



# CROSS Multihull DESIGNS

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## Trimaran Size Selection Chart

### Selecting the Right Size Trimaran

*Norman A. Cross, N.A., developed this selection system so you can make an educated estimate of what size trimaran might actually fit your needs. Considerations of payload and the number of days at sea can be the difference between building and buying the wrong or right boat. Payload and passage requirements will drive the size boat that will be best suited for the type of sailing and or cruising you would like to do. Beside the cost of building or buying a boat, you must consider the cost of rigging, sails, auxiliary engine, cost and availability of mooring and maintenance.*

One of the most important considerations in the selection of a trimaran design is to select one that is the right size.

The two greatest mistakes in deciding what boat to build, are:

- Building one that is too large for your budget
- Building one that is too small to carry the load you require

Trimarans are similar to aircraft in that they are limited in the amount of weight (payload) they can carry safely. (This can be true for any boat.)

It is better to build a little larger trimaran than you thought you needed and have it perform well than to build one that is too small and have it perform poorly. Most of the poor performing trimarans you see today are the result of overloading or overbuilding.

You might have to reconsider your original requirements *from a budgetary standpoint*. There are many items you are going to buy no matter what size boat you build so the cost to build will not be too much greater by building *a slightly larger boat that is the right size*.

This Trimaran Size Selection Chart was developed by the designer to help you in your selection. By filling it out you will know what size trimaran you should consider. You may have to go through it several times to find a size that will fit both your requirements and budget. If you do not know the weights of the various items a copy of Yachting Magazine's "Boat Owners Guide" or the "Boat Show" issues of "Boating Magazine" can be helpful. Manufacturers web sites will also be helpful.

If these sources are not available to you then use the information on [page 4](#) as a guide.

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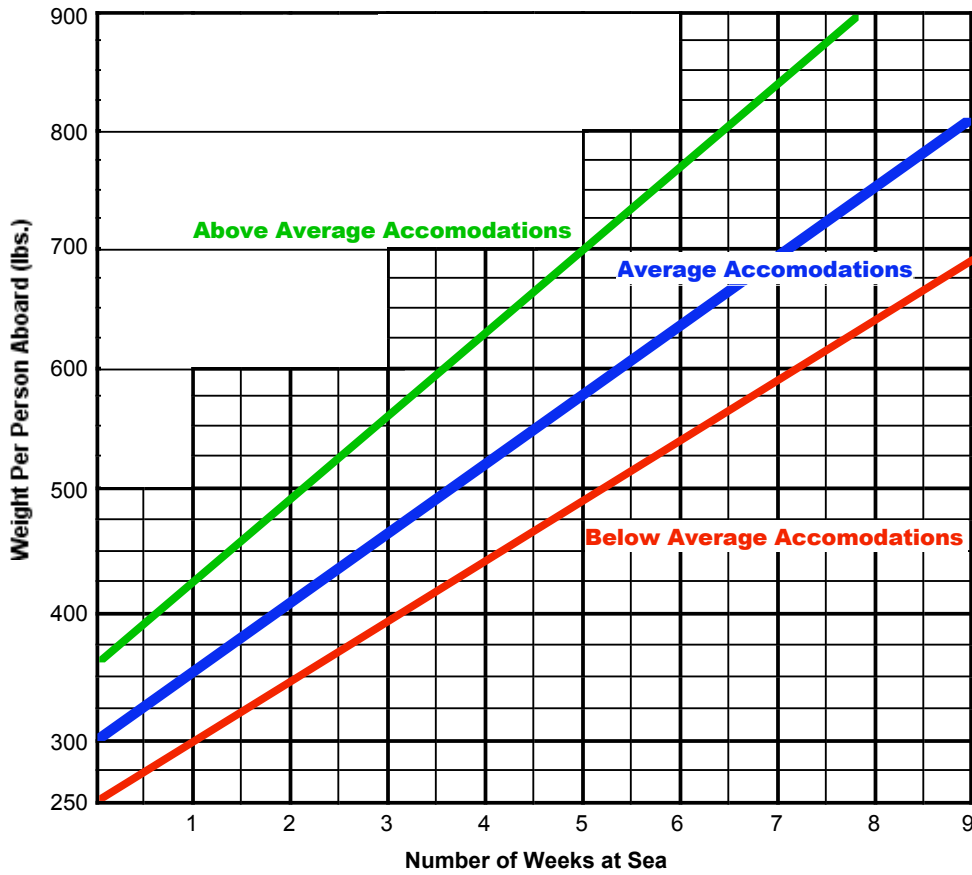
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Calculations for determining the approximate size trimaran you require.

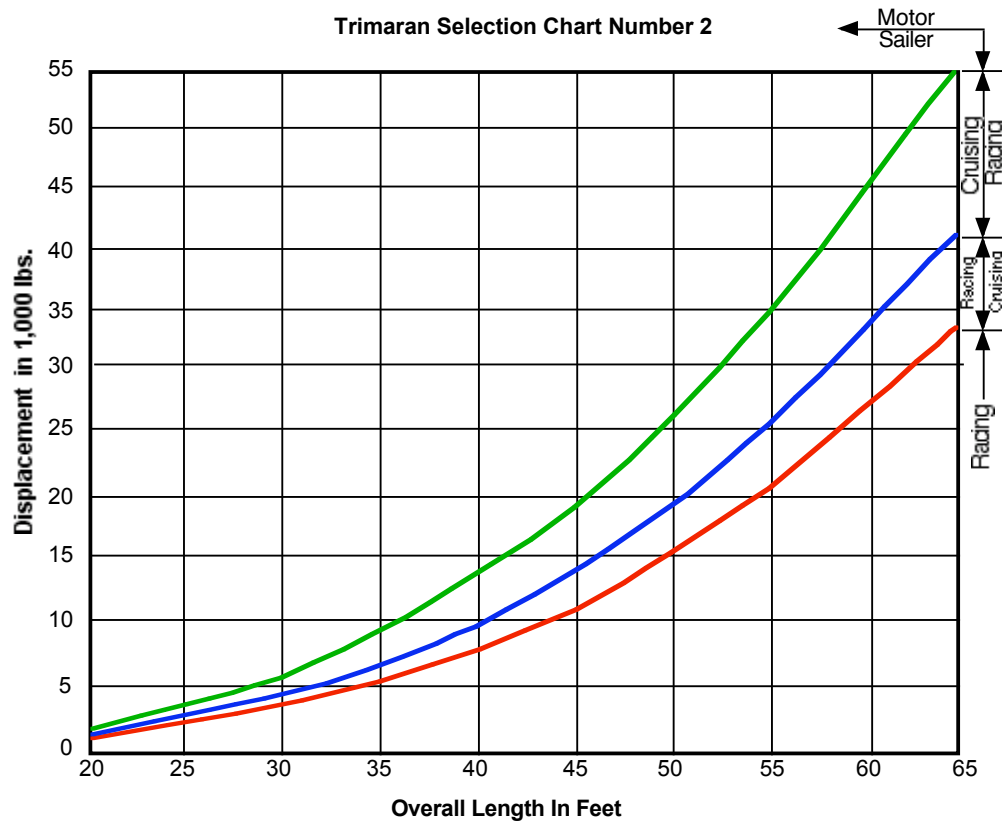
Step			
1	Number of Persons Aboard		
2	Number of Weeks at Sea		
3	From Chart Number 1, determine the weight required for one person for the number of weeks at sea (See page 3)		
4	Multiply (Step 1 x Step 3)	_____ x _____ =	
5	Weight of equipment NOT normally carried on a BASIC SAIL BOAT		
	Auxiliary Engine		
	Fuel		
	Batteries		
	Exhaust Pipe and Muffler		
	Propeller, Shaft and Strut		
	Generator		
	Radio and Navigation Equipment		
	Extra Anchors & Chain		
	Life Raft or Dinghy		
	Tools and Spare Equipment		
	Other Items and Equipment		
	Total for Step 5		
6	Add (Step 4 + Step 5)	_____ + _____ =	
7	Multiply (Step 6 X "3")	_____ x 3 =	
8	Multiply (Step 7 X .05)	_____ x .05 =	
9	Subtract (Step 8 – Step 7)	_____ - _____ =	
10	Use chart 2 to find the size Trimaran you should need or consider. (See page 4) The displacement shown on the chart will be the weight of the boat loaded to float on its designed waterline.		

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Trimaran Selection Chart Number 1



Trimaran Selection Chart Number 2





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## Approximate Weights to Use as a Guide

### Auxiliary Engines:

Horse Power	Outboard Weight in lbs.	Gasoline (Inboard) Weight in lbs.	Diesel (Inboard) Weight in lbs.
5	41	200	280
10	60	230	320
15	75	255	360
20	90	280	390
25	105	310	420
30	120	330	460
35	135	355	500
40	155	395	535
45		420	570
50		450	600
60		500	670

### Fuel:

Gasoline	6.25 lbs. per gallon
Diesel Oil	7.25 lbs. per gallon

Fuel Tanks            Approx. 2 lbs. per gallon

Propeller, Shaft and Strut (Inboard engine)	25 to 30 lbs.
Exhaust and Muffler (Inboard engine)	25 to 50 lbs.
Batteries	40 to 100 lbs. each
Instrument Panel and Controls	30 to 60 lbs.
Generator	20 to 50 lbs.
Radio and Navigation Equipment	20 to 50 lbs.
Extra Anchor and Line	30 to 70 lbs. each
Dinghy	50 to 150 lbs.

You should run through the chart several times with different requirements to find out the capability of the boat. Compromise; perhaps some of the items you thought you needed really aren't necessary. Remember it takes about 200 lbs. of boat to carry 100 lbs. of equipment.

Note: Add the weight of any heavy item that will normally be carried aboard.

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