Lightning Lifestyle

By Jim Crane

It's 4:30 in the afternoon, the sun has already set and the Connecticut countryside is grey and frozen. Late December is hardly the time to be thinking about summer afternoons and racing sailboats, but that is just what I am doing. I have been asked to write an article about an old friend, the Lightning Class sailboat. I was probably asked to do this because I have been racing the Lightning since my 12th or 13th birthday and I am now on the wrong side of 40. It might also have something to do with the fact that I have competed in at least 20 North American Championships, sailed in World Championships all over the globe, that my mother-in-law was President of the Class and that my father-in-law makes his living from building the boat. However, in my mind all this is irrelevant. The reason I want to write this article is that I, along with hundreds or thousands of other people, have derived more pleasure from sailing and competiung in this Class than from any other single pursuit in life.

How can this be so? It seems illogical that a boat that was designed in 1938 by Olin Stephens and that is euphemistically referred to as a pointed flower box can provide so much pleasure. What you quickly learn in this sport is that the appeal of sailboat racing encompasses far more than the sensual exhilaration of going fast in a high performance sailboat.

What is unique about the Lightnings, and is also true of the Snipe, Star, Thistle, and a host of other boats, is that if you actively participate in the Class the sum of the experience becomes a life style rather than a periodic event. It isn't the race per se that counts, or the performance of the boat, but the total sense of enjoyment. What you find is a tradition of Lightning sailing that is passed from generation to generation in the same family. For example, my Dad began racing Lightnings in the late 1940's. Every spring he would take the entire family to Flordia for two weeks for the Southern Circuit. He would pull us out of school, hook the boat up to the car and head south on old route U.S. 301. It's now 35 years later and I make the same trip each spring with as much anticipation as I'm sure he had. The fun is still the same and I'm sure it will be for my son in 20 years. To the unitiated it must be difficult to comprehend this devotion. However, the people, the boat, the travel, the level and thrill of competition, the race organization, the amount of preparation necessary to be competitive and the traditional have a synergistic quality that makes racing the Lightning just pure fun. Let's examine some of the qualities of this winning formula.

The boat itself is less than exciting. It is slab sided with a hard chine and only a slightly radiused bottom that loves to pound in a chop. At 700 lbs. all up it is not light. Its sail area, however, is adequate to provide good performance upwind, and it sports a very large chute that can make downwind sailing in a blow as exciting as it gets. It is not a fast boat but at the same time it is responsive to sensitive adjustments. It rewards those who pull the right strings or hike a bit harder when it hurts. However, the incremental improvement in speed is modest. I would call it an unpretentious boat that can be fine tuned, but never turned into a refined machine.

It is these modest credentials, however, that provide the framework for a very successful Class. Because of its modest displacement and modest sail area you do not need a crew of gymnasts or pro-lineman to sail competitively. With a crew of three and an ideal weight of 480 pounds your girlfriend or wife can be part of the team. At 19'the 700 pound minimum boat weight also means that exotic (and expensive) constructions is not necessary to achieve competitive hull stiffness. The Class scantlings also prohibit light ended boats. As a matter of fact, my current boat is 18 years old and in my mind is as fast as any new boat. The very fact that the Lightning is low tech is a positive because boats last almost forever, and the price of a new or used boat is within reach of a large group. Another plus for the Class is the very rigid enforcement of hull measurement. This has added to the longevity of a boat's competitiveness because experience has shown that it is extremely difficult to improve upon the accepted lines of the boat. In my mind there have been no hull shape improvements in almost 20 years. What all this means is that you can buy a Lightning off the shelf that will be fast, reasonably priced, last a very long time, raced competitively with little recent practice, and include a girl of your choice in the crew. I think this is called value.

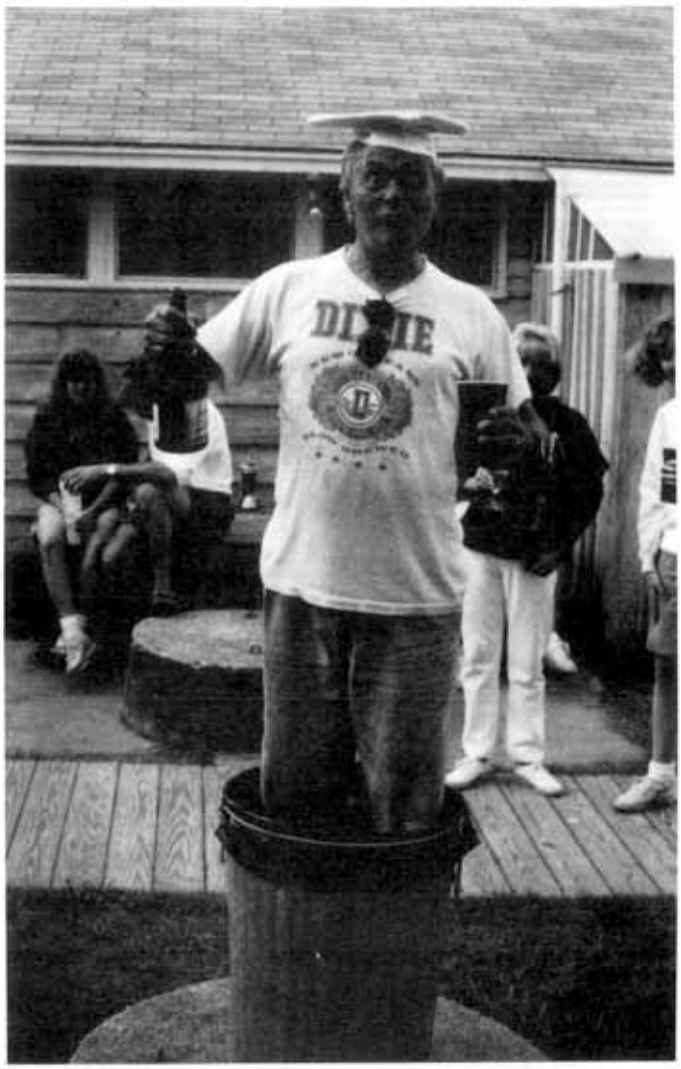
It should not be assumed that just because the Lightning is not a high performance boat that the quality of racing is at a low level. I think that a competitive event in any sport irregardless of the equipment, provided it is all the same, demands a high level of skill to win. The Lightning is no exception. Because of its characteristics, however, it tends to place an emphasis on tactical ability rather than boat speed. I think this is another reason for its popularity. To compete successfully in a performance boat (470, 505, Flying Dutchman) you need to spend endless hours on the water learning to shift gears as well as perfecting your boat handling. A tactical boat, however, is more forgiving in that tactical skill is something you build up over a life time and can more easily be pulled out of the bag than boat speed. The ability to be competitive at major events (or at least in the hunt) when you don't have the time to practice makes competing so much more fun. I'm convinced that this is the reason that the popularity of boat speed type boats is so low. What's the point of even showing up if you will be a leg behind after the first triangle, especially when you know you have all the skill to be competitive but lack the time to train.

Perhaps as important an ingredient as any other in the success of the Lightning is its Class Organization and the enthusiasm of the Class members themselves. I think this one variable is the key ingredient that sets the Lightning apart from other boats that have the same potential for success. When I think back over the years what comes to mind is sailing in Finland, Argentina, Switzerland, Ecuador, Canada — locations where the World Championships have been held. These events have provided me the opportunity to see the World, to meet and make friends with a variety of fascinating people, and to do it while participating in one of my favorite sports. The fact that these events have been successfully occuring every two years all over the globe is testimony of a strong and enthusiastic Class organization. When you think of the logistics involved in shipping boats, organizing International Race Committees, taking care of housing, transportation and measurement it is a formidable

task. And yet it has been beautifully handled year after year by a group of volunteers. The Class has a paid secretary, but every other post is a good will effort. To me this is extraordinary. Besides the Worlds, the Class also runs District Championships, National Championships and a Mid Winter Championship. Again, these are all volunteer operations.

On a more human level, when you get right down to it, I think the real appeal of one-design sailing, and the Lightning in particular, is that is provides the opportunity for an adventure. It is the perfect avenue to get away from work and daily pressures and to get into some mischief. Besides the memories of the big victories, just as indelibly etched in my mind is the time when my Dad's homemade trailer self destructed on the highway, or when the boat totally left the trailer on a foggy morning in Georgia. I can remember capsizing twice in one day, sailing to a weather mark in the 1969 Worlds in Buenos Aires where the first boat to round never set a jib because it was blowing somewhere near 40 knots, getting lost in the fog racing off Helsinki and racing on a lake in Ecuador at 11,000 feet above sea level. The list is endless, but the message is clear. The Lightning and the Class have combined a few modest ingredients to provide the stage for a group of die hard enthusiasts to experience some of life's great joys.

Texas District champs clean up.



Simeon Coxe hams it up.

The Neals of Silver Lake, NY.

GULL LAKE REGATTA — 1992

FLEET 137

Larry Koster (Lansing Sailing Club) enjoying a little chop on Gull Lake before the Start.

Thomas Hudson (Gull Lake), Brad Wagnon and Bill Allen from Wawasee.

Steve Thomas (Devil's Lake) and Rick Kaiser (Chicago Corinthian) discussing the day's events at the Gull Lake Country Club.

Eric and Lynn Samuelson introducing their neighbors to sailing for the first time at Gull Lake.

Who's the lonely guy at the bar?

Colin and Karen Park (Bay City) and Diana Fernando (Pontiac) at the plush Gull Lake Country Club.

Another HOT Miami party! This Sunday sailaway to a Biscayne Bay sandbar was hosted by Jim Alman, Fay Regan, and Jonel Rouse/Stuart DeLisser (upper left) to celebrate the 20th birthday of their three honeycomb Lippincotts. COOL!

Why W.O.O.D.

By Peter Morley, Jr.

I was excited to read in one of last spring s issues of the *Flashes* an announcement of a regatta for wood boats. Wooden Boat Magazine had plans for organizing an "all wood only" one-design W.O.O.D. sailboat regatta in June of 1992. The regatta was to be in conjunction with their Wooden Boat Show in Newport, R.I. I knew immediately I wanted to attend. I also knew finding a crew would not be difficult. My semi-regular crew, Stan Dent and Chris Morley were also eager to go. Team Dancing Bear, as we are also known, has raced my wooden Lightning semi-regularly with moderate success in fleet races and some invitations.

I have a 1963 Cayuga built Lightning 9102, which is relatively new for most wooden Lightnings. I bought a wooden Lightning because my first memories of sailing are in my father's and grandfather's Lightning and of Lightning regattas. I also wanted to have the pleasure of restoring a boat myself. I had restored a small wooden boat and my father restores old wooden inboard run abouts. I rebuilt the entire hull of my Lightning including the center board trunk and many split ribs using the W.E.S.T. system epoxy so the boat is dry, stiff and still relatively light. Although I also race other new boats, I get an added feeling of satisfaction out of racing and beating many newer fiberglass Lightnings. I was fortunate to attend the Fiftieth Anniversary Regatta in 1988 where we raced in a mixed fleet of wooden and fiberglass boats. The opportunity to race with only wooden Lightnings was one I didn't want to miss.

We made our plans for Newport, tuned the boat in heavy air at the Bay City Invitational and headed east. Since none of us had ever been to Newport, tourist fever piqued our excitement for the regatta. We rigged the boat at Fort Adams, the meeting place for the regatta, and the location of the Museum of Yachting. The W.O.O.D. Regatta was open to all classes of wooden sailboats. A good turnout of 47 boats representing 20 classes showed up from various areas. Most were from New England, the furthest from Colorado. The regatta consisted of three windward-leeward races on Narragansett Bay. Each class with four or more boats had their own scores. Classes with three or less were put in the open fleet and scored with corrected times based on Portsmouth ratings. We were somewhat disappointed to be one of only three Lightnings and therefore part of the open fleet although it had the stiffest competition. The small turnout of Lightnings did not dampen our excitement or that of our other Lightning competitors, Bill Stasiuk and Dan Gorski. The Blue Jay fleet had the largest turnout. The regatta also had a race series for 12 meters. Seven old twelves were present from US 11 to US 24, including *Intrepid* and *Weatherly*.

The racing was good spirited. There was so much action taking place, attention was hard to maintain. Our starts were rusty and our timing was slow but our boat speed was good. We managed to be the first Lightning to the weather mark each time. Starting with a mixed fleet of boats of different speeds is an exercise in timing and it seemed we were dodging nutshell prams like gnats at the starting line. A brand new Snipe built with the W.E.S.T. system was hard to beat; thank heaven for that large Lightning spinnaker. A 1961 Star took first in the open fleet and first overall for the regatta. We were happy with our third in the open fleet and fifth overall. The trophies were simply a bonus. Although we were on separate courses, we crossed tacks with some of the twelve meters and that was worth the drive in itself.

After the racing, time was left for a parade lap past the wharf where the Wooden Boat Show was happening. A brightwork contest was held back at Fort Adams sponsored by Interlux Finishes. Comparing boats and restoration stories as well as racing stories made the sailors from all classes feel like "one". Results were announced at the Wooden Boat Show on Sunday.

The people from Wooden Boat Magazine were pleased with the event and are going to make this a regular part of the Boat Show weekend. We had a great time and are planning on going back in 1993. I took my Lightning to Skaneateles in 1988 and raced in the "vintage fleet". Being with 225 other Lightnings was a once in a lifetime thrill, but the "Wood Regatta" was also a thrill. I am sure there are many well maintained or restored wooden Lightnings that could be raced. Hopefully there will be a stronger showing of Lightnings next year, to show what a great boat the Lightning is and what a great history it has. I would like to see more interest within fleets to promote wooden boat sailing. It can draw interest in the Class from the people that might otherwise stay away because of the cost of competitiveness of newer fiberglass hulls. Maintaining a wooden boat can take extra work but sailing a beautiful varnished wooden boat gives a special feeling of pride.

9102 at home on Higgins Lake, MI.

Lunch break in Newport — Stan and Peter.

What They Forget To Tell You
(or, How Not To Sail a Lightning)

By Kevin G. Hughes

My purchase of a Lightning last Spring resulted from the desire to race a stable, well established one-design. After a great search and many phone calls I found my used boat. Those first few weeks were spent in the garage cleaning, buffing and yes — admiring. Then the day came when I rolled her out to the driveway, ready-to-go, and wondered 'what should I do now?' From that point until Fall haul-out I lived through a unique set of experiences, some of which are described in the following. I hope this brings back some memories for you seasoned Lightning guys, or perhaps it will make some novices feel better.

There are basically two methods for learning how to race a Lightning. The first is to take your time, crewing or loafing in your own boat, learning at a safe pace. This is good for your health. The second method is to jump in, shove off and race. This can be bad for your health. Being greatly impatient and eager, I chose the latter method. By some miracle I survived the season and my boat, God bless her, is intact. But let me tell you, together we learned some things the Lightning sailor does not want to do!

When rigging your boat, don't finger tighten the retainer nuts on stay turnbuckles — use a wrench. It is hard to describe being in heavy air under main alone (not sure why), and pow — the forestay turnbuckle completely unscrews. When one sits at the helm, peering up at that rocking mast, prayer seems like a good idea. And whatever you do, don't ask your crew (even if she is your wife) to get on deck and hold that stay!

Another thing you may want to avoid is dropping the jib as you sail tightly upwind into the mooring area. It is surprising how quickly a Lightning will stop upwind under main alone. Even more surprising is how quickly it will start moving backward! But don't worry, sooner or later you will hit something behind and come to a stop. Then with some shoving and pushing you can get back underway. But beware — when you backed in to that pier the rudder may have been knocked loose, and sailing without a rudder is not fun. And when someone on shore yells 'steer with the paddle", don't listen.

They say the Lightning is a stable, forgiving boat. Well, it is until you hoist that third sail that was inconspicuously folded in a basket. It's hard to imagine that bundle causing so much havoc in a blow! And whatever you do, avoid two serious mistakes. First, don't hoist the spinnaker with both sheets played all the way out. Second, don't hoist until clear around the weather mark and heading downwind. If both these errors are made at once a peculiar phenomenon will occur — the spinnaker will fill behind the boat, off one rear quarter. This doesn't sound too bad, but in heavy air the Lightning can quickly start a downwind run backwards! The hull, rudder, and crew are not designed for this point of sail!

A word of advice should be given regarding timing the race start. Try not to lose track of time — if you do avoid asking other boats how long there is to go. If you do ask, three observations will quickly be made. First is that many Lightning skippers seem to be hard of hearing. Second is that most appear to lose track of time, just like you. Finally, even though some are deaf and others are without watches, they all seem to hit the line just at the right time!

I could go on with these stories but, on a serious note, a few things need to be said. I take my hat off to the Lightning, the class and the people in it. It is hard to imagine a more enthusiastic, helpful and dedicated bunch in the entire sailing community. I can say, without reservation, that the Lightning Class has a great deal to offer any sailor. Just have heart, and endure that first season!

W.O.O.D. Regatta
Open Fleet Results

Open			Portsmouth #		Race 1	Race 2	Race 3	Cor. Time	Total Pts.
Snipe	Joe Norton	Green Lake, WI	93.3	No	32:04	22:49	25:58	86.66	15.75
Snipe	Richard Raciot	Lowell, MA	93.3	No	34:49	24:44	26:45	92.50	21
Lightning	Peter Morley	Midland, MI	88.9	no	31:10	23:38	25:45	90.61	23
Narrasketuck	Paul Masselli	Bay Shore, NY	89.8	Yes	35:34	25:22	27:04	98.00	34
Town Class	Jay Tichenor	Norfolk, MA	96.9	no	39:19	27:53	29:26	99.72	38
Lightning	Bill Stasiuk	Amesbury, MA	88.9	no	38:17	25:52	27:41	103.30	43
Beetle Cat	Charlie York	Cataumet, MA	102.8	No	39:28	32:28	36:49	105.79	50
Redwing	Robert Tabb	Buffalo, NY	91.4	Yes	45:34	27:07	30:16	112.64	51
Town Class	Dick Nudd	?	96.9	no	42:32	30:38	33:27	110.03	56
Great South Bay	John Greenless	Cambridge, MA	97.1	Yes	44:55	29:11	DNS		59
GP 14	Dario Panfili	Trenton, NJ	101.2	No	45:15	31:29	DNS		60
Lightning	Dan Gorski	Clifton Park, NY	88.9	No	39:34	28:24	31:37	112.02	60
Keel Fleet — all raced/scored as one fleet.									
Star	Rowan Perkins	Belair, MD	83.5	No	27:26	20:24	22:25	84.13	3
Fish	Rick Meyer	Norwell, MA	97.1	No	36:05	25:48	28:58	93:56	8
Fish	Joan Bartram	Newport, RI	97.1	No	39:23	28:19	32:20	103.02	12
Folk Boat	Ted Davis	Medway, MA	102.0	No	42:19	36:47	DNR		17

Event Sponsored by Woodenboat Magazine and Interlux Yacht Finshes.
Race Management and Scoring Courtesy of Atlantic Race Management Team
Organizing Authority: Woodenboat Magazine.

Know, Know, Know Your Boat

By Mike Huffman

One of the main ingredients for the continuing popularity of the Lightning Class is the evolution of the boat itself. Suggested changes are considered with an eye toward keeping all boats equal. Innovations have made newer boats more comfortable, easier to sail and just a little more exciting while not outdating their predecessors.

Todays boats and those made over the last 20 or 30 years, are produced using pretty much the same tolerances. The various builders seem to have agreed upon the fastest hull shape. This is not to say the Lightning hasn't seen change. The original double-planked wooden hull has been replaced by a self-rescuing fiberglass boat. Wooden masts gave way to stronger oval aluminum spars. The main sheet bridle has supplanted the Crosby rig, making the mainsail easier to control. The adjustable backstay allows sailors to flatten their sailplan with one yank.

The minimum weight remains at 700 pounds and the hull must be of constant construction throughout. The addition of lead is limited to 20 pounds at the center of the boat. If more lead is to be added, it is added to the ends. This is one more way to keep the old boats competitive with the new.

As a new Lightning comes ready to be sailed, "batteries included", older boats may require a little modification, such as control lines leading to each side of the boat. Here's a list of things to consider whether you've just purchased a new or used boat, or you're just getting ready to start a new sailing season.

1. Look at your Measurement Certificate (copies are available from the I.L.C.A. office for $5.00). Who made the boat and when?

2. What mast is described on the Certificate? Is it the same as you have now (check for the royalty sticker)?

   Make a record of all mast measurements — spar and stays. This will help you know where you're starting in your search for good boat "tune". Make sure all aspects of the mast are in good working order. Wrap a small piece of electrical tape 3 inches in from the tip of the spreader. This is to help your jib trimmer. If you expect to sail a lot of windward/leeward courses, consider a masthead fly. And of course, check for the electrical wires before putting up your mast.

3. In looking over the hull, check your flotation. Are airtanks well sealed? Measure where your chainplates (where the side stays attach to the hull) are positioned fore and aft? Not all Lightnings are the same on this dimension. When you use your sail-measurers tuning guide, know how your boat compares to others!

4. The centerboard pin is 5/8" in diameter and it is technically the starting point for all hull measurements. Check to see if it needs fresh caulk (not all boats require caulk).

5. Let's check the helm. The newer tube tillers and advanced rudder construction have significantly cut down this type of equipment failure. Gudgeons and pintles still come loose. Crawl under the back deck (oops, have someone stand on the front of the trailer) and check those nuts. Throw the rudder on while you're at it. Is it 1/2" or less from the transom/skeg? Is it mounted properly? Many are not aligned with the skeg.

6. Use your sailmakers tuning guide to set up your rig (if you don't have one, contact the folks who advertise in this book). Make sure the mast is centered — you'll need a 50 foot tape hoisted by the main halyard drawn down to the chines (the level lower edge of the hull) to check. If you go faster on one tack than the other, an off-center mast can be the culprit.

   Many sailors tape their turnbuckles and their cotter pins (in such a way as to minimize the amount of gooey adhesive that actually sticks to your rigging). Where is the aft end of the mast butt located? The Class rules set the maximum distance from it to the front of the centerboard pin at 21 7/16". Most of us are within an inch of that maximum.

7. Those wooden or rubber blocks are supposed to keep your mast in place, both fore and aft and side to side. You may want to place a piece of shock cord over this as a restraining device. These are easy to lose in a capsize (Russian trawlers have picked them up hundreds of miles offshore.).

8. If you have an older boat consider the boomvang. Great advances have been made in recent years employing levers and double-sided controls. Going downwind in a big breeze the vang is your "panic button" since it's the quickest way to dump your mainsail. Make sure it's accessible to someone who can release it in a split second.

9. An often overlooked control is the centerboard preventer. It's purpose is to keep the board from retracting into the boat in the event of a capsize. It's hard to right a Lightning without the leverage provided by the centerboard. The unprevented board can also lead to the dreaded "turtle".

   The simplest design features a line from the top of the board to a cleat at the aft end of the centerboard box. Newer designs allow one to reach through the transom flaps to apply the preventer.

Time To Go Sailing!

By Vernal Equinox

1. If it's windy, try using double leads on your jib. To do this, tie two small blocks at the clew of your jib. You'll need longer jib sheets. Tie one end off on or near the jib fairlead, loop it out to the block and then back through your fairlead and cleat. Your Barber hauler may need a large block or plastic ring to remain effective. The double leads take a little getting used to; but not only is it easier to pull in the jib, it becomes easier to get the sheet out of the cleat.
2. Your spinnaker can be rigged before you sail. Make sure the sheets are led properly (not under a hiking strap). Find the head of the sail, hold it with one hand and run down the tapes with the other hand to make sure the chute is not tangled. If you do find a twist, it's often easier to untie or unclip the offending corner, run the tape again and then reattach. This is worth some practice, as sometimes the procedure must be accomplished quickly.
3. While you're at it, make sure the hiking straps are well tied and that the lines are not wearing thin. Most of us have taken an unexpected swim because we didn't check our straps.
4. If you dry sail your boat, remember to watch for high wires as you wheel it around. Check your lifting bridle. Use the hooks with the open part facing out. Make sure the after section of the bridle is not under the main sheet pedestal. Check it again. Most lifting bridles work best if the boat tilts forward slightly. This keeps the mast away from the hoist. Be careful when hauling out though, if your boat is full of water, it can cause instability.

   If you launch off a trailer, be careful not to strain your back. Make sure your trailer's axle bearings are packed and sealed. Water gets in eventually, so go for the grease at least once a year.
5. Most racers are required to have the following equipment on board:

   A compass
   centerboard preventer
   anchor and 50 - 100 feet of line
   extra flotation device
   one-gallon (or larger) bucket
   a whistle
   and a paddle

   Other good ideas include an extra paddle, water (assuming you can't drink what you sail in), tools, and a simple first-aid kit. If you're out cruising, a flashlight and/or flares might be advisable. If you're racing, get a copy of the sailing instructions, a rule book and a protest flag. That tool kit can include a screwdriver, 2 pliers (at least one of which should be of the vise-grip variety), good tape, sail repair tape, extra shackles and cotter pins/rings and some extra line.
6. Here's an idea on how to learn about sailing your boat in tight spots; whether those tight spots occur on the race course or approaching the dock or beach: Go out on a light day with flat water when no one else is around and remove your rudder. First learn to sail in a straight line, then how to change course and how to stop.
7. When in doubt, ask questions. Another reason we like the Lightning Class is there are so many good people who will try to give you an answer.

George Sipel and Craig Gabel get 14249 de-slimed at NA's.

Right: Buffalo Canoe Club

Upwind Boat Speed

By Matt Fisher

This article is about what I think are critical factors for making a Lightning go fast upwind. This is not tuning or tactics, but more a list of things that I think are important. One minor disclaimer is that I don't profess to be any type of sailmaker who knows what exactly makes a boat point, or maybe even exactly what effect prebend has in light air vs. medium air and those type of things. Ched, Brad, my brother Greg, Larry and a host of others know more about the sail and mast aerodynamics than I'll ever dream about.

Tune

Out boat is set up exactly to our sail's tuning guide. The only thing we might do differently is have a tighter jib halyard tension in a breeze. It is important to have the uppers at 250 lbs., since you need all you can get, if you prebend. We don't change any of the standing rigging (shroud tension) for different velocities of wind. Changes necessary for different velocities can be taken care of with the jib halyard — which I will discuss later.

Something that may qualify as tune is the traveler adjustment. I am relatively fanatical about keeping the boom in the middle until the boat is overpowered. The only way this truly can be done is to have the ability to pull the traveler to weather — I don't think the up and down adjustment cuts it. Most boats are rigged so that the traveler centers to the point where I will ask whoever is in the boat if the boom is lined up over the tiller. The rig will cost only about $14 in blocks. It is a pain in the neck in light air tacking. But I think it is worth it.

Boat Balance

Keeping the boat balanced and trimmed the way the tuning guide says is the way to achieve good boat speed. Sailing with no changes in heel, with the sails trimmed perfectly will result in no other boat being faster than yours. Boat balance sounds easy but it seems like a part of boatspeed that we take for granted. Everyone talks about keeping their boat flat, but the best heel is not perfectly flat. Even that little bit of heel that Lightnings seem to like (5-8) needs to be perfected. But, on average, it seems that many people talk flat but actually keep a little too much heel in the boat; it feels good but it's slow. The key is doing everything possible inside the boat with crew position and trim to keep the boat balanced perfectly.

Teamwork

I usually like to save the best for last in articles, but I can't for this one. If you think about the times when there seems to be the biggest difference in boat speed, it is in conditions where there are big changes in velocity, or lots of waves, or the extremes (light or heavy air). It is critical for all three people to work well together in the boat on all parts of the course. Everyone goes out and practices jibes, sets, tacks and drops. It is just as important to practice sailing upwind in a straight line so that all three people are contributing to the boat balance. Who calls puffs, who moves out first, who moves in first, quick hikes, calls a drop in velocity, are all reactions to changes in conditions that need duties assigned to them just like raising and lowering a spinnaker. This past year our boat spent about 10 hours going side by side upwind with Dave Starck in non-race setting, and about fifteen hours doing the same with my father on our home lake. We probably spent twice that in races last year against these same two boats. These are two of the fastest boats upwind in the U.S. and every minute required total concentration and race-like effort. The time was invaluable. Whenever you can put your team in an upwind race setting but without the requirement to think about anything but boatspeed, do it.

Puffs

Handling changes in conditions are a two-part process; anticipating the change — calling the puff or calling a wave or series of waves and then making the proper adjustments for the change. When steering, I don't look for puffs on the water; both of the other members of the team do. I watch for short term waves, but the calling of puffs is the responsibility of the people in the front of our boat. We like the puffs to be counted down. With a little practice most people can get very accurate. Trying to count down is better than saying "here comes a puff". Whoever is calling also tries to estimate velocity so that everyone else will know if major crew position moves will be made. Twenty-thirty times each weather leg, someone says "puff in 10; small one — 5, 2, 1 here it is." This works on any change; waves or lulls, whatever.

Once the puff arrives proper adjustments should be made. Every sailmaker's tuning guide has charts for where all the adjustments should be for each condition. This is one of the best improvements tuning guides have made in recent years, and it is critical to re-adjust your trim for every change of velocity up or down. This necessity for quick change seems to be taken lightly. The sail designs over the last ten years (maybe five) have featured more of a "straight run" from the middle of the sail to the leech. It looks like the leech is more open but I think it also makes the trim from the clew much more critical because the sheet (for both main and jib) has a bigger impact on the entire sail. I've been blessed with three outstanding jib trimmers in the past four years, Rob Ruhlman, Steve Callison and Joe Starck, and their jib is rarely in the cleat in medium and light air. The moral of this section is to adjust your boat for even the smallest of changes in conditions. One of my mentors I used to crew with used to say: "it's either wrong now or it was wrong before", after every puff with no adjustment.

On the steerer's side of puffs, it is equally as critical to do your job. If it appears that the crew's weight will not keep the boat balanced in a puff, and the conditions are such that the boat will heel over without some type of adjustment, it doesn't hurt at all to spill the main temporarily. It is more important to keep the boat balanced than to let the boat heel.

While we are on puffs, whether the puff lasts for five seconds of three hours, hiking out consistently is probably the best "trim" or boat balance advice you can get. As long as your equipment and sails are current, it is the biggest variable left in conditions that require hiking. We are lucky that hiking is the most physical part of our sport, because it really is not that hard to get in good hiking shape, compared to some other conditioning that you have to do for other sports.

Waves

Sailing a Lightning upwind when the waves are higher than the wind proportionally in velocity is a challenge. The hard chine and relatively flat bottom make maintaining boatspeed tough when the boat hits the wave wrong. Steering the boat is a continual mix of slightly pointing in the flat spots and slightly driving before a series of waves. The emphasis here is on "slightly". I think that big variations in either steering or trim are uncalled for except for those waves where the mast wants to go through the bottom of the boat (everyone experiences this). Waves would be easy if all you had to do was close reach around the course. The trick is pointing and still keeping the boat going fast. Several years ago it seems like we had trouble pointing; we corrected it by making a few key changes. A lot of times in waves people seem to think they go best by heeling the boat and keeping the weight forward. We started going fairly well in waves when we started doing the opposite of both of these. When the boat heels in waves it wants to slide sideways; your angle might seem OK but you will lose distance to leeward.

I've had the toughest time trying to tell people to keep their weight in the normal position in medium to light air with waves, and even back about 6-10 inches when the wind is over 10 knots. You want the bow of the boat to be "happy" and pat the water instead of slam into each wave. I am not suggesting that you move back so far that you hear gurgles off your transom, I just mean that there is a tendency to slide too far forward because it sounds and feels good; moving back seems to help keep the boat from "greyhounding", where the bow hobbles up and down without making a lot of forward progress.

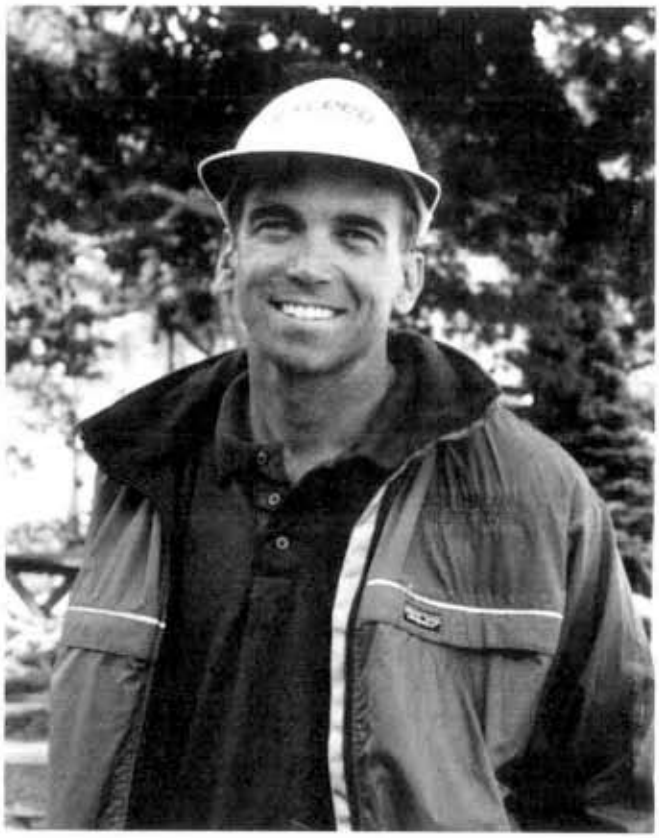
As far as any adjustments you make in steering, there should really not be drastic steering changes when you go from flat water to conditions where there are a lot of waves. You have to be aware whether or not you are tracking through the water or not. If you are not moving because a series of waves just slowed you down, do something. Ease the main and the jib, let the backstay off and get the boat moving. As soon as you are back up to speed, put the boat back in trim. I'd like to say that there is some secret and that you should sail all over the course to dodge waves but you shouldn't.

That thought in mind transitions to two other ideas. First, I used to move the tiller all over the place thinking that I was keeping the boat on the wind or dodging waves. I think those of us who sailed Lasers could get away with murder oversteering because the Laser rudder is so small. The Lightning rudder isn't so small. Over the last five years I've made a very conscious effort to slow down my steering. This is a habit that is very hard to get over and I probably was as bad as you can get. But now, whenever I feel like we are really going fast it seems like I am not moving the tiller at all.

Second, along the idea of accelerating after a bad wave or tack, one of the best things you can practice with your team is accelerating from a stop or going from a reach to a beat. The person on the jib and the helmsperson have to trim the sails to "follow" the direction of the boat. Once you practice this, it helps at starts, tacks, leeward marks, bad waves, ducking a starboard tacker, whatever.

Light Air Balance

Upwind light air boatspeed is sometimes significantly more complicated than any other conditions. This is probably because of the bigger percentage differences between



going slow and going fast; if you miss a wave or overtrim or undertrim you will go slow because light air is very forgiving. If you ever notice, when great sailors from other classes "hop" into the Lightning, they have the toughest time in light air. Similar to waves after a lot of time in the boat, you need to know when you are moving well and when you are not. If you're not, make a change in your trim. This goes for any condition, but I really got a lot of help in light air by sailing with someone else (my brother) and getting an idea how they sail the boat. The tuning guides are accurate but you really need to know what you are doing then. Tunewise, in light air make sure you have the proper amount of pre-bend for the sail's tuning guide that you use. It seems that it is difficult to really set up accurate or consistent prebend from mast to mast and from boat to boat. Prebend is actually what I consider the most important "trim" or tune in light air and sometimes you can spot from a distance that another boat doesn't have prebend. Prebend allows you to point because it flattens the lower section of the main, thereby opening up the slot between the jib and main. With the boom in the middle, and your lower main flat and your upper main trimmed for the conditions, pointing is under control. I think you get most of your good pointing out of the leech of the main. What's left is keeping the boat moving. I steer with the tell-tales both nearly flowing straight back. That's what I mean by good pointing. Long term pointing will be better by trimming the main, jib and mast for pointing; short term pointing, where you steer up until the weather tell-tale on the jib is totally stalled with only cause

you problems when you hit a wave or have a drop in velocity.

Other Trim Ideas

Backstay

We never use the backstay other than to depower over 13-15 knots or just to keep the jib/forestay from flopping around. I think a lot of serious things start happening to your jib when you put on backstay and I don't know that I have figured them all out. Also, until 15 knots, I don't think you can afford to lose any more power from the main.

Outhaul

The outhaul is probably one of the most under utilized and most effective adjustment on the boat. We've all got caught up in drumming it on tight if it's blowing over two knots and then giving it another tug over 18. I try to adjust for more or less power depending on the conditions. It has a big impact on the lower leech.

Cunningham

When in doubt have more wrinkles rather than less. Since we don't use the backstay that much, we probably adjust the Cunningham less than the mainsheet, vang or traveler in a breeze.

Vang

In a breeze, we vang very hard upwind and then play the main. If you don't have the vang on and you dump the main in a puff you will actually get more overpowered rather than less. You really are not "vang sheeting" because the backstay is keeping the draft back. If you have had trouble upwind in a breeze, try putting a lot of vang on and see how it stabilizes the boat.

Jib Halyard

The jib halyard is one of the most critical adjustments on the boat and believe it or not, it is probably the first thing I check if we are going slow. I think that it has a major impact on three things: the jib wire tension, the mast bend and the sideways bend. It affects sideways bend because if you let it off, you are allowing the mast to prebend more and relaxing the tension that your lowers have on the mast, which result in keeping the mast straight side to side or with a slight (slight) weather hook. When it is blowing over 15 knots and you start pulling tighter on the jib halyard, you are also tightening up on the lowers, thereby straightening out the mast down low, and giving it a slight falloff to leeward side to side. When it is really blowing we pull the jib halyard very hard so that we get 1) an extremely tight forestay when we pull on the backstay and 2) all of our bend up high, which is where you want to depower.

In medium air, it takes practice to see where you want the jib halyard. Don't underestimate the tuning guide's accuracy and make sure you are confident of the adjustment. Those are just some ideas I have on boatspeed. Nothing can replace time in the boat.

We can do without this kind of luck.

When the Going Gets Light ...

By Greg Fisher

Light-air racing presents more than its share of frustrating moments, but it also provides more than the usual number of chances to get ahead of the fleet. A well-sailed boat can develop a great speed advantage; at times it can go literally twice as fast as its competitors — so it is not unusual to see the largest race-winning leads developed in the lightest of conditions. With good preparation and the ability to make your boat go fast in the smallest of zephyrs, you can put yourself in a position to take advantage of the abundant opportunities on a light-air race course.

Before you head out to the course, clean the bottom thoroughly and remove any extra gear from the boat. If you are confident that the entire race will be sailed in light air, it may be a good idea to drop some of the purchases out of the various block and tackle in your boat (especially the main and jibsheets) to make sail trim a little easier. Kevlar has made small diameter sheets practical (and a real advantage). Boats the size of Lightnings can use sheets as small as 1/4" in conditions; just be sure you have your gloves along!

Upwind Sail Trim

Good telltales are essential for light-air competition, because you must know the exact direction of the wind at all times. Although many people use cassette recording tape, I've found that it flutters too much. Instead, unravel standard wool yarn and pull out the smallest diameter strands. For tell-tales on the sails, but be sure to use real wool; synthetic yarn will frequently stick to sailcloth due to static electricity. When low wind velocities won't actually lift a piece of yarn, smokers have an advantage. For those who don't smoke, incense sticks are a great alternative as they can be taped on the shrouds and burn very slowly.

Even though the wind is moving much more slowly across the sails in light winds, sail trim is still very important for consistent boatspeed. The boat is always aching for more power and acceleration, so sail-trim guides are much different than in other conditions.

While one might think that a very full sail would be necessary to give the boat the power it needs, in most cases a flatter sail will perform better. The simple theory is that a full, baggy sail requires more "wind bending"; that is, the wind has to curve around the sail more, which gives the airflow more of a chance to break up and become turbulent. A flatter shape allows the airflow to remain attached — so leave the outhaul fairly tight to help keep the lower section of the main flatter and the leech more open. Pre-bend in the mast can help flatten out the entry of the main. Another way to do this is to ease the Cunningham, allowing the draft to move aft slightly. In most conditions the main is trimmed so the upper batten is parallel to the boom when sighted from underneath. In light winds this is virtually impossible, due to the weight of the boom hanging on the leech of the main. It is not unusual for the main leech to hook badly, sometimes as much as 10 to 20 degrees to weather of the foot. Although this looks bad, it is frequently beneficial to have the mainsail shape a bit rounder in the after sections. This will induce slight weather helm, and help get optimum pointing capability.

At no time should the leech of the main be angled farther to weather than parallel to the centerline of the boat. In drifting conditions, the technique of trimming the upper batten parallel to the boom is dropped, and *the upper batten is set parallel to the centerline.* In many cases, especially in boats where the boom is fairly high in the air, the boom is sheeted as much as two and a half feet to leeward of the centerline. In the Lightning, the boom would wind up 18" to leeward of centerline. It is important to realize that as soon as the wind picks up, the trim must be switched back to having the upper batten parallel to the boom.

The traveler goes through a similar transition: The traveler is sometimes pulled all the way to weather in superlight conditions so that the slightest puff will allow the boom to lift easily, but as the breeze picks up, drop the traveler down again so the boom stays at or below the centerline while you are trimming the upper batten parallel to the boom. It has rarely been found to be fast in any condition to have the mainsail plan trimmed to weather of the centerline.

Another important area of concern for light-air sail trim is the slot. There isn't anything slower in light air than having backwind at the luff of the main. With the main angled far off the centerline, the slot is in danger of being closed off. To avoid this, flatten the mainsail to pull the cloth out of the slot; this lets you ease the main until the upper batten is parallel to the centerline without backwind.

On the other side of the slot, the leech/exit of the jib must not only be open, but also fairly flat. Sometimes it is helpful to move the the jib lead aft near the heavy-air setting to open the leech and flatten the lower sections. In extremely light air, the weight of the sheets alone will hook the leech into the slot. Have a crew member hold the jib clew up to keep the leech open. On most one-designs and on boats with tall, narrow jibs, it is not necessary to move the jib leads outboard unless there is a great deal of chop and the boat has to be sailed on a close reach just to keep it moving.

The jib should become increasingly full in its forward sections. If you are sailing a one-design that uses the same jib in 0 to 30 knots of breeze, light air is the condition where the jib should be set up with the greatest amount of luff sag. A

full entry is more powerful, and also helps widen out the "groove" so the boat is less critical to steer. It also allows the sail to tolerate abrupt changes in wind speed and angle without stalling. Go easy on cloth tension to keep the entry smooth as well; excess tension in the luff will make the entry too round, which produces a "knuckle" at the luff that disrupts the airflow.

Think of the jib and main not as two independent sails, but as a "combined foil." Looking down from above at proper light-air sail trim, one would see a two-part foil that is fairly round and powerful in the front as well as the back. The middle sections should be flatter to keep flow attached. Imagine a jet at take-off or landing, with flaps down in front and back. As the jet picks up speed, the flaps are not required and are retracted.

Downwind Sail Trim

Off the wind the mainsail doesn't require as much flow across it as it does upwind, so a full shape, as mentioned earlier, will make it more forgiving. It is not necessary to have the outhaul pulled as tight, and mast bend should be eliminated. The jib should be set so that it looks like it does upwind. The crew should hold the clew outboard and up so that the leech is open and the jib not too full. The main should, again, have a round leech. Try to maximize the sag in the luff of the jib to make the entry more powerful, and keep both the cloth tension on the jib and the main cunningham eased.

Although it would normally seem that a spinnaker would be a huge advantage whenever sailing downwind, the opposite is often true in light air. At any point of sail when the spinnaker should be developing flow across it (as in reaching), its full (and drooping) shape will actually slow the boat down. Instead, a tall, narrow, flatter jib can be a better alternative. It is not unusual for bigger boats to fly only a tall, lightweight staysail in drifting conditions. An exception to this would be sailing dead downwind; there is no flow across the spinnaker, and the more area that can be projected, the better. A spinnaker, even if it is just drooping, should help the boat go a little quicker on a dead run.

Adjust the pole height so that the two ends are even at all times. I like to have the pole-lift control placed alongside the guy cleat at the shroud so the crew can adjust both constantly. Always keep the spinnaker sheet well eased, since an overtrimmed spinnaker will choke the slot. As with the jib/main slot, the slot between the spinnaker and the main must be kept free when reaching, especially since the spinnaker is so big and overlaps a large area of the mainsail. When sailing broader angles, pull the spinnaker around to weather as far as possible (keeping the pole perpendicular to the wind).

Light-Air Boathandling

Good teamwork is just as important as sail trim. Since the boat moves slowly in light air, any crew movement—particularly during maneuvers — must be made slowly to retain the precious attached flow across the sails. Be sure the speed in which these maneuvers are executed is much slower in light air. *Keep in mind that the rules on kinetics are quite clear;* the speed after the tack cannot be greater than the speed before.

Boat heel becomes critical in steering the boat upwind in light air conditions. When you need to head the boat up, simply heel the boat to leeward, and when you want to bear off, flatten it out. If a puff gets to you, allow the boat to heel slightly so that weather helm will increase. This lets the boat slide up closer to the wind without using any rudder. When you get as high as you want to be, hike the boat flat (gently!) to accelerate. If the boat is small enough so that one person can make all the changes in heel, allow the skipper to do so. He can feel the puffs and the load on the helm much more quickly than the crew, and can therefore react more smoothly. Keep the crew inside the cockpit whenever possible to reduce windage and keep the slot clear. Sail the boat on its lines with all weight concentrated in the middle of the boat, but heeled to get the proper weather helm.

Steering the boat downwind by means of heel is just as important. When trying to work to leeward, don't be afraid of heeling the boat well to windward to induce a little leeward helm.This will help the boat slide to leeward without using the rudder. If there is enough wind to use the rudder to steer the boat, use it sparingly. Any time the rudder is turned, especially in light air, it acts like a brake.

When sailing in light air, the greatest differences in boatspeed occur upwind. Many people think that because they are sailing in flat water, they can point very close to the wind. However, until the wind reaches a certain velocity, the boat will not move fast enough for the blades to develop lift. Although it may seem that your angle to the wind is higher, if the blades are stalled, the boat will simply slip sideways. Also, if the boat is sailed too close to the wind, the apparent wind moves farther forward and the boat stops. Instead, foot the boat off to keep it moving through the water and take advantage of the increased apparent wind from the added speed. Even though it may seem that you are giving up distance to weather on the boats that are pointing higher, the speed that you gain through the water will put you ahead. How far to bear off depends on the individual boat, but a basic rule of thumb is to bear off from your normal closehauled course more than you think you should, and then add another five degrees.

Tactical Considerations

Just as sail trim and boathandling are treated differently in light air, so are racing tactics. If you have good boatspeed, standard tactical situations should be approached aggressively in most conditions, but light-air tactics demand more conservatism and greater anticipation.

At the start, timing becomes critical. It is absolutely necessary for the boat to be moving at top speed at the gun. It takes time to accelerate to maximum speed, but once up to speed, it is actually possible to sail through the lee of a slow-moving windward boat and squirt well out in front. No matter what kind of boat, the approach to the start must be made in such a way that you maintain maximum speed. The final approach should be made on a clear, unobstructed path of adequate distance for the time remaining to build up the speed. The main priority for a light-air start is top speed, even at the expense of starting away from the favored end of the line. Depending on the degree of the advantage on the line, many times it is better to start at the unfavored end of the line simply to avoid traffic and to provide a clear runway to the final approach.

Top speed is still the priority after the gun, but to keep the speed up you must have clear air. Avoid tacking into a safe leeward position unless it is absolutely necessary, such as on the final layline to the weather mark. Not only is there danger of being rolled by the windward boat after the tack is completed, but you automatically forfeit the option of tack-

ing. Being controlled by another boat severely limits your options. In many instances, you can actually gain distance when you dip a starboard tacker because of the speed you generate when bearing off. On the other tack, don't be afraid to wave an approaching port tacker across if it looks like they might tack on your leebow to avoid you.

Because of the importance of clear air and top speed in light winds, avoid the middle of the course and the dirty air that boats to weather and ahead may provide. Look up the course and search for new wind, and predict which side of the course it will be on.

If a new wind comes in with more velocity, always sail to it as soon as possible, even if this requires sailing a headed tack to get to it. Since maximum boatspeed is extremely important, always aim to get in the position to increase speed through the water. Obviously, a massive shift would be an exception to this rule if the shift were to last a substantial length of time.

Tacking Angles

As soon as the breeze builds and the boat picks up speed, it should point closer to the wind. Remember that changes in tacking angles are not related to windshifts (unless the velocity changes are accompanied by a windshift), but are a result of the boat becoming more weatherly in an increased breeze. The crew reading the compass should be aware of the effect of the velocity on the tacking angles as well as the change in the compass readings. If you sail into a lull, the boat will want to bear off 10 degrees in what will appear to be a header to the compass reader. Since the change in angle will make the leeward boat look better, it may be tempting to tack and take advantage of the "header". After the tack, though, it quickly becomes obvious that the new tack is headed just as much as the old one. Sometimes the velocity will drop so quickly that the sails may actually begin to luff due to the apparent wind swinging so far forward. In this unusual condition, it may be necessary just to wait for the boat to slow down to match the hull speed with the wind velocity. Don't be fooled by the luffing sails that you have sailed into a massive header, hang on for at least a few seconds to make sure that it is truly a header and not just a huge drop in velocity.

On the other hand, remember that an increase in velocity will show as a lift because the boat's blades will gain efficiency as the speed picks up. On our boats we divide the responsibilities upwind so that one crew concentrates on the compass to pick out major shifts, while the other crew reminds him of the puffs and lulls.

Although excellent boatspeed in light air surely helps, the key ingredient is the team's mental attitude. Without confidence and the desire to be racing hard, there can be huge lapses in concentration. Since boatspeed is so low and tactics are accomplished slowly, every move must be anticipated. The crew's eyes should be all over the course, looking for changes in wind velocity and direction. Other boats should be watched for changes in angle which could also predict possible windshifts. Sometimes, when a shift or velocity change is missed (and not by other competitors, of course), you must work even harder to minimize losses.

Don't just let light-air races happen; be smooth, but be aggressive. Take advantage of other competitors' poor attitudes in these difficult conditions! An excellent attitude and practiced teamwork will lead you toward regatta-winning finishes.

Jane Lalonde and Mark Osterman show their "No Air" technique.