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BOAT Pennsylvania

The Keystone State's Official Boating Magazine

VIEWPOINT

Thoughts on Combining the Fish and Game Commissions

Boating is increasing in popularity and the number of registered boats has increased five-fold since 1964. Today, Pennsylvania ranks 14th in the nation with over 250,000 registered boats. It has been estimated that the number of unpowered boats is about 100,000. Factoring in these boats, our national ranking reaches 8th behind only the big boating states of California, Florida, Texas, Michigan, Minnesota, New York, and Wisconsin.

In recognition of this growth in prominence of boating, the Commission has supported a name change to "The Pennsylvania Fish and Boat Commission." We believe that the inclusion of the word "boat" in our title better reflects the Commission's duties and responsibilities mandated by law.

However, most of you by now are aware of a study currently conducted by the Joint Legislative Budget and Appropriations Committee. This study is intended to determine whether or not there would be significant savings in revenue or improvement in services with a combined Fish and Game Commission.

John Simmons
Director
Bureau of Boating
Pennsylvania Fish Commission

"Wait a minute", you say, "I thought there was only one Commission now." Many people have the same misconception. The fact is that the Fish Commission was formed as an independent agency more than 125 years ago. The Game Commission came along a few years later.

The Fish Commission's original mandate was to restore American shad to its historic range on the Susquehanna River. This goal was expanded over the years and responsibilities for boating were added at various times and consolidated with the enactment of the Boat Law of 1964.

The reasons for including the boating program with the Fish Commission's other responsibilities become apparent when its other water-related responsibilities are considered. Its law enforcement officers were already on the water and familiar with the safe operation of boats. A water resource-oriented education and information staff was already in place. Land acquisition for access areas had been conducted for a number of years. And in the early years of the boating program, the majority of boats were used almost exclusively for fishing.

Most of these same reasons support the continued inclusion of the boating program under the Fish Commission.

What could happen to the boating program if a combined Fish and Game Commission became a reality? Of the three sports, hunting, angling and boating, boating is the only one that is still growing. An estimated 2.5 million Pennsylvanians participated in boating last year. About 1.2 million people bought fishing and hunting licenses. This would lead to the conclusion that boating is the more important of the sports but a look at the combined budgets for fishing, boating and hunting places the situation in a different perspective.

The Game Commission has an annual budget of over $35 million. The Fish Commission spends $18 million on its angling programs. The boating program is funded at an annual figure of $4 million. I believe that this is grossly under-funding a program that is as large and important as ours. But without raising registration fees or finding some other means of funding the program, no additional revenue is available.

It should be apparent that the Boat Fund would be far behind hunting and fishing activities in priority. Despite sincere efforts of the managers of a combined agency, boating could take only its proportional share of importance.

For the boating program, little could be gained from a merger. The programs of the Fish Commission are different from anything that the Game Commission does.

Talk of a merger always assumes that the participants of the respective sports are the same people. It assumes that all boaters are fishermen or hunters. Some boaters may be fishermen and hunters but certainly not all are. More and more, we are finding that boaters are boaters first and fishermen second. The boat has become the center for family recreation.

We all have a variety of recreational pursuits, but that does not mean that we want them regulated by the same agency. We want our sports regulated by the agency that can give us the best possible return on our investment. Since the Commission was given the responsibility for boating, the boating community has fought for the recognition that it deserves and has received a program that is well-respected across the country. The emphasis of a combined agency would have a dramatic impact on how the Commonwealth resources are managed and allocated for different uses. Where would boating be?

The study by the joint committee provides us with the opportunity to express our opinions and have a direct impact on the future of the boating program. I am confident that the study results will share my belief that boating belongs with the Fish and Boat Commission and not with a Fish and Game Commission. What do *you* think?

John Simmons

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The covers

This issue's covers shows world-class personal watercraft operators negotiating the race course during an event on the Susquehanna River at Harrisburg, held July 2–3. The race is part of the International Jet Ski Boating Association tour. Chris Lauber took the photograph. If you're thinking of buying a personal watercraft, be sure to check out the article that begins on page 6. Runabout owners can find some useful information in the article starting on page 16, and sailors can find some heads-up docking ideas on page 14. Paddlers can take their turns with the feature beginning on page 20.

Suiting Up for Chilly

by Bruce Kistler

It happens twice each year, once in the spring and once in the fall: The frustrating times that are either a little too early or a little too late in the season to enjoy water skiing because the water's too cold. There you are with everything you need—boat, skis, smooth water, warm sun—but you know that when you hit that icewater you'll wish you'd stayed on shore.

Take heart, shivering water skier. For a modest investment in a full wetsuit or drysuit you can extend your skiing season at least a month in either direction.

A wetsuit is a suit of thin ($^1/_{16}$-inch to $^3/_{16}$-inch) foam neoprene rubber. The neoprene becomes saturated with water that your body heats, providing excellent insulation. Even with a wetsuit, that first plunge into cold water can be an eye-opener, but in just a few moments you will begin to feel quite comfortable. The suits are so effective that you may actually get a little too warm if you are skiing hard.

Old days

In the bad old days skiers wore scuba diver wetsuits. They were warm, but they were also bulky, heavy, a pain to put on, a bigger pain to take off and not too durable. A rite of spring for many skiers included wild gyrations when donning or doffing the stubborn "monkey suits" and patching rips and tears with sticky black neoprene glue.

Eventually, wetsuit manufacturers realized that they were missing a large potential market. They began designing and making suits specifically for water skiing. Better rubber was used to make suits that were thinner and more flexible yet just as warm as older models. Better zippers and better zipper placement helped in dressing and undressing. They lined the suits with nylon or Lycra inside and out, which made them much stronger and much easier to put on and take off.

The nylon also let manufacturers offer the suits in a dazzling variety of colors like hot pink, bright turquoise and fluorescent yellow. Now you don't have to look like a Navy frogman when you wear a wetsuit. Today's suits are as much fashion statements as they are practical pieces of skiing equipment.

Besides warmth, wetsuits offer impact protection and flotation greater than that which a ski vest provides.

Advantages

A wetsuit offers advantages besides warmth. It also provides great impact protection and flotation over and beyond what a ski vest provides. Consequently, there are several kinds of wetsuits for different purposes. A full wetsuit, with long arms and legs, is best for water skiing during the off-season. A full suit can consist of pants and a jacket, a "farmer john" tunic and a jacket, or it can be all one piece.

A shorty wetsuit, one with short arms and legs, is good for chilly days, but many skiers wear one no matter what the temperature. Some shorties have zippered fronts and some sleeveless styles have snaps or Velcro closures at the shoulder.

Barefooting

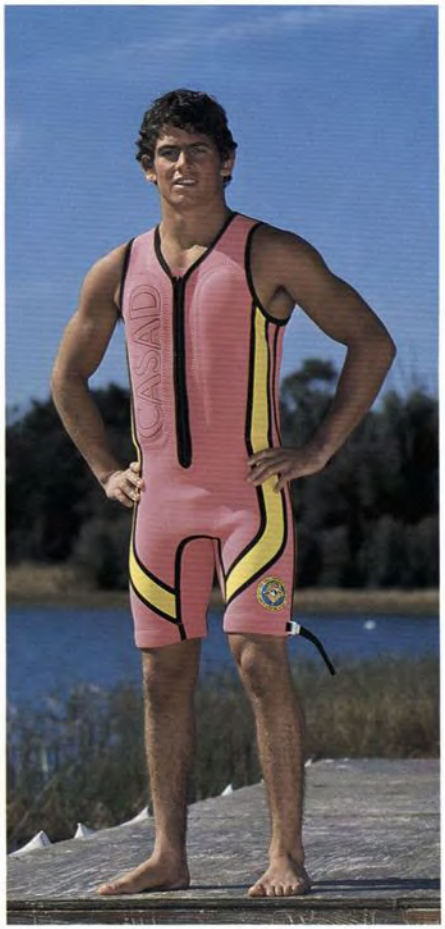
Barefooting enthusiasts helped bring the art of wetsuit design to its zenith. A barefoot wetsuit incorporates extra-thick neoprene or closed-cell Ensolite padding on the back, chest, and rump. These suits also have adjustable nylon web straps on the legs to prevent water from being forced into the suit during barefoot deepwater starts and other maneuvers. Most now have short legs and are either sleeveless or have short arms. Some styles have nylon sleeves without neoprene for greater flexibility.

Barefoot suits have such superior flotation and impact protection that a separate life vest isn't necessary. As of yet, however, no barefoot wetsuits are Coast Guard approved.

Pennsylvania was one of the first states to work with barefooters and write a special exemption into its PFD regulations to allow them to wear these suits for barefooting at their own risk in lieu of a Coast Guard approved PFD.

Casad

Water Skiing



Wetsuits with long arms and legs are best for off-season water skiing. Wetsuits with short arms and legs are practical on chilly days.

Casad

Slalom, jumping

Taking a cue from barefoot suits, the manufacturers also began to make wetsuits with integral vests for competition slalom and jumping. A full-length jumpsuit is now the standard uniform of the top tournament jumpers. Although many of these are certified for competition use, they also are not Coast Guard approved.

The Fish Commission allows the use of these special suits by skiers slaloming in a marked course, jumping, or trick skiing. Those opting to wear jump or slalom suits do so at their own risk.

Buying

When shopping for a water skiing wetsuit, make sure that you look at suits made specifically for the sport. A diver's suit will not have the design features you will come to appreciate in a water ski suit. As with other goods, the price generally indicates the quality. The standard-grade suits may have nylon on the inside only. The better suits are lined with nylon on both the inside and outside and are generally worth the extra money. Look for reinforced seams and edges and heavy-duty zippers.

Remember that a wetsuit must fit well to keep you warm. An oversized suit will allow too much water in. Your body will not be able to heat the excess water, which will also add a considerable amount of extra weight when you take off. Both men's and women's styles are available to give a more precise fit.

Suiting up

Most nylon-lined wetsuits are fairly easy to put on and take off, although it is more difficult if the suit is wet. When putting on a full suit, gather the pant leg or sleeve and work it on a bit at a time. If it doesn't slide on easily, don't try to pull it on as you would a cloth garment. You will only succeed in having the suit squeeze you harder, like Chinese handcuffs.

Reverse the process to take the suit off. Turn the sleeve or pant leg inside-out or push the folds down your legs or arms. Don't try to pull it off by the cuff.

Dry suits

For extremely cold water, or for those who do not like the clammy feel of a wetsuit, there is another alternative—a drysuit. Made of impervious rubberized fabric or closed-cell foam, a drysuit keeps you dry as well as warm. Tight latex rubber seals at the neck, wrists, and ankles prevent water from entering. Some models also have Velcro closures on the wrists and ankles to protect further against water getting into the suit.

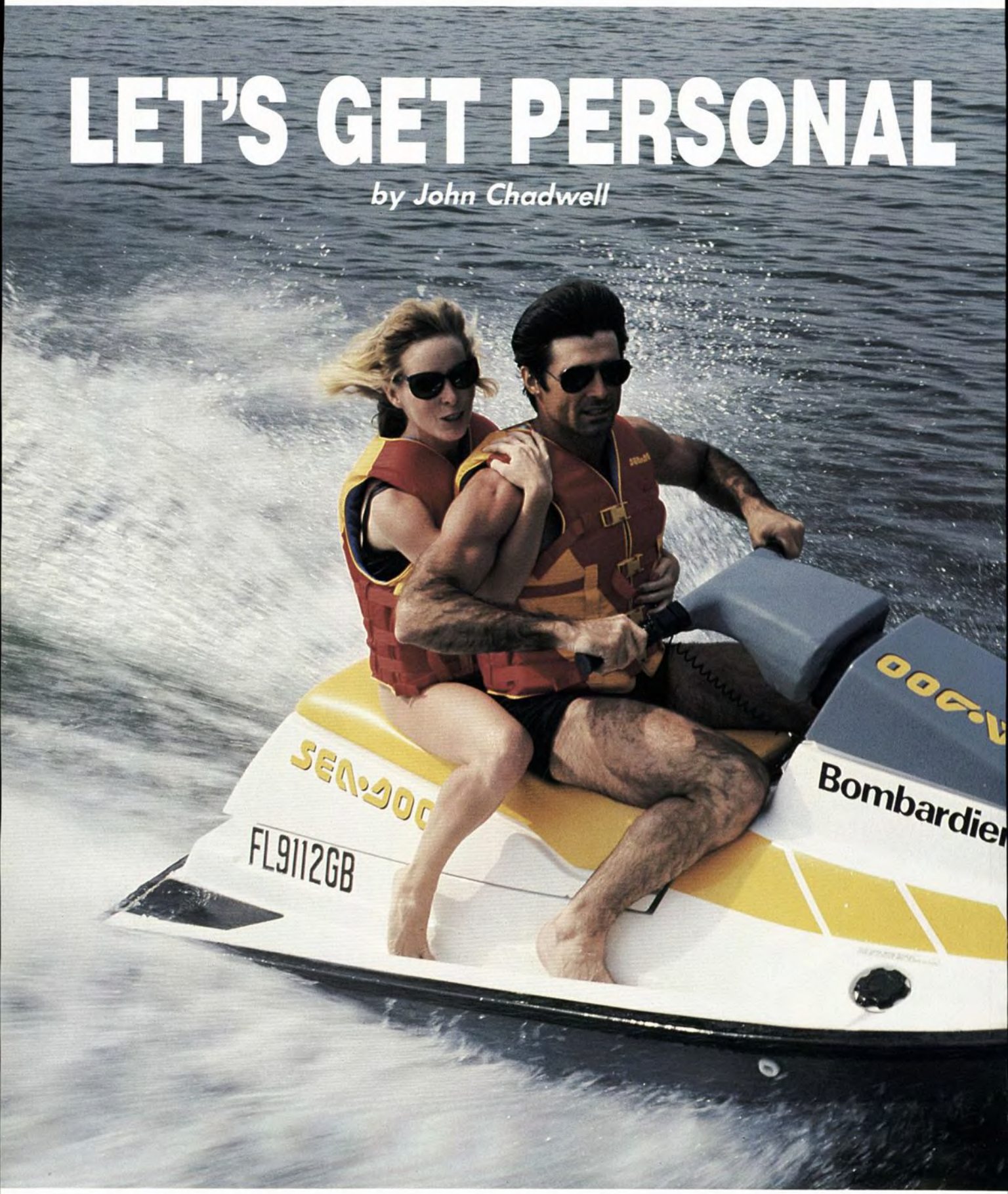
A drysuit has a super-heavy-duty waterproof zipper across the back, making dressing a two-person job. The seals can be difficult to get into and you may need some talc to help make entry easier. One advantage of a drysuit is that you can change the amount of insulation by wearing more or less clothing under the suit. Skiers often wear sweat clothes with drysuits.

With either type of suit, cold hands and feet can be a problem. Although wetsuit gloves and booties are available, many skiers do not use them. The gloves are bulky and booties can make getting into tight ski binders difficult. Rubber kitchen gloves are flexible and can provide some limited insulation for frozen fingers. Because much of your body heat is lost through your head, a wetsuit hood can be a good investment if you plan to ski in cold water.

Modern wetsuits and drysuits can help you extend your skiing season, but be careful. Cold water always demands respect. Ski only as long as you feel comfortable to avoid the consequences of hypothermia. With the right equipment you can start earlier in the spring and keep skiing later in the fall. You may even get in the habit of wearing a shorty or a specialty wetsuit during the summer.

LET'S GET PERSONAL

by John Chadwell



John Chadwell

Only five years ago, if you wanted to see a personal watercraft, better known as a Jet Ski (among others), you almost had to travel to California. Oh, every once in a while, some enthusiasts would search out a dealer of the new machines and cart one all the way back home. He'd take it out on Conowingo or Raystown Lake, or cruise the Susquehanna, where everyone would wonder at the new contraption.

They're small, fast, and to some folks, very difficult to use. So why would anyone want to risk life and limb, not to mention tremendous amounts of ego, to straddle one of these miniature jet-powered water-rockets? Because, next to water skiing with a jet engine strapped to your back, there probably isn't a higher water-borne rush available. And it all started with a dirt bike racer who was fed up with eating dirt and shedding various pieces of his anatomy in the arroyos and dunes of southern California.

Back around 1968, an engineer by the name of Clay Jacobson, who liked to race his motorcycle in the desert, sat down near a drainage canal to cool off and pick gravel out of his latest wounds. He began to think that there must be a less painful way to have fun racing. That's when he came up with the proverbial "better idea."

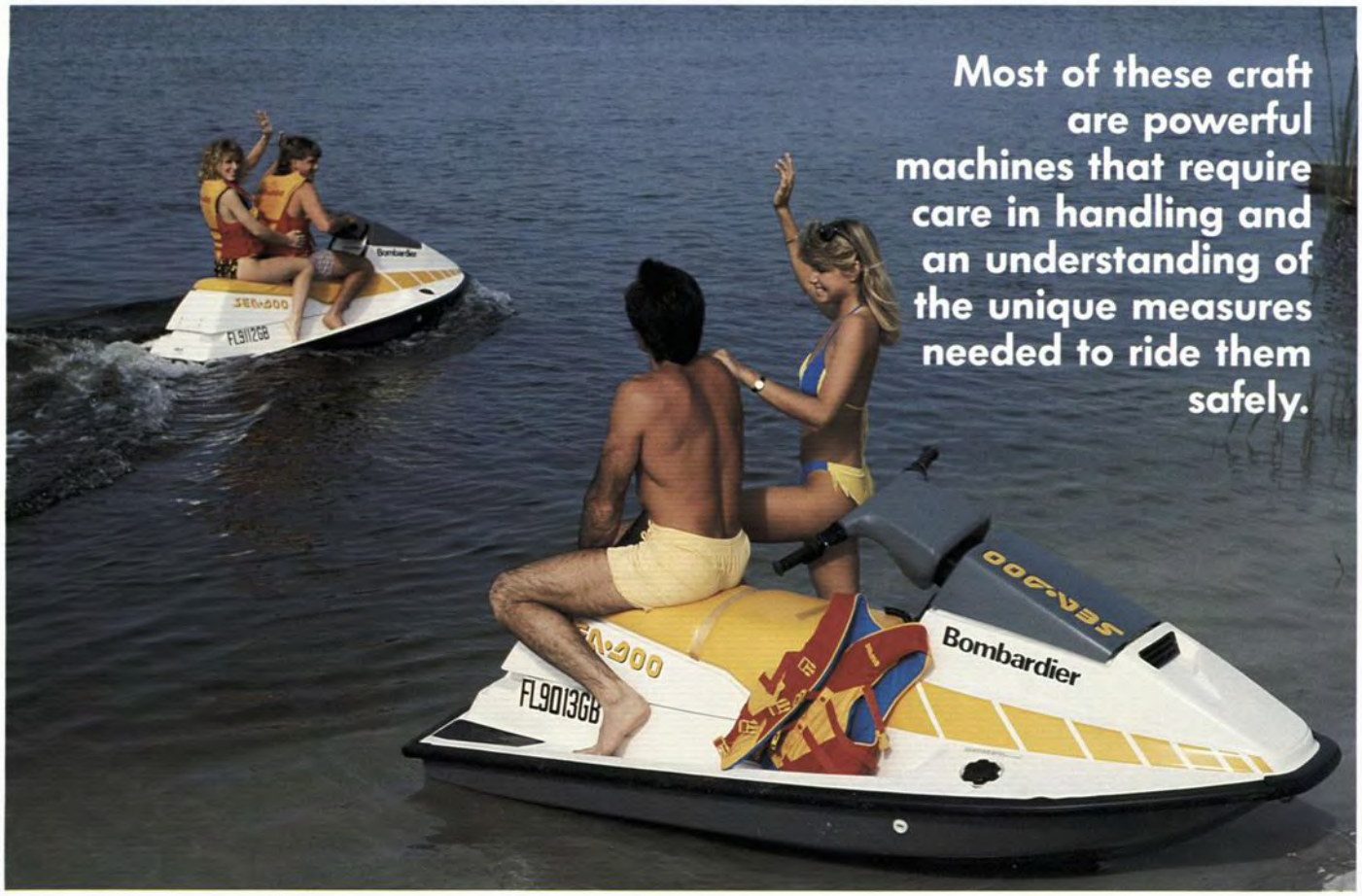
A Japanese company famous for its fluorescent-green racing motorcycles agreed. It bought the patent rights for a machine that would revolutionize America's concept of fun on the water. Today, that machine, which at first was only a sideline for motorcycle shops, has increased in sales by 225 percent in just the last year. Now dominating 80 percent of the market, the company and the machine have become synonymous not only with a way of life, but with one of the fastest growing water sports around the world. The company is Kawasaki; the machine is the Jet Ski.

Introduced in 1974, the Jet Ski was virtually the only watercraft of its kind for more than a dozen years. It's basically a highly maneuverable self-propelled craft that can be ridden just about anywhere a boat can—and a lot of places a boater wouldn't dream of venturing.

Even Kawasaki is surprised at the popularity of the Jet Ski. Considering the nature of free enterprise, it didn't take long for dozens of rivals to hop aboard the burgeoning personal watercraft market.

Every day it seems there's a new product for the water-crazed public. What with the high price tags for pleasure boats, individual watercrafting is more popular than ever. These machines range from Kawasaki's Jet Ski and Yamaha's WaveRunner that can streak across the water at better than 40 mph, to the Toobee, which can best be described as a high-tech innertube.

The popularity of Jet Ski, in particular, and to some extent, other muscle machines in the top end of the market, can be witnessed in the increasing number of racing circuits developing worldwide. Fame that was once reserved for the dirt tracks and speedways is now heaped on young men and women who have become the "Top Guns" of the Jet Ski race circuit. The circuit begins in California and meanders across the country with one race in Harrisburg, July 3-4, and four races in Florida. Then it dips down into Texas, and the World Championships are held at Lake Havasu City, Arizona.



Most of these craft are powerful machines that require care in handling and an understanding of the unique measures needed to ride them safely.

John Chadwell

Five years ago, there were only a handful of dedicated racers that even bothered to tour the entire circuit, much less venture out into the desert to compete against racers still in their teens for trophies and a few hundred dollars. At last year's championship race, there were more than 500 competitors running the course for more than $25,000 in prize money. Some 20,000 spectators lined the shore to see 16-year-old Jeff Jacobs, from La Jolla, California, take the title.

Unchallenged marketplace

Because of its firm grip on most of the patents, Kawasaki has gone unchallenged on race courses and in the marketplace. But Jacobson recently sold the remaining portion of the patents of the jet ski concept to Yamaha for a reported $1 million. As these and other patents run out in 1991, Kawasaki's hold on the Jet Ski-style watercraft will be copied by a number of companies. Insiders report that Yamaha will have a machine very similar to the Jet Ski on the market by next year.

This will benefit racing competitors and consumers alike. When we start seeing Yamahas and Kawasakis running in competition on the race courses and prize monies go higher, we'll hopefully see prices for the machines in the market place begin to decline.

Most of us will never venture onto a race course, so jet skis and their ilk are not the only choice of water-oriented activity. Somewhere between the Jet Ski and the Toobee there is a multitude of craft to meet any Pennsylvania recreationist's need. The following is a guide to personalized watercraft marketed around the country and one, the Sea-doo, from Canada.

Kawasaki

Built in Lincoln, Nebraska, there are presently six models of Jet Ski watercraft. Five single-person craft ranging in engine size from 300cc to 650cc, and a two-person model with a 650cc engine. All are built of a special fiberglass compound, making them both lightweight and strong.

Propelled by a water-cooled, two-stroke engine located in the front, the craft is driven by an impeller turning a stainless steel housing in the hull. Steering is controlled by a handlebar that turns a directional nozzle located behind the impeller.

If the rider should fall, the boat is de-

John Chadwell

There is a multitude of craft to meet any Pennsylvania recreationist's need.

signed to return to idle and turn slowly in circles. The rider can simply wait for the craft to come back to him, climb aboard and take off again.

For the dealer nearest you, call locally either: 412-238-4854 or 717-367-8936. If you want to write to Kawasaki, the address is 9950 Jeronimo Road, Irvine, California 92718-2016.

• **JS300.** This is the lowest-priced model. Powered by a 294cc aluminum engine, it puts out 30 horsepower. Unlike earlier models, the JS300 offers a Superlube oil injection system, which eliminates oil/fuel premix, and has an oil tank capacity good for up to four tanks of gas. Other features include electric start, fully padded rider tray and handlepole, handlebar-mounted start/stop switches and padded lift grips front and rear. These features are similar on all single-rider Jet Skis. The suggested retail price is $2,499.

• **JS300 SX.** This version sports a new hull design that is six inches shorter and two pounds lighter than other single-person craft. It is also two inches wider for easier boarding. The engine exhaust outlet is located at the rear of the craft for an overall reduction in noise levels. The suggested retail price is $2,849.

• **JS440.** Though similar to the original Jet Ski watercraft, this model is designed with the first-time owner in mind. It has a 436cc water-cooled engine that develops 243 pounds of thrust. The suggested retail price is $2,999.

• **JS550.** The JS550 is the most popular and well-known craft in the Jet Ski line. A single-person craft, the water-cooled 530cc engine has a low-restriction exhaust system and a flush-mounted exhaust. The suggested retail price is $3,699.

• **X-2.** The X-2 is designed for two riders. In place of a padded tray it has a long padded bench with room enough for two persons to sit along with foot trays on either side. The X-2 also features trim adjustment. This machine is excellent for an outing with a friend and also has the horsepower and quick moves for the would-be racer. In fact, last year a new class was created on the race circuit to accommodate the X-2. The suggested retail price is $3,799.

• **JS650 SX.** This Jet Ski is by far the most powerful single-person craft Kawasaki offers. Using the 635cc engine from the X-2 along with a new hull design, it has 25 percent more power than the JS550 and weighs 30 more pounds. The hull is wider and more compact than the original design and has an exhaust outlet port in the rear to assist in noise reduction. Its suggested retail price is $3,999.

Yamaha

In 1987, Yamaha Motor Corporation, U.S.A., came out with two water vehicles in an attempt to appeal to a broad consumer market: the WaveRunner and the WaveJammer. Both were designed around the snowmobile concept and with 20 horsepower, water-cooled engines can reach speeds up to 35 mph. They are jet-powered and designed to be handled by adults and children. Both were designed to be stable enough to mount while the machines are motionless. For more information on the WaveJammer or WaveRunner, contact your local dealer or the Yamaha Motor Corporation, U.S.A., Marine Division, P.O. Box 6555, Cypress, CA 90630. The phone number is 714-761-7609.

• **WaveRunner.** This machine is designed to accommodate one or two riders. With one rider it can tow a skier (illegal in Pennsylvania), serve as a tender for large boats, and is ideal for fishing or snorkeling. It is easy to handle when cruising at high speed in choppy water, riding slowly past docks, or even when pulling a skier. Riders can travel a minimum of 50 miles on one tank of regular gas, with the reserve tank accessible by means of a manual switch. A water visibility spout sprays a stream of water from the back to make the vehicle more visible to other boaters. There are two separate storage areas: one under the seat can be used as a self-draining ice chest or to store personal items or fishing gear; the other is a rear porthole compartment that can store a fire extinguisher or other small items. The suggested retail price is $3,905.

• **WaveJammer.** Built for the hotdogger who wants to try his hand at freestyle riding, even novice riders can easily steer from either a sitting or standing position. With a somewhat smaller tank than the WaveRunner, this machine has a minimum range of 34 miles. Another feature is a vacuum-driven automatic bilge pump, which automatically discharges any water taken into the engine compartment without the use of an electric motor. The suggested retail price is $3,380.

UltraNautics Corporation

This is the new name for Wetco Industries, based in California and the manufacturer of the Hydrofoil Wetbike. The craft's origins are similar to the Jet Ski in that it crossed over from the motorcycle industry. Invented by Nelson Tyler in 1972, the first machines were powered by 40 horsepower Mercury outboard motors and had props. Tyler's concept has been liberally copied by most of today's two-rider watercraft.

Today's Hydrofoil Wetbike is jet-powered and like a true hydrofoil rides high above partially submerged fins or wings. They are powered by a 798cc engine that puts out 550 pounds of thrust. The machines are constructed of a sturdy, lightweight material called Metton.

You maneuver the Wetbikes much as you would a street motorcycle, leaning inside the turn. Should you fall off the craft, it is self-righting. Presently, there are two models to choose from: the original Silver Streak and the newer, sporty Tom Cat. The two machines are similar except for three changes in the Tom Cat. Visions of Tom Cruise and *Top Gun* come to play in the designing of this latest wetbike. It has an improved water scoop, which improves the performance by increasing the flow of water into the jet drive. A newly designed inlet fairing also adds to the performance. And the custom paint job and graphics add to that high-performance look. For information, contact UltraNautics Corporation Sales Department, 620 West Hueneme Road, Oxnard, CA 93033. The phone number is 805-986-4812. The suggested retail prices are $3,995 for the Silver Streak and $4,339 for the Tom Cat.

WetJet International, LTD

This Paynesville, Minnesota, company has produced the WetJet for the last four years. What makes this personal watercraft different is its tri-hull design that causes the craft to plane, creating a 9-inch wide "rail" that runs from the bow to the back of the boat. This, according to the company, gives the boat a great amount of stability and turning ability even at relatively low speeds. With a 428cc water-cooled engine and 340 pounds of thrust, this jet-powered craft can top out at 37 mph.

The WetJet should be registered as an 8-foot inboard. This puts it in a standard marine classification for insurance purposes and should result in a much lower rate than some other personal watercraft. For the dealer nearest you and for other information, write to WetJet Watercraft, 108 Mill Street East, Paynesville, Minnesota 56362-1705. The phone number is 612-243-3311. The suggested retail price is $3,795.

Shopping around and matching the features of personal watercraft to your needs is the way to get the most for your money.

Progressive Power Corporation

From Janesville, Wisconsin, comes one of the most unusual personal watercraft, the Surf-Jet. Far from the crashing waves of either coastline, this company has come up with an idea that once would have been possible to pull off only in southern California. It's a surfboard, and you don't even need to find the perfect curling wave—which might be hard to do on Lake Erie, but downright impossible on the Allegheny. With its own jet pump, any river or lake will do. Just hop aboard, hold onto the tethered handle and let her rip.

There are three motor-driven, jet-propelled versions of the Surf-Jet: the Malibu, which retails at $1,995; the Freestyle at $2,295, and the Pacifica for $2,395. All are powered by a 15 hp, 2-cycle, 2-cylinder marine engine, which pumps out 130 pounds of thrust for a wild ride at 30 miles an hour. You control the speed with a hand-held hydraulic throttle. If the rider should fall off, a safety-tether kill switch automatically shuts off the motor.

If you have never surfed, this machine can be a challenge. The maneuvers are basically the same, but you don't have to travel to the coast in search of a wave. The boards are only 30 inches wide and weigh only 120-130 pounds. For more information about the dealer nearest you, call 608-752-7873.

Fazer Marine

Out of Jacksonville, Florida, comes the Fazer, a craft that looks like something Miami Vice's Sonny Crockett or Buck Rogers would ride. Sleek-hulled, double-sponsoned, the futuristic-looking boat will be a hit with both water sport and ATV fans. The hand-laminated fiberglass hull is designed for strength. With a draft of only 4 inches, a rider can get under way in only one inch of water. The 430cc liquid-cooled engine puts out a respectable 340 pounds of thrust. At 42.5 inches wide and 95 inches in length, the Fazer handles excellently in a straight line. However, the 25-inch profile and front-heavy design can cause nose plowing in turns. But with a bit of body english and a light touch on the handlebar, the nose will stay up and the craft planes easily enough. The suggested retail price is $3,695. For more information, contact Werks Marine, Inc., at 904-641-7167. There's also a toll free number: 800-458-1904.

Bombardier

Even before Kawasaki and the Jet Ski, there was Bombardier and the Sea-Doo. Unlike Kawasaki, Bombardier decided back in 1969 to drop the "water scooter" product and concentrate on its Ski-Doo snowmobiles and Can-Am motorcycles. Now, with the ever-increasing personal watercraft market, they have re-released the Sea-Doo. The Sea-Doo's graceful lines and power come from the combined technologies of two countries. The craft is powered by an Austrian Rotax engine that was developed by the Canadian Bombardier Company. Within the sleek fiberglass hull beats the heart of a powerful 580cc, twin-cylinder powerhouse. Jet-powered, the Sea-Doo is designed to right itself if turned over. The company hopes that it will appeal to those who demand high-performance and to the leisure-craft types as well. The Sea-Doo can carry two aboard.

The suggested retail price is $4,199 US, $6,800 Canadian. For information, contact the Bombardier Marine Products Division, 701 Meloche Avenue, Dorval, Quebec Canada, H9P-2S4. The phone number is 514-636-5994.

Water Ventures

When getting some place in a hurry isn't important, when flash and flare are passe', when "cute" is okay, then the Toobie is what you're looking for. It resembles a backyard plastic pool, but it gets under way. The Toobie was designed for the inexperienced boater in mind, but anyone can have fun with this colorful little craft. It comes in three designs. There's a Glass Bottom Toobie. The bottom is built of scratch-resistant Tuffak. Then there's the SportBoat Toobie, which allows great maneuverability with its steering wheel mechanism. And for the completely fun-oriented individual, there's the Jacozy Toobie, a portable boat that is outfitted with two built-in water jets and a heater!

You can choose your style and your colors, but all Toobies come in just one size. They weigh only 110 pounds; when inflated they are 7.5 feet long with a 5.5-foot beam. The Toobies can accommodate two people comfortably.

With a hull within a hull, they are designed with safety in mind. The foam-injected hull is a safety feature offered in high-performance boats, and its innertube provides a stability that makes the craft almost impossible to capsize. For more information, contact Water Ventures, 18141 Beach Blvd., Suite 370 Huntingdon Beach, CA 92648. The phone number is 714-848-1686.

Aquapro

This Missouri-based company manufacturers the FASTRAC, a boat that has features not found on other personal watercraft. To name just one: it has a reverse gear. This could be handy if you're interested in fishing, which is possible due to the boat's stability. Fastrac comes in two standard models: the 500 and 600 series. The deluxe models are the 502 and 602, which have additional instrumentation.

For personal watercraft, the Fastrac is huge. At over 9½ feet long, it weighs in at a hefty 375 pounds, and has a 60 horsepower AMW power plant. The flat-bottomed hull tends to make the Fastrac spin easily in sharp turns. This isn't necessarily bad; in fact, it can be lots of fun. It can be controlled with a little weight shift and less handlebar pressure, though. Under the long seat there is room to store an ice chest and other gear.

For additional information and to find the dealer near you, contact: Aquapro Incorporated, P.O. Box 947, Springfield, MO 65803. The phone number is 417-862-9322.

Remember, whatever personal watercraft you decide on, Pennsylvania's boating rules apply to them, as well. There has been controversy in many states over the riding habits of personal watercraft enthusiasts. New Hampshire has already banned the craft from all but four lakes, due mainly to the riders' disregard for others who were trying to enjoy the same areas. Most of these craft are powerful machines that require care in handling and an understanding of the unique measures needed to ride them safely. At 35 to 40 miles per hour, riding a 300-pound jet-powered machine can be compared to turning loose a guided missile—it's only as smart as the brain operating it.

KIDS PAGE!

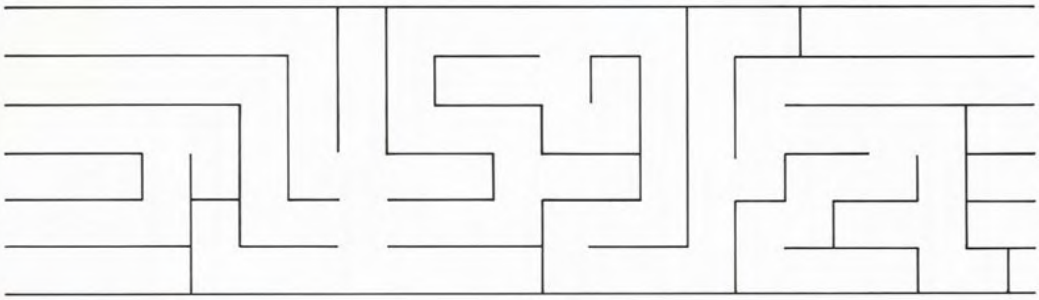
by Cheryl Kimerline

Which Way?

Fill in the blanks in the following sentences. Choose the answers from this list of words:

stern	**left (port)**	**midship**
bow	**right (starboard)**	

1. The person is sitting nearest the _____.
2. The dog is sitting _____.
3. The anchor is nearest the _____.
4. The picnic basket is on the _____ side.
5. The dog is facing the _____ side.



Fall Boating

Fall is a beautiful time to go boating. The waterways are almost deserted. The leaves are changing colors and waterways can be very peaceful. Here are a few safety tips to remember:

1. The water temperature is very cold, so dress warmly and in layers.
2. Wear your personal flotation device.
3. Know the water you are going to boat. The water level might be low so watch for obstructions such as rocks and logs.
4. Make sure your boat is not overloaded or overpowered.
5. Check the weather forecast.
6. Let someone know where you are going and when you will return.

Directions on a Boat

Away from shore, a boat is the reference for all directions. Otherwise, crew members would need a compass to know where the captain ordered them to go. The front of the boat is called the *bow.* The back of the boat is called the *stern.* All other directions are found by facing the boat bow.

The *starboard* side of the boat is the right side as you face forward. "Go forward" means walk toward the bow. "Go aft" means walk toward the stern. The *beam* is the widest part of the boat. The boat near the beam is called *amidships.*

Answers:
Which Way?
1. stern
2. midship
3. bow
4. starboard
5. port

graphics by Rose Boegli

Collapsible Boats

Space-Saving Craft for Space-Conscious Boaters

illustration by George Lavanish

by Richard Lebovitz

For small-car and RV owners who are unable to trailer a boat, apartment dwellers who don't have the space to store one, or big-boat owners who want a second boat for getting to out-of-the-way places, a collapsible boat could be the key to a whole new boating experience. These boats deflate, fold or come apart, assuming a size and shape that makes them conveniently stowable in a minimum amount of space. They are not playtoys either, but full-fledged craft that offer the same range of boating activities as their trailerable counterparts—fishing, cruising, wildlife watching, photography, water skiing, diving, camping, gunkholing, or just messing around.

Inflatables

Though inflatable boats enjoy wide popularity in Europe, where Zodiac first introduced them 50 years ago, many people in this country have yet to discover these versatile craft. In contrast to the leaky drugstore inflatables many of us grew up with, modern inflatables are made of durable, coated fabrics that are glued or electronically welded to make an airtight seam. Specially designed valves and multiple air chambers ensure that the air stays in. With a double-action foot pump, you can inflate one of these boats in less than 20 minutes.

For an all-arounder, a vee-bottom inflatable sportboat is hard to beat. These boats have a transom for mounting an outboard and a rigid floor to stand on. With their buoyancy located around the perimeter, they provide a stable platform with tremendous load capacity for their size.

These lightweight boats are quick to plane and accelerate rapidly with little horsepower. Their weight works as a disadvantage only in rough water or on windy days, when they're apt to get blown around a bit. A typical 10-foot sportboat weighs about 100 pounds and becomes a compact 42″×24″×12″ deflated.

If it's impossible or unsafe for you to store a small outboard and fuel tank, an inflatable kayak or sailboat is worth a look instead. Inflatable kayaks are the stock in trade of many outfitters, and they have been successfully used in a wide variety of conditions, from flatwater to Class IV whitewater to big-water touring.

Folding boats

The most common folding boats are the folding kayaks made by Feathercraft, Folbot, Klepper, and Nautiraid. Johann Klepper, a German tailor, introduced the first one in 1907. They consist of a collapsible wood or metal frame and fabric skin that can be stored in a couple of bags and assembled in about 20 minutes.

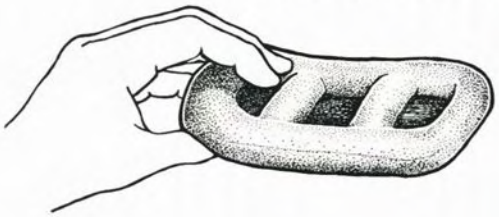
Kayaks are one- or two-person craft that can carry hundreds of pounds of gear in addition to their passenger load. Though they look tippy, a kayak with the paddler seated is a very stable, seaworthy and maneuverable craft. They have proved themselves in transatlantic passages and in use by the military.

The Sea Scamp dinghy, Otter Craft kayak, and Porta-Bote look like conventional boats when assembled, but their leakproof hinged joints allow them to fold into a narrow, flat package only a few inches thick. They have fewer parts than the skin and frame boats and take only a minute or so to assemble. These multi-purpose boats can be powered with a small outboard engine, rowed or sailed.

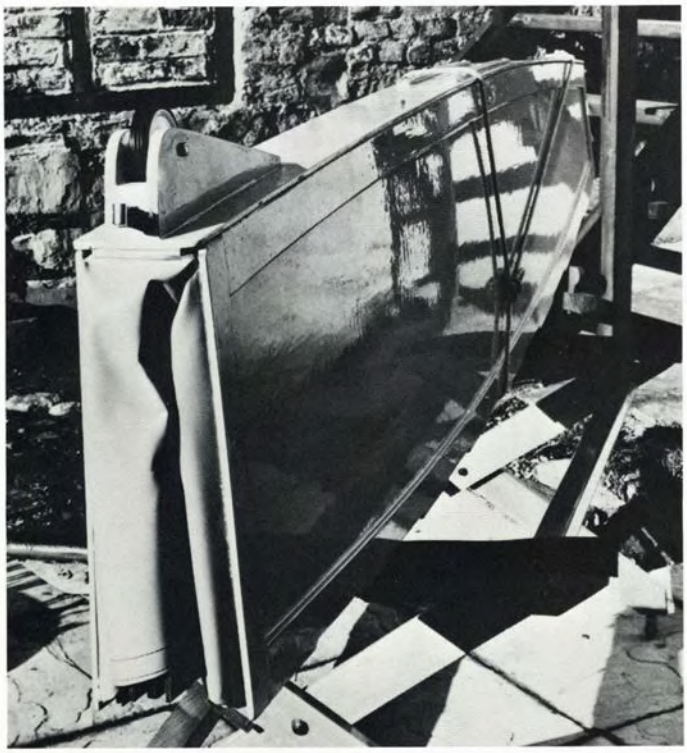
Sectional boats

A sectional boat is basically a whole boat cut into sections and reassembled so there are no leaks. After World War II, Edwin A. Link, inventor of the Link Flight Trainer, introduced a line of sectional boats that were sheathed in canvas to make

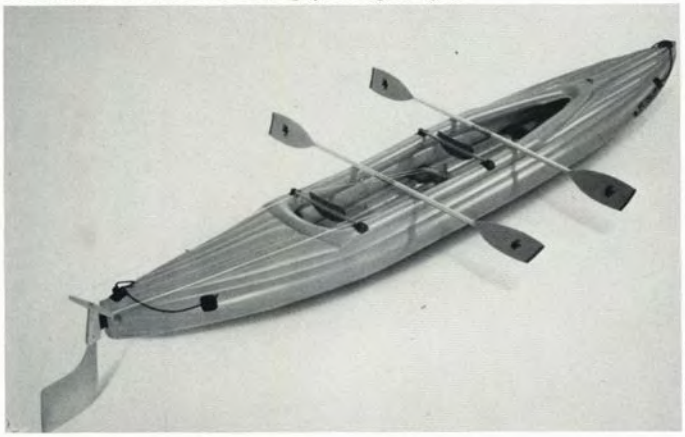
Inflatable boats have specific advantages for use in Pennsylvania waters. You can launch them in spots where you wouldn't launch a trailered boat, and you can take them where you could run aground or hit underwater obstables in a semivee. They are surprisingly stable, too.



Richard Lebovitz



Above, a wooden Sea Scamp folding dinghy.



Above, an inflatable kayak: surprisingly stable.

Above, a versatile inflatable sportboat.

them watertight. Today, most builders install a permanent bulkhead at the "open" end of each section and connect them with some type of sturdy locking mechanism.

The "take-a-part" sea kayaks from Easy Rider divide into three or more sections that can be stowed in duffle bags and carried like luggage. These fiberglass or Kevlar cousins of the Eskimo sealskin kayaks are fast, seaworthy craft capable of handling a wide variety of water conditions.

In contrast, the fiberglass StowAway and polypropylene Poly Tote Boat, which can hold 2-3 people, fold in half like a clamshell, creating a storage unit for gear or luggage.

Another type is the Nest*Egg, an 11-foot fiberglass dinghy whose nested halves fit into most vans and pickups. The similar Shearwater 10/4 divides into four sections, creating an even smaller nest. Large sails make these two multi-purpose boats capable sailing craft.

Rowing enthusiasts will like the Cape Horn Appledore, which can be equipped with a fixed or sliding seat. Adventurer Charlie Porter is presently using the versatile Appledore to explore the tip of South America. Its two sections, measuring less than 9-feet nested, can be used by the kids as diminutive, transom-sterned dinghies.

Prices for collapsible boats range from under $1,000 to over $3,000, depending on the model and number of options. All have their advantages and disadvantages. But if you contact the manufacturers for information and draw up a list of important features, you'll find just the right boat for your needs.

Richard Lebovitz is managing editor of Small Boat Journal, *a recreational boating magazine located in Bennington, Vermont.*

Buyer's Information

Britannia Boats Ltd. (Sea Scamp), PO Box 5033, Annapolis, MD 21403, (301) 269-6617.

Davard Marine Corp. (Shearwater), 21460 Encina Road, Topanga, CA 90290, (213) 455-3109.

Easy Rider Canoe & Kayak Co., PO Box 88108, Seattle, WA 98188, (206) 228-3633.

Ecomarine Ocean Kayak Centre (Nautiraid), 1668 Duranleau Street, Vancouver, B.C., Canada V6H 3S4, (604) 689-7575.

Feathercraft Products Ltd., 1334 Cartwright, Vancouver, B.C., Canada V6H 3R8, (604) 681-8437.

Folbot, Inc., PO Box 70877, Stark Industrial Park, Charleston, SC 29415, (803) 744-3483.

Inflatable Boat Association of America, c/o NMMA, 353 Lexington Avenue, New York, NY 10016, (212) 684-6622.

Klepper America, 34 Union Square West, New York, NY 10003, (212) 243-3428.

Martin Marine Co., Inc. (Cape Horn Appledore), Box 251, Goodwin Road, Kittery Point, ME 03905, (207) 439-1507.

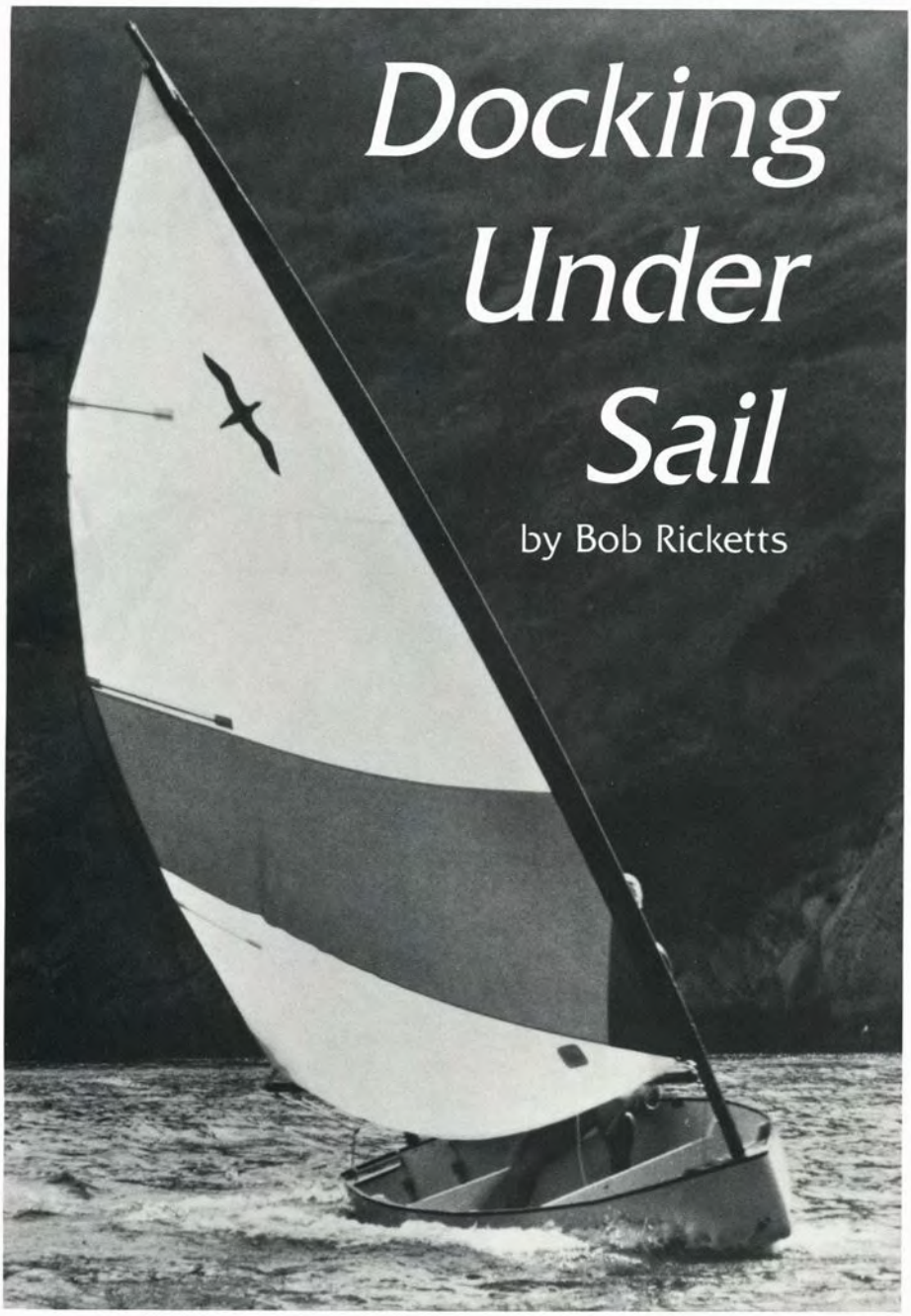
Starwing (Nest*Egg), PO Box 137, Bristol, RI 02809, (401) 254-0670.

Otter Craft, Inc., PO Box 1083, Grants Pass, OR 97526, (503) 479-3786.

Poly Tote Boat, 4401 East Hearn Road, Phoenix, AZ 85032, (602) 265-2436.

Porta-Bote International, 1074 Independence Avenue, Mountain View, CA 94043, (415) 961-5334.

StowAway Inc., PO Box 15419, Surfside Beach, SC 29587, (800) 826-9323.



Docking Under Sail

by Bob Ricketts

Following the four Ps—Planning Prevents Poor Performance—is a must for all skippers.

All good sailing days must come to an end, and "the end" is the return sail to the marina and docking your sailboat. Docking a sailboat is not an easy task. It's one maneuver that must be done with caution. The famous "Captain Murphy" (as in Murphy's Law) is always lurking to make the docking maneuvers as difficult as possible. Consider how to plan and dock the sailboat under sail.

One of the most important aspects of docking a sailboat is to understand and minimize the effects of Captain Murphy. What can go wrong when docking a sailboat? Everything! Every boater decides to return to the marina at the same time or the light winds all of a sudden grow to hurricane strength. Sometimes the mainsail refuses to drop because the halyard is tangled with the life jackets or the skipper becomes too demanding and the crew forgets everything they learned about sailing.

However or whenever Captain Murphy strikes, the skipper has to be prepared for disaster and know how to avoid the worst. Following the four P's—Planning Prevents Poor Performance—is a must for all skippers.

Getting ready

Long before entering the marina, all non-essential gear should be stowed properly and the crew informed about how the docking maneuver will take place and what the specific responsibilities are of each crew member. The crew should have all the necessary gear including dock lines, fenders, paddles and the boathook ready for the dock landing. The halyards should be ready to drop the sails and depending on the sailing rig, the jib sail should be furled before entering the dock area.

The mainsail is the preferred sail to use during dock landings because it is directly controlled by the skipper and will luff easier than the jib sail. If the sailboat has an engine, it should be started before the final approach to the dock. Most important, the skipper should communicate the docking plan and be able to "direct" the crew to carry out the docking procedure. Not until the boat and crew have completed all the planning is the boat ready to approach the dock.

Wind direction

Docking under sail is often made much more difficult than it actually is. Understanding the wind direction and how the boat will carry into the wind (its momen-

Davard Marine

tum) is the key to a successful dock landing. The skipper should know how easily the boat will luff under the windward points of sail. Many accidents occur to people and boats when docking because the boat's speed or momentum is too fast. Remember that slow speeds are a must for safe docking maneuvers.

Look over the following series of diagrams that illustrate dock landings under three different wind conditions.

Series I. The wind is blowing the boat onto the dock.

Sheet in and head up into the wind.

Allow the sails to luff as soon as possible.

Drop the sails quickly.

Prepare to fend off, with fenders, as the wind pushes the boat onto the dock.

Secure the boat to the dock with a bow, stern and spring lines.

It is not critical to get close to the dock because the wind will push the boat onto the dock.

Series II. The wind is blowing the boat away from the dock.

Sail as close to the dock as possible (remember momentum).

Luff the mainsail (don't lower the sail in case the boat is too far from the dock and you have to make another approach).

Allow for enough momentum to carry the boat to the dock. Have a line ready to attach to the dock. After the boat is secured, drop the mainsail.

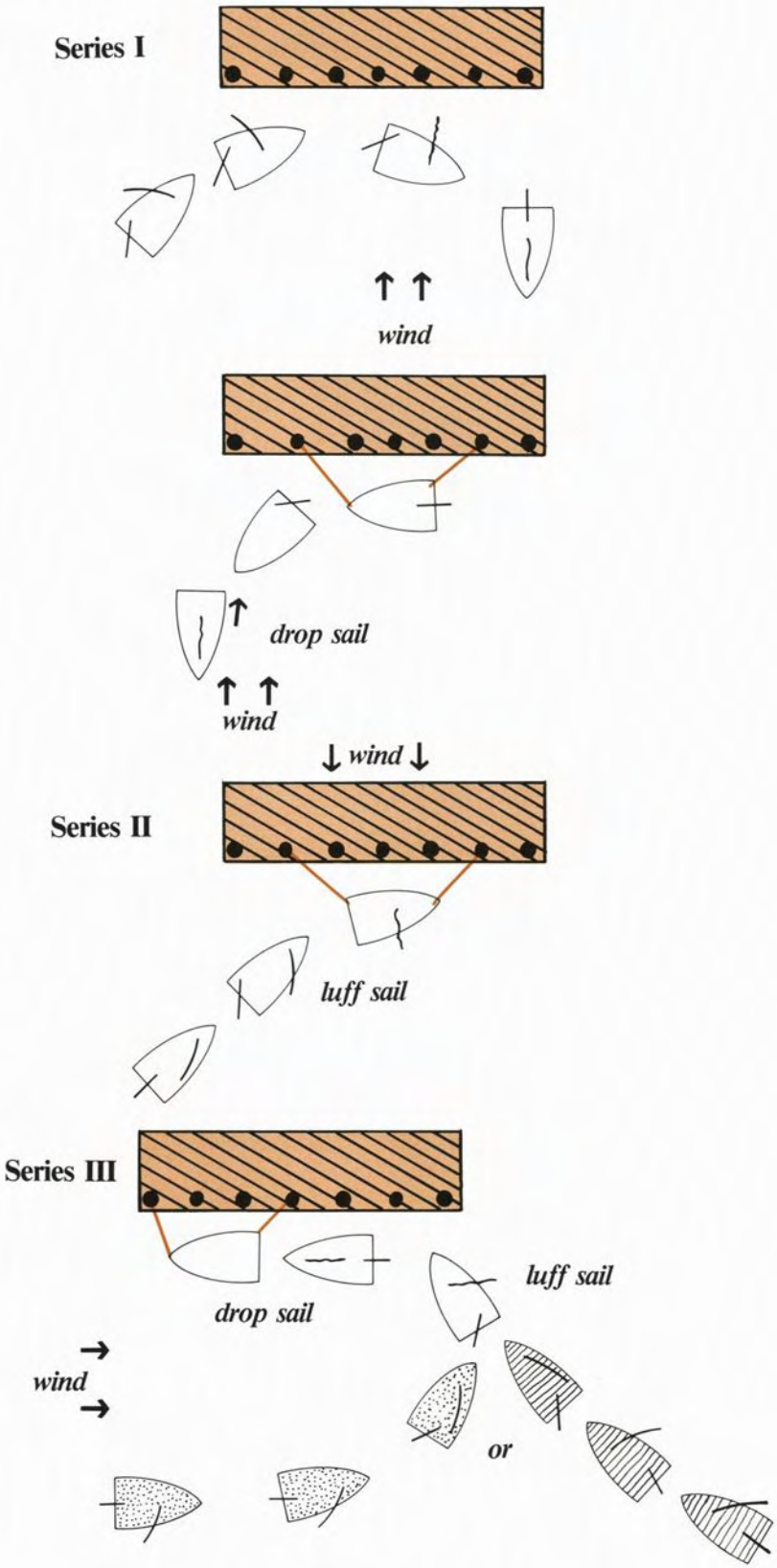
Series III. The wind is blowing across the dock.

Sail up the dock on a close reach.

Luff the mainsail as you head up into the wind.

Drop the mainsail after a line is secured to the dock.

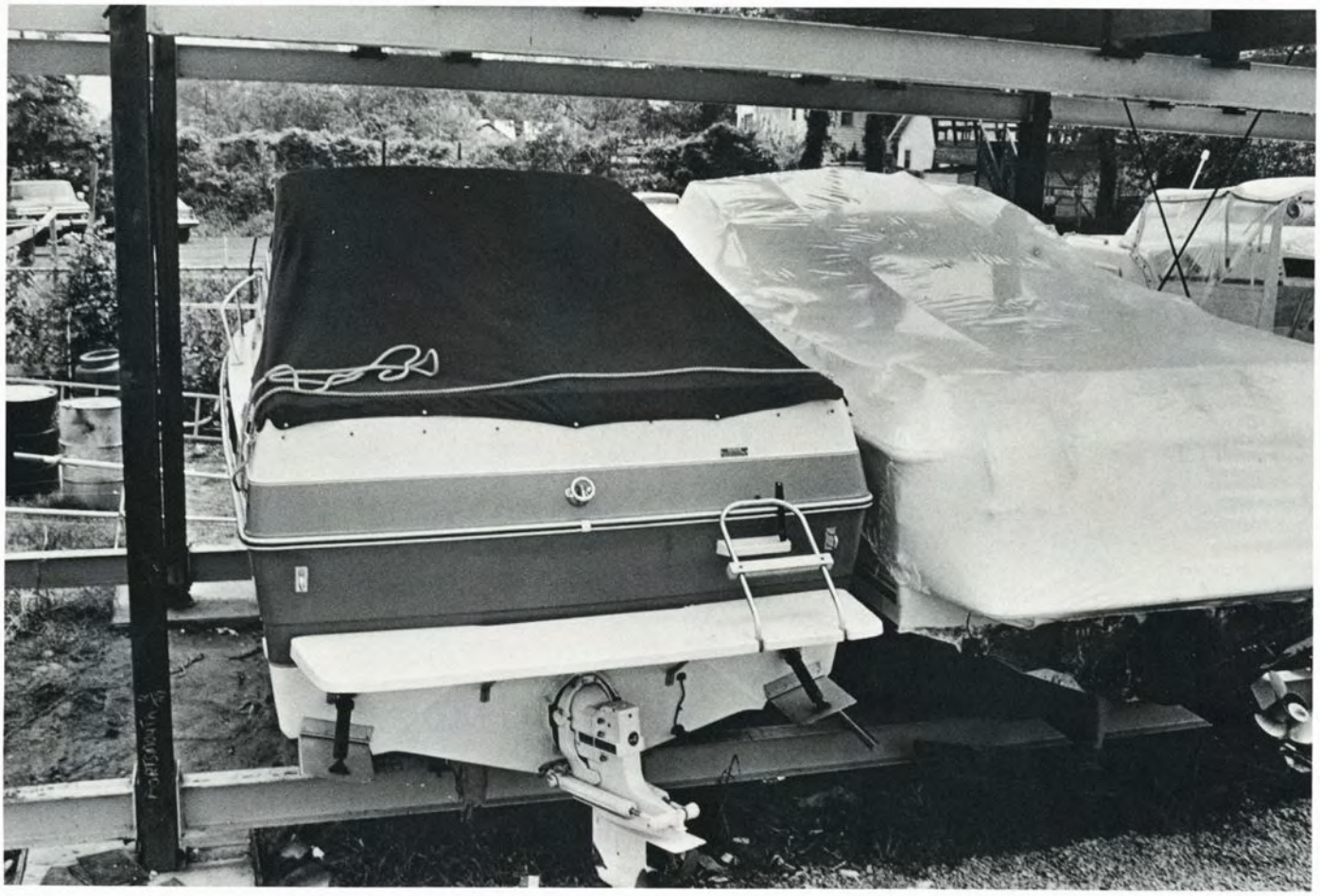
Docking a sailboat depends on the skipper's skill in maneuvering the boat, understanding the wind and communicating with the crew. Remember the four P's and Captain Murphy's most famous maritime law: Your dock landing will be perfect when nobody is standing by to watch and terrible when the dock is crowded with people. Avoid the latter, and practice docking landings under all wind conditions whenever possible. Don't let a beautiful day of sailing be spoiled by a poor dock landing.



Bob Ricketts, D.Ed., is a faculty member at Penn State University and spends much of his summer teaching sailing in Pennsylvania and on Chesapeake Bay.

graphics by Rose Boegli

Equipment Storage in Winter



Above, removing radios, compasses and other gear and storing the items indoors keeps them in better shape for next season.

Stephen Knox

by Stephen Knox

During the cold winter months, boating is the last thing on our minds. Though winter is hard on boaters who are forced to wait for spring, it is even harder on equipment that is left to languish in a boat. A few minutes time spent caring for your equipment now can make sure everything is still ready to go next spring when you are ready to go.

As a general rule, anything that can be removed from the boat should be removed. Even though your boat may have a winter cover, the loose equipment will stay in better condition and be more secure if you remove it and carry it home. Of course, if you are fortunate enough to have secure inside winter storage for your boat, then you can leave most of the equipment on board.

Outboard engines are one of the most likely pieces of equipment to be damaged or stolen over the winter. If your engine is small enough to remove from the boat and store in the garage at home, you should certainly do so.

Outboards

As a minimum, you should connect a garden hose to your outboard and run clean water through the cooling system. If there is danger of the engine freezing, the water should either be drained or you should drop a short length of garden hose in a bucket of antifreeze solution and run the solution through the engine.

In either case, shut down the engine by fogging the carburetor with oil. Fogging oil is available at any marine supply store. You will find directions on the can.

Winter is also the ideal time to do annual maintenance on your outboard, such as a tune-up or changing the oil in the lower unit. If you prefer to have a professional do your annual maintenance, carry your outboard to him in the fall. That way, he will have plenty of time to do the work and have the engine back to you in the spring. Not only will he appreciate the extra time to do the work, but he will undoubtedly do a better job because he will not be in a hurry as he would in the spring.

Pack up all your boat's safety equipment, carry it home and examine it at your leisure during the long winter months.

Batteries, fuel tanks

Batteries are also subject to damage from freezing if the charge is low. Remove your boat's batteries and carry them home for winter storage. Add water as required, charge the batteries fully, and store them in a cool location (a basement is ideal). About halfway through the winter, check the water again and recharge the batteries. Just before you install them on the boat, top the water off again and recharge the batteries.

If your boat has portable fuel tanks, they are also best removed for the winter. Like all fuel tanks, portable tanks should be stored completely empty or completely full. If you choose to empty your tank, leave the fill cap open so that any water in the tank will evaporate and dry over the winter.

If the tank is stored half full with the cap on, water may condense on the inside of the tank throughout the winter.

If you store your tanks full, add a gasoline stabilizer so the gas can still be usable in the spring. Such gasoline additives are available at any automotive parts store or marine supply store.

While your portable fuel tank is removed from the boat, examine carefully to see if there is any rust forming on the bottom. Clean and touch up the paint job as required. A leak in the gas tank is dangerous. Only a few minutes of inspection every fall can keep yours in top shape.

Anchor, rode

Though your anchor and rode would probably be none the worse for spending the winter on the boat, you should remove it if there is any possibility it could be stolen during the winter. Either way, wash off any mud that may have accumulated on the anchor or rode during the season. Dry it thoroughly and then store them for the winter.

Examine the chain for rust. Check the shackle to make sure it is still tight and that the lock wire is still in place. Check the thimble of the nylon portion of the rode. If the rode has carried a heavy load during the season, the line may have stretched enough so that it rolled out of the thimble. Also check the rode for chaffing and abrasion.

Do not store nylon line (anchor rode or dock lines) where they will be exposed to sunlight. Ultraviolet light causes a slow degradation of nylon fibers. More importantly, if the line is left exposed to the weather, it will stiffen and become harder to handle.

If your anchor rode or dock lines are stiff and hard to handle, soak them overnight in a bucket of fabric softener. Use a concentration of two to three times that recommended for normal laundry.

Even though this radio is protected from the elements, it is exposed to the eyes of passers by. Electronics that are left like this often grow legs during the winter.

Stephen Knox

Inboards

If you have an inboard engine, fall is the logical time to change the engine oil. Most owners put this chore off until the spring. If you do, the dirty oil, and any corrosive combustion byproducts in it, will sit in the engine all winter. It is much better for your engine to sit all winter with clean oil.

Electronics, safety gear

Like some other equipment, your boat's electronics will probably not suffer from the cold but may be stolen. When you lay your boat up for the winter, remove all the electronics and carry them home for storage. If there is any doubt about the connections, label the wires as you disconnect each piece of equipment. Inspect each connection and clean the terminals as required.

Fall is also the ideal time to check your boat's safety equipment. Pack it all up in a box, carry it home, and then examine it at your leisure during the long winter months.

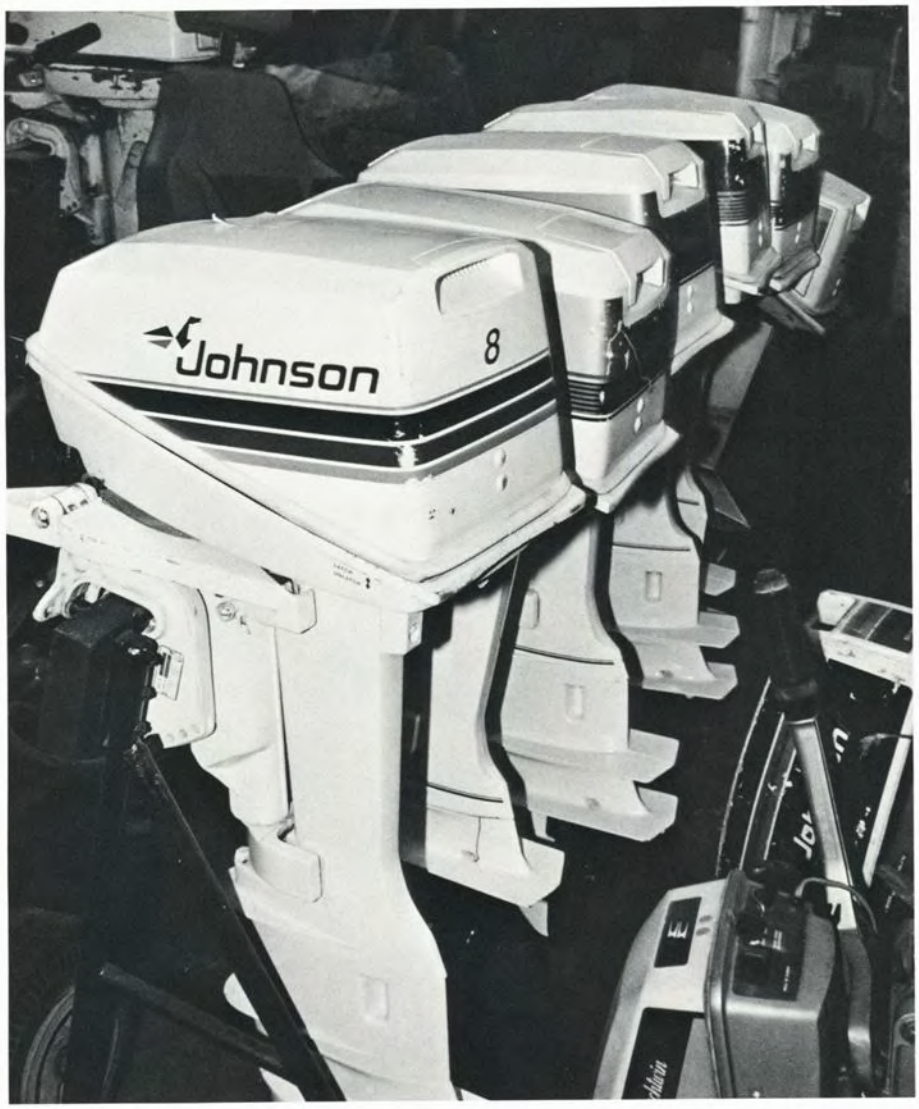
Check flares for the expiration dates. Replace any that have expired or that will expire during the next boating season. Do not discard expired flares. They are probably still good and will serve as spares.

Though Coast Guard approved flares are waterproof, replace any that show signs of water damage, such as the label peeling or the cardboard case starting to delaminate.

Similarly, replace any 12-gauge or 25-gauge launched flares if the primer pockets show signs of corrosion, even though they may not have expired.

Most marine fire extinguishers have a pressure gauge to show that the charge has not leaked. Check the gauges on your extinguishers to be sure that they are still in the green band. If your extinguishers do not have gauges, have them serviced by an approved agency just before the boating season starts. These extinguishers should be serviced every six months if they are in continuous use. Such service is generally expensive, so it would probably be cheaper in the long run just to replace those fire extinguishers with models that have gauges.

While you are thinking of your fire ex-



Stephen Knox

tinguishers, decide if you need to add one or more additional fire extinguishers. The Coast Guard minimum requirements are just that—minimum requirements. Every boat should have at least two fire extinguishers and even on a small boat, three can't be too many. If you ever have a fire, you will be amazed at how quickly one small fire extinguisher can be discharged.

The dry chemical extinguishing agent in most fire extinguishers tends to cake over a long period. When you check your fire extinguishers, turn each one upside down and give it a sharp blow with a plastic or rubber hammer. Then turn it right side up and bang the side of the extinguisher again.

If your boat has an inboard engine and you have installed a fixed halon extinguishing system, remove the halon bottle and have it checked by an authorized service company. Most of the fixed halon bottles do not have pressure gauges and should be serviced by an approved agency every six months. Have yours serviced just before the season starts and you should be all right for the entire season.

If you do not have a fixed halon fire extinguishing system in your gasoline inboard, you should. An automatic system in the engine compartment can significantly improve the fire protection aboard your boat. It might also qualify you for a reduced insurance premium.

PFDs

Life jackets tend to be packed into out-of-the-way corners and forgotten from season to season. Remove all life jackets from your boat and examine them carefully over the winter. Modern life jackets are almost indestructible. You should replace any, though, that are the least bit suspect.

Most inexpensive Type II life jackets are made using waterproof plastic bags filled with kapok. The kapok furnishes excellent flotation as long as it stays dry. If the kapok is exposed to moisture, it eventually absorbs water and loses its buoyancy.

If you have kapok life preservers, squeeze each side of the life preserver to ensure that the inside plastic bag is still watertight. Hold pressure on the bag for at least 3 seconds. If the bag slowly deflates, there is a leak and the life jacket should be discarded and replaced.

If you have life jackets (or any other gear, for that matter) that have been used in salt water, rinse them thoroughly with fresh water and allow them to dry before storage.

If you have lights on your life jackets, install fresh batteries just before you put the life jackets back on the boat in the spring.

Furthermore, all the batteries in your boat's equipment should be replaced just before the beginning of the season. Check flashlights, portable anchor lights, portable running lights, man overboard lights, portable AM/FM radios, and any other equipment containing batteries. If you replace the batteries every spring, the equipment will never fail you when you don't have spare batteries on hand.

Sails

If you have a sailboat, you should certainly remove the sails over the winter. After the last sail of the season, stretch the sails out on your lawn and hose them down with fresh water. After they dry thoroughly, fold them and store them in their bags for the winter.

If the sails show signs of damage, such as torn batten pockets, chaffed stitching, split seams or chaffed cloth, carry them to a sailmaker for repairs. Take them at the end of the sailing season so he will have plenty of time to make the necessary repairs before spring arrives. Sailmakers are swamped during the spring by sailors who have postponed repairs until the last minute before the season starts. Take your sails early and avoid the rush.

If you carry canned soft drinks or food aboard your boat, be sure to remove all cans when you lay up the boat. Not only will steel cans rust, but cans with liquid in them may freeze and burst over the winter.

If you have a porta-potti or holding tank, be sure that it is emptied and cleaned at the end of the season. It, too, could freeze and split.

Take a few minutes now to care for your equipment. When the spring comes, your recommissioning will be much easier and your boating season much safer.

Preventing Outboard Motor Trouble

by Virgil Chambers

Engine trouble tops the slate of the causes of difficulties aboard recreational boats. Fortunately, most engine trouble is a problem rather than an emergency, and difficulties can be overcome with a tool kit and some basic knowledge of troubleshooting.

Here are some common outboard motor problems.

Engine fails to start or engine loses power or stops while under way (engines are more likely not to start than to quit while running).

- Out of gas, gas is old, or the fuel system is contaminated.
- Check the valves of a portable fuel tank and the fuel line from the tank to the engine. Be sure the line is properly connected to the tank and to the engine.
- Check the battery connections.
- Loose wire in the ignition circuit. **Warning: An outboard engine's ignition system can cause a serious shock.**
- Fuel not reaching cylinders; check the on/off valve and the fuel line from the tank to the cylinders; check the fuel line under the engine cover; check the spark plugs to see if they are wet with fuel; if so, the engine is probably flooded.
- Overheating: If the engine is hot, the cooling system may be blocked, or the water pump may be worn out. Do not try to start an overheated engine; let it cool.

New outboard engines have water pump indicators, called telltales, that discharge a steady stream of water when the water pump is operating properly. If your engine's telltale isn't shooting a steady stream of water, shut off the engine and first check to see if the telltale hose is clogged before assuming that your engine's water pump is malfunctioning.

- Fouled spark plugs: Clean or replace them.
- Carburetor adjustment too lean or too rich.
- Improper oil-fuel mixture.

Engine seems to run well but lacks power while under way:

- Improper mounting.
- Incorrect tilt angle or improper load distribution.
- Fouled propeller or lower unit.
- Damaged prop blades or bushing assembly.
- Engine knock: Often caused by loose prop or loose fly wheel nut, by worn cylinder bearings, worn pistons, or by a broken engine mount spring. Generally, if the engine starts to knock, take it to the dealer. Knocking at high speed usually indicates a serious problem.

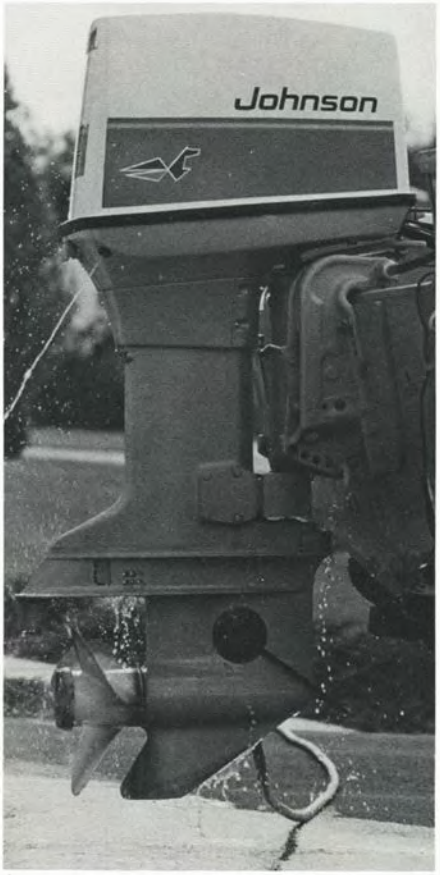
You could experience many more problems that are not listed here, but these are the most typical. There are also particular concerns that may be special to your make and model of outboard. This information is addressed in the owner's manual, which you should keep aboard your boat while you're on the water.

Proper maintenance and care can eliminate most of these problems, and can help you minimize your overall operating expenses.

Here are some ideas on engine tune-up and maintenance that can help you get maximum performance and enjoyment from your outboard motor.

- Lubrication: Check grease requirements and change the oil as suggested in the owner's manual.
- Fuel system check: Fuel filters should be replaced periodically, and carburetors need routine adjustment. Both are necessary to obtain peak performance from the engine.
- Spark plugs and ignition system: These items are subject to wear and contamination, and should be checked regularly.
- Propellers: Props are subject to various underwater hazards, so for maximum performance, service, straighten or replace your prop when necessary.
- Water pump wear: These parts are subject to various amounts of wear, depending on water conditions. Your dealer can tell you how often these parts need replacing in your area.

Remember that normal maintenance is your responsibility as the owner-operator of the craft, and proper operation of the engine enhances its life span.



Art Michaels

Difficulties can be overcome with a tool kit and some basic knowledge of troubleshooting.

Turns

by Cliff Jacobson

Autumn mist on a favorite Pennsylvania river—time for one last paddle trip before the snows of winter numb your memories of running water. Paddling bow on this run is a friend who lacks your paddle skill but shares your love of determined currents and light whitewater. Admittedly, control up front is shaky. But no matter; the river is forgiving. A good stern rudder will get you through.

Don't you believe it! Canoeing in currents—indeed, on any water—is a coordinated effort, one which requires equal skill at both ends of the canoe. The notion that the "captain rides in the stern" is heresy from a bygone day when whitewater was something you gawked at, photographed and then reverently portaged around.

Today, we confidently paddle rapids that were once considered the realm of fools and experts. But we don't "steer" around obstacles! Canoes are "sidewheelers"—a tail rudder is effective only when the power is on. Even then, the right move up front is always a better, more powerful idea. Thus, the bow initiates turns, the stern follows suit—just like a hook and ladder fire truck. It's all a matter of timing and of matching your strokes to the moods of the river.

Here are the basic turning procedures, all of which are programmed by current speed, paddle blade position and "togetherness."

The sweeps

The sweep is the easiest of the turning strokes, and the one recommended in most traditional flatwater canoeing books. That's too bad, because the stroke is not very effective. Graceful? Yes. Powerful, no! Sweeping water around the hull in a wide arc does turn the craft but it also induces forward motion—exactly what you don't want when a rock suddenly

The bow initiates turns, the stern follows suit—just like a hook and ladder fire truck. It's all a matter of timing and matching your strokes to the moods of the river.

Cliff Jacobson

looms ahead. Nonetheless, sweeps are useful for spooning on quiet water, and any time you're paddling alone. The diagrams are self-explanatory.

By combining a reverse sweep in the bow with a forward sweep in the stern, the canoe will pivot handily on its midpoint, assuming you're paddling on opposite sides of the boat.

Draw

Here's a grand turning stroke that makes both bow and stern a veritable horsepower machine, especially in currents and aerated water.

Execute the draw from a kneeling or well-braced sitting position. Reach as far out as you can and power the paddle inward, forcing water under the canoe. Don't splash the side of the hull! When the paddle comes to within a half-foot of the boat, slice it out (backwards and up) and draw again.

The draw is not a namby-pamby maneuver. It requires real muscle english, so put your whole body into it. You'll quickly discover that the stroke has a righting (bracing) effect on the power. You can lean far out over the side during execution of the draw, but you must re-center your weight as soon as you stop pulling, or you'll capsize. The draw is the stroke to use in strong currents and when crossing eddy lines.

DRAW

Cross draw

Same as the draw, only done by the bow person on the "off" paddling side. Wrench your shoulders a full 90 degrees, dip the blade, and pull! The bow will scoot handily in the direction of the cross draw.

This is your most powerful stroke for turning away from the bow person's paddle side when the canoe is under light power or no power. It is also the preferred way to spin a solo canoe full circle to the off side.

Note: The cross draw lacks the bracing action of the draw, so your weight must be centered throughout the power phase of the stroke. This is especially important when a cross draw at the bow is combined with a reverse sweep at the stern. Now, both partners are stroking on the same side of the canoe—a sure recipe for a capsize if they don't have their acts together.

Pry

The pry is simply a more powerful version of the old "push-away," recommended in the Red Cross canoeing manual. The stroke is commonly executed in both bow and stern. For greatest leverage, begin the stroke as close to the extreme end of the canoe as possible. Thus, the bow pry is started at the bow person's knee, while the stern pry begins far aft, as a basic rudder position.

Force the blade powerfully outward. Throw your body into it! Use a feathered underwater recovery to return the paddle to its starting position. The stroke is lightning-fast: Power out, feather in (underwater), power out again. The pry is usually applied in series. One application is seldom enough.

The pry does provide bracing action of sorts, and for this reason, it's preferred over the cross draw for use in heavy water. However, in shallow water, this deep-running stroke may hang up on rocks and capsize the canoe. The pry is also hard on paddle shafts and wood gunnels. For this reason, canoeists tend to prefer the cross draw for most applications.

PRY

Post

The post is a racing stroke, though one that works eminently

Illustrations—Gary "Ole" Ohlsen

CROSSOVER

well in a cruising canoe. Basically, it's nothing more than an open-faced, stationary draw. The stroke combines a powerful turning component with a solid brace (outrigger). It depends on a current differential to work, which means the faster you drive the canoe, the better the post turns.

The post is executed by the bow person. Get up some speed, reach out as you would for a draw, but open the leading edge of the paddle face about 30 degrees, and hold the paddle stationary in the water. The onrushing water will catch the "braced rudder" of the blade and turn the canoe snappily toward the paddle side. There's a good deal of force involved, so hold the stick like you mean it or the water will tear it from your hands.

Don't confuse the post with the traditional bow rudder, recommended in the Red Cross canoeing manual. In the latter stroke, the paddle shaft is braced solidly against the gunnel at an outward angle of about 45 degrees. In the post, it is held near vertical, some distance from the canoe—which means better bracing in the turn and more purchase in the water.

Again, remember that turns are best initiated by the bow and checked by the stern. This is why turning strokes like the draw, cross draw and post work so well.

Low brace, inside lean

The low brace functions as an outrigger to stabilize the canoe in turns, and to keep it from capsizing in heavy waves. It's a pure whitewater stroke, though one which has been modified for use in flat water. In its pure form, you reach far out, paddle laid nearly flat in the water, palm of top hand up. If you're capsizing, a powerful downward thrust will right you. The low brace is an essential stroke for stabilizing the canoe when crossing strong eddy lines.

It can also be modified as a pure flatwater turning stroke. Like the post, the low brace requires a current differential (or a powerful downward push) to produce results. The solution is to get up some steam before you apply the low brace. Now, modify the stroke by raising the leading edge of the blade slightly so that the paddle "climbs" in the water. Now, you've combined the turning component of the reverse sweep with the stabilizing action of the low brace. Add a cross draw up front, and the canoe will perform an instant wheelie—real slick and impressive to watch.

Outside lean

This sounds strange, but it really works. Power ahead, then lean the canoe (a few inches is sufficient) to the outside of the anticipated turn (opposite of what you'd do on a bicycle). If you hold the lean, the canoe will cut a nice arc in the opposite direction of the lean. Add a light pry at the end of your stern stroke, and you'll break the tail loose and skid the canoe full circle. Lone paddlers of decked slalom canoes sometimes use a counter lean to keep their skittish craft from turning away from their paddling side.

Caution: Don't use this maneuver for quick turns in rapids—you'll upset the canoe!

This short article can't do justice to the complexities of maneuvering canoes. Only practice in the hands of a competent tutor can do that. Making a canoe respond to your whims is a function of skill, not power. Put simply, you cannot overpower a river. You must learn to control it to your advantage. Practice these strokes. Granted, there are times when "muscle" is a welcome companion, but only when it is accompanied by paddle skill and knowledge of the river.

illustrations—Gary "Ole" Ohlsen

Dave Wolf

The Commission's Ninth Student Officer Class graduated June 3 from the H. R. Stackhouse School of Fishery Conservation and Watercraft Safety. Executive Director Edward R. Miller presided over the ceremony and Joan R. Plumly, Commission past-president, presented the graduates with their diplomas. The new WCOs are: (front row) Raymond A. Bednarchik, (second row left to right) William C. Carey, Paul A. Nosal, Jr., Jeffrey S. Bridi, (third row left to right) George J. Kavish, John Bowser, and Alan D. Robinson.—Sherri Akens

Prompton Reservoir Horsepower Limits Clarified

The Fish Commission is calling boaters' attention to the horsepower limits on Prompton Reservoir in Wayne County. Boats are limited to a maximum of 10 horsepower under a change brought about when the impoundment reverted to U.S. Army Corps of Engineers control from the state Department of Environmental Resources.

Boaters are cautioned that Fish Commission publications and other sources of printed material they may consult could provide outdated information, which indicated that horsepower was either unlimited or restricted to electric motors only on this 280-acre impoundment. Boaters are urged to check their boating summary book of regulations, which has been updated to include the correct information, and also to read any signs that may be posted along the lake. Waterways conservation officers will be enforcing the regulations that limit the use of motors to 10 horsepower or less.

Repairs

A new seal-coating made up of a coal-tar pitch mix is being used to repair several Commission boating access areas.

The seal-coating will be sprayed onto the access' asphalt surfaces and will provide added protection from everyday wear and tear.

The repairs on the access areas began in June and are scheduled for completion in September. The areas will be worked on during the week, Monday through Friday.

No repairs will be made on weekends, but temporary closure of the access areas may take place during repair time.

The following is a list of accesses at which repairs are scheduled.

Huntingdon County: Point Access.

Juniata County: Mahantango, Mifflintown, Muskrat Springs, Thompsontown and Walker accesses.

Lycoming County: Linden, Rose Valley Lake accesses (3 areas).

Mifflin County: Musser's Dam Access.

Northumberland County: Sunbury Access.

Montour County: Chillisquaque, Danville accesses.

Perry County: Amity Hall, Greenwood, Montgomery accesses.

Snyder County: Sunbury Access.—*Sherri Akens*

Drinking, Boating and the Law

Drinking, Boating and the Law is a newly revised and updated Fish Commission pamphlet that provides answers to the most commonly asked questions concerning boating and alcohol. The publication offers answers to questions such as: May I drink while on my boat? What is meant by "under the influence"? How many drinks will make me feel intoxicated? Is beer less intoxicating than whiskey? How will the law enforcement officer test me to determine if I am under the influence? Does the law enforcement officer require my permission to test my blood alcohol content? What happens if I am caught?

For a free copy, send a self-addressed, stamped business-sized envelope with requests to: Publications Section, Pennsylvania Fish Commission, P.O. Box 1673, Harrisburg, PA 17105-1673.

Shopping Tips for RV Buyers

Thinking about buying an RV? Here are a few tips that can help make your RV shopping easy.

To familiarize yourself with different RV types and brands, you may want to start with an RV buyer's guide. These guides categorize RVs by type, providing model and manufacturer's name, size specifications, standard and optional features, floor plans, construction details and photos. They also list suggested retail prices and give reader service information. Buyer's guides are available at libraries and bookstores.

RV camping and outdoor magazines are also good sources for comparing models and features, as are friends who already own RVs.

Next, visit your local RV dealer. Most have a variety of RV types and brands on their lots, giving you a selection of features and floor plans from which to choose.

Dealers also sponsor and support local RV shows, another excellent opportunity for RV shoppers to check out a variety of products and talk to a number of knowledgeable industry experts, all on the same day and in one location.

With five different types to choose from, there's an RV to fit every budget. New motorhomes average in price from $22,000 to $49,000. Travel trailers generally cost $13,000 to $17,000. Folding camping trailers and truck campers average $4,000 and $6,000, respectively. Used RVs, of course, cost far less.

RV financing options also make purchases easier. RVers are reliable buyers who enjoy their units and don't want to risk losing them. As a result, lenders make terms on RV loans longer and monthly payments more affordable.

New RV loans of 10 years or longer for larger loans are typical when dealers arrange financing. When borrowing directly from a bank, savings and loan associations or credit unions, loans generally extend five to seven years for a new unit. A loan for a used RV is more likely to span three to five years.

One final RV shopping tip: check for Recreation Vehicle Industry Association (RVIA) seals before buying. Ask your dealer to point out the oval or shield-shaped seal located on the exterior of the unit.

The oval seal on motorhomes, travel trailers, park trailers, truck campers and folding camping trailers means that the RV manufacturer is a member of RVIA, and certifies compliance with more than 500 safety specifications for electric, plumbing, heating and fire and life safety systems set by the American National Standards Institute.

The black and silver shield displayed on the exterior of van conversions means that the converter is an RVIA member and self-certifies compliance with Federal Motor Vehicle Safety Standards (FMVSS) and certain National Electrical Code (NEC) requirements. For lists of RV buyer's guides, enthusiast publications, local RV shows and other RV camping information, write: Go Camping America, Dept. P, P.O. Box 2669, Reston, VA 22090.

Community Sailing Programs Resource Book

Packed with 200-plus pages of facts and advice, the *Community Sailing Programs Resource Book* is now available, the result of a joint effort between the National Sailing Industry Association (NSIA) and the United States Yacht Racing Union (USYRU).

The *Resource Book* covers the how-tos of assembling a community sailing program, including equipment selection, maintenance, operations, staffing and facilities. It also includes nine case studies profiling sailing programs around the country. Sailboat manufacturers producing typical boats for training programs and national government bodies, individuals and organizations concerned with sailing are also listed.

The book is available for $25 from the NSIA, 401 North Michigan Avenue, Chicago, IL 60611, and from the USYRU, P.O. Box 209, Newport, RI 02840.

Inter-Bureau Training

Last June, Bureau of Education & Information and Bureau of Boating staffers (left) met at the Commission's Goldsboro Access, near Harrisburg, to exchange views, listen and learn from one another during a day-long session of inter-bureau training.

Brig Niagara *Restoration*

For those of you who have never seen a naval restoration, come to Erie, where the United States Brig *Niagara,* the only remaining vessel from the War of 1812, has been fully restored to its original glory.

The Commonwealth of Pennsylvania, through the Pennsylvania Historical and Museum Commission (PHMC), restored the *Niagara* in time for the 175th Anniversary of the Battle of Lake Erie—the battle in which Commodore Oliver Hazard Perry forced the surrender of the British Navy on September 10, 1813, and secured peace on the American-Canadian border. Perry's now-famous words, "We have met the enemy and they are ours . . . " were used in a letter to describe the conclusion of this famous naval victory.

The restoration was a sight to behold. The building site, on the waterfront of West Front Street, was full of activity as shipwrights from all across the United States joined international ship designer Melbourne Smith in the reconstruction, using the ship's original plans and specifications. Bill Elliott from Navato, California; Eric Johnson from Seattle, Washington; Matt Dyer from Gig Harbor, Washington; Steve Brake from Pembrooke, Maine; Rich Ventresco from San Lorenzo, California; Kent Taylor from Bonnie Lake, Washington; and lone hometown boy Fred Heidt, from Erie, worked from sunup to sundown on this historic project.

Many of these shipwrights worked together on restoration projects in California, and all were anxious to see the *Niagara* in the water under full sail. In watching these men, one saw a love of sailing and a love of the craft, which involved piecing a vessel together. They came from all corners of the country for one reason—the *Niagara.*

The process was tedious as the shipwrights took each plank and steamed it so that it covered the frames of the vessel and fit perfectly to the hull.

Launch date for the vessel was Saturday, September 10, and festivities included a military parade, boat regatta, official naval launch, memorial services to those who served in the War of 1812, and formal evening ball.

History was made again on Erie's waterfront. The art of early shipbuilding and the sense of excitement created by those involved in the process blended in a historic moment.—*Susan S. Cohen*

Olympic, World Cup Status for Canoe/Kayak Slalom

The American Canoe Association (ACA) says that Whitewater Slalom will be included in the 1992 Olympic Games in Barcelona, Spain, according to a telegram received from the president of the International Canoe Federation. This news comes 20 years after the first time whitewater slalom was in the Olympics, in Augsburg, West Germany, as part of the 1972 Munich Games.

The announcement coincides with the inauguration of an annual World Cup in whitewater canoe/kayak, starting with the 1988 season. The 1988 World Cup will consist of seven races in five countries.

Hopes of whitewater athletes for Olympic status seemed dashed at the time of the Calgary Winter Olympics when Juan Antonio Samaranch, president of the International Olympic Committee, announced that there would be no new sports or events in the 1992 Olympics. But the Spanish organizing committee for the Barcelona Games and the International Federation pressed hard for inclusion of the whitewater events. As in 1972, the strong support of the host city was crucial to the acceptance of the Whitewater Slalom proposal.

The news of Olympic status for whitewater canoe/kayak comes just as the United States, for the first time, is preparing to host the next World Championships in 1989. The World Championships will take place June 11-25, 1989, on the Savage River in Bloomington, Maryland. This year, on June 23-26, 1988, the Maryland International Canoe/Kayak Classic took place on the same Savage River site, as a Pre-World Championship and World Cup Race.

Getting Victims out of the Water

Virgil Chambers

by Virgil Chambers

Many times boating mishaps occur that initially do not appear to be serious. A fall or jump overboard by a passenger may be such an example. Should the person be injured or unconscious, however, you'd know immediately that this is an emergency. In any case, the problem of retrieving the person back aboard the boat is paramount.

There are techniques relying on simple equipment and basic skills that facilitate getting someone who is in the water on board your boat. To illustrate these techniques, consider different scenarios, and how you might rescue a victim with care, skill, and most of all, success.

Stirrup technique

Suppose you're not able to grab the person and pull the victim aboard. However, the person has the strength to hold onto a grab line or side of the craft. A method that lets an individual climb into a boat with little difficulty is the stirrup technique.

Quite simply, what you do is loop over the side a section of line or webbing length enough so that it hangs into the water. Secure the line at both ends approximately 3 to 4 feet apart inside the gunwale of the craft or on the grab line outside the gunwale. The victim then places his foot in the loop (stirrup) and swings the opposite leg up into the boat. Depending on the size of your boat, you may have to counterbalance the weight on the boarding side by staying low and having someone else in the craft lean in the other direction. With a minimum amount of assistance, he is in the boat.

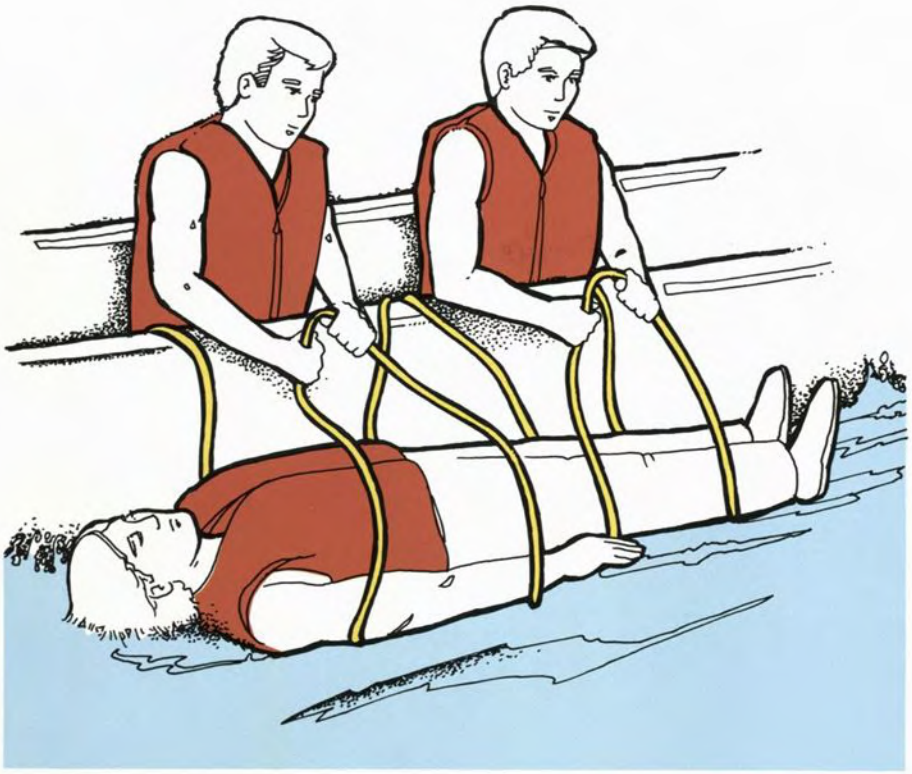


illustration — Ted Walke

Roll-aboard technique

Suppose you have an unconscious or exhausted individual in the water alongside your boat. He weighs too much just to pull onboard and he is too weak for the stirrup technique to work. You may be holding him afloat. Hopefully you can put a personal flotation device (PFD) on him, but you want to get him into the boat as soon as possible. How do you accomplish this?

You roll him up the side of the boat by way of a simulated pulley system. You use the person to create a mechanical advantage, which halves his weight.

If you place the person in a net or blanket, two people can roll him up, and the weight will be divided between them. You thus quartered his weight.

You should be sure that the top of the net or blanket is secured to the gunwale or inside the craft. Depending on the size of the net or blanket and the amount of freeboard, you may be able to stand or kneel on the top, anchoring it inside the craft. An unconscious victim should have his head tilted slightly down as he is rolled up. Water should then drain from his airway.

Unfortunately, you might not have a net or blanket when you need it most, but there is still another way.

If you have any rope or line aboard, (and what boat doesn't?) you can rig it to obtain the same mechanical advantage. Two persons using rope, or better yet, webbing, could easily lift someone from the water.

First, secure the ends of the rope or webbing to something stable inside the boat. Fasten the middle of the rope to the boat, and create two large loops, letting the loops drop into the water. This technique works best if the rope is nylon, because nylon line sinks, letting you manipulate the line more easily underneath the victim.

The individual is positioned on the loops. The lines of the loops are placed under his upper back, one under his waist, one under his hips and one just below his knees. You may have to place a rescuer in the water to position the line properly. The victim's arms should be kept inside the loops, and be sure the rope under his upper back doesn't slip under his neck. You don't want to choke him!

Both rescuers can now pull the loops carefully, reaching across to grab the loops as you roll the person onto the boat. You'll have to be careful and pull more on the ropes near the head to be sure he remains level, or slightly head-down to drain his airway.

You can even lift someone by yourself. Most people can roll someone up if the victim is their weight or less because the actual weight lifted is only half the weight of the rescuer. For the one-person lift, the ropes should be placed under the middle of the victim's back and under the victim's thighs. Remember that nylon webbing is easier to use if you have it available.

This technique works well for a conscious person who can stiffen his body. However, it may not work as well for one person lifting an unconscious person.

Because a boat rocks with the waves, a person may be injured by swinging into the hull. If he is rolled up quickly at the right time, this danger can be minimized. If an air mattress is available, it may be rigged like the net or blanket. Partially inflated, it can serve as a cushion. Unless the air mattress is wide, or two are used in tandem, take care to be sure that the person doesn't slip out.

You can obtain the same mechanical advantage using anything available that will not tear. Equipment such as a tarpaulin, hammock, sail or even a garden hose that is often found at boat piers and slips will work.

There is one problem with using any non-porous material. Puddles of water may collect and add weight to be lifted. More important, however, such water might be inhaled by an unconscious victim. To prevent this puddling, keep the person at a slight angle, head-up during the roll-aboard procedure.

Try these techniques. With practice you'll be surprised how easily you can roll someone up from the water. You can try lifting each other out of the water onto a pool deck. When you are confident in your ability in a pool, practice in open water. Waves, currents, cold water, and large boats make a big difference.

Understanding these simple techniques combined with practice could let you save a life.

Virgil Chambers is chief of the Boating Safety and Education Division in the Commission Bureau of Boating.

Water-n-Kids

by Cheryl Kimerline

Several early-morning fishermen lined the banks of the peaceful lake. The haze just started to lift as the sun came out. There were a few boats out on the lake. The tranquil silence was broken by screaming voices and a rattling noise coming up the road. A white van towing a large trailer filled with aluminum canoes came into view. Following closely were two yellow buses filled with noisy children. As the vehicles pulled into the parking lot, the Pennsylvania Fish Commission logo became apparent on the side of the van.

Several fishermen rushed over to see if fish were being stocked in the lake. When they heard "no," they curiously hung around to see what was going to be done. The kids started swarming from the buses and veered toward the water. Immediately they ran out, jumped in the water and began splashing each other. The Fish Commission personnel hopped out of the van and rounded up the children. These Commission personnel were the employees from the Bureau of Boating.

Heidi Hornberger, our summer intern and designated drill sergeant for the day, ran down and got them out of the water. The kids were barely controllable as they excitedly ran around with pent-up nervous energy. They chattered in anticipation of being on the water all day. As Heidi tried to keep their voices down to a subdued roar, she divided them into two groups. Heidi and Terry Christy, our summer employee, started one group unloading canoes and demonstrating how to carry canoes as they went. The children charged down to the water, arguing about who got to canoe together.

While Heidi and Terry's group was busy unloading, I started to teach the other group about personal flotation devices (PFDs), water safety and basic rescue techniques.

I taught the children how to look at the label on a PFD to check its size. PFDs should be bought to fit just like clothing. They come in all assorted sizes, shapes and colors. If you do not like your PFD, you will not wear it! Choose them carefully! If a PFD is too small, it may not float you above the surface. If it is too large, it may float up over your head and come off. PFDs should always be worn correctly with the buckles fastened and zippers zipped up.

When I asked the students how to wear a Type IV seat cushion, they suggested to wear it on your back like a backpack. I carefully explained that if worn this way, the seat cushion would creep up over the head and force it underwater. A seat cushion floating on the surface would be the only thing visible because you would be trapped floating underneath.

Seat cushions should be correctly used by hugging them next to your stomach with your arms through the straps or by putting an alternate arm and leg through the strap.

When asked how to see if a PFD would float, one of the children said, "Jump in the water." I pointed out that if they were in a boating accident and the boat sank, they would not want to jump in the water to see if they would float.

PFDs should be checked on land before getting into the water to see if they float. PFDs must be U. S. Coast Guard approved. This can be checked by looking at the label. PFDs should also be checked to make sure that they do not have any broken zippers, tears or missing straps.

I also took along my float coat, which I use as my regular winter jacket. I told one of the students to see if it floated. He excitedly got ready to jump in the water when a buddy stopped him and checked the label to make sure it was a PFD. It was, so he jumped in the water, went briefly under the surface and came back up, bobbing like a cork, wearing a grin from ear to ear.

Dave Wolf

I asked the children who had to wear PFDs in Pennsylvania. They yelled "everyone." I said that unfortunately many boaters do not think that PFDs are that important. When boaters leave for a day on the water, they seldom expect to end up in the water, so they do not wear a PFD. PFDs are present but not worn or accessible in 75 percent of Pennsylvania's boating fatalities.

The experienced boater and professional wear well-fitted PFDs. Bass fishermen wear a PFD when participating in a fishing tournament. Experienced canoeists and kayakers wear PFDs. Sailors in races and whitewater rafters wear PFDs. These boaters realize that they could end up in the water.

The law states that children under nine years of age and non-swimmers must wear PFDs on Pennsylvania Fish Commission and Bureau of State Parks waters. All boaters will be safer when they realize the importance of PFDs and start to wear them.

Skits

The children then performed a variety of skits. The first included two volunteers, Danny and Betty. They sat down in chairs facing their classmates. Betty pretended to be the boat operator and put on a captain's hat and sunglasses. Danny put on his first mate's hat and sunglasses, and started casting for fish.

I told the class that Betty and Danny were out boating for the day. They had planned to go swimming, fishing and picnicking. Betty was operating the boat and was heading to the beach. Suddenly, she saw a group of cute boys playing football. She swerved as she tried to get a closer look and drove into a rock pile. The rocks punched a hole in the boat bottom and it began to sink. Betty and Danny were not wearing PFDs, so they had to find them and quickly put them on.

I told the class that I was going to need their help. The students were getting louder and louder as they heckled Betty about looking at boys. To simulate the boating accident, I had the class yell, "One, two, three, crash!!"

Betty and Danny scrambled to find PFDs. They found two underneath the seats. One was a child's small and the other was an adult extra-large still in its original plastic wrapper. It took the children several minutes to get the PFDs out of the wrappers, untangled and put on. Unfortunately, because the PFDs were not the correct size, they may not have kept Betty and Danny afloat.

I pointed out that when a person unexpectedly ends up in the water, the victim generally has 10 seconds to make a life-or-death decision. It is very hard to put a PFD on while in the water because it takes all of your energy and skills to yell for help and to stay afloat. Most people without practice cannot put a PFD on while in the water.

Next, the students chose teams and lined up for a relay race. When the students heard the whistle, they had to run a short distance, correctly put on a PFD, run back and tag the next person in line. The next teammate did the same thing. The last person on the team had to run the distance, put on a PFD and wait to be rescued by his team. The teammates had to practice throwing ropes or rescue bags until their throws reached the "mock" victim so that they could pull him in. The first team with all its members safely behind the finish line won. After listening to their yelling, cheering and coaching, you would have thought that they were competing in the Olympics.

Now that everyone was feeling comfortable wearing PFDs, it was time for the water test. I lined the students up at the beach to check that the PFDs fit correctly. I had the children raise

their arms over their heads and I gave the PFDs a tug to make sure they would not pull off over their heads. They waded into the water so they would feel comfortable wearing a PFD. I demonstrated that the most efficient strokes to use when wearing a PFD were underhand strokes such as the modified breast stroke, side stroke and elementary back stroke.

Two tearful nonswimmers wouldn't go out past their knees. I talked them out into waist-deep water and had them sit down so they could feel the floating sensation. Soon they were out, comfortably floating in PFDs in the water over their heads. The students still had so much energy, I made them swim 200 yards wearing PFDs so that they would feel more comfortable in the water and so I could recharge my energy level to keep up with them.

Canoeing skills

The second group was briefed by Heidi Hornberger and Terry Christy on proper strokes, launching canoes, changing places and swamped canoe management. The students were given paddles on land and demonstrated the following strokes before getting on the water: forward, reverse, draw, pry, forward sweep and reverse sweep. The students had to move their bodies in the direction that the strokes were to move them.

Everyone should have been moving in the same direction, but there were so many movements, it looked like a modern dance step. It was obvious that they needed some work before putting on the water.

Terry next taught how to launch a canoe and change places. A canoe should never be boarded on dry land. It should be pushed into the water until it is not bridged (there is no gap between the land and the water). Terry held one end of the canoe while a student carefully entered the boat. The student kept low, stepped in the center of the canoe and held onto both sides as he carefully worked his way back. Once he was in, he carefully picked up the paddle and braced the canoe so that Terry could enter. Terry slowly boarded the boat, kneeled and picked up his paddle. They paddled out into the pond.

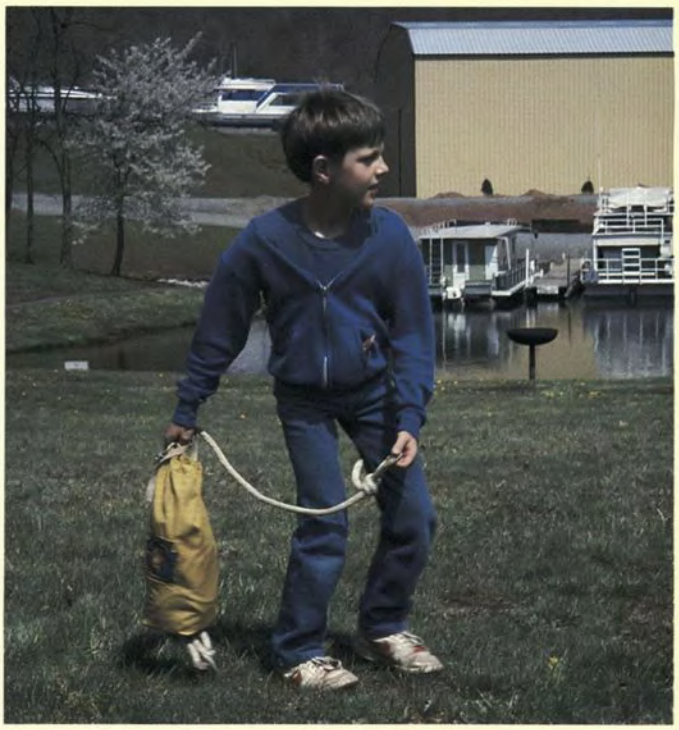
Meanwhile, Heidi described to the children how to exchange places in the canoe. Terry worked his way up to the middle of the canoe and then crouched down low. His partner slowly worked his way back, keeping low and with one hand on each gunnel, he carefully "leap-frogged" over Terry and moved back to take his seat. Terry moved to the front of the boat to take the bow position.

Heidi asked the children what to do if the boat capsized. Most said "swim to shore." Heidi said that most people drown 10 feet from safety.

Most boats float when capsized. She had Terry capsize his boat to demonstrate this. The canoe floated upright even when filled with water. Terry and his partner got on opposite sides of the canoe, counted to three and pulled themselves in. They sat in the bottom of the canoe (still filled with water) and hand paddled it back to shore.

Even full of water, the canoe could support their combined weight and be paddled back to shore. Heidi again stressed the importance of staying with the boat after an accident. The overturned boat can be easily spotted by rescue personnel or other boaters in a real accident. It provides additional flotation to keep you up out of the water and it helps to slow the threat of hypothermia.

When the students seemed comfortable with these basic skills, they were put on the water with two students to each canoe. The



Cheryl Kimerline

Gail Thieret

Cheryl Kimerline

Gail Thieret

The author (above) provides expert instruction and guidance in winter safety skills through games and skits.

Gail Thieret

Students learn vital safety skills (above) for cold-water immersion, but there's no law against having fun while you're learning.

students noisily but enthusiastically clamored into the boats. Heidi set up a slalom course that the students had to paddle through so that she could closely observe their paddling skills to see if anyone needed individual attention. As the day got warmer, some of the over-zealous students had to be reminded that they were there to "practice their boating skills," not to get a suntan, splash their friends or impress their peers.

It was a poignant learning experience because the students learned first-hand the importance of boating safety techniques. There is no better way to learn boating skills than to have hands-on practice in a safe, controlled environment.

Fish Commission Bureau of Boating

This class was a Boating and Water Safety Awareness Program presented by the Pennsylvania Fish Commission Bureau of Boating. This is one of the typical programs that the Bureau is involved with in the warm-weather months. I am a boating education specialist in charge of the program, although everyone in the bureau helps teach the programs.

The Boating and Water Safety Awareness Program is taught across the Commonwealth by 125 certified instructors. These instructors range from school teachers, scout leaders, parks and recreation personnel to conservation camp counselors. The instructors set up and coordinate boating safety classes in their areas or schools. The Fish Commission provides handouts, brochures and audio-visual aids for the instructors. Personal flotation devices, canoes, throw bags and other equipment can be borrowed from the Fish Commission.

Students who complete this 6- to 10-hour course are awarded a certificate and patch. Several schools and organizations expand this program and take students on overnight river canoeing trips, water skiing trips, sailing or powerboating.

The Bureau sponsors several instructor workshops on the Boating and Water Safety Awareness Program throughout the year. There is a course offered each spring through Slippery Rock University. Several others are offered through local school districts and parks throughout the year. Volunteer instructors are vital to this program because there are only three boating education specialists statewide. If you are interested in becoming a volunteer instructor, please call the Bureau of Boating in Harrisburg at 717-657-4540.

The Boating Safety and Education staff does not just teach youth programs. The Water Rescue Course, developed by Virgil Chambers, chief of the Boating Safety and Education Division, was recently adopted by the National Association of Search and Rescue and is currently being taught across the U. S. This division also produces boating publications, reviews boating accidents, maintains aids-to-navigation and provides boating audio-visual aids for loan to interested groups. If you have questions concerning any of these boating education programs, contact the Boating Safety and Education staff. Better boating is their business.—*CK*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