



## **ORR ALLOWS LARGE ROACH HEADSAILS for 2018**

**Jim Teeters, ORA Technical Director    28 Feb 2018**

The Offshore Racing Association (ORA) has introduced Large Roach Headsails (LRHs) into the 2018 Offshore Racing Rule (ORR). This type of sail resides in the “no-man’s” land between headsails (genoas/jibs) and spinnakers that had previously been disallowed in ORR. After several years of consultation with sailors and representatives of the marine industry the ORR committee has developed a methodology to measure and fairly rate these sails.

There are a number of boats that will find this sail fills a gap in their sail inventory. One example is a boat with a fractional rig whose largest headsail is non-overlapping. For tight to beam reaching, especially in light air, there is no sail on board that would provide optimal performance.

There are also a number of boats for which the LRH has virtually no attraction. A boat rigged with a masthead overlapping headsail already has in her inventory a sail or sails that achieve much of what an LRH does.

Included in this report there are presentations of the effects of LRHs on typical ratings for a small sample of boats. This illustrates how different boats are affected differently and why it is necessary for the ORR VPP to be able to correctly assess the impact of LRH sails on any specific boats.

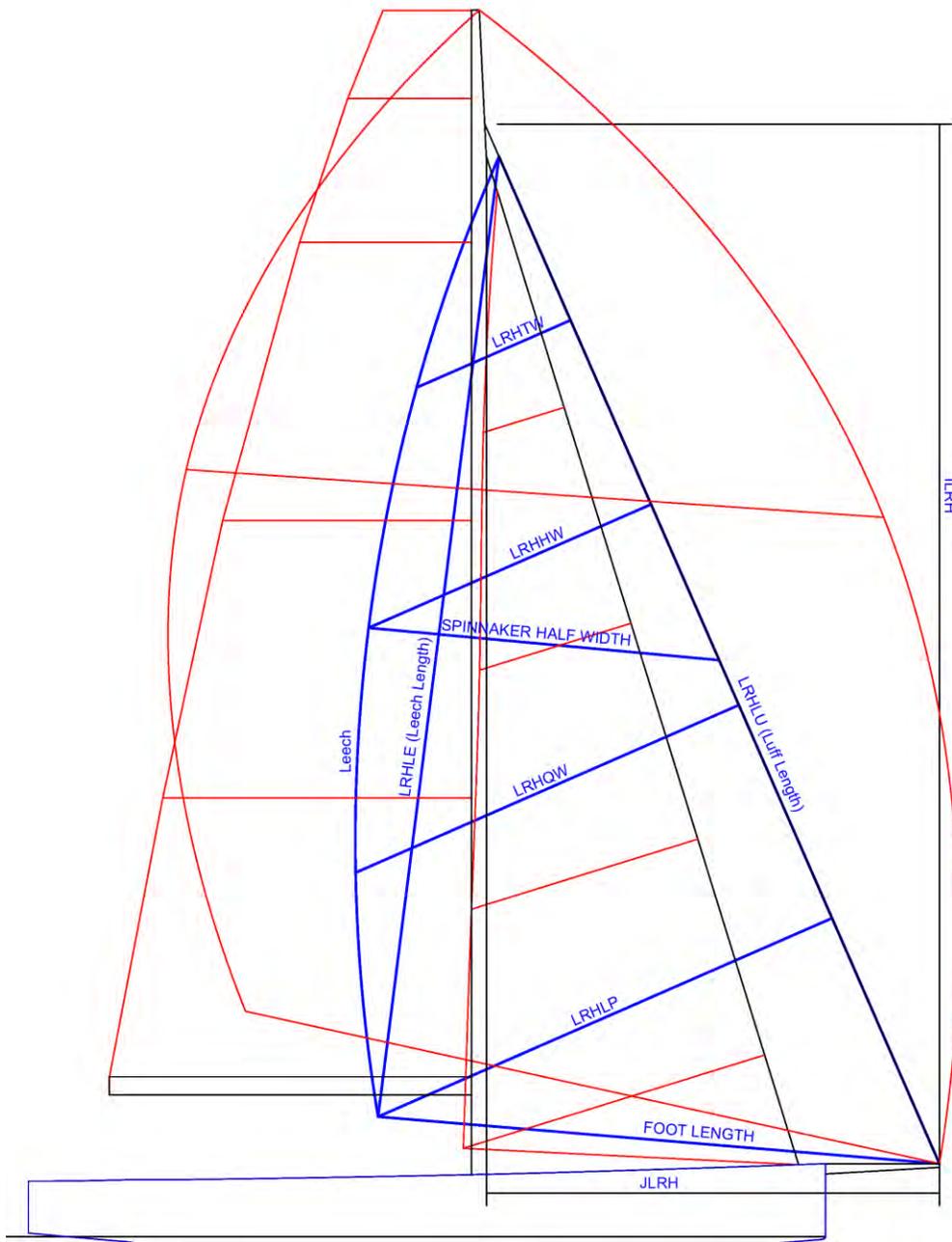
### **Frequently asked questions (FAQs)**

- **What is a Large Roach Headsail or “Tweener” sail?**

Large Roach Headsails (LRH) or “Tweener” sails are sails that have an LPG greater than  $1.1 \times J$  of the LRH and a half width of more than 50% but less than 75% of the foot when measured as a spinnaker. These sails are officially called “Large Roach Headsails” by ORR.

- **How is an LRH measured?**

The sails are measured both as a headsail and as a spinnaker. ORR collects measurement data for the sails to properly place them along the spectrum of headsails using the ratio of half width to foot. For example, a 55% ratio sail should perform more like a headsail than a spinnaker. The reverse would be true for a sail with a 70% ratio; it would perform more like a spinnaker. The following diagram illustrates what an LRH might look like along with the measurements. Note that “I” and “J” values shall be measured specific to how the LRH is flown.



- **How many can I have on board?**

One of these types of sails will be allowed for racing in 2018 and included as part of the headsail inventory. Below is the ORR rule book sail limitation table:

<b>Large headsails</b>	<b>5</b>
<b>or 4 Large headsails plus *1 Large Roach headsail</b>	<b>4+1=5</b>

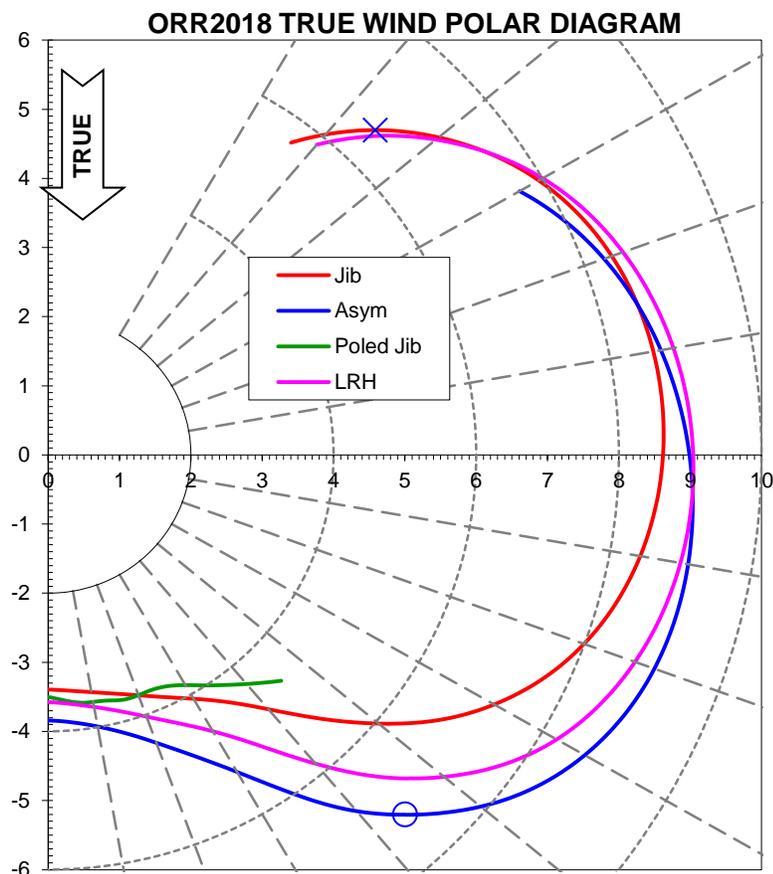
<b>Small headsails</b>	<b>4*</b>
<b>Light staysails</b>	<b>1</b>
<b>*Spinnakers</b>	<b>5</b>
<b>Mainsails</b>	<b>1</b>
<b>Storm Trysails</b>	<b>1</b>
<b>Storm jib (headsail)</b>	<b>1</b>
<b>Heavy -Weather jib (headsail)</b>	<b>1</b>
<b>Mizzens</b>	<b>1</b>
<b>Mizzen Staysails</b>	<b>3</b>

- **Are there restrictions on how LRHs are flown?**

Again, there can be only one on board. When flying, it must be tacked on centerline. It cannot be flown inside of another sail (headsail, spinnaker...)

- **What is the impact on my ORR or ORR-ez rating if I carry a Large Roach Headsail?**

The ORR VPP predicts the boat speed with Main and LRH at all wind angles and wind speeds. In the sample below the pink curve shows a 62.5% LRH on a fractional rigged non-overlapping headsail boat.



In this sample the LRH provides the fastest solution between 65 and 90 degrees true wind angle. Any rating that included sailing at those angles and in this wind speed would be affected. In this case the windward leeward rating is unchanged because the optimum upwind and downwind VMGs come from the headsail and spinnaker curves.

The impact will be different for different kinds of boats. And it will vary with the size of the LRH as well as the ratio of half width to foot. In the above example, if the LRH were shaped to have a 55% ratio with the same sail area you could expect it to behave more like a headsail and be the fastest solution upwind in light air. In that case the windward leeward rating would change.

The following table gives the results for several different boats using a 62.5% LRH:

	Flying Buffalo			J35		TP52			
Rated Length	25.93 ft			30.94 ft		51.69 ft			
Displacement	15946 lbs			12109 lbs		19168 lbs			
DLR	408			182		62			
<b>Variations</b>	Base	LRH	Large LRH	Base	LRH	Base1	Large LRH	Base2	Large LRH
Headsail Overlap:	171%	171%	171%	154%	154%	101%	101%	101%	101%
Spinnaker Type:	ASYpole	ASYpole	ASYpole	ASYpole	ASYpole	ASYpole	ASYpole	ASYcl	ASYcl
LRH M-G/Foot:	none	62.5%	62.5%	none	62.5%	none	62.5%	none	62.5%
<b>Sail Areas</b>									
Main:	358.4	358.4	358.4	364.0	364.0	1079.6	1079.6	1079.6	1079.6
Headsail:	444.9	444.9	444.9	534.7	534.7	700.6	700.6	700.6	700.6
Spin:	851.0	851.0	851.0	1011.8	1011.8	2968.4	2968.4	2968.4	2968.4
LRH:	0.0	616.0	756.7	0.0	632.6	0.0	2291.3	0.0	2291.3
<b>Ratings</b>									
GPH:	755.4	755.1	753.1	623.4	623.1	437.3	435.3	436.7	435.4
WL 10 knots:	901.7	901.7	900.6	731.9	731.9	531.0	530.3	530.5	530.6
Chicago Mac AP:	0.707	0.707	0.708	0.858	0.858	1.244	1.246	1.243	1.246
Chicago Mac OffW:	0.723	0.723	0.725	0.846	0.846	1.245	1.248	1.244	1.247
BayMac Cove Island:	0.703	0.703	0.704	0.861	0.862	1.222	1.225	1.221	1.224
BayMac Shore Course:	0.707	0.707	0.709	0.857	0.858	1.221	1.225	1.221	1.225
Newport Bermuda 12:	645.4	645.4	644.7	543.8	543.7	367.1	366.2	366.7	366.4
San Francisco Bay:	0.704	0.704	0.704	0.875	0.875	1.24	1.241	1.24	1.24
Transpac:	0.6662	0.6662	0.6668	0.7664	0.7666	1.1595	1.1607	1.159	1.1595

Again, this is just a sampling of plausible LRH effects on boats racing in ORR.

For more information or to request trial certificates for your boat.

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