

# The Outer Reaches: Lake Sailing

by Brad Read  
Shore Sails

Skaneateles, Savannah, Rochester (Newport Yacht Club), Red Bank, Old Hickory, Devils Lake, Buckeye Lake, Lake Bomaseen, Mallets Bay, Spofford Lake .... What do these places have in common? These and so many other Lightning strongholds, are small lakes. Much of the sailing which we do in this Class is on enclosed (or relatively sheltered) bodies of water. Closed course racing on inland lakes and rivers is by far the most fascinating and fast paced sailing around. The great part about Lake sailing is that the race is never in the bag for anyone. Whether you are way behind or way ahead, don't quit. Positions can change faster than you can say ...

## Topographical Influences.

Imagine yourself in the middle of a large city with skyscrapers all around. It is blowing 25 from the west, but while you are walking through the city you get buffeted by wind whipping around buildings from the south, southwest, north and even east. Much of the time there is actually no apparent wind at all. Now imagine a river smack in the middle of that city. Chances are that the buildings will have a large effect on the breeze and your approach to the racing in that particular venue. The same thinking should be applied to any inland lake where breezes come off the land. A knowledge of the way the land will effect a breeze will go a long way in determining how to sail your race course.

Common sense would tell us that wind will travel easiest through low spots and will have a hard time when blocked by a hill. Therefore sailing towards a low spot may help get

you to more breeze than the competition. On reach legs, if the rhumbline will take you to the lee of an island or a hill, it would behoove you to sail a course which brings you away from the lee of the hill. Those who take the high road will tend to get stuck under the lee of the hill, while those who stay low can pick up lots of distance and boats by staying in the most breeze.

While going upwind, the landscape can effect the lanes of wind traveling across the lake to hills and a low spot upwind of your race course can significantly funnel the wind through the slot of the land. By doing most of your sailing in that slot, you can assure yourself of sailing where the most wind lies. One side or the other of that lane could potentially be favored over the other, depending on the angle that the wind is traveling across the hill.

Upwind sailing on inland lakes takes a special type of patience. One can usually count on having the breeze shift back and forth quite frequently. One side of the course can have a completely different wind than the other. In fact, in some cases the guy 20 feet to the right of you can have 15 degrees different wind angle and 5 knots more or less breeze in his/her sails. One thing always to remember here is ... sail with what you've got. If you are stuck in an area of the course which has been getting hammered by the other side, don't lose control and attempt to strangle your crew because your boat missed a shift. You can't beam yourselves into another part of the course. Sometimes you can't even get to the shift with a power boat in time to take advantage of a breeze line that has swept down one side of the course. By reacting to the winds around your boat you will always be able to work your way into the top 1/3 of the fleet even if one side took off in the first part of the beat.

## Heading for the mark:

When sailboat racing, we obviously want to get to the windward mark as quickly as possible. One way to accomplish this is by simply sailing on the tack closest to the windward mark. By reacting quickly in the shifting conditions, you can determine if you are heading for the mark. By putting your head on your shoulder and viewing out of the corner of your eye, the windward mark should be plainly in your view. If it isn't there you had better have a very good reason for not tacking on to the closest tack to the mark.

## Puffs

How do you determine whether the breeze line you see is going to be a header or a lift to you? Breeze lines, or puffs can arrive in very different ways. Eyesight is crucial in determining what that breeze will do to your heading while going up or downwind. Some will force you to tack as soon as the puff arrives. Others will lift the boat's heading and allow you to continue on that tack throughout the duration of the puff. By examining each puff before they reach the boat, you will be able to find out the best way to get to that breeze, and what it will do when it gets to the boat.

When you approach the puff, try and determine which



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way the puff is moving in relation to the horizon. Sometimes you will find that wind lines will miss you even though they are close enough to effect the guy 20 feet away. If the puff is coming towards you from a beam, pinch up if you can get into the puff sooner. By placing yourself to leeward of a puff you can assure yourself of a lift on that tack.

If the puff is approaching from the bow, you can be sure that it probably will be a heading puff. Depending on where the mark is, you will probably want to tack to be on the lifted part of that line. These breeze lines offer the opportunity to tack as the line gets to the boat. Unlike the open water sailing, which forces you to dig into the shift, you can get away with tacking on "edges" because the breeze lines are more definitive, and the puffs more compact. This allows you to bounce off of each cell of wind on your way up the course without getting into a corner.

A "fan", or "cat's paw" is the most common breeze line which we experience on the inland lakes. The fanning puff appears as a gust of wind touches down onto the surface of the water. Many times, the puff will spread out rapidly, so that the different sides of the fan have different angles of breeze. One side can lift you on the tack that you are on, while the other side could make your boat fall off or become headed. If the boat stays in the fan long enough, it can actually experience both sides of the fan. Depending on the way you need to go will determine how to use the puff which comes down the lake. The options are great, and the time to decide, short. A typical conversation up the beat of any of the races at Skaneateles went the following way.

It is thirty seconds or so after the start, and the last boat called over early had finally gotten off our breeze (thanks a lot, Jody)!

*Brad:* "Where the heck are we?" (heck??)

*Bill:* "Okay, we're just left of center of the beat, a small puff to our right, and good speed."

*Brad:* "Should I pinch up to the puff?"

*Bill:* "No keep driving. It'll get to you."

*Will:* "The entire right side of the course has a huge right hand breeze. I think Tom Allen is the leader, but he's a little bit over the horizon so it is hard to tell," says Will Jeffers ever so delicately.

*Brad:* "What?!!" Brad says (screams). "I can't believe you...er...we missed that!"

*Bill:* "We couldn't get to that breeze by car if we had to. Let's just sail with what we've got."

*Brad:* (apologetically) "Okay, are we heading for the mark?"

*Will:* "Yeah"

*Brad:* "Alright! Puffs Bill?"

*Bill:* "One coming from the bow."

*Brad:* "Is it a fan?"

*Will:* "Yeah, hang on a second. We can tack so that it'll be lifting us on the other tack."

*Brad:* "Will we be heading towards another shift?"

*Will:* "Yeah! Looks like this one will carry us towards another puff, but looks like this one could last a while."

*Bill:* (Mr. Conervative.) "Yup! And this will get us back in the middle and heading for the mark."

*Brad:* "Tacking."

### After the Tack

*Brad:* "We seem to be up on this board. How does the right look?"

*Bill:* "They're still up on starboard, but they don't have the



*Brad and crew accept First Place at 50th Anniversary Regatta.*

breeze that our group is in."

*Will:* "Yeah, I can even see Tom Allen's numbers now." (Bill finds this amazingly funny.)

*Brad:* "Who else are the leaders?"

*Bill:* "Well, we're second, or third in our group. The left looks light and they are coming with us. The right looks best now but with no wind."

*Brad:* "We're starting to drop into a lull!"

*Bill:* "Yes but we're still on the favored tack to the mark. Some of our group is starting to dig back in to the left, but there isn't any breeze over there."

*Will:* The folks on the right are getting into a breeze line, but it doesn't look like they are lifted."

*Brad:* "Are they on the wrong side of something?"

*Bill:* "Don't get cocky, but you are right. Let's tack on the leeward part of this fan and we'll be lifted on starboard while they have the puff in front of them and are pointing right at us on the same tack. By the way who asked you anyway?"

*Will:* "I hate when he's right."

*Brad:* "Call it."

*Bill & Will:* "Go."

By understanding the puffs and lulls a little better in lake conditions and how to determine their effect on the boat you can improve your position dramatically on those inland lake regattas. If my coach during college sailing drilled anything into our heads, it was to keep you head out of the boat. Get in tune with your environment don't get caught up in looking at a compass, telltales or sail shape for too long. Practice keeping your eyes on the telltales which your surroundings offer you. Other boats, flags on land, a smoke stack, wind on the water, topography and common sense will give you a new perspective on lake sailing. True, lake sailing can be weird, but if you keep in mind that some of the best lake sailors are known to be a little strange themselves, maybe we can all relate a little better to the big picture of lake sailing.

# TO FATHEAD OR TO FLATHEAD

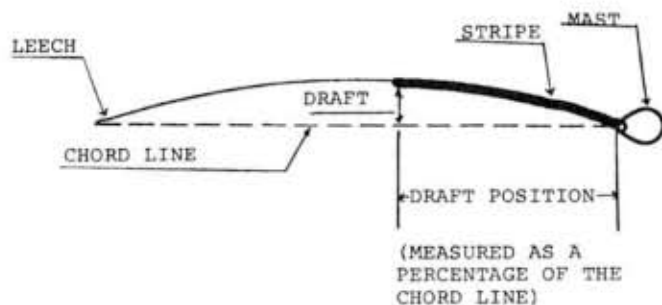
by Ched Proctor  
North Sails

While racing the modern Lightning with the newest generation of sails, we can set the mainsail with an infinite variety of shapes through adjustment of mainsail and mast controls. In this article, I will focus on the 8-12 knot wind range where it is not always clear just how one should set the mainsail (not that it ever is)!

There seems to be a definite transition point around 10 knots when one wants to shift from a "Fathead" trim to a "Flathead" trim and back again depending upon the conditions. When the transition point for this trim change comes, there suddenly seems to be a significant disparity of boat speed within the fleet. I find that by correctly knowing when to make this shift, it is possible to make substantial gains. For instance, if the wind is 8-12 knots, either a two knot apparent wind change or a slight change in wave pattern seems to require this shift for the best boat performance. Notice, I say "apparent wind". The difference between getting out of a tack and being up to maximum speed can justify a complete shift from "Fathead" to "Flathead" trim due to increased apparent wind.

## DEFINE "FATHEAD" AND "FLATHEAD"

The upper picture on the opposite page shows the "Fathead" trim with the lower picture illustrating the "Flathead" trim. To make the pictures easier to use to see the shape to which the sail is set, we have added three stripes. Focus on the upper two stripes. Try placing a straight edge between the front and back of the stripe and notice the distance to the deepest point. This we call the "draft" and how far the deepest point is located from luff and leech we call the "draft position". One can actually measure these two quantities as a percentage of the "chord length" to define the way the sail sets. The diagram below illustrates these terms.



Actually these terms are some of the inputs we use in our computer program to describe a sail shape when we design the sail. There is only one shape to which we design the sail but you as a sailor can set it with an infinite variety of shapes. More of that later!

In the "Fathead" picture, notice the draft is much greater than in the "Flathead" picture. The draft position is also nearer the mast in the "Fathead" trim. The most noticeable characteristic is that the curvature of the middle of the stripe



*Ched Proctor at Sail Loft*

is greater in the "Fathead" trim than the "Flathead" trim. This describes the difference in the two trims on a horizontal plane but there is also an equally important vertical aspect to the shape description. This vertical aspect is a little harder to see from an "on the boat, under the boom position" as pictured. From directly astern the boat, you would see that the "Flathead" trim is also flatter from head to foot.

In the under the boom pictures, you can see some differences in the curvature at the leech against the sky. In the lower part of the "Flathead", the leech is curving less and in the area of the upper batten, there is a more severe curvature. Overall, the sail is flatter vertically than in the "Fathead" trim. This is just as important as the horizontal aspect of the shape difference.

Keep in mind that both of these trims are for moderate breezes, there being only a slight change in the power generated by the trim. In the case of heavy air, we would depower the rig by adding some vertical curvature. This lets the upper batten point to leeward enough to let the sail develop less power so we can still keep the boat flat in an overpowering breeze. However, in both the "Fathead" and "Flathead" trim we keep the sail trimmed with the sheet so that the top batten is parallel to the boom. When the sail develops less draft, we need to flatten it vertically in order to keep the top batten parallel to the boom. By using the hard trim as in the "Flathead", we still maximize side forces for medium condi-



tions but allow a closer angle of attack than with full trim. This means we can point higher. The heavy air trim not only has a flat draft but in contrast to the "Flathead" trim, is highly twisted with the top batten pointing well to leeward to reduce heeling. We are talking about a fairly specialized trim in our "Flathead" trim.

## HOW THE ADJUSTMENTS ARE DIFFERENT

In order to be able to get these two sail shapes and shift back and forth easily, your controls must work well. I think the mistake most sailors make in rigging controls is to use

1. Backstay slack or only enough tension to keep the headstay from bouncing around
2. Outhaul slack 1½"
3. Cunningham (Smart Pig) slack or only enough tension to remove wrinkles in upper half of luff
4. Mainsheet eased so top batten in parallel to the boom

To adjust to the "Flathead" trim

1. Pull backstay down 4"
2. Leave outhaul slack 1½"
3. Cunningham (Smart Pig) to keep draft in the middle at the top stripe. At this point, wrinkles will be removed from upper two-thirds of luff. The wrinkles are much less prominent than with the "Fathead" trim
4. Mainsheet trimmed down 3-5" to keep top batten parallel to boom

Thus the adjustments one makes to change from a fat to the flat trim are to pull on the backstay, cunningham and mainsheet. This is the tightest you will ever trim the mainsheet as you pull the boom almost against the bridle block. For these adjustments to work, you must have your mast correctly tuned.

Now that we can see how to set the sail to a "Fathead" or "Flathead" configuration, we can consider the hard part, that is, when do we use each. The "Flathead" can point higher than the "Fathead" since it had less vertical curvature and provided there is sufficient wind relative to the waves. This "Flathead" develops more side force and less forward force and also tends to develop more weather helm for a given angle of heel. This promotes higher pointing if it is used when there is sufficient pressure in the rig (wind on the sails). However, the "Flathead" is more susceptible to stalling. The more curvy "Fathead" can accept a varying angle of attack and can keep working when the boat is being bounced by waves. This gives it a wider steering groove.

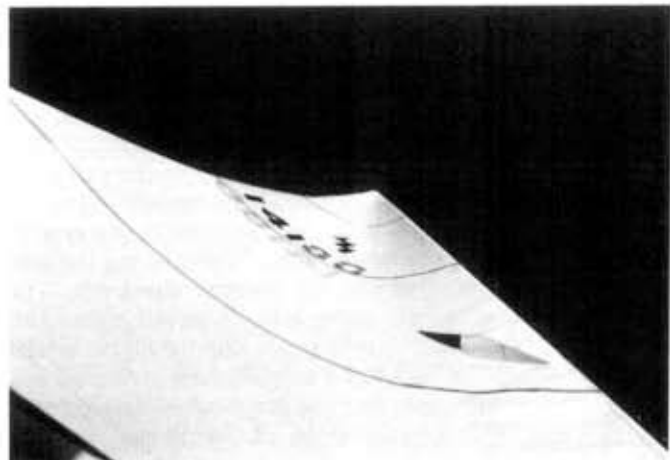
### "Fathead"

1. Has a wider steering groove
2. Works at a greater angle of heel
3. Sails lower and faster

### "Flathead"

1. Points higher as a result of greater weather helm
2. Requires sailing with less heel
3. Requires one crew to weather or on-the-rail with the other in the middle of the boat.

When sailing a race in moderate conditions, how do I know which shape to use? It is one thing to say that you should use "Fathead" up to 9 or 10 knots and at 12 knots go to a "Flathead". I feel that the boat really changes at somewhere about this wind strength but it is not easy to say exactly how hard the wind is blowing. Also, it is considerably different depending upon wave conditions and even air temperature! So you need to learn it the way the top sailors do and that is "TO FEEL IT". How one learns to do this is not an easy thing. A top-rate helmsman once told me that he couldn't steer a boat fast if he was deaf. I think that all the senses are required for sailing fast. Smell? Well, maybe not but certainly the sense of motion, feel and sight. When the noise of water over the hull becomes louder, trim the sheet, sail higher, flatten the angle of heel and adjust the backstay



too large a line size to run through the blocks and cleats freely. I also like to use a 4:1 on the backstay instead of the more common 8:1 purchase. This gives me an instant response in sail shape with only minimal hand movement. There is also more "feel" due to less friction and purchase. I can feel the pressure on the backstay without looking aloft each time to visually check the shape of the sail. I do look up frequently to check the shape in the critical upper part of the mainsail but with the 4:1 backstay, I have a second sensory input as to where I am in the range of adjustment.

To adjust to a "Fathead" trim

to keep the top batten parallel to the boom. Simple, eh?

To more fully understand a little of the feel involved, let us look at the technique of sailing through a wave. When the wind is light relative to the waves, the boat needs to be heeled over in order to keep moving through the wave. I think of the shape of the Lightning as being analogous to a box with a flat bottom and corners. By heeling the boat enough so that the corner hits the waves first rather than the flat of the boat's bottom, there is less resistance from the wave. However, the sails and centerboard don't work as efficiently when heeled over. When the wind is a little stronger relative to the waves, you can hit the waves more with the flat of the bottom. You can keep the boat flatter and the greater pressure on the sails and centerboard pushes the boat through the wave effectively overcoming the added resistance of the flat bottom hitting the face of the wave first.

When the waves are coming square on or slightly to the weather side, we can do better pointing a little higher thus getting the waves to it from the leeward side. This is why it is often slow to drive off to much in a wave. When the wave comes from the weather side, it pushes the boat to leeward. The centerboard overloads increasing its angle of attack and causes the flow on the weather side to become separated and turbulent. In other words, the centerboard stalls out. This is slow and low. In a moderate breeze when one crew is just to the weather seat or rail and the other at or just above the middle in order to keep the boat balanced, we can sail a little higher to get the wave to come straight on or even slightly to leeward. This may happen on starboard tack when the wind has shifted right or on port tack when the wind has shifted left. To sail a higher pointing angle with the main set full, it may luff a little. We can then go to the "Flathead" higher pointing shape in order to keep the main working effectively at the higher pointing angle.

When the wind relative to the waves becomes a little stronger, you can point higher by keeping the boat nearly flat going into the waves. The pressure on the top of the main and on the centerboard becomes great enough to reduce the pitching when the bow hits the wave with the flat of the bottom. I feel that the boat actually develops a bulldozer, wave flattening mode and its kinetic energy is great enough to bang through the waves. At this time, there is enough power in the wind that one crew is almost on the weather rail and the other in the middle of the boat. When we go to this point, we retrim to the "Flathead" shape.

On the opposite side of the coin, if you try to keep the boat flat when the waves get too big relative to the wind to slam them with the flat of the bottom of the boat, you may know it by doing it wrong. The boat slows down, goes completely flat and all feel resulting from weather helm disappears. The leeward telltales on the front of the jib go dead and "Oh, is it painful". The Skipper gripes and the crew comments that the fun meter is reading zero. The whole operation comes to a bit of a halt and we have to go to work in order to get moving again. We would have been better off to heel the boat substantially just before hitting the wave. To make this work well, we need sheet and backstay eased off to give us the "Fathead" shape since it accepts the highly variable angle of attack when the boat is pitching going into the wave. Let's take a look at what happens to the angle of attack as the boat pitches going into waves. As the bow goes up when first hitting the wave, the top of the main goes aft. Thus as the apparent wind comes aft, the top of the sail is

sailing on a reach, therefore it must be twisted off to accept the wider angle of attack at the upper part. As the bow comes down the apparent wind comes forward. The tendency will be for the front of the sail to luff in the upper part but this is not really as detrimental as stalling on the backswing. The angle of attack is varying so we want the "Fathead" trim when the boat is pitching. You need to try going through the waves both heeled and flat to see if the relative wind to wave is such that you want to "Fathead" or "Flathead". The "Fathead" trim is used with greater heel than the "Flathead" trim.

In real smooth water, we can go "Flathead" in much lighter wind than in rough water. That's because the hull reaches maximum speed easily in the absence of any waves and by pushing it harder with full twisted sails it can't go any faster. We can trim the sails flatter and this lets the boat go higher at the same speed. Also, in smooth water, the boat's greater speed increases the apparent wind which again lets us go to the flatter sail shape.

We have yet to mention what happens to the jib as we change trim. The load from the backstay is transferred by the mast into the headstay. As we go tighter on the backstay with the "Flathead" trim, the headstay is allowed to sag less and this makes the front of the jib become straighter. The straighter front of the jib makes it easier to sail higher and thus aids the "Flathead" trim in producing the higher pointing mode. When the backstay and mainsheet are eased giving the "Fathead" trim the lighter load allows greater headstay sag. This lets the front of the jib get rounder. Combined with a looser cloth tension, the jib is also fuller and more powerful which keeps the boat moving through the waves. The rounder front also lets you sail lower and thus develop more speed. It can accept a varying angle of attack better as can the "Fathead". So, the same variation of performance characteristics happen with the jib as happened with the main when the boat is properly tuned. This makes the steering groove wider when the boat cannot be steered accurately due to the waves.

To summarize, we should "Fathead" when:

1. The water is rough and the wind light
2. The boat balances with chine 7-10" out of the water
3. Crew needs to be in the middle and to leeward for balanced trim

We should "Flathead" when:

1. The water is smooth and there is significant wind to make the boat reach maximum speed
2. We can point high enough to take waves on the leeward rather than the weather side
3. Chine must be just clear of water to keep the boat balanced

By keeping the boat balanced, I mean that weather helm is only enough to give the proper feel. The boat should be able to head up without pushing the tiller to leeward but be able to be pulled down to course with only two finger pressure on the tiller.

The fascinating thing about the sport of sailing is that every day the conditions tend to be a little different and require a different trim, response or technique in order to get the best result. This is where practice pays off because by practicing, you learn to feel the boat and respond to what this feel tells you it needs to go fast. Also, getting on the race course early before a race in order to psyche out the conditions, you can determine what is needed to go fast.

# WHY DO I DO WHAT IT IS THAT I DO?

by David Nickels  
Pontiac Yacht Club  
Nickels Boat Works

When Olin Stephens designed the Lightning in 1938, I don't think he had any idea that it would affect someones life such as mine. I was born two years after Lightning I was built and didn't see one until I was two. Obviously I didn't know what it was, but by the time I was five my dad (Herman), Bill Furey, and Harvey Foote were building three of them — 840, 1565, 1566. All I really remember about 1565 is when dad had to turn the boat on its side to put it on the front porch to finish it. I still hear stories about the first boats all the time.

Dad started building Lightnings to order in the late forties. In 1950 he and Clarence Holman formed a partnership as Nickels & Holman. Then came my big break! In the summer of 1954 at 13 years of age, I was running short of cash to buy my new Sears J. C. Higgins 3 speed lightweight bicycle. But Dad always had the answer! He set it up with Clarence for me to work at the shop to earn the money. For me it was my big break!

From that day I started to learn to build Lightnings from the ground up. Being lowest on the totem pole I got all the jobs no one else wanted. I kept looking over shoulders and by age 16 could build the whole wooden Lightning hull. I also learned how to block sand them by hand extremely well because no one else wanted to do it.

During that same time span I started crewing. I saw the skipper be the first one in the boat to use the newly invented cam cleat. I crewed my first Internationals with Dad in 1956. In 1957 Dad and I co-skipped his boat on Lake Fenton. In 1958 I got my first Lightning — 6633. Due to my lack of wheels, I did most of my sailing on Lake Fenton.

1959 was a good year for me. I graduated from high school and crewed for my Dad when he won what was the last Internationals. It was the last year of the old format for national competition. The following year the I.L.C.A. went to the 1 boat for 25 paid and the 3 qualifying with five championship races. In September, I started college, which for me would last one year.

In 1961 I was back working at the shop. I also built my new boat — 7877 from scratch while recovering from an appendectomy. By this time I had wheels, so I started attending more regattas. Michigan has a good regatta circuit. From Lake Fenton the closest regatta is about 45 minutes driving time. The farthest regatta only about 3½ hours away. Michigan regattas start about May 1 and run through the first weekend of October.

I qualified for my first North Americans at Bay City Yacht Club in 1961. Naturally, they were right next door in San Diego, California! I was able to put together enough funds to make the trip. The entire trip ended up costing me \$180.00. On the way home I had a very odd thing happen to me. I was driving through Rawlins, Wyoming looking for a Mobil Station because my car was low on oil. I pulled into



*Dave at the helm.*

one and while I was changing shoes in the doorway of the car a man walked up to me. He said he saw the Michigan license plate on the boat and said his cousin was due through Rawlings anytime. He introduced himself as David Emerson, which is my first and middle names. He was my Dad's cousin who I am named after.

The years of 1964 through 1967 were important years for me and the Lightning Class. The transition from wood to fiberglass sandwich construction presented many problems. Some of these problems haunted the class well through the seventies. Since I was working for Nickels & Holman, all of the changes in construction were challenging for a Lightning builder. It also saw the number of builders decline from as many as ten down to about five. We also saw the number of Class boat numbers issued drop from about 350 per year in the fifties, to 200 per year by the mid seventies and 100 per year in the eighties.

I worked for Nickels & Holman until 1974. Too many differences of opinion caused us to part, but we were still good friends, I then repaired boats of all types and sizes at National Boat Land in Farmington and at home. In 1979 I put up my own pole barn behind my house. I was repairing boats up to 28 feet in length in the barn.

In the summer of 1980, my brother George sold his Islander 30. He and my other brother Louie started sailing Dad's Lightning 12330. By August, the three of us decided



that we would each like to have a new Lightning. Friends of ours, Paul Cavanaugh and Morrie Gushen also wanted new boats. On September 15, 1980 we had a meeting in my barn and formulated the plan to build all the plugs, molds and five Lightnings. We started October 1st, launched the first boat May 2nd and the last one August 21 of 1981. The only unfortunate event while building the boats was that Morrie Gushen was critically injured in an auto accident. He did lose an eye, but fortunately not his life! This project also required the patience of four wives and one girlfriend who later became Louie's wife. After eleven months of hard work, with everyone's extra minute spent in the barn, we celebrated by taking them out for a special dinner!

In my opinion, we had just built the finest Japanese Lightning you could build. I call it Japanese because it is a combination of ideas; Ideas spanning 42 years and a combination of many people's suggestions. What we had done was to put as many good ideas in one place as possible. As many people know, this project evolved into Nickels Boat Works. Customers have made suggestions that we have continued to add to the boat. I felt good because we had provided incentive for people to start and buy new boats again!

This approach is the same approach the Lightning Class uses. When it has a job to do it calls on its members to look for good ideas. Fresh ideas combined with many of the traditional approaches are what keeps this Class going. The 50th Anniversary Regatta explains it best. Lightnings came from all around the country. 227 Lightnings registered, with Lightning 1 attending and Lightning 14300 being raffled off. It seemed more like a reunion as generations of families and friends attended. Four generations of the Allen family were there; unfortunately we were saddened with the loss of Karl

Smither later that month.

The spirit of the 50th Anniversary and the Lightning Class is best exemplified by the fact that participants and spectators came from both coasts, Canada, Finland and Colombia.

And the Lightning tradition continued as three generations of my family headed for the San Diego North Americans less than 30 days after the 50th. By plane and van with double deck trailers, we all gathered for the annual meeting of champions. It makes me realize that the Lightning has been a major factor in the closeness which my Father and I have shared down through the years. I would imagine that many of you share similar memorable events as a result of the Lightning "family".

What does all this mean? As I see it, there is a challenge facing each of us who enjoy and love this boat called a Lightning. The challenge is to take a personal interest in seeing that the Lightning tradition continues for another 50 years. My experience is that the most successful way to bring new people into the Class is with grassroots soft selling. It starts at the fleet level with each of us talking Lightning sailing whenever there is someone who is willing to listen. You can't push someone into a Lightning, but once they've tasted the wine they will come back and want to be a part of the greatest group of sailors I know.

It reminds me a lot of the Bartles & James approach to marketing their products. I have never been more pleased that when the folks at the Red Flannel Regatta presented me with the Bartles & James Award — they understand what I'm trying to say. Maybe someday my brother George will even learn to fly the airplane!

## Lightning In Finland

Mr. Ralph Vogt, a young Finnish engineer, saw in the spring of 1947 an article and pictures of a boat in an American journal. He was interested in the boat and mailed a letter to the address given in the article for more information. He received the first reply very soon and a little later, more detailed information with the plans and instructions were in the hands of Mr Vogt.

This was the beginning of Lightnings in Finland — it was imported into Finland in an envelope.

The very first Lightning in Finland was made by Mr. Vogt and his neighbor, Mr. Fjalar Frogius, in the boiler-room in the apartment-house they lived in. The boat got the number L-3226 and was christened *Lorita*. Whenever people saw the new boat they were interested in it because the material, used in the boat, was available in Finland and the construction was just right for a handy man.

Next year, 1948, the first Championship regatta was arranged in Helsinki with five Lightnings but in 1949 as many as 19 Lightnings participated in the Championship.

The Lightning Class Association, Finland District is a registered association. More than 100 people attended the meeting in January 1949 at which the association was founded. When reading the minutes of the meeting, one

decision is interesting; the acceptance of the Finnish made sails of domestic material only and prohibition of a spinaker. The reason for these limits was the rationing of material, especially imported, after World War II.

Three fleets were chartered in 1949, two in 1953 and four more fleets in 1958, all in towns on the shores of the Gulf of Bothnia and Gulf of Finland.

The first fleets on the lakes in the Land of Thousand Lakes, were chartered in 1960 and 1962. The late '60s three more fleets were chartered and mid '70s again three fleets. For some reason or another many of these early fleets are nowadays Sleeping Beauties.

District Championships were arranged every year, about 25-30 Lightnings participating, 40 boats as maximum which is quite well in the District of 350 registered Lightnings during the history of forty years.

Lightnings from Finland have participated in each and every European Championship since the First Championships in Switzerland in 1956.

In 1958 Finland was the first time host country for the Europeans. Mr. C. J. Allan, President of ILCA, report is good reading for those interested in knowing how the Europeans were organized.



*Ralph Vogt (1988) was responsible for the introduction of the Lightning into Finland in 1947.*

It was very challenging to participate in Europeans as well as Worlds in the '50s and '60s, especially for transportation of boats. The best arrangements might have been in 1966 when the Finnish boat L-9441 was loaded on the deck of an empty tanker on the way to the Black Sea and off-loaded on the sea out of Athens and sailed into Piraeus as a surprise or when Mr. Pentti Puupera worked as a carpenter on a ship transporting him and his boat L-10057 to the Worlds in Buenos Aires 1969. The Worlds were in Finland 1971.

Lightnings in Finland have had ups and downs during the past forty years, a lot of experience.

We have a dream and an optimistic view of the future but to come true it needs assistance from all of us and from you, too.

## A Winning One Design

by Betsy Alison  
Shore Sails

*Reprinted from Yacht Racing/Cruising (partial) - Updated*

In 1938, who would have imagined that the arrival of the Lightning on the sailing scene would create an international one design Class which now numbers more than 14,000 boats, with over 4,000 active racers. Obviously, Sparkman and Stephens didn't when they gave up the rights to the boat. Now, as the Lightning has reached its 50th anniversary, its popularity among the young and old racers and daysailers alike around the world is stronger than ever.

The continued development of the Lightning design has accounted for growth within the Class, which has a very strong international organization. Any suggested changes in the boat specifications are carefully scrutinized by the Class in an effort to keep all boats equal. This careful control has allowed innovations, that update the boat without outdating its predecessors. The improvement of the original design appeals to the new wave of sailors, as well as the longtime Class supporters. World champions like Bruce Goldsmith, Tom Allen, Dave Curtis and ourselves are seeing the likes of Larry MacDonald and Brad Read, along with second generation sailors Tom Allen, Jr. and Jody Lutz, compete with them on even terms.

Probably the most critical time in Class development occurred in the mid 50's. Having developed a very successful

Star boat by using the Class tolerances to the maximum, Skip Etchells, a naval architect, decided to do the same with the Lightning. The problem with this at the time was the Class did not publish tolerances for the boats. By plotting maximum tolerances using approved designs of the current builders, Etchells came up with an exceptionally fast Lightning. Today's builders all use these same tolerances to produce fast boats.

During its history, the Class has undergone a series of developmental changes. The original double planked wooden hull has been replaced by self rescuing fiberglass boats. Wooden masts with jumpers were made obsolete by stronger, better performing oval aluminum spars that cost less. Stainless steel centerboards replaced the original steel boards that continually rusted. The adjustable backstay and new bridle/traveller system have dramatically improved the performance of the Lightning in heavy air. Perhaps the most interesting innovation was developed by two brothers sailing in San Diego in the 60's. The Barber brothers devised the jib sheet controls which allowed outboard trim without losing leech tension. These "Barber-Hauls" are now widely used on all racing dinghies.



## The Boat

The beauty of the modern Lightning is the boat can be sailed competitively right "out of the box", with little or no modifications needing to be made. Most boats come in at the minimum weight of 700 lbs. and occasionally have lead added to get up to minimum. The hull must be of constant construction throughout and the addition of lead is limited to 20 lbs. in the center of the boat. If more lead must be added to the new boats, it is added in the ends. This keeps the older hulls competitive with the new. The masts are controlled by strict tolerances, guaranteeing one design performance and eliminating the need to make modifications.

The new boats have the four major control lines (cunningham, vang, backstay and traveller) located between the skipper and middle crew. Sail adjustments are made quickly and efficiently. The inside of the deck is now rolled in, making hiking far more comfortable and easier than the old flat deck. Hiking assist lines allow the middle crew some upper body support, facilitating maximum power on windy weather legs.

Of course, you can always tinker, and we have made a few modifications that we believe help our performance. Our jib sheet cleats are mounted vertically rather than horizontally, making jib trim easier upwind and improving the crews ability to play the sail on a reach. The outhaul is led through a bullet block which turns the purchase into a 4:1. Our spinnaker halyard runs aft along the centerboard trunk, through a cleat and to a bullet block which allows the skipper to pull the chute up from any angle. Our jib halyard is a ball lock on a track which leads to the top of the centerboard trunk. Our boom vang is a double lever type that is rigid sideways, removing any slop in the system. Our mainsheet bridle system, which came standard with our boat, allows us to center the boom easily in light air.

## Crew

Crew weight ranges between 450-500 lbs., with the optimum right around 485. With a boat this heavy, it is important to keep weight very close together in seas for less pitching moment. The skipper should be the first to sit on the rail as the wind increases for better vision. In our boat, the middle crew is next up. This lets the skipper see oncoming waves while the forward crew can fine tune the jib.

## Upwind crew responsibilities

Forward crews: trims jib, reads compass, looks for boats, balances boat heel, adjusts outhaul

Middle crew: works on boat trim, watches for and calls puffs, wind changes, discusses positioning of fleet and tactical situations with skipper, finds weather mark

Skipper: works on speed and tactics, steers, adjusts, minsheet, backstay, bridle, cunningham and vang, makes final tactical decisions

## Downwind crew responsibilities

Forward crew: handles spinnaker halyard (if halyard is forward), jibes pole, plays twings (if you have them), adjusts outhaul, looks for boats and marks, play weight

Middle man: trims spinnaker (solely)

Skipper: steers (very well, or else), plays mainsheet, cunningham, vang, backstay

## Weight placement

The Lightning has substantial fore and aft round to the bottom, which makes weight placement critical. Thwartship hiking straps, which are in the same position on all boats, limit fore and aft movement to about 1'. Upwind in light air weight is forward as much as practical, keeping the transom up. As the wind increases, weight is moved back slightly to keep the bow up in waves.

Downwind in light to moderate wind, the weight must be forward to keep the back end up out of the water for less wetted surface. Weight stays forward until the bow wave gets too big. Weight is then moved aft slightly, just enough to keep from tripping over the bow. When the boat is planing, weight cannot be moved as far aft as in light planing hulls because of the rocker in the bottom. Weight aft makes the bow stick up in the air, and the back end drags too much. Even on reaches, the weight stays right over the thwartship hiking straps. The only time you would consider moving aft is on a reach when the leeward chine digs in and makes the boat round up.

## Sail Trim

Sail trim for both the main and jib is very dependent on backstay adjustment. The backstay should be tensioned slightly for light to moderate winds to keep the headstay from bouncing around. This gives both the main and jib the correct fullness. The backstay should not be any tighter than this until two crew are hiking and the third is just beginning. It then becomes critical to put on enough backstay to keep the boat flat in the heavier conditions for drive but not overdoing it and depowering in chop.

## Jib

The jib leads should be set 100" from the luff wire. In very heavy or very light conditions the leads can be moved aft or forward one hole, but this position is very close for any condition. In moderate conditions, jib sheet tension is adjusted so the upper leech of the jib (near the top batten) is 2½" inside the spreader. In very light conditions the upper leech should be 0-1" depending on how light the wind gets. In absolute drifting conditions, the leech may be out past the spreader.

## Main

The mainsheet should be tight enough to make the top batten parallel to the boom on a vertical plane (sighting from directly under the boom up the sail). The exception here is in very heavy wind conditions when the top should be more open to keep the boat on its feet. The position of the boom should be centerline up to 13 knots of wind. The bridle for the mainsheet should be set so the traveler block is 11 ¾" above the deck. In winds above that, the boom should go to leeward approximately 8" for every 3 knot increase in breeze. Vang sheeting, which is very helpful on most dinghies, doesn't work as well in the Lightning. The boom isn't strong enough to take a heavy load upwind, so in heavy air the vang is just snug enough to keep the leech firm.

Other adjustments that you make to the sails deal with cunningham, outhaul and jib cloth. There should be just enough tension in the cunningham to remove about 90% of the horizontal wrinkles coming out of the luff. The cloth

adjustment on the jib is the same. As for the outhaul, the foot of the main should be tight enough to pull the shelf out in all wind conditions. As the wind increases to hard hiking, outhaul tension should be increased until there are horizontal creases along the boom. Offwind, the outhaul should be eased enough to expose all of the shelf. On windy reaches, the outhaul will only be eased to the point of making the main overpowered.

### **Spinnaker**

The Lightning spinnaker is oversized for the boat. Because of this, the chute is flatter than usual, with very open leeches. Good spinnaker trim on reaches is essential to fast offwind speed, and the trimmer must stay on the ball. In light to moderate conditions, the luff should fold over about 10% of the time. This will provide maximum power without overtrimming. As the wind increases to the 12 knot range, the luff will fold over about 40% of the time, meaning that the after leech is open enough to prevent stalling. When the breeze gets to the point of depowering, the luff should be folding over 90% of the time. In very heavy air, if the sail is overtrimmed at all, it can easily flip the boat over.

On a dead run or broad reaching, the rule of thumb is the same as always; keep the clews even. The pole ring has a wide variance, and ours is about 2' above the gooseneck. This is a good height for reaching and generally fits the spinnaker for broad reaching. If you tend to run dead down in lighter airs, the ring may have to be a little lower, but this will hurt on the reaching legs.

### **Sailing the boat**

#### **Tacking**

Always roll tack the boat. The weight of the boat will generally carry through the tack, so tacking in flat water

doesn't hurt much. As the seas get choppy, however, the flat forward section of the boat can cause it to stop dead in a tack. Therefore, keep a sharp eye to weather and tack in as flat a spot as possible. Come out of the tack a little heavy and a little overheeled, then rock the boat flat. This accelerates the boat on the new tack. If the water is flat, overtacking the boat is not necessary.

Sailing upwind in light air, a little heel will generate the helm needed to give you bite to weather. As the wind increases, sail the boat as flat as possible. The centerboard is big but is only about 3/8" thick, so it stalls very quickly if the boat is heeled too much. This becomes even more important as chop increases. The only time you want the boat to heel is coming into a steep wave, when this extra heel makes more of a "V" entry and prevents the bow from slamming. As the breeze gets to the point of overpowering with three hiking, the boat must be sailed with absolutely as little heel as possible. This keeps the leeward chine up, dramatically reducing helm, and also keeps the centerboard from stalling.

Offwind, the helm should be as neutral as possible. This is especially important on reaches when the oversized spinnaker can really overpower you. When the helmsman feels the bite in the helm, he depowers as much as possible through mainsheet ease and hiking. The Lightning sails very fast in this mode, with the spinnaker providing all the power necessary.

(Betsy Gelenitis Alison is a three time Yachtswoman of the Year, the 1985 World Woman Keelboat Champion, and crewed with Bill Shore in his winning effort at the 1985 Lightning Worlds, a title he first also won in 1971, and North American Champion, which he has won 5 times. Betsy currently works at Shore Sails where she runs seminars and produces all of the one design sails.)

## **Racing To Cruising**

**(Old Lightning Sailors Never Die....They just Cruise)**

**by Jack and Liz Grinder  
Cape Coral, Florida**

An ardent Lightning racer, member of Silver Lake Yacht Club, Fleet 47 and the Lake Erie District, Jack raced with his son Mark for many years. Retired now but with the love of the Lightning still in his heart, Jack volunteered his services on the committee boat for the 1988 Lake Erie District Championships held at Silver Lake Yacht Club.

The Grinder Lightning tradition continues not only with son Mark captaining the Lightning now, but with Grandson Matt's first regatta experience, at four years old, which found them claiming third place at the 1988 Cuba Lake Regatta.

### **I'm no longer a purist**

A Lightning sailor, accustomed to racing without motor's assistance, I am aware of those two alternate forms of

forward motion, paddling and "ooching". I learned early in my sailing life to coax the most out of winds' whispers and sails' trim. I've experienced the thrill of hiking out flat with crew to bring my boat through 20-knot winds and first over the finish line. Now I am retired and racing sailboats has been exchanged for cruising sailboats.

When first scouting southwest Florida for a cruising sailboat, I asked questions from habit, "How well does she point?" "What about her racing record?" Invariably the replies were, "...we cruisers do more reaching and running down here."

Alas, no longer do I beat my brains out sailing hard on the wind in 20-knots, the rail awash in the sea...for pleasure, only when it is unavoidable. Bruising one's back while braced against the heel of the boat, hauling on sheets drenched with salt spray, shivering in the wind are more

tiring than exhilarating after 30 minutes and 69 years. I'll don foul weather gear and sail in rain and cold, but only to reach the nearest safe harbor...preferably one with hot showers, cool drinks and a good restaurant.

I listen to NOAA weather station regularly, chart my course and plan the distances I hope to cover each day. No need to be caught 15 miles from my destination because the



*Liz and Jack live a peaceful retirement.*

wind died before the sun set. I no longer sail when small craft warnings are posted, nor am I too proud to sit at a mooring until I have a reasonable reaching or following wind. I'll reef the main to keep control. But I get a kick out of skimming along with just the genoa flying!

Sure, I'll hang on a hook in a quiet cove as did the mariners of old if it can be accomplished with the amenities of the 20th century. On those occasions when the dink floats astern, I relish my wife's tasty onboard meals preceeded by Happy Hour in the cockpit. Reluctantly, I will admit the warm "daisy" shower is refreshing in an isolated cove supervised by the neighborhood osprey or the visiting pelican.

The marine motor was designed to push a boat through water. No waiting for turning tide when the wind dies. Truly, there is a feeling of confidence bordering on affection for my one-lunger that always runs over and thumps on demand. Yet, the most beautiful sounds to a sailor are those of silence or when the shrouds hummmm in rhythm to the bow wake.

I have a compass. One of the best. It works with a minimal deviation. Will I ever need it? It is doubtful that I will ever be out of sight of land, but reassuring to know it is so dependable.

If your wife shared your racing enthusiasm or if she just enjoys sailing, you have the makings of a good cruising crew. No longer must she sit high on the combing, or hike out to flatten the boat. She can roll down the bimini side curtains and not scrunch against flying spray or drizzly rains. The comforts of cruising are quickly discovered.

How does she point? Speed? Her racing record? This old Lightning captain cruises now.

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