makers in the U.S., the missing additives are where the carbon buildup and carb varnish problems start.

New outboard oil

To combat the carbon/varnish situation, all major outboard manufacturers (OMC, Brunswick, Yamaha, Suzuki) have banded together to develop, thoroughly test and formulate a new 2-cycle oil. Each company will package the oil under its own outboard brand name, such as Evinrude, Johnson, Mariner, Mercury, Suzuki, Yamaha, etc., and all of them will also carry a new identification label: TC-W3.

TC-W3 is formulated to include those critical ingredients lacking in the previous industry outboard oil standard, TC-W II. Most significant of these is an additive that actively inhibits carbon buildup around the rings. It is a better overall lubricant, too. TC-W3 also has dispersants that help reduce gummy varnish formation, although in the more extreme situations you'll still have to address that particular problem with a separate fuel conditioner.

TC-W3 oil is now widely distributed, but it still might not yet be available in some of the more remote areas. In that circumstance you still have two choices: Use TC-W II oil and a mid-grade gasoline that's rated at the pump as 89 octane or better (because of the additives it already contains). Or use an 87 octane fuel, TC-W II oil, and a separate carbon-reducing additive like OMC's Carbon Guard or Yamaha's Ring Free. In the long run, however, switching to TC-W3 is definitely the right move.

Incidentally, some outboard manufacturers suggest that with the fuels currently available there is no benefit (and possibly some problems) gained by using so-called expensive "premium" gasoline, usually 91 octane or better, because it also contains oxygenates and ethers that raise the temperature of combustion in the cylinders.

No fuel conditioner or carburetor cleaner will remove varnish that has already clogged the jets or injectors. That's a job only a mechanic can do. The trick is to keep it from happening in the first place.

Fuel conditioner

The occasional need for a separate fuel conditioner comes about because of the rapid rate at which today's gasolines oxidize. This degradation process starts as soon as that batch of fuel leaves the refinery, and can become a significant problem during the warmer months. The degradation starts in as little as 60 days when peroxides begin to form, soon followed by

photo-Bob Stearns

Are You Using the Right GAS and OIL?

gummy varnish. Mid-grade and premium fuels already come with additives that prevent carb varnish in the short term (i.e., for a few months), but the 87 octanes rarely have enough of these to make any difference, particularly where boats are concerned.

Most outboard makers offer fuel conditioners in their own packaging, while others are available, like Sta-Bil, in most auto supply stores. Check with your outboard dealer before using any brand other than that with your engine's label.

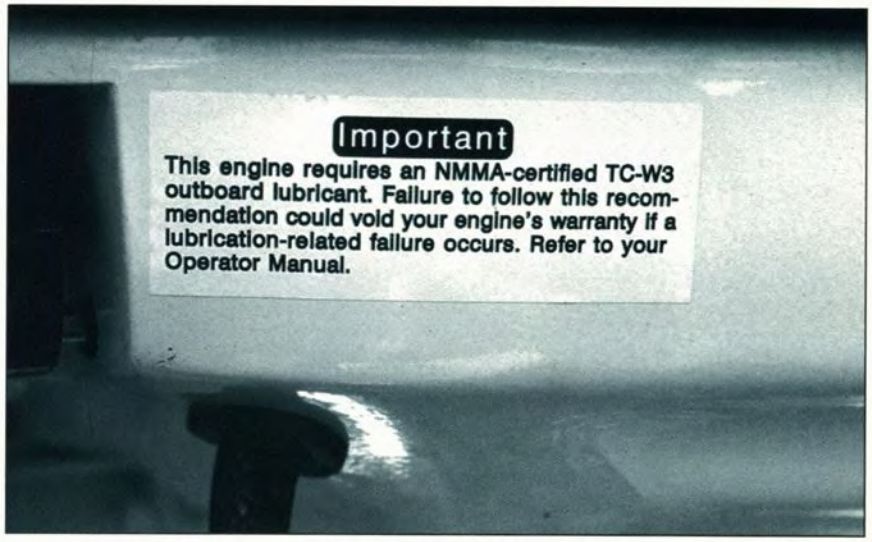
Fuel conditioners do several things. The main benefit is an ingredient that prevents significant gasoline oxidation for a year or more. Other additives help remove small amounts of water that may have become mixed with gas in your tank and help clean up the fuel system. There are also dispersants to eliminate varnish as it forms. No fuel conditioner or carburetor cleaner will remove varnish that has already clogged the jets or injectors. That's a job only a mechanic can do. The trick is to keep it from happening in the first place.

Even though it was once a common practice, most outboard manufacturers now recommend that you do not run the carburetor dry of fuel (check with your dealer first if you still strongly feel this is the right thing to do) for two reasons. First, you can never get all the fuel out, which means there's still some left in the bowl to oxidize. And second, unless you're very careful about not letting the engine rev past the 1500 rpm level as the last of the gas is burned, there's a lot of extra heat generated in the cylinders, which will evaporate what little oil is left behind, exposing the cylinders to a rapid rust problem.

If you're using 87 or 89 octane gas, even with TC-W3 oil, and you feel that there's a good probability you won't be using your boat for over a month, by all means add the prescribed amount of fuel conditioner to the tank before you run the engine for the last time. That ensures the carb is full of properly conditioned fuel while the rig is idle. This is also the only safe way to prepare the engine's fuel system for off-season storage.

In the final analysis, right now the most cost-effective way to ensure you're burning the right fuel in your outboard appears to be a break-even between using TC-W3 oil and 87 octane gasoline. Or TC-W II oil, a carbon-reducing additive, and 87 octane. Or TC-W II and a mid-range gasoline. Plus a few extra pennies per gallon for a fuel conditioner, when and if it's needed, with any of the above combinations.

TC-W3 oil is a little more expensive than TC-W II. But today's outboards use a lot less oil than they once did, and that helps mitigate the difference. Also, you can always buy outboard oil in bulk and save significantly. Keep in mind that all outboard motors cost considerably more today than a decade ago. Pinching pennies on oil and gasoline could be at the expense of a major investment.



TC-W3 includes the critical ingredients lacking in the previous industry outboard oil standard.

Even though an 87 octane rating is more than sufficient to develop your engine's full horsepower, according to the top outboard makers in the U.S., the missing additives are where the carbon buildup and carb varnish problems start.

Gasoline additives

Not all brands of gasoline are good for your outboard. You should try especially to stay away from fuels that contain alcohol. Some states do not require that this information be displayed at the gas pump, but your outboard dealer or his service manager will likely know which brands and grades perform best in your engine.

Many automotive gasoline additives may be potentially harmful snake oils as far as your outboard is concerned. If it isn't made by an outboard company, be especially wary. Ask your dealer first.

If you elect to use one of the outboard-approved carbon-reducing additives, keep in mind that these also contain powerful detergents. An old fuel tank might have deposits that these detergents will set free, so adding a large-element in-line fuel filter is a good idea before you start dumping the stuff in (a big filter is always a good idea).

All TC-W3 oils packaged by the outboard motor companies are formulated to meet the same critical requirements. Therefore, it is far safer to use, for example, Mercury oil in an Evinrude outboard than some off-brand product.

photo-Bob Stearns

Central Pennsylvania's Personal Watercraft Spots

by Heidi Milbrand

photo-Tom King

Owning a personal watercraft (PWC) today can be tough. People either like them a lot or they downright hate them and wish they would be banished from our waterways. People have to realize that personal watercraft are considered boats and have just as much right to the water as does the 20-foot pleasure boat, the 16-foot canoe and the 28-foot sailboat.

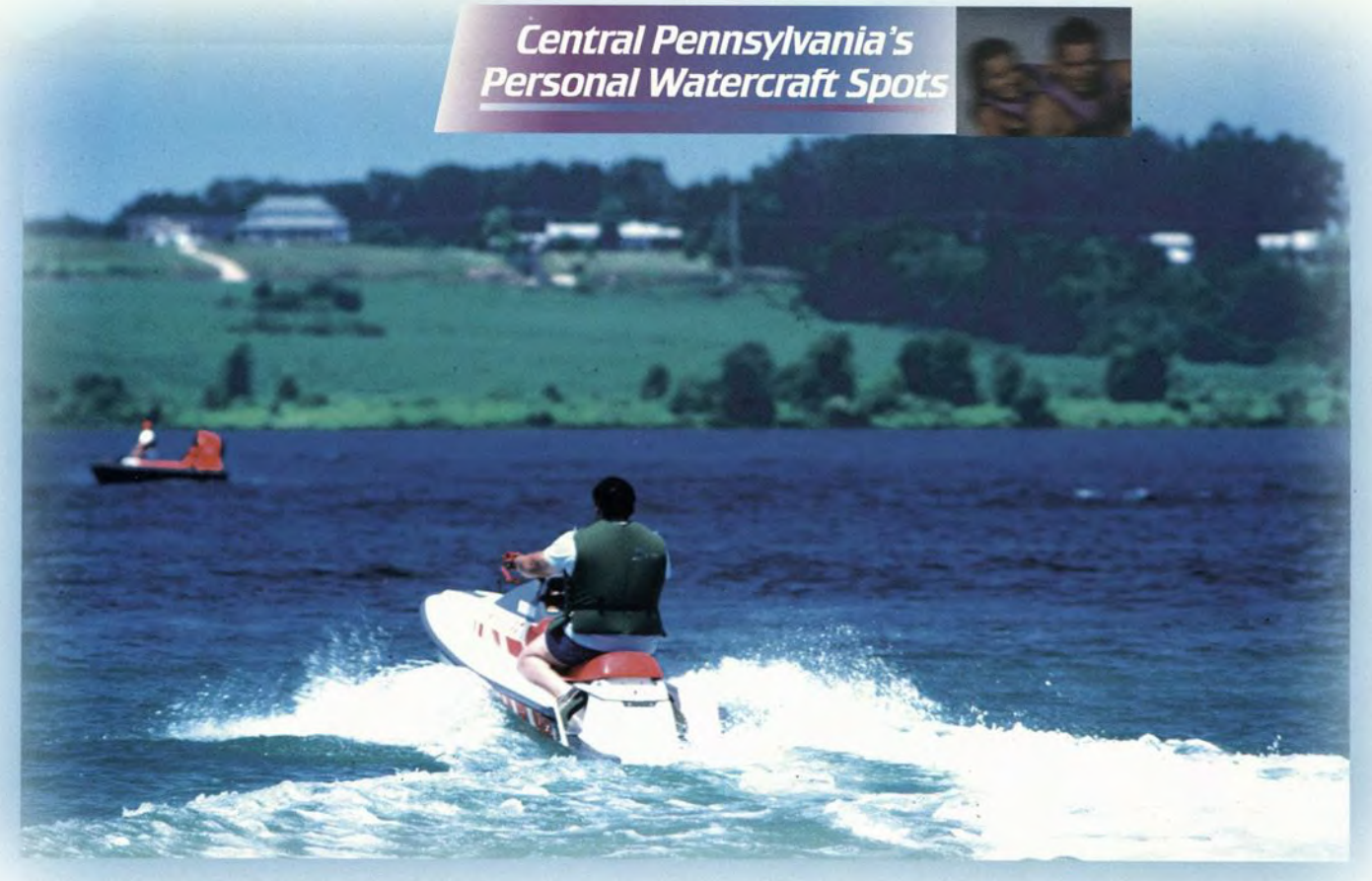
Regardless of the kind of personal watercraft you own or operate, you are legally in command of a powerboat–you need to be a responsible boater. When you first purchase a personal watercraft or are operating someone else's, you need to follow the safety recommendations in the owner's manual. You must know the state's boating regulations and obey them, plus any special rules regarding personal watercraft, such as not renting them to anyone under the age of 16 and prohibiting operation of them at night (sunset to sunrise).

You also have to respect the rights of others on, in and about the water. Remember that you are not the only boater out there. If you allow others to operate your watercraft, be sure they are old enough to be responsible operators and thoroughly explain the procedures for handling the watercraft safely.

A U.S. Coast Guard approved personal flotation device must be worn by anyone who operates or is a passenger on a personal watercraft–regardless of age, swimming ability or experience on a personal watercraft. You must obey all rules of the road–no exceptions! If you remember to use a little common sense, your day on the water will be much more enjoyable.

With over 9,300 personal watercraft registered in Pennsylvania in 1994 and the numbers continuing to grow, owners and riders need places to go. Let the following help you find places where personal watercraft will be able to ride free.

Central Pennsylvania's Personal Watercraft Spots

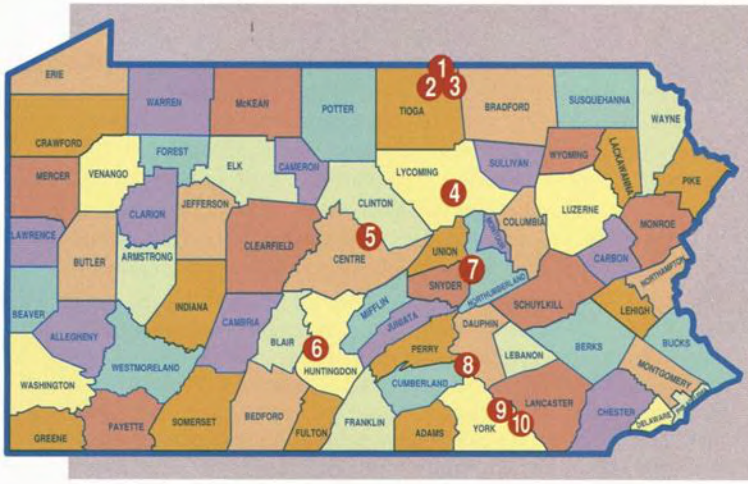


• **Bald Eagle State Park.** As you cross the mountains on Route 80 heading west, you come across this park, also known as Foster Joseph Sayers Dam. This waterway is appropriately named, because you can see bald eagles soaring over the lake and surrounding area. An Army Corps of Engineers project surrounded by a state park, it offers year-round activities. Located in Centre County, this 1,730-acre lake has unlimited horsepower and recreation. It has six paved launch ramps, a marina, a swimming area and concessions. There are speed and waterskiing restrictions at the waterway's Hunter's Run area. The park's number is (814) 625-2447. Camping has opened in the park, so take your tent or trailer and stay for a few days.

To get to the park, take exit 23 off I-80 to Route 150, approximately nine miles north of the exit.

• **Raystown Lake.** One of Pennsylvania's most popular recreation spots, over one million visitors a year take in Raystown Lake. Probably the most popular waterway among area boaters, Raystown is 30 miles long and encompasses over 8,300 acres, which makes it the largest manmade lake completely in the Commonwealth. Just watch for winds that kick up waves. You will definitely take a pounding on your PWC.

There are two major recreation areas with surfaced ramps and eight other public use areas with launch ramps. The lake is open to all kinds of boating, but watch for several controlled areas. Camping is also available here, with several different areas. The lake is located off Route 26, south of Huntingdon, in Huntingdon County. Take the turnpike to exit 11 or 12 and follow Route 30 to Route 26 to Raystown Lake, or routes 220 or 22. The U.S. Army Corps of Engineers phone number for Raystown Lake is (814) 658-3405.



Central PA's Personal Watercraft Places

1. Cowanesque Lake
2. Tioga Lake
3. Hammond Lake
4. Susquehanna River, Williamsport area
5. Bald Eagle State Park
6. Raystown Lake
7. Susquehanna River, Sunbury area
8. Susquehanna River, Harrisburg area
9. Susquehanna River, York area
10. Susquehanna River, Lancaster area

• **Tioga-Hammond/Cowanesque Lakes.** These three lakes are located in northcentral Pennsylvania, off Route 15 in Tioga County. These lakes, all U.S. Army Corps of Engineers projects, are located in a picturesque section of the state, with mountains surrounding every lake. The first lake you encounter traveling north is Tioga Lake, approximately 470 acres with unlimited horsepower. There is a surfaced ramp and plenty of parking. No camping is available.

Right next to Tioga Lake is Hammond Lake, with 680 acres

PFBC photo; map graphic-Ted Walke

for riding your personal watercraft. This waterway also has ramps and parking. Both areas offer swimming, fishing and hiking with camping at Hammond Lake.

Approximately 15 minutes northwest of these two lakes is Cowanesque Lake, just increased to 1,100 acres from 410 acres in 1992. Follow Route 15 north to Lawrenceville to Route 49 west, approximately two miles to the dam. You'll find unlimited horsepower here, but check for zoning regulations. Camping can be found here as well as picnicking. Take a few days off and do all three lakes. The Corps phone number for all three waterways is (717) 835-5230.

• **Susquehanna River, Harrisburg area.** The most popular boating spot in the area is just above York Haven Dam (Lake Frederic, Goldsboro). Tread lightly here with your personal watercraft. Obey all the rules and regulations and try not to make waves. This area offers six ramps with parking. Shallow places in this part of the river can be hazardous during periods of low flow. Call the Mid-Atlantic River Forecast Center in State College (800-362-0335) to learn the river depth at Harrisburg in a recorded message. A reading of 4.0 feet or lower requires more caution than usual.

Another popular area is right above the Dock Street Dam in the shadow of the capital's skyline. One boat ramp, on the southern end of City Island, can be reached off Front Street in Harrisburg on the east side or routes 11 and 15 on the west side of the river. Free public access with a swimming facility is on the north end. City Island is also the home of the Harrisburg Senators, the *Pride of the Susquehanna* (riverboat) and numerous other activities. Make a day of visiting this island.

• **Susquehanna River, York area.** Safe Harbor Dam (Lake Clarke) offers unlimited horsepower with several access points. Take Route 30 to Wrightsville (Route 462) and follow Route 624 south to Lake Clarke Marina or Long Level Marina. Or you can launch your craft at the Safe Harbor Water and Power Company access, which has picnic tables and sanitary facilities.

• **Susquehanna River, Sunbury area.** Some 3,000 acres, known as Lake Augusta, can be found at the confluence of the North and West branches of the Susquehanna River. This area provides unlimited horsepower on the lake from the dam northward. Access to the lake is on Packer's Island located in Shikellamy State Park, with parking available. The park's number is (717) 286-7880. A paved ramp is located at the east end of the park with extensive parking and a 100-boat marina located on the west side. There are two overlooks, one on the tip of Packer's Island and the other in the Blue Hill area of the park on the west side of the river. The park is located off Route 11, north of Sunbury,

Three other accesses are located in the borough of Northumberland at Hanover Street off Route 11, at Northumberland Point at the Route 11 bridge, and in Sunbury off Route 147 on Chestnut Street.

• **Susquehanna River, Williamsport area.** Susquehanna State Park is located on the Williamsport side of the West Branch of the Susquehanna River, near the Arch Street bridge and routes 11/15. The park is administered by the Department of Environmental Resources for Williamsport, and it also houses the paddleboat *Hiawatha*. Susquehanna State Park's phone number is (717) 326-1971. There is a paved launch ramp at the east end of the park, along with plenty of parking. This unlimited horsepower impoundment is created by the Hepburn Street Dam. The park also provides picnic facilities and scenic views of the river.

• **Susquehanna River, Lancaster area.** Another dam creates a pool, Lake Aldred, found in the southern reaches of the state, which provides unlimited horsepower boating.

Lake Aldred is accessible from both sides of the river. On the York County side, PP&L access areas include the York furnace access at the mouth of Otter Creek, on Route 425, which has picnic tables and sanitary facilities, and an access near York Furnace at Indian Steps.

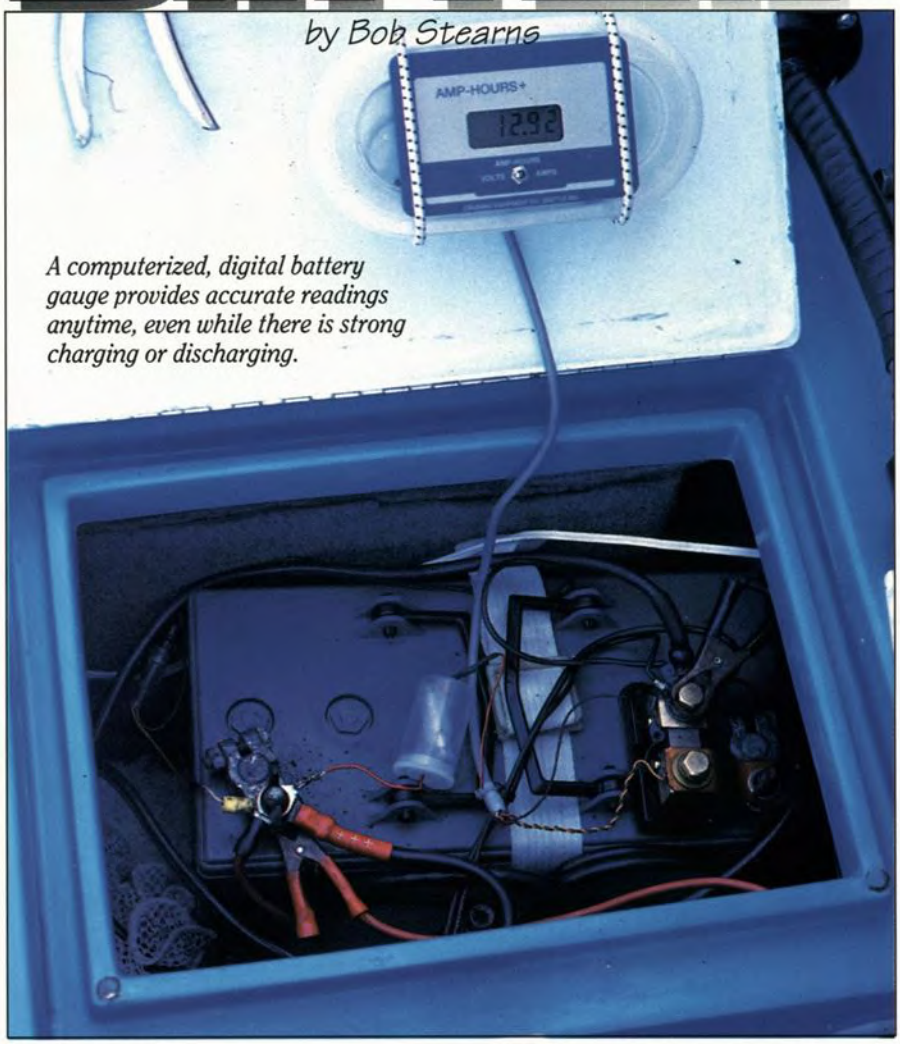
On the Lancaster County side, there is a PP&L access at the mouth of Pequea Creek just off Route 324, which has a surfaced ramp, a picnic area and a playground. Observe caution at low water levels here. Arrowhead Marina is on the opposite side of Pequea Creek across the river from the PP&L area. It offers a surfaced ramp along with a grocery store, boat rentals and a snack bar. The Peach Bottom Marina offers mooring during the summer. It also has a grocery store, fishing supplies and bait.

photo-Yamaha

photo-Cheryl Hornung

How to Get More from YOUR BATTERY

by Bob Stearns



A computerized, digital battery gauge provides accurate readings anytime, even while there is strong charging or discharging.

photo-Bob Stearns

In case you haven't noticed, boat batteries have changed a lot over the last 10 years or so. Not only have they improved significantly, but now there are better ways to charge them and better ways to monitor their performance.

The add-distilled-water routine is history. Convenience aside, sealed (maintenance-free) construction also extends the average life of the battery somewhat by making it impossible to add potentially cell-damaging tapwater.

Nowadays sealed batteries come in two forms: Liquid acid and gel. The technology of the liquid acid is much the same as its open-cell predecessor, but the gel battery is a big step upward in both durability and capacity. This makes it a practical choice for many in spite of its higher price.

For example, the D180 Prevailer (originally made by Sonnenschein of Germany) in my 16-foot center console boat is over five years old, and still shows no signs of weakening or diminished capacity. I've never had a liquid acid battery of any type that made it past the two-year mark in my boat, even though four or five years is common for autos nowadays. I prefer using just one battery to keep my boat's overall weight down for optimum skinny water performance, as well as to conserve precious interior space, so it must serve as both my cranking battery (for a 70 hp outboard) and the source of power for my 12 V electric trolling motor, an LCD depthfinder, and a VHF radio.

But with the benefits of the sealed battery comes a price. You can no longer check its state of charge–that is, the amount of electrical energy left in it at any given time–with an inexpensive floating hydrometer. Now you must resort to more sophisticated means in the form of electronics.

Analog gauge

Nevertheless, this does include some additional benefits. You can now conveniently monitor the amount of remaining charge via a device mounted on your console or dash, of which there are at least two types available. One is a relatively inexpensive analog gauge, (e.g., the "Battery Fuel Gauge" by GNB Batteries Inc., around $20 in many stores), and they're designed to show approximate remaining capacity (by 1/4ths) in much the same manner as the gas gauge on your auto's dash.

This kind of electronic hydrometer works by accurately measuring the battery's voltage, and translating that number into percent of charge remaining. Analog gauges are fairly good in most cases, but they do have some drawbacks. They are reliable only when the battery has been at rest for at least 20 minutes, with no current drawn or added. If the battery is under load by an electric trolling motor, for example, which typically draws 10 amps or more, the analog gauge will indicate a far lower percent of remaining charge than

the battery actually has. And if the battery is recharged by the alternator while your gas engine is running, it will indicate a higher state of charge than actually exists.

Batteries that hold a "surface charge" (voltage higher than the true full charge level, the result of slight overcharging) for longer periods will indicate a higher remaining charge than actually exists. Gel batteries fall into this category, even while 10 to 15 percent below the full charge level can for many hours exhibit surface voltages higher than their normal full charge level.

Computerized, digital gauge

The only gauge capable of providing an accurate reading at any time, even while there is strong charging or discharging taking place, is the computerized digital kind. They tend to be expensive, but if you really need the information they offer, the cost can be worth bearing.

The advantage the computerized digital gauge is that it offers instantaneous information that includes the amount of charge remaining in the battery, even while it is under load or being charged. You can even read the total amp hours withdrawn from the battery at any time, as well as the precise battery voltage, as well as the rate at which the current is withdrawn.

One that I tested for a few weeks recently, made by Cruising Equipment Company of Seattle, WA, immediately told me that my aging electric trolling motor is in need of some maintenance because it now draws 36 amps at full power instead of its normal 28. Better to learn this before it eventually quits while I'm fishing and ruins the day. Repairs will likely be cheaper because of early detection, maybe enough to cover a significant part of the cost difference between a standard dash voltmeter–which I no longer need–and this more sophisticated gauge. Most electrics also lose thrust as their amp draw rises above specs.

Higher than normal amp draw while cranking the gas engine usually means a worn starter motor that is headed for trouble, by the way. But before this becomes evident, if you do a lot of start-and-stop boating, the battery could die before you determine the cause.

If you know your battery's true amp hour rating, as well as the number of amps drawn by the equipment on your boat, simple arithmetic can keep you out of trouble. Very few battery manufacturers use the amp hour rating system any longer even though it is still especially useful where electric trolling motors are involved.

To cloud the picture further, some of the earlier deep cycle batteries were rated by amp hours at a greatly inflated level. Many size 27 batteries, for example, were billed as 100+ amp hours when 70 to 80 amp hours would have been more realistic. The standard rating system is now the 20 hour rate.

What that means is it should be possible to draw 1/20 of the theoretical amp hour capacity continuously for a total of 20 hours. An example would be an 80 amp hour battery, from which four amps could be drawn continuously for 20 hours before it becomes completely discharged. However, at a much higher rate like 20 amps, that same battery would not yield four continuous hours. More like 80 percent of its total capacity, or in this case 80 percent of 80 amp hours, or 64/20 = 3.2 hours. Intermittent use would yield more time.

The higher the amp draw rate, the lower the usable working capacity becomes. For example, if you discharge our theoretical 80 amp hour deep cycle battery at an uninterrupted rate of 45 to 50 amps, it most likely will become exhausted in about an hour. Incidentally, in this illustration, placing two 80 amp hour batteries in parallel would more than double the usable life–to almost three hours, because each would be discharging only at around 25 amps instead of almost 50.

Furthermore, the total lifetime of your battery depends greatly on the charger you use. Some batteries are more sensitive to excessive charging voltage than others. Gel batteries can be damaged if it exceeds 14.1 V for long periods of time. This has happened during long runs (typically an hour or more) with some large outboards that had unregulated high output alternators (V6s, but the newer models have eliminated that problem) if the battery was already fully charged when the boat left the dock. The tipoff is excessive heat. The battery becomes hot to the touch. Even liquid-acid maintenance-free batteries, which require a higher ultimate voltage to reach full charge, can be damaged via excessive overcharging–especially by the wrong AC charger.

The ideal AC charger for any marine battery is not the kind that reverts to a trickle when full charge is reached. It should shut off completely. The new generation of "smart" chargers are designed not to exceed safe voltage levels for either gel or liquid acid batteries, and that alone contributes greatly to extended life.

So while top-of-the-line battery gauges and chargers cost more, they last for many, many years and eventually pay for the dollar difference in extended battery life. And that's not even considering your personal savings in agony and aggravation.

Gel batteries

The Prevailer series of gel batteries is now manufactured in the U.S. under license from Sonnenschein by East Penn Mfg. Co. (215-682-6361), and that has brought the price down by eliminating import tariffs. A typical size 24 lists for $167, and a size 27 for $198. That's about twice the cost of quality liquid acid batteries, but the usable life is typically three to five times longer, on the average. Ed Wilson of Marine and General Battery, Inc. (305-587-3523), the distributor for Sonnenschein/Prevailer gel batteries in the southeastern U.S., says that six to seven years is typical if the battery receives proper care and charging. The warranty even covers submersion in up to 30 feet of water for up to 30 days. This was put to the test by the hundreds of boats sunk in south Florida last summer during Hurricane Andrew. As yet, no warranty claims because of this disaster have been made.

Testing Your Battery's Capacity

A healthy size 24 battery is typically 60 to 70 amp hours, and a size 27 might yield 70 to 85. But if you'd like to get a reasonably accurate fix on the actual amp hour capacity of your battery, there's a simple test that can determine this. You'll need a digital voltmeter and an ammeter. An amp-hour+ meter obviously covers both functions.

Use a load that draws 4 to 5 amps, and note the amount of time it takes until the no-load voltage drops to 10.5 V. Monitor the meter for at least 10 minutes after disconnecting the load to make sure the voltage has reached equilibrium. Multiply the number of hours this takes by the amp draw shown on the ammeter. It takes about 15 to 20 hours to complete this test with a healthy battery, so it's a good idea to start just before going to bed when you have the entire next day available.

One or more 12 VDC light bulbs totaling 45 to 60 watts (connected in parallel if more than one) makes an ideal load. Many marine hardware stores carry them. Some automotive headlights will also do.–*BS.*

Hassle-Free
Water Skiing for Parents

by Sue Carloni

Do you remember how easy it was to go water skiing on the spur of the moment? You simply dropped whatever you were doing and headed for the lake. It didn't matter if you hadn't eaten yet; you could always grab a bite later.

Have you noticed things have changed since you've gotten married and now have children? Do you find going skiing has become less enjoyable and more frustrating than your earlier, carefree skiing days? Do you wonder if it's worth all the hassle to continue skiing now that you have a family with new responsibilities and less free time?

Through careful planning you can take the hassle out of skiing and put the enjoyment back into the sport.

Of course it's worth it! Remember the fun and relaxation you used to enjoy while skiing? You couldn't wait to get your boat out on the water. You had your vest and gloves on before the other skier was even finished.

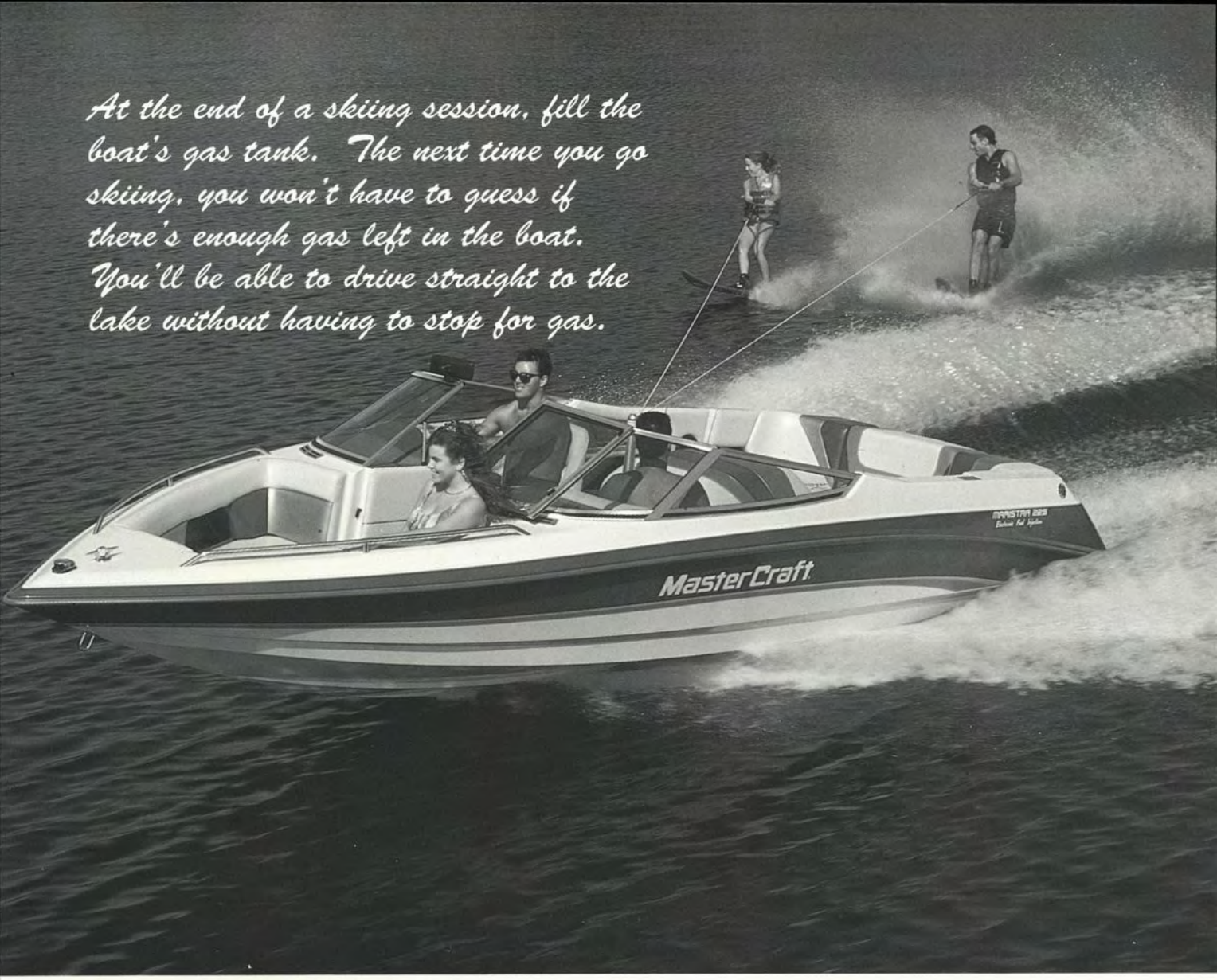
Your desire to water ski is still in your heart. And the day will come when the kids are grown and on their own, and you and your husband will again discover time to yourselves. Now, however, like my husband and me, with two daughters ages 5 and 10, you just need to become better organized now that you have limited recreational time. By planning carefully, you can renew your enthusiasm for the sport you have always loved.

Here are ways to make the preparation for skiing easier.

Choosing the time. Decide on a set day or days of the week and a specific time that you will ski. Knowing which days you will be skiing can help you feel in control and everything will go more smoothly.

Designating drivers. Have the same people drive the tow vehicle and the boat when launching and retrieving. This avoids confusion and saves time, because both drivers will become more proficient.

photo-Tom King



Fueling the boat. At the end of one skiing session, fill the boat's gas tank. The next time you go skiing, you won't be wondering if there's enough gas left in the boat. You'll be able to drive straight to the lake without having to stop for gas.

Order of skiers. If your actual time on the water is limited, establish the order of the skiers on the way to the lake. Decide how long each skier will get to ski and stick to your schedule.

Meal planning. If you plan to ski on a week night, prepare dinner the night before so you can reheat it. Or warm leftovers for an easy meal. Your goal is to be able to leave the house as quickly as possible.

Quick change of clothes. Lay out your swimming suit and change of clothes in the morning. You will be able to change quickly when you get home from work.

Equipment selection. Decide which ski equipment you'll be using each time and put the equipment along with towels in the car trunk or the boat the night before.

Arranging for a babysitter. If you prefer to ski without your children coming along, try to line up one babysitter who can babysit every time you go skiing. If you can't arrange a regular sitter, make your telephone calls well in advance to find an available sitter.

photo-Tom King

Here are suggestions to follow if you want to take your children with you when you go skiing:

- Make sure their swimming suits and changes of clothes are laid out for them. You don't want one of the children whining that he can't find his suit as you're walking out the door.
- Take along extra towels and any ski equipment the children will need.
- If you have a long drive to the lake, make sure the children bring something along to occupy them in the car, such as books or coloring books and crayons.
- Keep graham crackers and other drinks and snacks tucked away in case your children get hungry. Fruit juice drinks that come in little boxes are perfect to take along.
- Bring pajamas (and diapers, if necessary) for young children to change into before you leave the lake to return home. This helps speed up the bedtime ritual.
- Young children may become tired and crabby. Bring pillows and blankets so they can fall asleep in the car on the way home. Invest in comfortable child carseats.

For the next several years, you may not be able to recapture your spontaneous skiing days of long ago. But through careful planning, you can take the hassle out and put the enjoyment back in skiing once again.

SHAKEDOWN Cruise

by Art Michaels

A neighbor of mine recently bought a new boat, motor and trailer, and I asked him how he liked the rig.

"Worked out all the bugs on the first two trips," he said. "I love the boat, and I get such a charge out of using it."

My neighbor has owned many new and used rigs. He knows that a successful shakedown cruise lets you start off on the right foot with a new boat, motor and trailer, whether that rig is brand new or used. During the first few trips with his new boat, he developed the confidence in the new rig that comes only with getting to know the equipment well. He knows that trusting the new boat, motor and trailer is a key to his enjoying the rig as its newness fades.

If you've recently bought a boat, new or used, or if you're thinking about buying a rig this season, here are ideas on how to have a successful shakedown cruise. Let these ideas pave the way for years of confident, happy boating.

Even if you've owned your rig for a while, you might want to apply these ideas this season for safety's sake.

When you trailer a new rig, stop after the first two or three miles and check the tie-downs, winch, lights, tires and hubs. In fact, perform this check on your new rig on your way home from closing the deal. Check the tie-downs to make sure they haven't loosened or moved.

Next, see if you can tighten the winch handle. If the winch rope coils overlap one another on the drum, the tension can loosen because tight coils fall beneath looser ones. If you can turn the handle a click or two, do it. If the winch rope coils wind all over one another on the drum, when you retrieve the boat, re-coil the winch rope so that it winds smoothly and evenly onto the drum.

Check the tires by feeling them. If they're hot–too hot to touch comfortably–the rig is probably overloaded or the tires are underinflated.

Feel the hubs, too. If they're cool or just a little warm, they're probably all right. Hot hubs suggest that something is wrong with the hub's internal parts.

Pull over again about 10 miles later, and then 25 or 30 miles later. If all's well, develop the routine of checking your rig regularly, first after only a few miles and then every 100 miles or so.

Learn the on-the-road sounds of the new rig. Distinguish between "okay" sounds and warnings.

Even if you've trailered a boat before, a new boat and trailer can ride and "feel" different from your old rig. Listen to the suspension. Pay attention to how the new rig takes bumps, dips, potholes and other road obstacles—how those bumps "feel" and sound. Always keep one ear on the trailer.

Getting to know your rig on the road gives you the edge if something goes wrong. You can often feel and hear the problem immediately. That helps you avoid or limit physical damage, and avoid or minimize repair costs.

Uncrowded waterways

Shakedown cruises work well on uncrowded waterways. Crowded places mean you have to maintain your lookout most diligently. You always want to maintain proper lookout when you pilot a boat. But on the initial voyages, uncrowded conditions let you pay closer attention to learning about your new boat. You can't accomplish this goal if you're constantly dodging water skiers, fishermen, trollers, pontoon boats, cruisers, personal watercraft and sailboats.

Engine break-in

If you're using a new engine, follow the manufacturer's recommendations carefully concerning the first 10 or so hours of operation—the break-in period. Pay attention to the linkage, steering and throttle controls so that if they need adjustment after a few hours, you can see that it's done.

Today's outboards feature special kinds of oil injection systems. If you bought this kind of outboard, note the difference in the oil level before and after each trip, and before and after the first few trips. If the oil level decreases ever so slightly, the system is probably working.

Don't let your new motor's smoothness fool you into fudging on the manufacturer's break-in instructions. You pave the way for smooth operation in years to come when you break in an engine properly. Furthermore, neglecting an aspect of breaking in the engine can void the outboard's warranty.

In addition to the engine owner's manual, be sure you have on board the owner's manuals and instruction books for all your electronic gear. Before you de-

If you've recently bought a boat, new or used, or if you're thinking about buying a rig this season, here are ideas on how to have a successful shakedown cruise. Let these ideas pave the way for years of confident, happy boating.

photo-Dan Martin

cide that an item of equipment isn't working properly, check the item's performance with the operating instructions. You save time and money by making many minor adjustments yourself instead of dragging the rig back to the dealer for a small change that takes only a few seconds.

If you bought equipment used and no owner's manual is available, contact the manufacturer. You can probably obtain the equipment's manual for a small fee.

During the maiden voyage, be sure to test other equipment, such as navigation lights, bilge pump, ventilation system, livewell and electric motor.

How the boat responds

You learn how your new rig handles on the water with practice and experience. So right from the start, develop a "feel" for the throttle and other controls, and how the boat responds.

Practice maneuvering your boat so that getting under way and docking become second nature—like driving your tow vehicle. Begin to develop this "feel" during the first outing by practicing in open water on that uncrowded waterway. Then you'll be better prepared to take on awkward launching, retrieving and docking in winds and strong currents.

If you follow this advice during the first few trips, you're more ready than ever to take on demanding boating challenges. The good news is that tackling the more difficult boating situations is easier in a thoroughly tested, trustworthy rig.

Is Your Trailer Really a Drive-on?

Do you retrieve your boat by driving it onto the trailer? Drive-on retrieval works when the trailer is designed for this practice. If the trailer isn't designed for drive-on retrieval and you do it anyway, you risk injury and damage to your rig. With a new rig, you need to decide right from the start how you're going to launch and retrieve your boat.

The problem is that whether or not you should retrieve your boat by driving it onto the trailer is a practical matter for which there are no definitive guidelines. In most cases, the manufacturer and the dealer from whom you bought the rig can tell you if the trailer is made for drive-on retrieval.

Examining your trailer can help you decide if drive-on retrieval is right for you. Most trailers meant for drive-on retrieving have carpeted bunks that are mounted just above the frame. On drive-on trailers, the wheels and fenders rise noticeably above the trailer frame, and the frame appears to sit low–practically on the ground. Even though this construction provides minimal ground clearance, it lets you drive the boat onto the trailer without needing to back the trailer too far down most ramps.

The bunks or rollers on other trailers are mounted higher atop their trailer frames, and retrieving a boat by driving onto these trailers is less practical. You have to back the trailer much farther into the water to position the trailer deep enough for driving on. That's impractical and unsafe, especially on steep, slippery, unimproved ramps.

Guide posts, onto which you can place the trailer's rear lights, are useful aids for drive-on trailers. They let you line up the boat properly on the trailer for one-try driving on. Marine supply stores and mail order firms carry guide posts that you can easily install.

The key is to consider how far down a ramp you have to place the trailer for drive-on retrieval. If the distance is considerable, don't risk damaging your trailer and tow vehicle by driving your boat directly onto the trailer. Inspect the ramp after you launch. If your trailer isn't made specifically for drive-on retrieval, choose your ramps for drive-on retrieval carefully.–*AM*.

DONNING A PFD in Deep Water

by Virgil Chambers

It's good practice to wear your PFD and practice falling into the water. This practice simulates falling overboard in a boating mishap. In this way you learn what your PFD is designed to do, and what it won't do. In most cases, a PFD holds victims up in the water long enough to regain their bearings and effect their own rescue.

Donning a PFD in deep water can be successfully accomplished with minimum difficulty if one knows and has practiced the procedure.

The main cause of fatal small-boat accidents is capsizing and falling overboard. It is unfortunate, but many of these deaths can be prevented if boaters would have been wearing their personal flotation devices (PFDs). PFDs today are more attractive in appearance and more comfortable to wear. When properly fitted, a PFD could prevent a tragedy for both the wearer and the wearer's family. PFDs are readily available, but the grim fact remains that few people wear one when boating.

Most boaters think that a PFD close at hand is all that is required in an emergency. If something happens, such as a capsizing, people think they would be able to don the device in the water and save themselves. Doing so is not as easy as it sounds. After all, the law states you only need to have a PFD on board for each person. Wearing a PFD, according to the strict letter of the law, is only for special situations. Of course, this thinking is wrong.

A PFD is designed to offer protection from drowning. PFDs provide buoyancy to keep you afloat. However, a PFD should not be considered a substitute for swimming ability. A PFD is merely an aid to buoyancy. Swimming skill is still the basic ingredient of water safety. And once made aware of the importance of the proper use of PFDs, most people wear them. Donning a PFD while in deep water can be successfully accomplished with minimum difficulty only if one knows and has practiced the procedure.

There are several techniques for donning a personal flotation device while in deep water. Here is a recommended procedure for putting on the most popular kind of PFD available, the Type III (flotation aid). Remember that proper adjustment of the PFD out of the water is important to help ensure correct fit in the water.

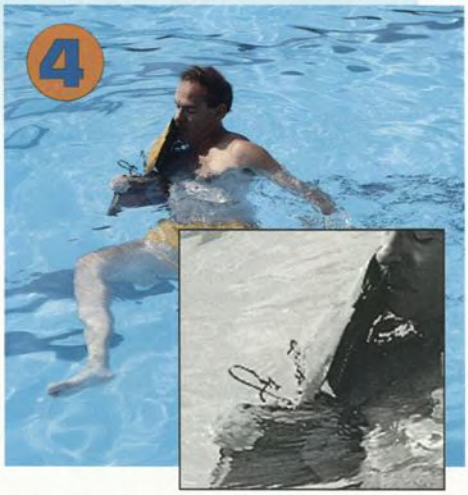
In addition to practicing putting the device on in the water, practice falling into the water with the device on. Get to know the capabilities of your PFD and learn what

photos-Art Michaels

Bring the two lower front corners of the PFD together and hold them in front of you with the left hand.

Place the right arm through the right arm hole without releasing the left hand grip on the front corner of the PFD.

With the right arm extended through the arm hole, grasp the lower left corner with the right hand and release the left-hand grip.



Bring the right arm down and behind you, still holding the left corner of the PFD.

Work the left hand around and into the left arm hole as you maintain your right-hand grip on the lower left corner. When your hand is through the left arm hole, release the right hand grip.

Slide your left arm completely through the arm hole.

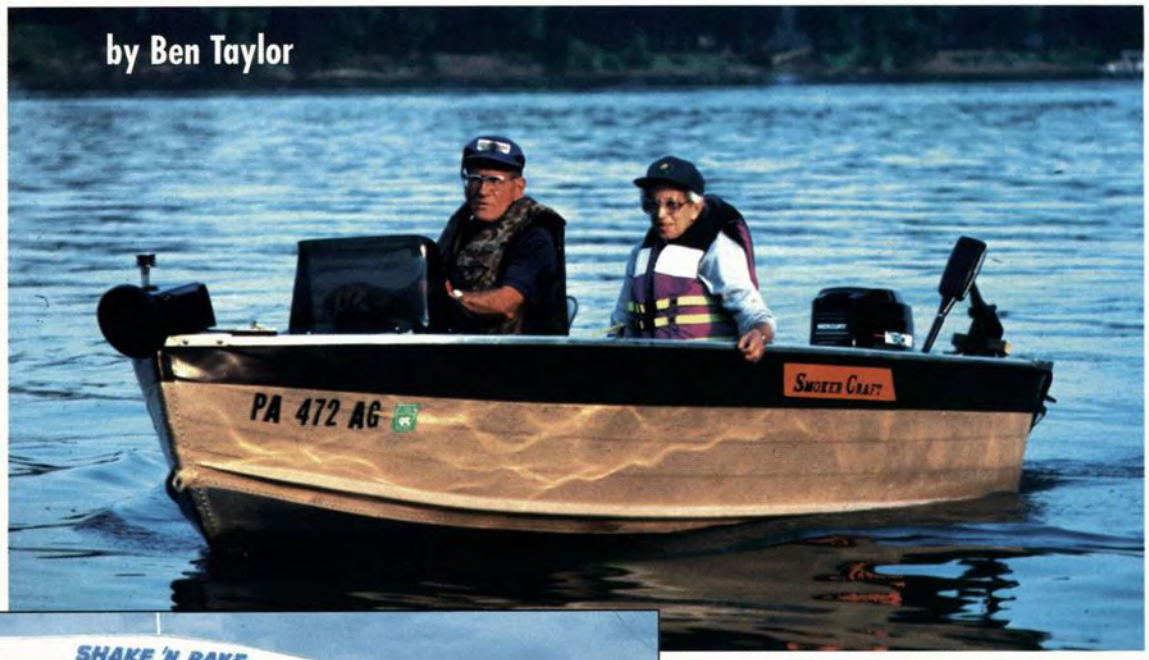
Relax in a floating position on your back and bring both arms in front on you. The PFD should let you float comfortably without any movement of the arms or legs. Grasp the front of the device with each hand and pull the sides snugly around your body. Zip, snap or otherwise fasten any straps on the PFD.

it can and cannot do for you in the water. Remember, though, that a PFD is useless if you cannot get to it when you need it. That's not a problem if you wear it whenever you're aboard a boat. That's the safest course.

Keep It Clean and Rust-Free

Keeping your boat clean and well-lubricated doesn't have to take up a lot of time or cost a fortune. Protecting the working parts increases their lifespan, actually saving you money.

by Ben Taylor



If your boat's been in the water long, no amount of scrubbing seems to get the boat back to its original color. A miracle shared with me makes this a painless and almost free job.

photos-Dan Martin

Whether you're trying to keep your boat looking new or attempting to make up for extended neglect, maintaining a boat can be a major chore. Freshwater use can slow deterioration, but it's inevitable without proper care. Some hard work can be made relatively easy with a few simple tricks, and a bit of prevention can save lots of work later.

Wax

Old or new, everything that shows, made of any kind of metal, even if it's painted, needs a coat or more of wax. This gives you some protection against nicks, which can lead to rust or paint bubbling. Any popular auto wax does a good job. For areas that get splashed frequently, particularly by saltwater or brackish water, Brasso does a great job of removing the little starbursts, and it's much cheaper than specialty products.

Your hull deserves a coat of wax at least once a year, twice if you use it a lot. A liquid wax is easier to use than a paste unless you own a buffer. If you have a chalky finish from oxidation, Starbrite makes a wax that shines things up in a hurry. Wax on the hull slows growths and the tacky yellowing you get from hard water. It also eliminates a lot of towel work, trying to avoid water spots when you wash the boat.

Few of us have been spared the nightmare of the green slime that grows on the boat if you leave it in the water for more than a few days at a time. If your boat's been in the water long, no amount of scrubbing seems to get the boat back to its original color. A miracle shared with me makes this a painless and almost free job. Plain laundry bleach, about a buck a gallon, and a spray bottle cleans this in a hurry. Walk around the boat spraying as you go. By the time you hit your original spot, you'll find your growth changing color. Most of it rinses off, though you may need to use a brush if you haven't cleaned up in a while. The bleach is also great on rope rub rails that discolor from contacting docks. It won't make them perfect–just better.

Almost stainless steel fittings that bleed orange all over the place, or hooks that hide in corners, leave disgusting stains. Any household abrasive cleans them with a bit of elbow grease, but it's hard on paint and gel coat. Simple toilet bowl cleaner eliminates most of these stains without effort. Got a hardwater stain on your boat from the waterline down? Pour a quart of this stuff in a bucket and brush it on the stain. One coat usually restores the original color.

Electrical and mechanical items, exposed or not, require lots of protection. Consoles are humid places. So are the insides of engine cowlings. Spray everything you can reach that is bare metal or that works against other parts with at least a moisture-displacing agent like WD-40 or CRC. Better yet are the corrosion protecting sprays offered by outboard manufacturers. Mercury's product is called Corrosion Guard. This stuff leaves a heavy coating on everything it touches. A new product that seems to work well is Corrosion Block. It actually seems to clean up corrosion in its early stages. For bulk use, Gunk makes a spray white-lithium grease that leaves an ample coating and has lots of use around your trailer. Everything should be cleaned and sprayed at least once a month.

It's critical to follow your engine manufacturer's recommendation for greasing bearings, tilt tubes and such. I've found that if I have the motor tilted up when I grease the swivel pin, I get more grease in the upper bearing. I had one dry once and replacement requires a powerhead removal. It's a $150 job to replace a $10 part.

Boat-washing

You can wash your boat with almost anything. The cleaner you keep it, the longer the gel coat or paint stays in place because you aren't constantly grinding dirt into the finish. Mild products like inexpensive dish soap take care of everyday dirt.

Areas where there's lots of traffic, fish leavings, or any greasy stuff requires a boost. I'm not a fan of abrasive cleaners, considering what it costs to get a good paint job on a boat. A little bit of a commercial boat cleaner such as Zeplume or Roll Off in a bucket of water cleans almost anything off the boat. Simpler and cheaper is a spray product like Roll Off. If you can find it, Sea Care at less than half the price is excellent.

With the spray product I usually store half the bottle and add an equal amount of water to the part I'm using because it is water-activated anyway. It doesn't seem to alter its effectiveness.

Coolers

Coolers are destroyers of decks. Even if they sit where they can't slide, they vibrate while you're running and eventually work their way down to bare glass. You can place them on carpet or glue a piece of indoor/outdoor carpet to the bottom to eliminate the problem.

Unfortunately, if the carpet stays wet very much, from weather, spray or washing the boat without removing the cooler, you get a carpet-colored stain under the cooler that needs an abrasive to remove. A more satisfactory solution is a two-inch by three-inch piece of carpet glued to the bottom at each corner. Any contact cement holds these on a surprisingly long time. I usually get about 90 days between glue sessions and then it's only one piece at a time.

Hatch covers

Hatch covers that can hit anything in the boat get scarred or scar what they hit. A small eye hook installed on the underside of the cover and one in the frame of the opening provide attachment points for cable or leader material. I've found anything metallic is prone to kinking, and I use 150-pound mono instead. You can easily adjust the distance the cover opens for access and to balance in the wind. Your favorite knot for tying hooks onto line works fine for rigging hatch covers.

Gel coat

Gel coat damage on the bottom of the boat probably isn't a big deal, but it can allow some absorption of water. Marine Tex doesn't offer much in the way of color choices, but it's strong and stays where you put it. It's tough to get it to stay on your keel, the area most likely to get damaged, while it sets up. If you smear petroleum jelly on a piece of duct tape, you can tape over your patch until it dries. Make sure you grease a big enough spot so you don't stick your tape to the patch.

Paint touch-up can be a mess if you spray paint in big globs as I do. Enamel that I buy to paint jig heads does a great job. Cheaper and easier yet is fingernail polish. I even found black for my Mercury!

Keeping your boat clean and well-lubricated doesn't have to take up a lot of time or cost a fortune. Protecting the working parts increases their lifespan, actually saving you money. It actually saves you time not spent tracking down those annoying little electrical problems. A waxed boat cleans up easier. The easier it is to keep up, the more likely you are to do it. Besides, if you keep it looking good, you can sell it easier if you ever need to.

CONQUERING the Rapids?

by Gary Rosensteel

A flyer was posted at work one day asking people to sign up for rafting the rapids at Ohiopyle. My wife was game and my office mate said she would bring her boyfriend, so the four of us eagerly signed up for the excursion. Just think–a Saturday of sun and fun on the river!

The cool morning mist was still hanging in the closely spaced trees, and the first rays of sun were pushing through the branches as we pulled into the outfitter's camp. We joked about "getting up with the roosters" and wondered if the weather would warm before we went on the river.

The outfitter told us to board the yellow school bus that would take us to the departure point. This proved to be the first of many tests for the day, as fully grown adults attempted to contort themselves into spaces designed for eight-year-old bodies.

Finally, we arrived at a pleasant grassy spot beside the slowly flowing Youghiogheny River. After prying ourselves out of the bus seats, we milled around as our guides instructed us on rafting techniques. They covered how to handle an oar, where to sit on the raft, the importance of following directions, and what to do when something went wrong.

Since we were still on dry land and feeling cocky, we laughed at the guides. Us need help–never happen! After all, how hard could it be, rafting such a calm river? We put on life vests, grabbed our oars, and gulped as they brought out the rafts.

We had been expecting a small inflated raft, maybe six feet long, but the "ship" in front of us looked like it would need a tugboat's assistance to maneuver. Standing on its side, the raft was above my head, and the outer ring where we were to ride looked like the back of a large stallion.

I began to sense we might be in trouble. Although I am 6'2", my wife is only 5'6", and she was the second tallest person in our raft. My office mate was about 4'9" and her boyfriend was 5'4". Steering the Queen Mary of raftdom down the river began to look like one of the tasks of Hercules.

Suddenly I had an image of climbing down netting hanging from the side of a troop ship in a World War II movie. The wind was howling as the sea churned the landing craft below. Then I came back to reality to find the four of us correctly positioned on the ring of the raft, and actually on the water.

The guides told us to paddle near shore for a few minutes to get the feel of the oars. This is when our folly really sunk in. Although my wife gave it her all, the oar had very little propulsion power in her hands.

This, however, was the good news. The other couple might as well have used wooden kitchen spoons instead of oars. This actually would have made them less dangerous since they consistently paddled in the wrong direction.

A voice inside me said, "All right, it's time to take charge and make sure this raft has a safe trip through the rapids!" This is the voice all men have residing in their macho control centers–the one voice that, in retrospect, you realize should be permanently gagged. Of course, I immediately "sat taller in the saddle" and could have sworn my biceps began to bulge like Popeye's.

A voice inside me said, "All right, it's time to take charge and make sure this raft has a safe trip through the rapids!" This is the voice all men have residing in their macho control centers–the one voice that, in retrospect, you realize should be permanently gagged.

If this had been a movie, I would have stood in the middle of the raft, legs spread, hands on my hips, head tilted back and bellowed forth a truly manly man "laugh in the face of danger." It would certainly take more than a few river rapids to conquer me!

In preparation for the first rapid, the guides carefully went over how each person on the raft was to paddle and at precisely what time. Of course, we ignored this and improvised our way through. By pure dumb luck we went through the first rapid exactly as we were supposed to! Hey, maybe this wouldn't be bad, after all.

We were laughing smugly as we floated on to the next rapid. "We're vets now. We can handle this." Then my former bravado evaporated as our raft went through this rapid sideways, which proved to be our second best attempt of the day. At the last rapid before stopping for lunch, our raft took on so much water it took eight men to tip it out. However, we had all made it without falling out of the raft!

Since I represented about 75 percent of the propulsion power of our crew, my arms by this time no longer felt like Popeye's. Actually, they felt more like over-cooked spaghetti that had been beaten with a hammer.

As we climbed onto rocks overlooking the river, the guides passed out sandwiches and soft drinks. I gulped down my lunch

and spread out on a rock. You know, it's amazing how comfortable lying on a rock in the sun can be! I started to feel an affinity with lizards.

Just about the time I had dried (slightly) and feeling began returning to my arms, the guides happily announced it was again time to tackle the river.

While a few crazed individuals leaped back to their rafts, the majority of the expedition acted as if it were time for that "fun" trip to the dentist. The one question asked by almost everyone was, "Is there anyway we can leave now?"

The guides smiled (sneered?) and told us the only way out was to keep going, so we "merrily" embarked for the next rapid. Our day of fun and sun had changed into the second coming of the Baatan Death March. And then things got worse.

The guides emphasized the importance of not heading for the rocks on the right side of the next rapid and avoiding Devil's Dip at all costs, but our raft decided otherwise. It was as if the raft were made of iron filings and the rocks were large magnets. We watched in horror as the raft crashed straight into the biggest rock. Then the force of the river pushed the stern of the raft around and we started to spin through the rapid.

We were totally out of control when we hit Devil's Dip, and my wife was thrown into the river. I jumped to the other side of the raft reaching for her, just as a guide standing on the rocks threw my wife a rope.

It was as if the raft were made of iron filings and the rocks were large magnets.

Unfortunately, the rope missed her hands. But in a moment of high drama, it looped around my neck!

You may have heard how time stands still for the quarterback dropping back to pass, or the racecar driver shooting through a small opening at over 200 mph. Well, I now know this to be true–at that instant time went into super slow motion!

I found myself facing an intellectually challenging moral quandary, but didn't have time for a philosophical debate. "Should I attempt to rescue my wife or save myself from strangulation?" In a flash of inspired brilliance, I yanked the rope from my neck and threw it toward my wife in one continuous motion. This time she caught it and was pulled to safety!

Meanwhile, the other couple had also been thrown overboard, and I was lying alone in a half a foot of water at the bottom of the raft. I struggled back up, grabbed my oar, which was floating inside the raft, and with the help of several others, got the raft to shore.

Our crew (and their oars) were eventually reunited and after a few thankfully uneventful rapids, we found ourselves at the end of the trip. All we wanted was to get home as fast as possible and collapse for the remainder of the weekend. But our guides had one last torture planned.

They informed us that the raft, which now weighed the same as a cement truck, had to be carried 200 feet up a 30-degree slope and over a set of railroad tracks. Of course, we politely told the guides what they could do with their raft. However, they responded with a strong argument–either we take the raft to the truck or we could buy it!

We fought the raft through the trees, up the hill, over the railroad tracks and onto the truck. Finally, we crawled on the bus we had ridden only a few hours earlier. However, it now seemed to be warm and very comfortable–not really, but we weren't on the water and we didn't have to paddle. A stranger stepping on the bus would have thought it was taking wounded to a MASH unit. We were alive, but just barely.

I vowed that before riding the rapids again I would line up a fully capable crew. Although I am not sexist and believe in equality, I'm sorry, ladies, but I'll be going with three strong men. And I'll let one of them "captain" the raft.

In spite of it all, I'm ready to do it again.

Cartopping in a nutshell

by Jonathan Angharad

Many people become boaters by way of cartop boats and canoes. Canoes, 12-foot aluminum semivees and john boats are light (usually less than 100 pounds) and easy to load, unload and launch, and they are the kindest boats on the pocketbook.

Still, cartopping requires some know-how so that you don't ruin your car and endanger yourself and others on the road. If you're a new cartopper, or if you're just about to become one, here are some useful tips and initial considerations.

First, look closely at your car. Cartopping systems are made for vehicles with and without rain gutters. Vehicles also come with roof racks installed, and manufacturers make carrier systems that can be attached to factory-installed racks. Before you add on to a factory-installed roof rack, check with the vehicle manufacturer and the manufacturer of the add-on to make sure both are compatible and can provide the performance and safety you need.

My first cartop carriers 25 years ago were made specially to grip my car's gutters by way of a combination screw and locking clamp. When I tightened them they were solid, and in 12 years using this system they never failed. They swung up about 8 inches from the gutter where an aluminum rod spanned the width of the car, plus about a foot more on each side. My 12-foot aluminum semivee rested on two of these racks, and I used four "boat clamps" to secure the boat on the racks–huge threaded eye bolts went around the aluminum rods, and on them were large thumb screws that locked a clamp down securely onto the boat's gunwale. I used clothesline to strap the boat to both racks. I sometimes drove over 400 miles one way without the boat budging so much as one inch.

When I bought a new car that had no gutters, that was the end of that. Because I like solo trips, I attached a trailer hitch to my new car, and bought a new contraption–a boat-loader. It's a single metal shaft that I bolted to the trailer hitch with a clamp on top, to which I secured the boat transom. This system was made for handling a cartop boat alone. I would lift the boat up and around the car onto a single carrier bar. I held the boat in place with front bumper lines and another line that attached to the carrier bar on both sides of the hull.

Towers, crossbars

In all this tying, lifting and securing, one important consideration is ensuring that your boat does not move from side to side on the crossbars. This situation could be disastrous on the highway. One moderate wind gust can push a loosely secured boat off a crossbar.

Gunwale brackets, which prevent the boat from moving side to side on the crossbars, are a must. Another necessity is to secure the boat over its bottom to each carrier bar with locking straps. Locking straps should be made of materials that don't stretch when wet.

On the road

When you're driving, keep your ears tuned to your car and boat. Don't panic at the new squeaks and creaks you'll hear. Learn to recognize the sounds that mean all's well. This skill is valuable because trouble is often signaled by unusual sounds.

Keep one eye on the road and one on the position of the boat. Line up the bow of the boat with a point inside the car. If the boat and the point line up during the trip, you know the boat hasn't shifted.

During one trip I noticed the boat bow moving off the point–in my car, it was the tip of the sun visor. I pulled over and re-adjusted my brackets and straps. The shifting was caused by my placing the boat incorrectly on the crossbars, thus lining up everything wrong.

Because a semivee curves inward toward the bow, make sure you place the boat on the crossbars in the same place each time so that you don't have to continually move the gunwale brackets.

When I put the boat on my car, and usually several times on the road, I'd grasp the gunwale and firmly shake it. The boat and car rock slightly as one unit, showing me that the boat is secure.

Another driving problem in cartopping occurs when the boat bottom holds water. Because the boat is turned upside down on the car, any water in the boat bottom ends up on the windshield. Sometimes a soup of cut bait, fish scales, water, mud, and sand ended up on my windshield, and because some of this

Before you add on to a factory-installed roof rack, check with the vehicle manufacturer and the manufacturer of the add-on to make sure both are compatible and can provide the performance and safety you need.

Adequate gunwale brackets and straps that don't stretch when wet are essential ingredients in a cartopping system.

concoction gets trapped in the gunwales, it doesn't spew onto the windshield until I apply the brakes on a downgrade.

Thus, when you load your boat after a fishing trip, be sure the boat deck is as clean and as dry as possible.

On the other hand, I've often cartopped in rainy weather, and with the boat on the car I rarely had to turn on my windshield wipers. In any case, measure the height of your car and cartopped boat at its highest point, and be careful not to enter areas, go under bridges, or visit fast-food drive-throughs with inadequate clearance, with which you'd have no trouble without the boat on the car.

Storage

Cartop boat storage is another consideration, which those who trailer boats don't often have. A trailered boat can spend the off-season on its trailer throne, highly visible and out of danger, in the backyard, in a garage or on the lawn. But without a trailer, cartop boats can become buried in snow, clobbered as a toy in the yard by kids, or worse.

The worst happened to me. Some 23 years ago, I stored my cartopper upside down on the side of the driveway during the winter. One day after a 15-inch snowfall the boat was covered with snow and from the driveway it appeared as if it were just a lump on the grass. I lived in an apartment then, and the landlord contracted someone for snow removal. I heard the snowplow clearing the driveway, and before I could get out to warn the driver, I winced at the sound of crunching aluminum. The plow opened an 8-inch gash on the bottom at the stern.

I had the damage fixed, but I also learned an expensive, simple lesson: Pick a safe storage spot for the cartopper.

You can solve the storage problem if you have a garage with strong joists. One cartop boater I know rigged a pulley system in his garage so that his boat hangs from the ceiling. The design is clever–efficient, simple and quick, and it works so well, the boat gets stored there all year long. Two pulleys, one at the bow and one attached the handles on the stern, hold the boat neatly out of the way at the garage ceiling.

All in all, cartop boating offers an excellent introduction to boating, but be sure your boat, car and equipment are matched.

photos-Yakima Products

Pick a Sailboat

by Kevin D. Kirkpatrick

We are approaching that time of the year when a sailor's fancy turns to thoughts of boat-buying, but mid-winter seems an odd time to be thinking about selecting a new sailboat for next season. Here in Pennsylvania, summer is still at least 40 degrees and several inches of fresh snow away. Most sailors are more concerned with the wind chill than with wind speed or direction. For a sailor who is considering a new boat, winter provides an opportunity to get a headstart on the work necessary to make an informed judgment on the size, type and cost of a sailboat that fulfills one's requirements and gives years of satisfaction.

For now, consider boats in the basic categories–daysailors, club racers and pocket cruisers–all 24 feet or less. These three categories, within this size range, account for as many as 80 percent of the sailboats plying Pennsylvania waterways. Unfortunately, even with these limitations, the subject may still be too broad for a single discussion. Perhaps the issues discussed will raise questions in your mind and provide direction when you seek your own solutions.

Another source of information is your circle of sailing friends and acquaintances. They may have literature on their own boats as well as other boats they considered when they were shopping.

While you're at it, ask if they have any back issues of sailing publications that you may borrow. These can also be useful references. If your circle of sailing acquaintances is limited, try your local library. Many let you check out back issues for a brief period.

If I seem to be stressing research and homework, it is for a good reason. Too many prospective boat buyers get caught up in the romance of boats and overlook certain fundamental facts that make up an informed judgment. Once they have fallen in love with a boat and bought it, they find out that they can't live with it.

Wants, needs, limits

Up until now this article has dealt with the "external" aspects of selection. For all the time and energy this part requires, it is really the simplest element of the process. The most difficult phase is yet to come. You must sit down and evaluate your specific wants, needs, and expectations. Then determine how much you are prepared to spend on them. If sailing is to be a family activity, their feelings are important, too. You must establish realistic limits. Some compromises may have to be made. It is far easier to make them now than it might be to change your lifestyle later. This part of sailboat buying can be a painful process and consequently the most frequently overlooked.

Cost

Let's begin with cost. How much are you really willing to spend on a sailboat? If you are a paragon of determination and economy, this is what you will spend. If, on the other hand, you are like the rest of us, add another 60 percent to your figure. This is how much the average buyer actually spends over the original budget. The information you've gained from your excursions to boat shows and dealers and the research you've done can help you set a realistic cost figure.

Now might be a good time to think about how you are going to finance your purchase. Will the cost come from savings? Part savings, part loan? Perhaps one of your stops should be your local bank?

Once you have determined a realistic budget, the next step is to sit down and honestly assess how you plan to use the boat, with whom you are going to sail and where you will be sailing. If the boat is to be a shared family experience, be sure that their feelings and input are included on your list.

This is usually the most difficult part of the selection process. This is where reality often runs head-on into romance. Even though this process is often painful, it is seldom terminal. Bear in mind that this sailboat needn't be the last and only boat you'll even own. With a bit of thought and research, there are compromises that can be made and still provide a satisfying sailing experience.

Too often sailors make unreasonable demands of their boats and come away disappointed. Take, for example, the competitive sailor who buys a red-hot racer only to find out that the nearest active racing fleet is 300 miles from his home and dominated by world-class sailors. Had that sailor done his homework, he would have selected another class of boat with an active fleet closer to home.

By conservative estimate, there are more than 400 different sailboat designs currently available on the new and used sailboat markets for craft under 24 feet in

length. The sizes and types range from 8-foot sailing dinks through 19-foot club racers to 24-foot blue-water cruisers. Prices range from $100 for an older, used 12-foot Sea Snark to $43,900 for a new 24-foot Dana.

One would think that with a selection as broad as this, finding a boat to suit one's particular sailing requirements and pocketbook would be a simple task. Well, think again! The process of selecting a sailboat that fulfills an individual sailor's peculiar requirements is a long, slow passage of discovery.

Many sailors think that all they have to do is drive down to their local boat dealer and just pick one out. When this hapless sailor arrives, he finds few, if any, sailboats on the dealer's yard or in the showroom. Most Pennsylvania marine dealers concentrate their sales efforts and showroom inventories on powerboat lines. Those dealers who carry any small sailboats at all treat them as a sideline. Dealers who

Pick a Sailboat

specialize in sail are few and far between. Opening the local newspaper to the classified ads doesn't help much, either–more powerboats! Even the national sailing magazines are woefully short on advertisements for new or used small boats.

If small sailboats are so hard to find, why are there so many of them out there sailing? Where did these people find them? Some found them by dumb luck. Most people found their boats the same way that Stanley found Livingston–they went exploring and talked to the natives. They spent hour on hour trekking through muddy boat yards. They made pilgrimages to convention center boat show extravaganzas. They went to shopping mall boat exhibits. They searched out local yacht and sailing clubs and read their bulletin boards. They had friends, family and co-workers bring them out-of-town newspapers. They asked questions: What kind of boat is this? Where did you find it? No one ever said that finding the right boat for you was going to be easy, but along the way you will gain a great deal of useful information and meet a lot of very pleasant sailors.

Homework

In addition to these field trips, there is homework that you should be doing. Pick up copies of the various sailboat reference guides at your local newsstand. Both *Sail* and *Sailing World* publish the most comprehensive guides annually. They are useful tools. They provide the basic specifications and suggested prices on hundreds of small sailboats. They also provide the names and addresses of the manufacturers and many individual class associations to whom you can call or write for additional information.

Most manufacturers are delighted to send you their latest sales brochures as well as a listing of dealers nearest you.

Shopping

Now that you have done your homework, determined a realistic budget and honestly evaluated your requirements, it's time to go shopping for a boat. There are two basic markets for sailboats–the new-boat market, through local dealers or factory-direct agents, and the used boat market, through local dealers and private sellers. Each market has its good points and bad.

New-boat market

Within the new-boat market you are usually doing business with a reputable dealer or factory with ties to the local community and sailing industry. Most new boats carry some sort of warranty. Should problems arise with the boat or its equipment after the sale, most reputable dealers and manufacturers will correct the defect at no cost. This is an added value.

In addition, many dealers and manufacturers may offer special incentive packages on boats ordered at this time of the year. These deals might include such things as a special option package or a boat trailer at no extra charge. Depending on the contents of these packages and the terms of the deals, they can add up to substantial value. Most of the time you can negotiate a fair price for the boat you want to buy and the dealer wants to sell.

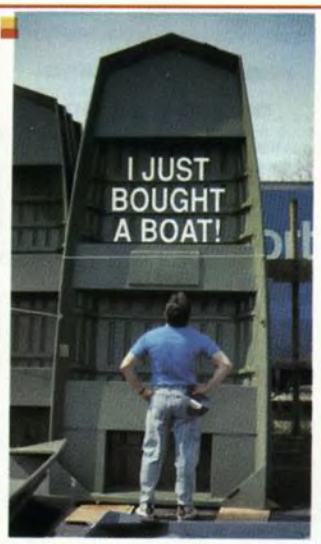
Used boat market

When you enter the used-boat market, you should adhere to the basic creed: Buyer beware! For the most part, this market is dominated by individual private sellers. There are remarkably few used sailboats on dealers' yards. Even though the majority of private sellers are honest, forthright people just like you or me, they are still just "folks." They make mistakes just like you or me. In most cases, when you do business with a private seller, there are no warranties and little recourse. The advantages of a private sale are usually a lower price and perhaps a few extras. Many sellers often include additional equipment and gear as a part of the deal. These are added values.

If you've seen a new model of a design that appeals to you, don't be overly optimistic about the price of a used model. Most sailboats hold 80 to 90 percent of their original value and may even appreciate in value over the years, depending on age and general condition.

When you become seriously interested in a used boat, whether from a dealer or private seller, always inspect it carefully. One question you should always ask a private seller is, "Why are you selling it?" The answer to this question may tell you a great deal about the boat and how it fits your plans. For instance, if you are looking at a 19-foot overnighter with a small cuddy cabin for you and your wife and the owner tells you that the boat is too small for him and his wife, you might want to reconsider it as a possibility.

Selecting the sailboat that is right for you can be a rewarding and satisfying experience. There are many less pleasant ways to pass cold, winter evenings than reading sailing ads and literature. It's all right to dream of warm, tropical breezes and long, sandy beaches while you're at it. But when the time comes to make the decisions, remember who you are and where you sail, and when the going gets tough, always remember that sailing is a dirty job–but somebody's got to do it! Why not you?



NOW WHAT DO I DO?

IMPORTANT REGISTRATION INFORMATION FOR BOAT OWNERS

BUREAU OF BOATING
PENNSYLVANIA FISH & BOAT COMMISSION

Just Bought a Boat?

I Just Bought a Boat! Now What Do I Do? is the title of a Fish and Boat Commission pamphlet that answers frequently asked questions on boat registration. Who has to register a boat, why register, where to register, which forms are required, current registration fees, and displaying numbers and decals are some of the topics. For a free copy, send requests to: Bureau of Boating, PA Fish and Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000. Please include a business-sized stamped, self-addressed envelope with requests.

Colangelo Takes Helm of Fish and Boat Commission

Executive Director Peter A. Colangelo

Peter A. Colangelo was sworn in as the Executive Director of the Pennsylvania Fish and Boat Commission during an oath of office ceremony October 6, 1994, at the Main Capitol, Harrisburg.

Colangelo comes to the Commission from the U.S. Army Corps of Engineers, Pittsburgh District. He served 34 years with the Corps, the last 20 of which were spent as Chief of the Natural Resource Management Branch.

He holds a degree in Civil Engineering from the University of Pittsburgh and completed all graduate work credit requirements in Parks and Recreation from Slippery Rock University. Colangelo is also a registered Landscape Architect, a certified Professional Leisure in the National Recreation and Parks Association, and a Corps of Engineers Federal Officer. He is a Regional Vice-President and a Past President of the National Water Safety Congress.

In an address following the administration of the oath of office, Colangelo affirmed his commitment to the Commission's mission to protect and manage Pennsylvania's aquatic resources.

"To accomplish our mission and reach our goals, everyone in the Commission must understand and embrace the same vision. The Pennsylvania Fish and Boat Commission has been recognized for having the top fisheries and boating programs in the nation. We must all strive to make the best even better. As the Executive Director, it will be my top priority to have everyone in the Commission committed to this vision," pledged Colangelo.

He also stressed his commitment to enhancing agency communication and teamwork as well as continuing partnerships with other conservation agencies and the Commonwealth's sportsmen.

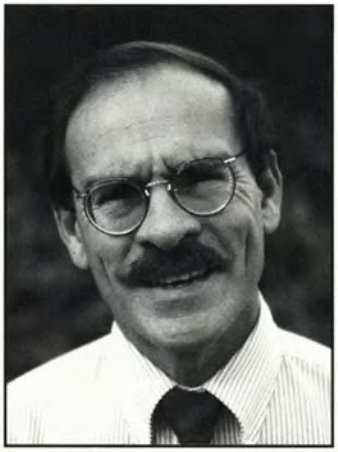
Colangelo becomes the Fish and Boat Commission's eighth Executive Director.–*Dan Tredinnick.*

Notice to Subscribers

Act 1982-88 provides that certain records of the Pennsylvania Fish and Boat Commission are not public records for purposes of the Right-to-Know Law. This means that the Commission can place appropriate conditions on the release of such records. The Commission has decided to make the subscriber list for *Boat Pennsylvania* available to statewide nonprofit, nonpartisan fishing, boating and sportsmen's organizations for nonprofit, noncommercial organizational purposes under limited circumstances.

If you do not want your name and address included on the subscriber mailing list to be made available to the described organizations, you must notify the Commission in writing before February 1, 1995. Send a postcard or letter stating, "Please exclude my name and address from *Boat Pennsylvania*'s subscriber mailing list." Send these notifications to Eleanor Mutch, *Boat PA* Circulation, P.O. Box 67000, Harrisburg, PA 17106-7000.

Chambers Honored with National Award



Virgil Chambers

Virgil Chambers, Chief of Commission's Boating Safety the Education Division, has been named recipient of the top boating safety award conferred by the National Association of State Boating Law Administrators (NASBLA). Chambers was honored September 10, 1994, at the NASBLA conference in Fajardo, Puerto Rico.

Chambers has been an employee of the Commission since 1978. He has developed several Pennsylvania programs that have set the national standard for safety education.

Chambers founded the Pennsylvania Water Rescue Program, which trains emergency teams in basic and advanced water rescue techniques. The success of this training program led to its adoption by the National Association for Search and Rescue. Similarly, he has been a leader in the effort to create uniform boating safety education policies across the nation, which often model current Pennsylvania programs.

Chambers also developed the Boating and Water Safety Awareness Program now offered to children through school districts and youth camps across the Commonwealth.

NASBLA is composed of representatives from all U.S. states and territories. The national organization is responsible for developing uniformity as it relates to the administration of boating laws, education programs, accident reporting and other boating concerns. NASBLA is also the liaison between state and federal governments on boating issues.–*Dan Tredinnick.*

15 CANOEING MISTAKES YOU DON'T WANT TO MAKE

by Cliff Jacobson

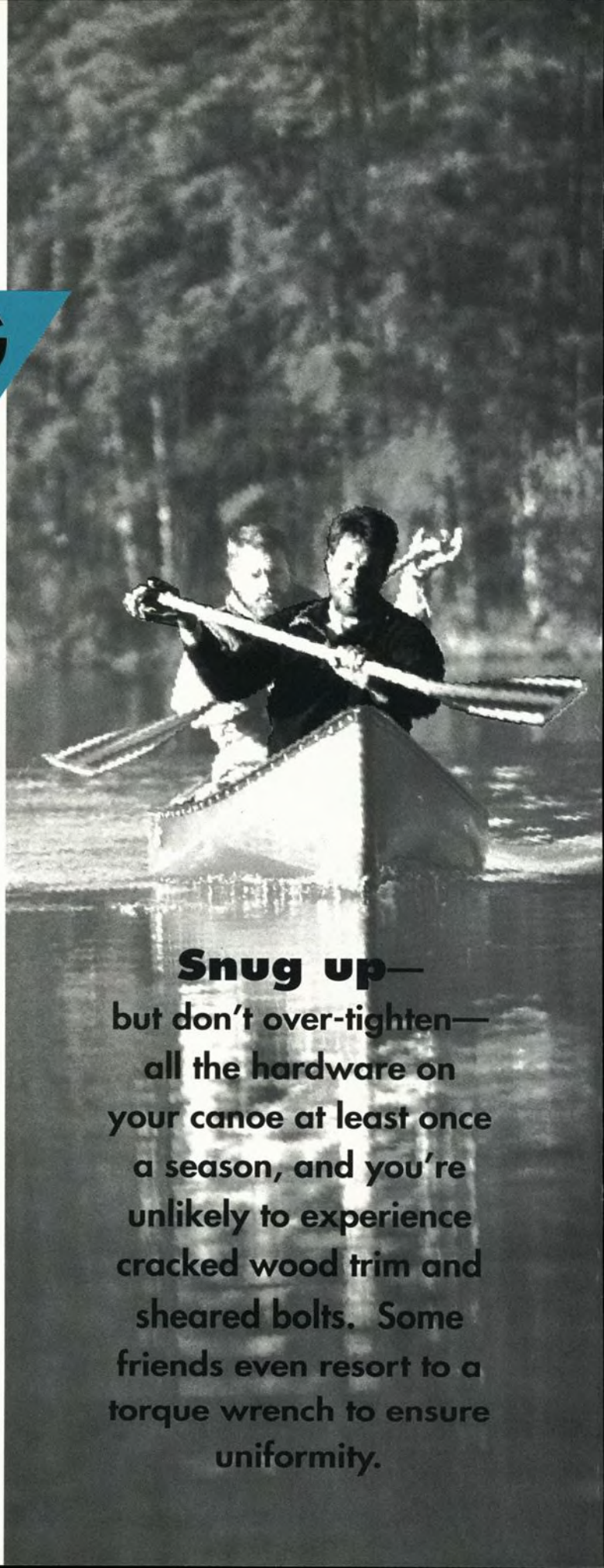
For awhile, we just stood in the rain and watched the fast-moving river. I was 12 years old, and a first class scout. This was my first canoe trip down a river that had rapids, so naturally I was excited to go.

Our scoutmaster, Henry Borkovitz, gathered the crew for final instructions. Each canoe was assigned a number and emphatically told to maintain position in the pack. No one was to pass the first canoe! My partner and I were number two—we would run just behind our leader.

Minutes later, we were on the water and gliding down a bubbly, champagne-clear swift. In the heat of enthusiasm, my partner and I overtook the lead canoe and disappeared around the bend. We continued to pour on the coal and soon the other canoes were out of sight and out of mind. An interesting-looking channel with a strong rapid at its mouth caught my eye. "Looks like fun," I called. "Let's do it." Seconds later we were pinned solidly among the branches of a huge downed tree (strainer). Near panic, we clung to the tree, blew our whistles and prayed that Henry would find us. Minutes later, he arrived, stern-faced and stewing with concern.

Fortunately, we were safe, but our once-sleek Grumman aluminum canoe was a twisted mass of unrecognizable metal. Henry's rescue rope was too short and the current was too powerful for us to swim to shore. We would have to remain coldly perched on the tree trunk until our scoutmaster returned with help.

It was nearly dark when Henry and two men showed up with the powerboat. Henry said little to us at first, but as soon as we were rescued and re-warmed, he lit into us for disobeying orders. "The leader leads, followers follow! As patrol leader, Cliff, you should know that!"



Snug up— but don't over-tighten—all the hardware on your canoe at least once a season, and you're unlikely to experience cracked wood trim and sheared bolts. Some friends even resort to a torque wrench to ensure uniformity.

I lost my "command" over that experience, but learned an important lesson about river canoeing: Never, pass your leader or slip behind the experienced "drag" canoe.

Here are some other "common canoeing mistakes" you won't want to make.

2. Unprepared for rain. You're eager to start the canoe trip you've planned for weeks. The sun is shining and there's not a cloud in the sky. Convinced you're in for great weather, you leave your rain gear and warm sweater at home. But by noon, the sky clouds over and it begins to rain. The temperature drops and a fierce wind develops. Suddenly, you're cold and wet, and begging clothes from your friends.

You are ashamed of yourself! You vow that next time you'll bring full rain gear, no matter how bright the day!

3. Wearing an unzipped and/or improperly adjusted life jacket. Scenario: It's a hot, sunny day and you're broiling from the heat of your life jacket. You're tempted to remove the sweaty PFD, but you know better. As a compromise, you loosen the side straps and peel open the zipper to let in air. Ahhh...cool at last.

The river curves right and a downed tree looms into view. "Back!" You call boldly. But it's too late. Seconds later, you've capsized and are swept into the branches of the partially submerged tree. The "wings" of your unsecured PFD wag in the water and an arm hole catches a tree branch. You stop with a jerk and momentarily are held underwater. Thank God you're able to get free! Next time you go canoeing you'll keep your life jacket zipped up tight!

This situation is so frightening that whitewater instructors make a fetish out of berating clients who "don't zip up." On the heels of this advice comes "proper adjustment" of your PFD. Side straps and ties must be snugly cinched or the jacket may ride up over your head in a capsize. A PFD should not come above your chin when you're in the water. Serious whitewater paddlers prefer a life vest that has no vertical movement whatsoever.

4. Wearing high-topped shoes while canoeing a raging rapid. You have capsized in a shallow, powerful rapid and are thrown clear of the canoe. Instead of turning on your back, feet up (the "rapid swimming position"), you instinctively drop your legs and attempt to walk. Seconds later a foot becomes lodged between rocks and the current mows you down. Luckily, you're wearing low-quarter sneakers you can get out of!

Rules:

- Never attempt to stand in fast-moving water that is over knee-deep.
- Wear low-cut, quick-drying shoes.
- Carry a fixed-blade knife or fast-opening folder so you can cut shoe laces away if necessary.

5. Under-securing or over-securing gear in the canoe. You're canoeing serious rapids. How should you secure your packs so they won't be lost if you capsize? Pick the right answer.

a) Tie them tightly into the canoe. Use knots that won't come loose, even if they are hard to undo.

b) Don't tie in anything. Instead, buckle the shoulder straps of each pack around a canoe thwart.

c) Tie in your gear, but complete knots with a quick-release (slippery) loop.

"C" is correct. End knots with a slippery loop and you won't have to pick out (or cut!) wet knots to remove your packs from a swamped canoe. Don't loop pack straps around canoe thwarts, as is the custom for lake travel. If your canoe upsets in a current, a pack could dangle out, catch on a rock and cause the craft to pin and wrap.

6. Not treating life jackets as life-saving equipment. No one wants to wear a life jacket that is wet or torn. Do not sit on your life vest or leave it out in the rain when you're ashore. While canoe-camping I always take my life vest into my tent at night. It makes a good pillow and a warm garment.

7. Paddling barefoot. Sharp rocks, sticks, broken glass and tin cans in the water can cause nasty wounds on bare feet. Protective footwear is a must if you have to step out of your canoe.

8. Forgetting to attach a security strap to your eyeglasses. You will lose your eyeglasses in a capsize if you don't have a security strap.

9. Hiding the spare paddle. You're canoeing a rapid when your paddle breaks. You reach for the spare but it's tied to thwarts or buried under a mound of camping gear. Suddenly a rock appears ahead. *Bang!* And capsize!

Rule: Keep your spare paddle available. I'd rather leave it loose in the canoe, where it can float free and be lost in a capsize, than slow accessibility by tying it to thwarts.

10. Running rapids while wearing something around your neck on a cord. I can think of few things that are more dangerous than running rapids while wearing something around

15 CANOEING MISTAKES YOU DON'T WANT TO MAKE

your neck on a cord. Some years ago, friends and I paddled a small, rain-swollen river during the spring run-off. My friend's canoe upset on a bridge piling where the current speed was at least 15 miles an hour. He was wearing a Sierra cup on a string around his neck. The string caught on one of the canoe's yoke pads and held him under for nearly half a minute before it broke and set him free. For months afterward, his neck bore the scar of that capsize.

Rule: Never wear anything around your neck—camera, binoculars or strong necklace—that could stream out in a current and catch on obstacles. Be wary also of pocket lanyards (Swiss Army knife?) that might catch on debris.

11. Not having a sponge and bailer. Removing accumulated water from your canoe is easy if you have a sponge and bleach jug bailer. Many whitewater paddlers tie both together and wrap them around a canoe thwart for security. Bailers are essential for canoeing serious rapids, but for casual river paddling an absorbent sponge is all the bailing equipment you need.

12. Not tightening or over-tightening the bolts on your canoe. I am amazed when fellow paddlers tell me stories about yokes, seats and rails that broke while they were portaging their canoes. In 40 years of canoeing, I've never had that happen to me. I attribute my good fortune to keeping a "tight ship."

Canoes are flexible craft. The hulls are designed to "give" when they hit rocks. Rails and thwarts bend and twist as you paddle along, and the boat vibrates when it's car-topped and whizzing down the road. Bolts loosen and trim pulls away. Soon there's a gap and a recipe for a break.

Rule: Snug up—but don't over-tighten—all the hardware on your canoe at least once a season, and you're unlikely to experience cracked wood trim and sheared bolts. Some friends even resort to a torque wrench to ensure uniformity.

Note to owners of wood-trimmed Royalex ™ canoes: Manufacturers of these craft suggest that before the cold season you completely remove the bolts from the ends of your canoe so the wood gunnels don't touch the plastic hull. This practice is supposed to prevent expansion (cold) cracks from developing in the Royalex™. I know folks with winter-cracked boats who religiously follow this procedure. I also know other paddlers (me included) who don't loosen bolts and don't have problems. My experience–I currently own four wood-trimmed Royalex™ canoes–suggests that a combination of these factors causes the "winter splits."

A. The canoe is used in transitional (near-freezing) weather and the hull is not sponged dry before the craft is inverted and put away for the winter. If the canoe does not have drain slots beneath the decks (most don't), bilge water will accumulate between the wood and Royalex™. It freezes and expands, and cracks the plastic hull.

B. Loose bolts allow accumulated bilge water and/or rain to penetrate between the woodwork and plastic hull. Freezing water cracks the hull.

C. Oil-finished wood must be religiously maintained or it won't keep out water. Many paddlers never oil their woodwork; the majority probably do it once a year. That's not enough to protect raw wood from the invasion of water.

Here's my solution:

- I uniformly tighten all bolts at least once each season.
- I thickly oil (Watco, Djeks Olay, etc.) the wood trim after every trip.
- If I use the boat in transitional (near-freezing) weather, I sponge the hull dry before I invert the craft and put it away for the winter.

13. Not scouting a rapid that you've run many times before. It's early June on a river you've paddled many times before. High water, low water, or in-between—no matter; you know every curve and obstacle by heart. There are no surprises, or so you think.

Round the bend you see the dancing horsetails of "the rapid." A straightforward S-curve at any water level, you know just where to run it. Deep down, pangs of conscience tell you to check the pitch from shore before you proceed. But you arrogantly dismiss the warning and plunge confidently ahead.

Beyond the shallows are the two rocks that mark the vee of the safe water course. You're on automatic pilot now—just follow the run out to the bottom, turn hard right, and you're home free.

Then, you see it—a storm-downed sapling that blocks the way. "Back!" you scream. But it is too late. The canoe spins suddenly sideways, swamps and overturns. The water is barely two feet deep but there is enough power in the determined current to wrap the golden Kevlar™ hull tightly around a mid-stream boulder. The muffled cracking sound you hear indicates the craft is breaking up. Safe on shore, you and your partner helplessly watch the scene unfold.

Fantasy? Hardly. It happened just like this to me on a Canadian river I'd paddled five times before. I thought I knew every rock and eddy in the water course. But it hadn't rained for weeks and my ordinarily clear channel was a dry boulder bed—a discovery I made when I wrecked my boat!

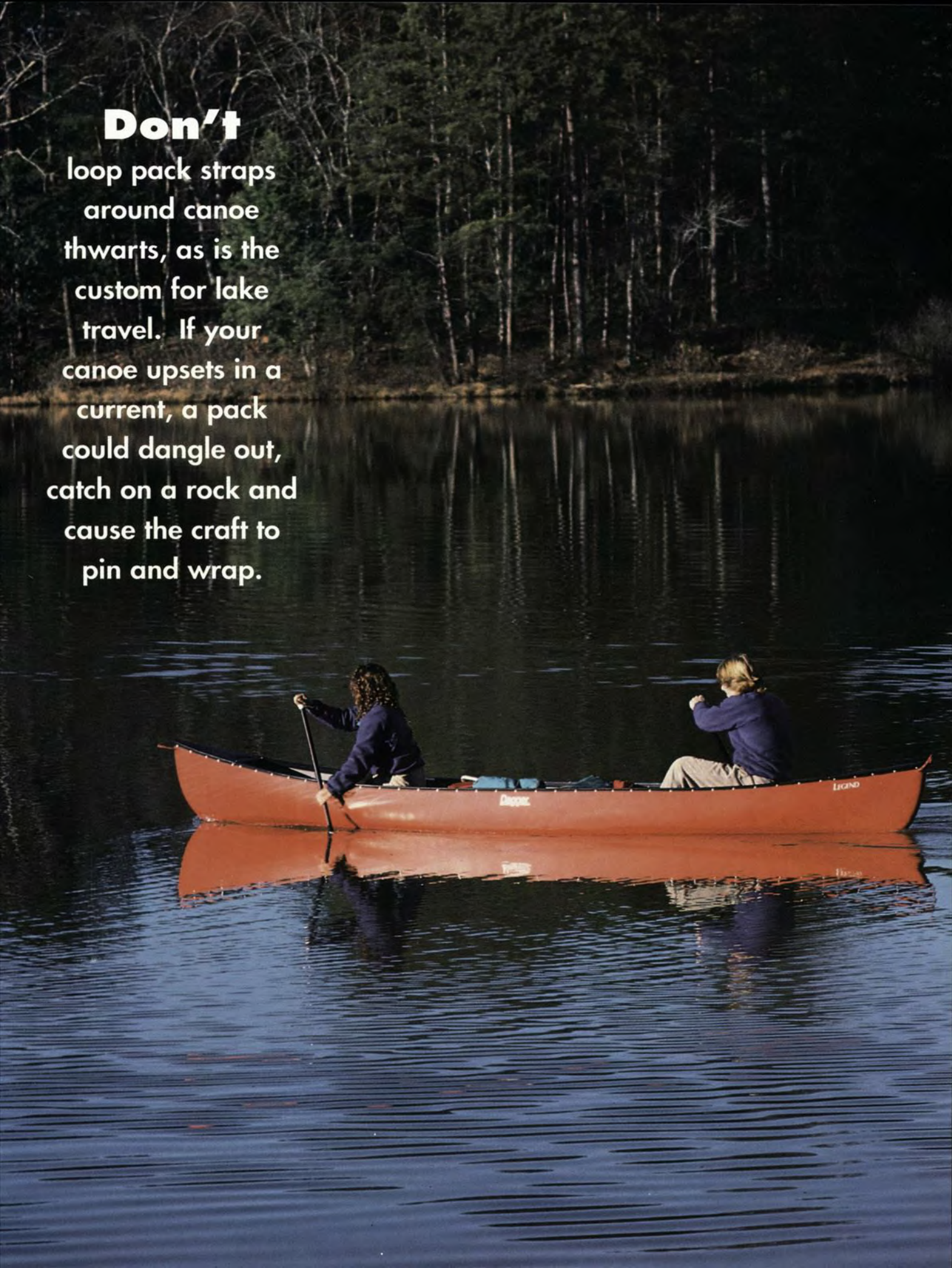
Whenever I head to northern Canada to paddle a river I haven't done before, well-meaning friends chide me about going into harms way. I explain to them that I'm always very careful on routes I haven't done before. On familiar runs I take things for granted and let down my guard. Not scouting a rapid you've paddled many times is a canoeing mistake you won't want to make.

14. Forgetting to bring polarized sunglasses. It's a canoeing axiom that the most difficult drops are always paddled into the sun. Sunglasses—the kind that let you see rocks deep in the water—are an essential part of whitewater canoeing.

15. Sitting through a rapid when you should be kneeling. Some folks are naturally lucky. A friend of mine is a very competent whitewater paddler, yet he seldom kneels in rapids. His excuse is that, in the excitement of the pitch, he simply "forgot." I've watched Tom handily run some spectacular Class III drops from the seat of his Dagger Venture. I've never seen him capsize or strike an awkward pose.

Perhaps my friend is more athletic than I am. Maybe he's just luckier. Kneeling in difficult water has less to do with lowering the center of gravity than with boat control. Well-anchored, wide-spread knees provide pressure points from which you can heel the hull right or left, or brace far out with confidence. Don't be fooled by the success of down-river racers who never kneel in their long, skittish canoes. The seats of racing canoes are slung too low for kneeling, and the bows are too narrow to assume a wide kneeling stance.

There are a lot more than 15 canoeing mistakes, to be sure. They range from securing your canoe to your car with elastic bungee cords instead of rope, to setting your $200 bent-shaft paddle, blade-down on the ground where it will be broken if stepped on. Canoeing errors are endless. Each new paddle trip brings to light new ways to do things wrong!



Don't loop pack straps around canoe thwarts, as is the custom for lake travel. If your canoe upsets in a current, a pack could dangle out, catch on a rock and cause the craft to pin and wrap.