USING STOCK RSS SAILS WITH OTHER BOATS

Click → Stocked by Duckworks USA

The RSS stock sails are very economical and good quality.

So this makes it natural to want to use them for other boats.

Here are the guidelines.

Rigging Details

We have worked out some great methods of doing economical and effective rigs with a minimum of fittings. There is little performance sacrifice as this setup is used for racing our fleet of 74 Oz Geese in the Philippines.

Two most critical setup requirements

1. Low stretch halyard and downhaul. 4mm Spectra or Dyneema with polyester outer for both. 5mm halyard for the GIS sail.

https://www.opengoose.com/building-a-goose/materials/rigging-ropes-and-fittings/rigging-details-oz-goose-sailboat-other-lug-rigged-sailboats/

https://www.storerboatplans.com/tuning/lug-rig-setup/goat-island-skiff-rig-and-rigging-details-for-efficient-lug-sails/

The Mast

There is usually a need to change the length of the mast ABOVE THE MAST PARTNER to match the new sail. Table below.

There is usually no need to change the diameter of the mast, even if the sail is larger than the original sail.

The reason for this is that the responsibility of the mast is to be strong enough to capsize the boat without breaking. The cross section of the original mast should have been designed to do this.

When the boat is lying down the mast is unstressed.

A larger sail means that the boat will lay down at lower windspeeds.

If the stability of the boat is changed – ballast keel changes, bigger crew hiking out hard, then the mast might need to be enlarged. Very small amounts of diameter increase are needed to strengthen and stiffen a mast substantially. Sometimes as little as 3 to 5mm extra cross section.

Cont Over/

IMPORTANT NOTES
LENGTH SHOWN IS NOT TOTAL MAST LENGTH – ADD THE ABOVE PARTNER/DECK MEASUREMENT TO THE BELOW PARTNER/DECK MEASUREMENT FOR TOTAL MAST LENGTH
To convert mm length to feet divide by 305.

Sail Type Lug	Area	Mast above deck add next column →	Plus Mast below deck or Partner
Goat Island Skiff	105sf / 9.5sm	4500mm	Measure
Oz Goose	89sf / 8.3sm	3600mm	Measure
Viola	67sf / 6.2sm	4000mm	Measure
KOMBI	54sf / 5.0sm	3450mm	Measure
36sf Canoe Sail	36sf / 3.3sm	2900	Measure

If you wish to build a lighter hollow mast a cheap way of getting drawings to work from and a full method explained is to use the Oz Goose Plans. There is a simple to build hollow square mast that is well proven, also details . https://www.duckworks.com/product-p/oz-goose-id.htm

Yard Cross Section and Length.

The Yard stiffness is critical to boat performance.

These are the sizes from our boat designs.

If the boat is heavier, significantly wider (eg a dinghy rather than a canoe), heavier or has more crew or a more active crew than the boat it is designed for a slight increase in the diameters recommended is acceptable.

IMPORTANT NOTES
For a more stable or heavier (over 300lb hull) monohull, add 2mm to the yard diameter.
Taper Option – follow taper schedule of the hull plan
For a multihull add 5mm to the yard diameter
To convert from mm to inches divide by 25.4

Sail Type Lug	Yard Length mm	Yard Diameter mm	Taper Option
Goat Island Skiff	3600mm	42 round	Y
Oz Goose	3200mm	40 square with 12mm rounded corners	N
Viola	3600mm	36 Square with 10mm rounded corners	N
KOMBI	2500mm	35 Square with 10mm rounded corners	Y
36sf Canoe Sail	2250mm	35 Square with 8mm rounded corners	Y

These sizes are for Spruce, Fir and Pines of similar density to Fir.
Aluminium tube of a similar diameter can be used. Recommend wall thickness of 1.5mm (0.06”).

Boom Length and Stiffness

Main consideration is that some booms are laced and some are loose foot

The Oz Goose and Goat Island Skiff can be set up either way

The other sails are loose foot with no lacing possible.

Loose footed is best for performance but need a stiffer boom. If your boat has a laced boom can convert to Loose foot by adding 9mm depth to the boom design that came with the hull.

There are examples of lightweight wooden boom construction for loose foot booms in the GIS group on Facebook – Good for the Oz Goose and Goat sails. Ply sided hollow boom and Ladder Frame Boom. Important with the ladder frame boom to put any loops for downhaul or other attachments around the whole boom and not just the bottom rail
https://www.facebook.com/groups/GoatIslandSkiff/files/

NOTES
Convert length to feet by dividing by 305
Convert cross section to inches by dividing by 25.4
For existing boats can just change the length of the boom using the rig design that came with the hull keeping the cross section
All Booms can be tapered 350mm/14" can be tapered Rear 1000mm/40" can be tapered

Sail Type Lug	Boom Length	Boom Cross Section Loose Foot	Boom Cross Section laced Foot
Goat Island Skiff	3550mm	55 Rectangular 60 Round, May be tapered	42 Round May be tapered
Oz Goose	3350mm	55 Rectangular 60 Round, May be tapered	42 Round May be tapered
Viola	2300mm	45 wide x 55 deep	Not Available
KOMBI	2100mm	45 wide x 55 deep	Not Available
36sf Canoe Sail	2250mm	35 square	Not Available

Aluminium Option Cont Over/

Suggested Aluminium Boom Dimensions

Ideal wall thickness 2mm/0.08” or slightly larger.
Lightness of Aluminium tubes makes booms suitable for laced and loose foot.

Sail Type Lug	Boom Length	Boom Cross Section
Goat Island Skiff	3550	62mm
Oz Goose	3350	62mm
Viola	2300	50mm
KOMBI	2100	50mm
36sf Canoe Sail	2250	45mm

Carbon Masts

Carbon Masts are still pricey. Recommend a minimum of 3mm wall thickness and will need some extra glass around the partner area.

Important that manufactured carbon tubes have some woven or braided component. Some are pultruded which will split. The addition of cloth (braided or plain weave) in the manufacture will prevent pultruded tubes from splitting.

To give a ball park figure, the hollow square timber mast of the Goat island skiff compared with a carbon mast of the same stiffness

Material	Cross section	Wall Thickness	Weight
Douglas Fir	70mm	12mm	18lb (8kg)
Braided Carbon tube	60mm	3mm	8lb (3.2kg)

it is quite possible to reduce the wooden mast diameters in the sections above by the same proportion. But be aware that the wall thickness cannot be reduced much. The Viola, Oz Goose and Goat Island Skiff will require a wall thickness of 3 to 3.5mm. The smaller sails 2.5 to 3mm.

Carbon Yards and Booms

A cheap solution is to use a carbon windsurfer mast. This has been done satisfactorily with the Goat Island Skiff and is recommended for the Viola 14 Sailing Canoe.

The cheapest option is a 50% carbon windsurfer mast of sufficient length to get the yard and the boom from it.

Here is an online article.

https://www.storerboatplans.com/plan/gis/windsurf-mast-lug-yard-goat-island-skiff/

SOME PLANS FROM STORERBOATPLANS

Click → StorerBoatplans.com

Goat Island Skiff - Modern Performance with Classic Appearance
Plans $100
15'8" x 5' x 130+lbs (hull) x 105sq ft

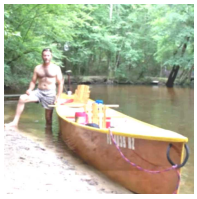
Taal SUP – stable enough for a beginner but fast on open water
Plans $80
12’ x 28” (15kg). Aim was to keep a stable mid section but hit the right numbers for a good rowboat or canoe for excellent distance speed.

Eureka Canoe - Light, Pretty, Easy to build in Plywood
Plans $75
15'6" x 34" x 44lbs (6mm ply) Can be built down to 34lbs

MSD Rowboat - Easily driven pulling boat for one with occasional crew.
Plans $90
15'8" x 4' x 95lbs

Handy Punt - Cartop, Stable Fishing Platform, Good Performance
Plans $80
11'6" x 4'2" x 110lbs (approx) 8 or to 15hp if you want to go REALLY fast.

Quick Canoe 155 – Build in a couple of weekends
Very detailed Plans $40
First one took the builder 4 1/2 hours to get on the water - me longer! It has been designed to be as easy to build as possible while keeping some of the qualities of a good paddling canoe - in particular the ability to track.



Quick Canoe Electric - for Electric Trolling Motor
Plans $40
Keeps the simplicity and low materials cost of the Quick Canoe Family. Does 5 to 6mph with good range with a 34lb thrust Minn Kota or other electric trolling motor..Very detailed Plans.

Viola Sailing Canoe
Plans $100
Really a lightweight (75lb,34kg) and beautiful sailing dinghy with easy transportation and storage. 14ft x 40”. Three rigs - Laminate squaretop in 5m or 6m and 6.3m Balance Lug