Course: 3D Design
Title: NURBS Sailboat
Blender: Version 2.6X
Level: Beginning
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NURBS Sailboat on Ocean (Modeling/Animation)

The objective of this PDF tutorial is to model a sailboat using (primarily) NURBS surface modeling techniques. We will also animate the sailboat using Blender's "ocean" modifier.

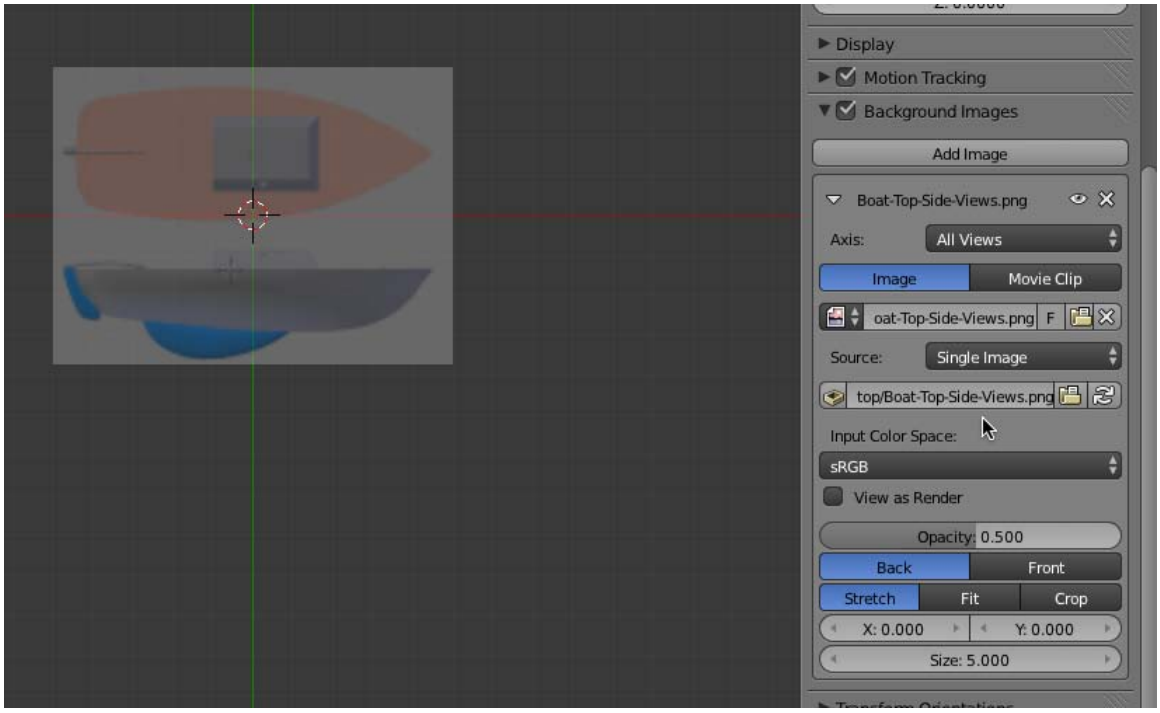
The video can be viewed HERE.

Open a new Blender file.
Select the default cube and lamp objects and delete them (XKEY).
Select the default camera object and move it to layer 2 (MKEY).
Go to top orthographic view (NUMPAD-7 + NUMPAD-5)

In the notation properties panel on the right, checkmark the Background Image checkbox and open the panel.

We will use a background image as a guide for modeling the sailboat.

Click on the Add Image button and then click on the Open button.
Select the “Boat-Top-Side-Views.png” file (You can download this file from the course site) and then click Open Image.

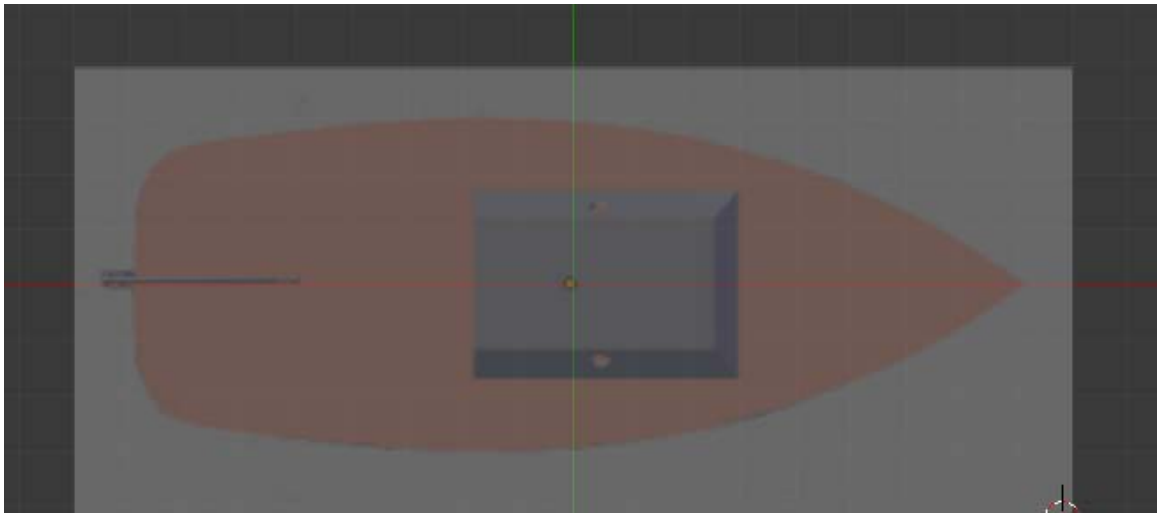


This places the image in the background.

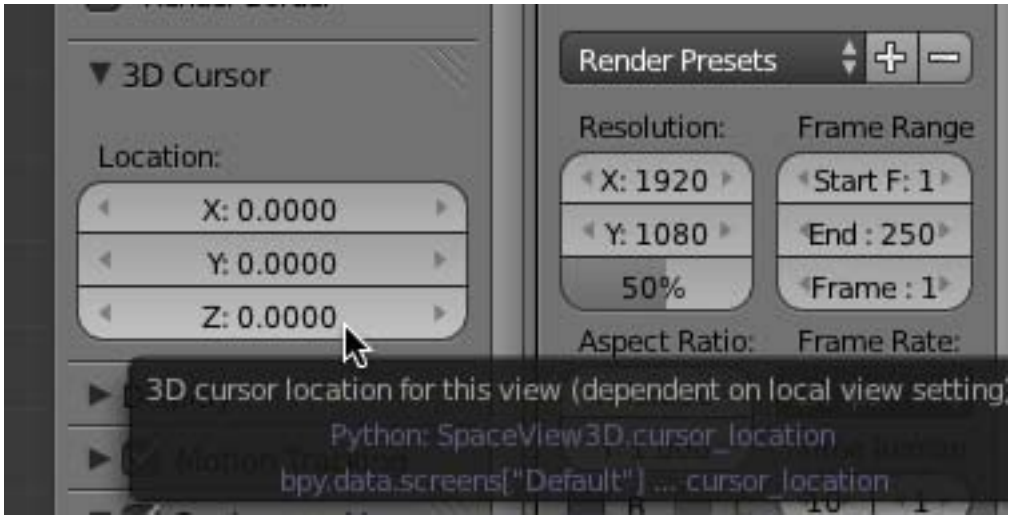
Click on the All Views button and select Top View. This will limit the display of the background image to the Top View only.

Set the Background image size to 9.0 and set the Y offset to -3.7

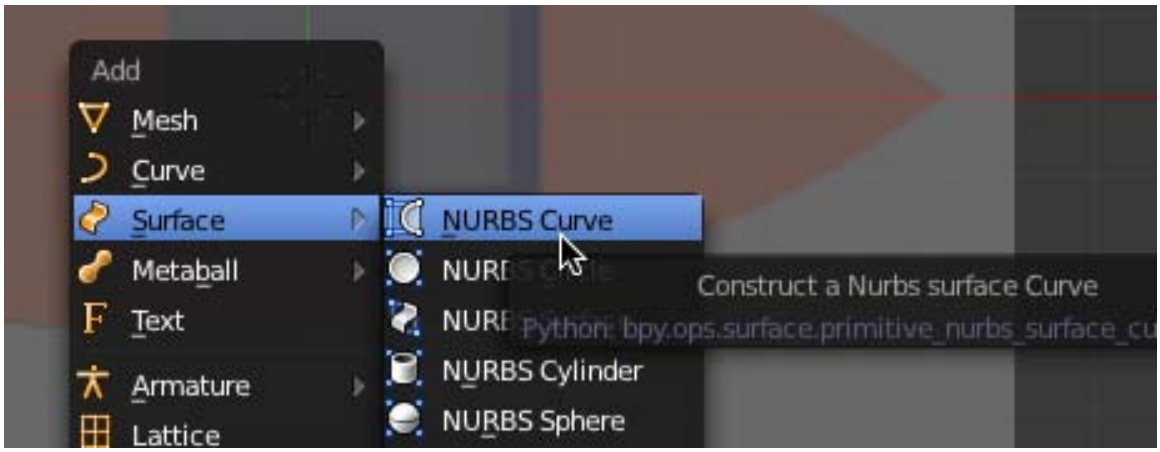
This should set the centerline of the top view of the background image to (approximately) the X centerline of the scene.

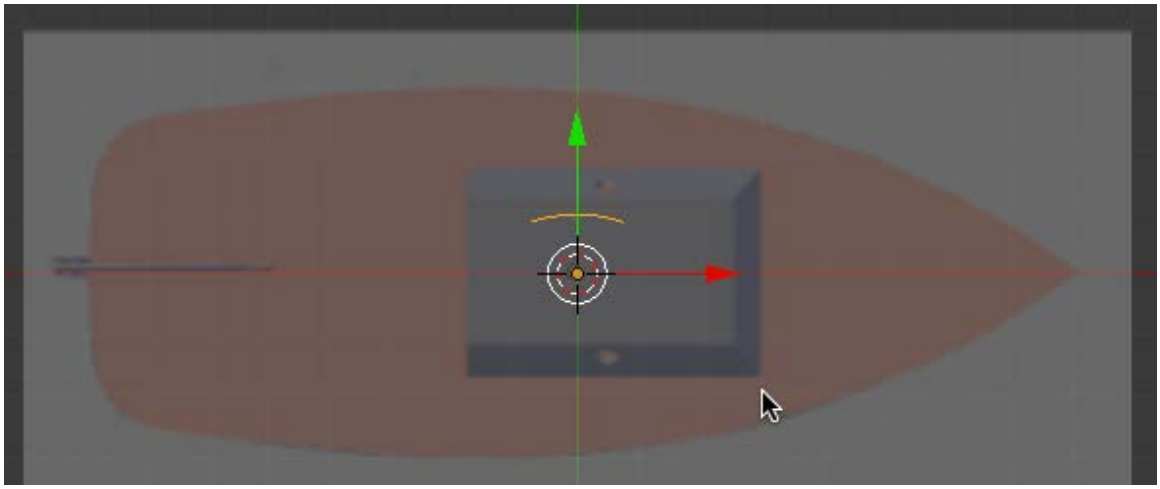


In the 3D cursor panel on the right notations properties panel, set your 3D cursor to X,Y,Z = 0.

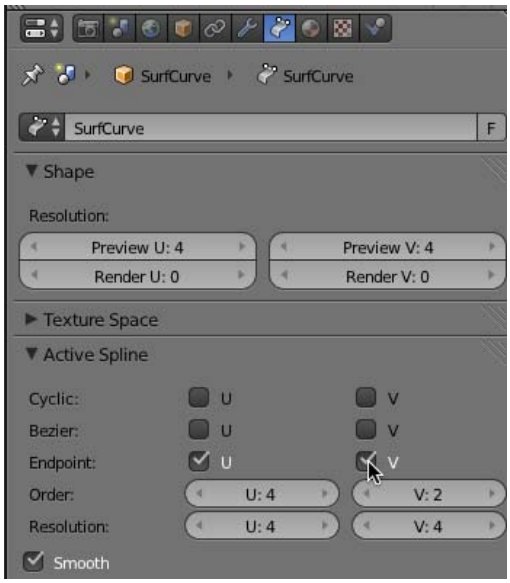


Press Shift-A and add a NURBS Surface Curve. (Make sure you are adding a NURBS Surface Curve and NOT a NURBS curve.





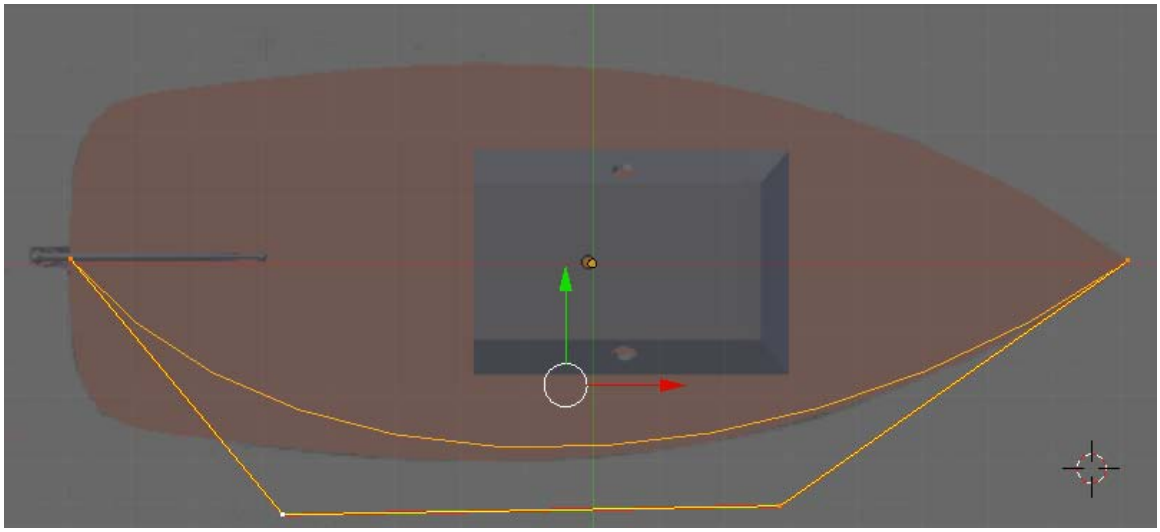
Tab into edit mode
Open the Object Data Editor in the right Properties panel and in the Active Spline panel checkmark the U and V endpoint checkboxes.



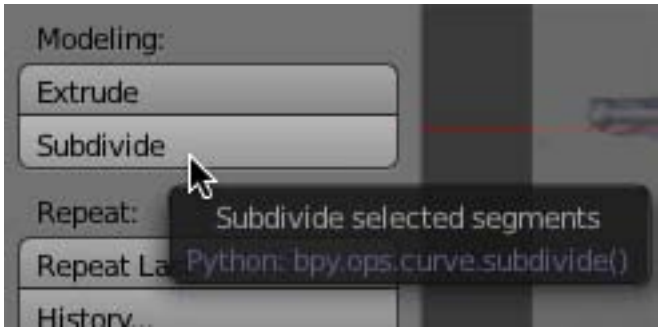
Select the far right control point, press the GKEY and move it to the right tip of the sailboat as shown below.

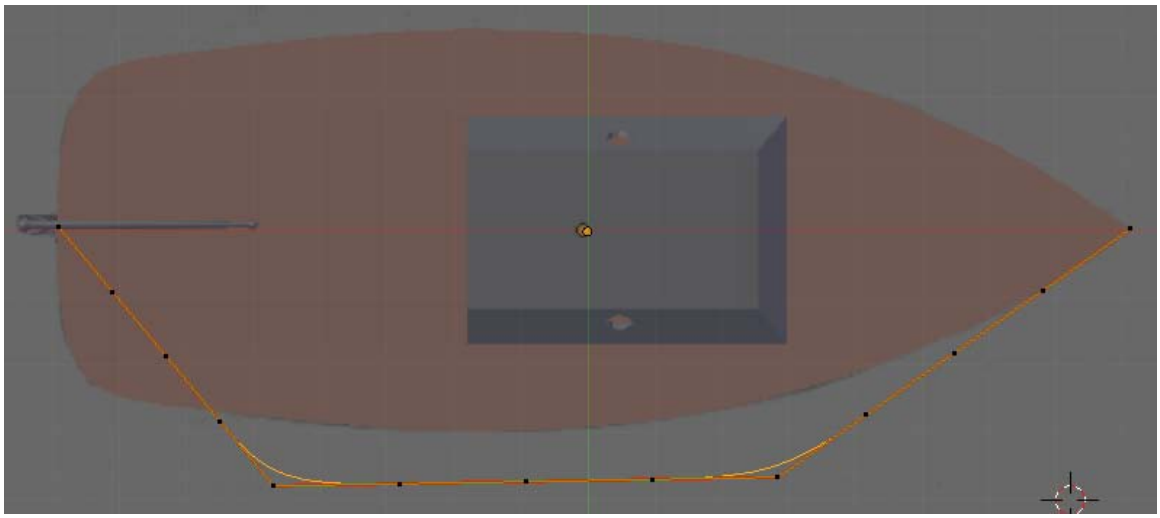
Select the far left control point, press the GKEY and move it to the left center end of the sailboat as shown below.

Select each of the other 2 control points and move them down as shown below.

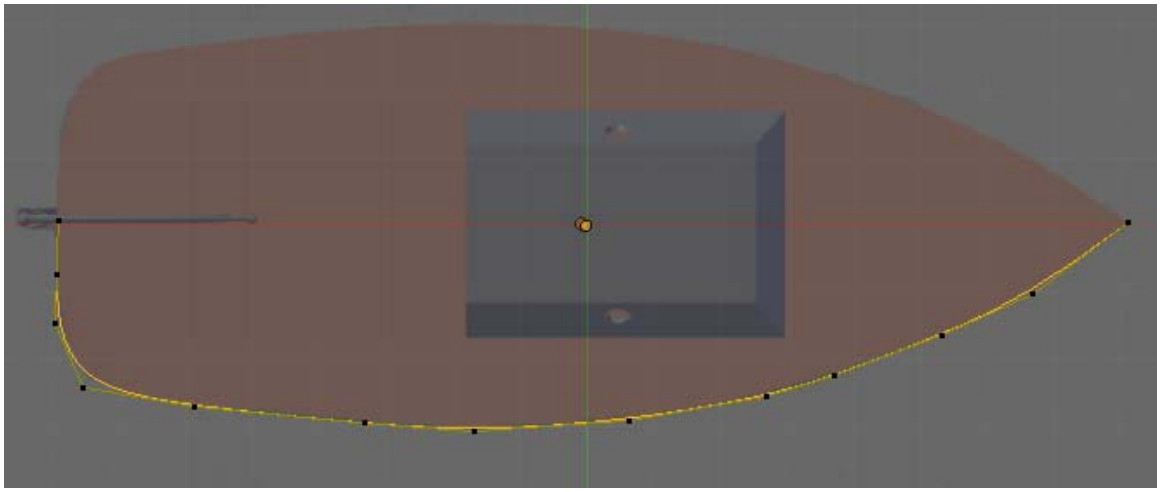


Select the 4 control points and in the tool panel on the left Subdivide the NURBS Surface Curve 2 times.

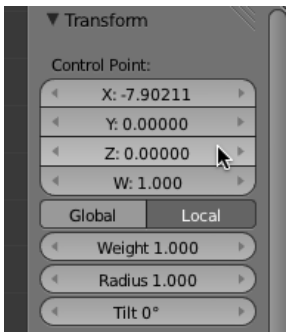




Select and move (GKEY) to arrange the NURBS Surface curve to follow the top outline of the sailboat as shown below. Note: I used the 4 left control vertices to make the left side and tried to space out the rest of the control vertices.



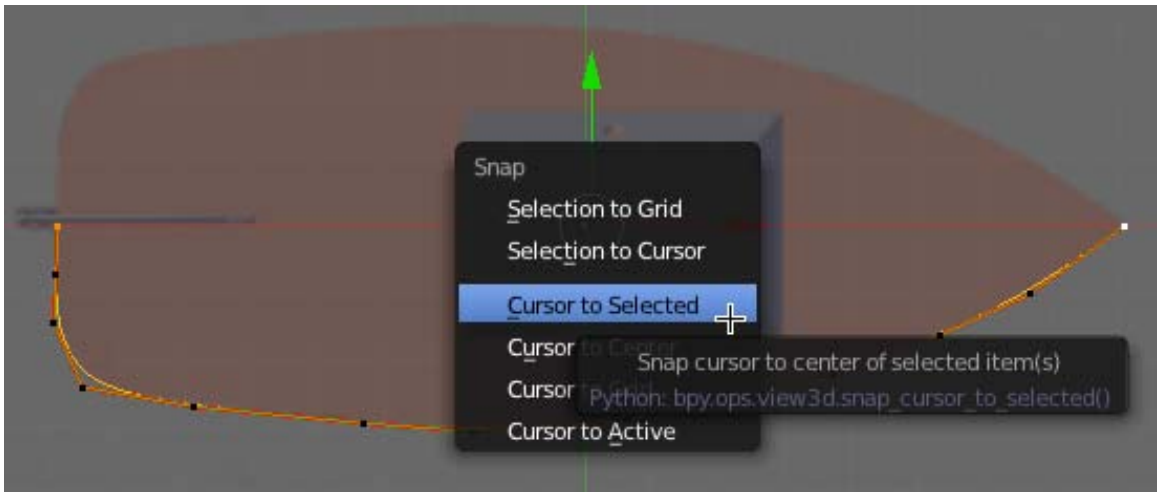
Select the far left control point. If it is not already open, open the right notation properties panel (NKEY). Make sure that the Y and Z location of this control vertex is at “0”.



Select the far right control point and make sure the Y and Z location is at “0”.

Select each of the remaining control points and make sure their Z location is at “0”

Select the 2 NURBS Surface Curve control vertices. Press SHIFT-S (Snap) and snap your 3D cursor to the selected.

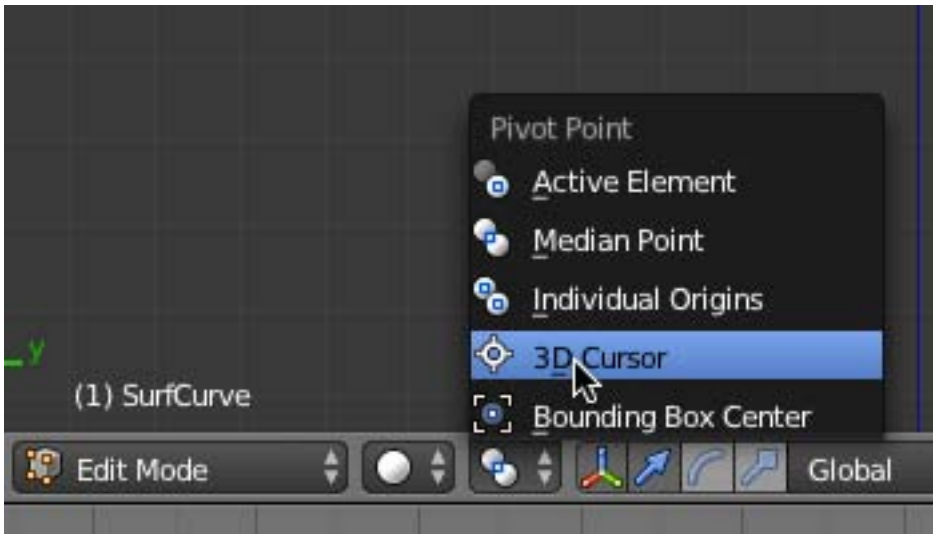


This places the 3D cursor at the center of the 2 endpoint control vertices.

Press the AKEY (twice) to select all of the control vertices.

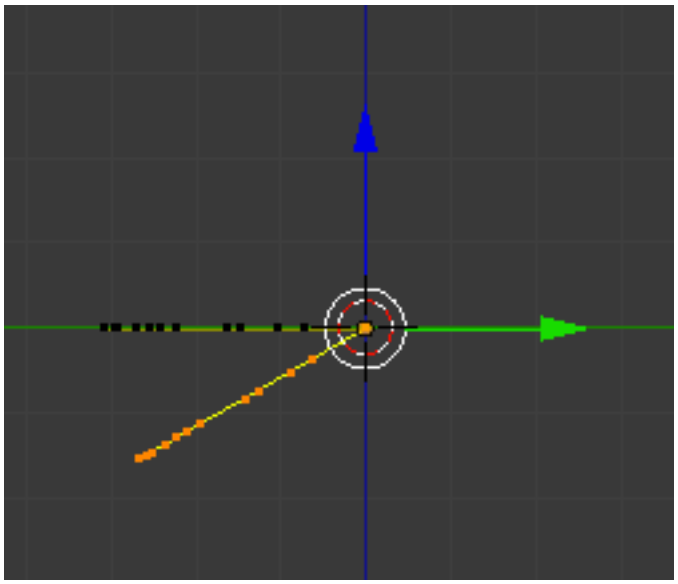
Go to Side View (NUMPAD-3).

Change the Pivot Point to “3D Cursor”



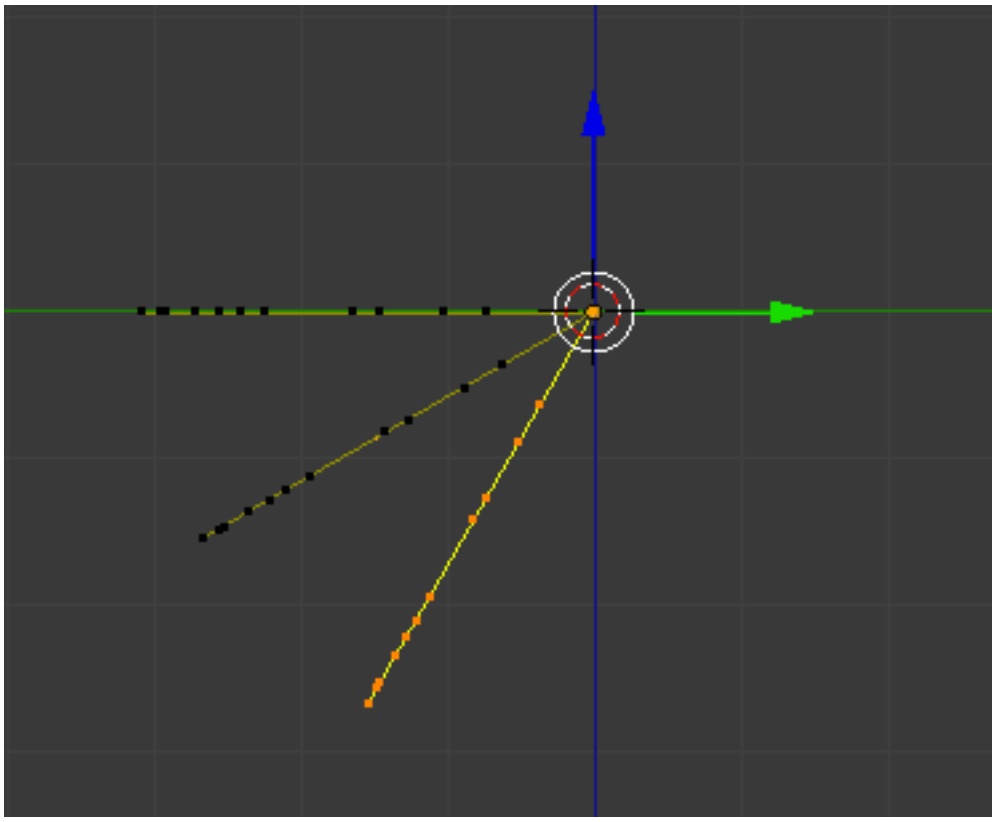
With all of the control vertices selected (in side view) and still in edit mode:

Press Shift-D (Duplicate), then press the Enter key
Then press the RKEY followed by -30, then press “Enter”.



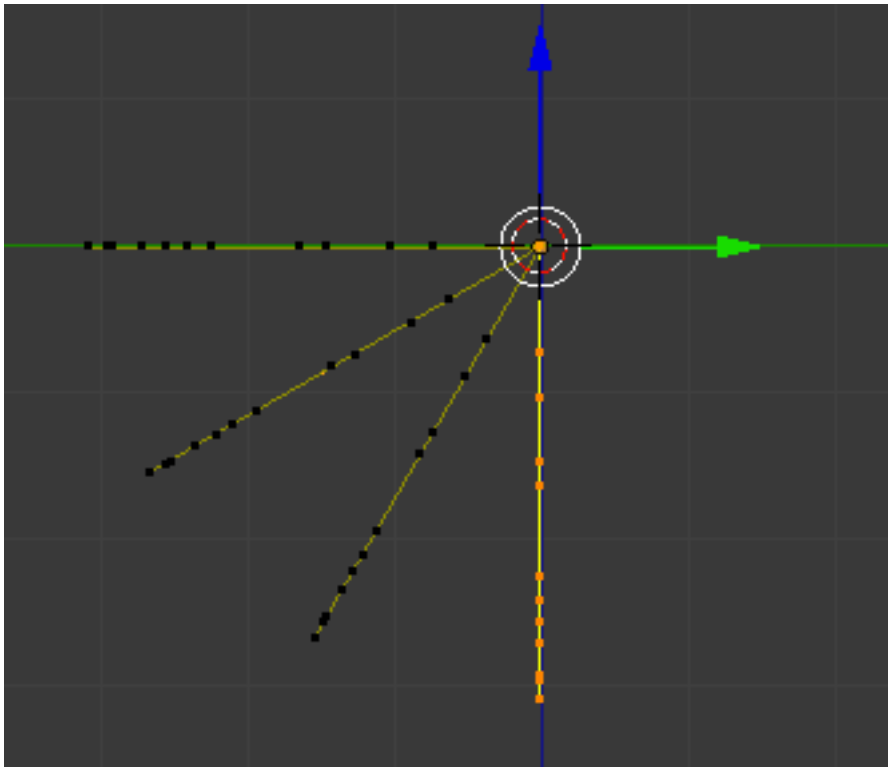
With all of the second NURBS Surface Curve control vertices selected:

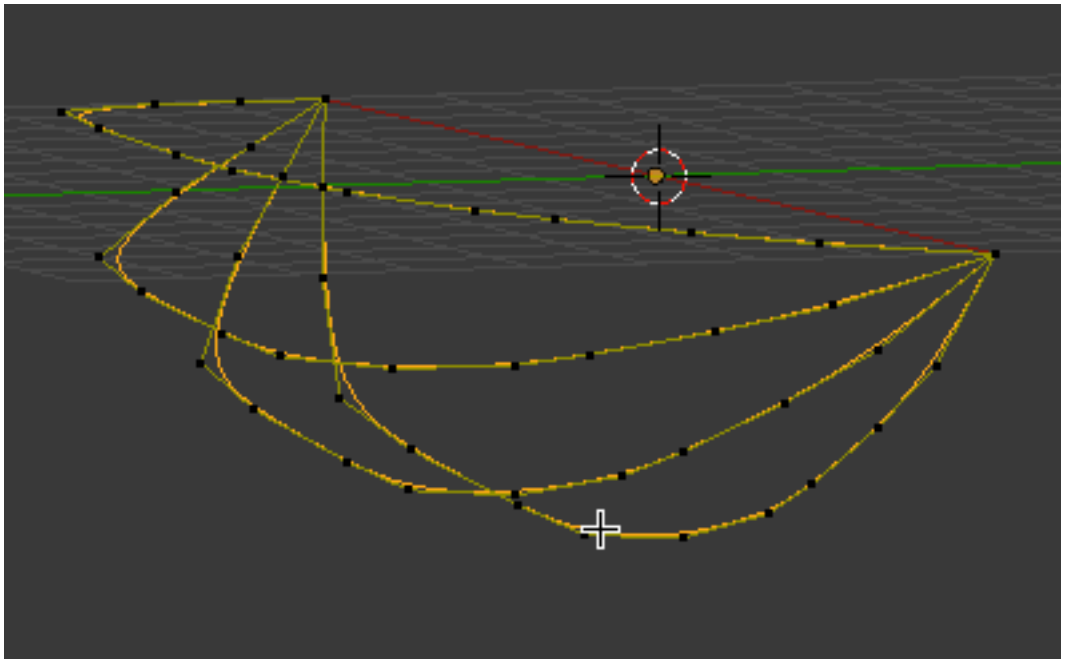
Press Shift-D (Duplicate), then press the Enter key
Then press the RKEY followed by -30, then press “Enter”.



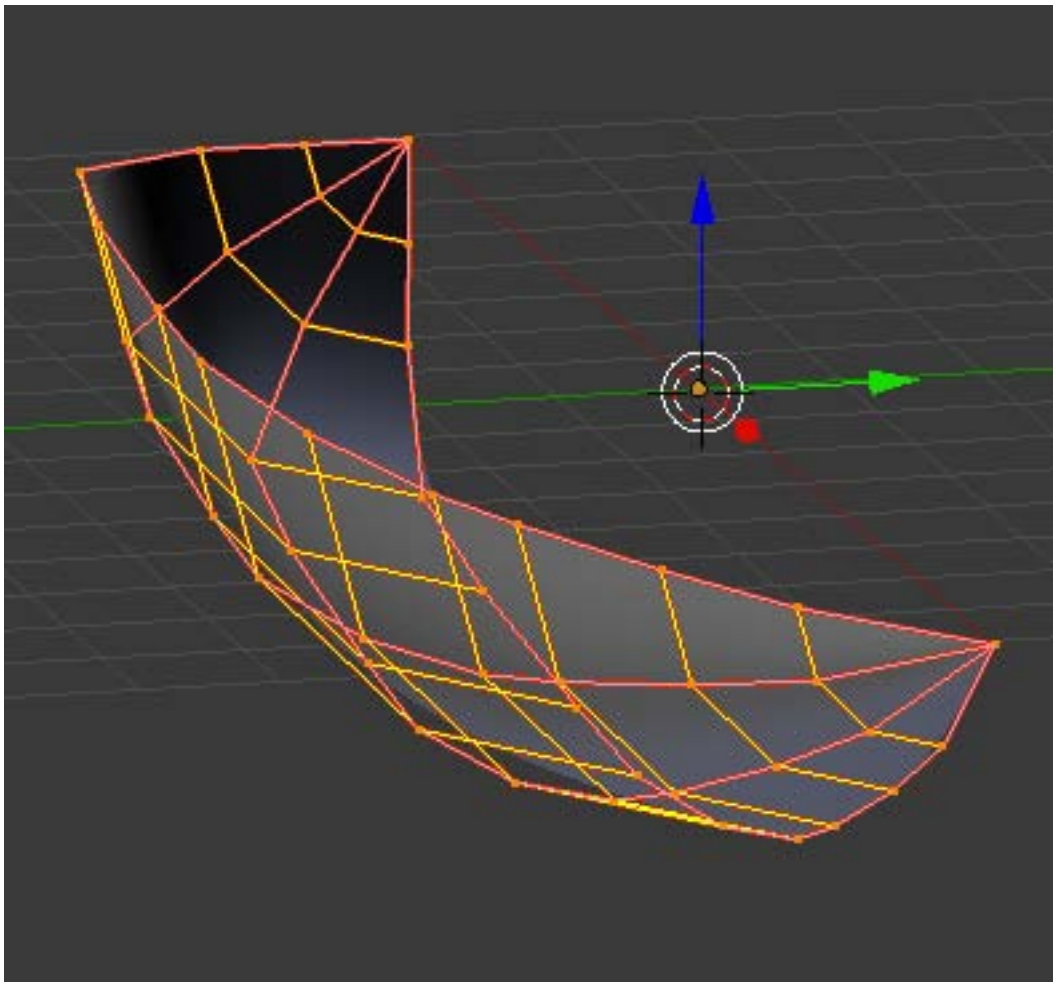
With all of the third NURBS Surface Curve control vertices selected:

Press Shift-D (Duplicate), then press the Enter key
Then press the RKEY followed by -30, then press “Enter”.

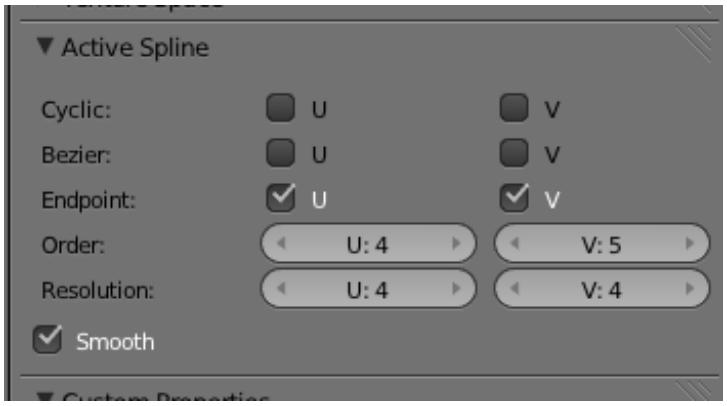




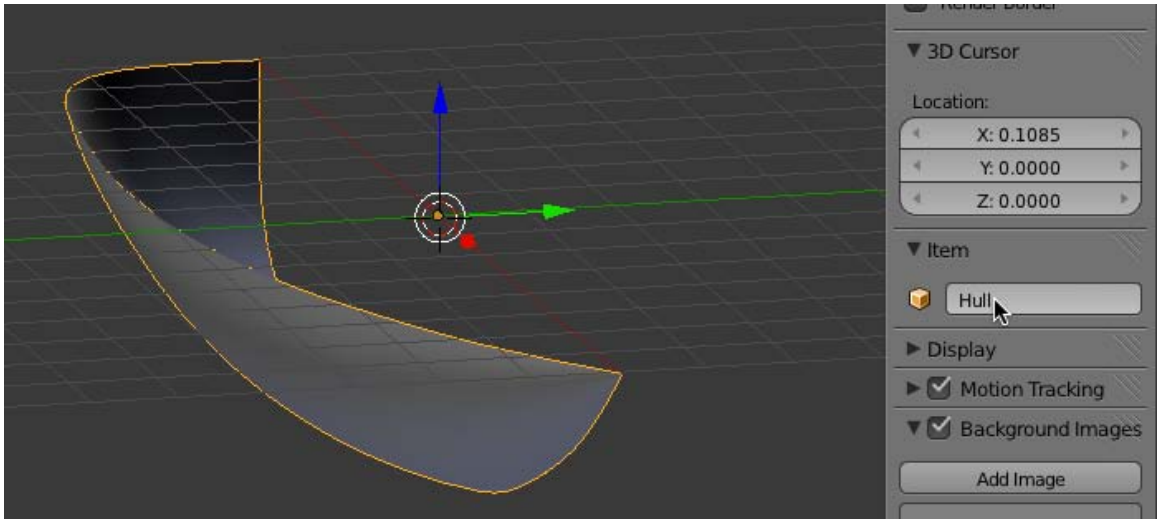
Select all of the control vertices from all of the NURS Surface Curves (AKEY) and press the FKEY. This will skin the NURBS Surface curves.



Select one of the control points. In the object Data editor Active Spline panel make sure that both the U and V endpoints are checkmarked and set the U Order to 4 sand the V Order to 5.

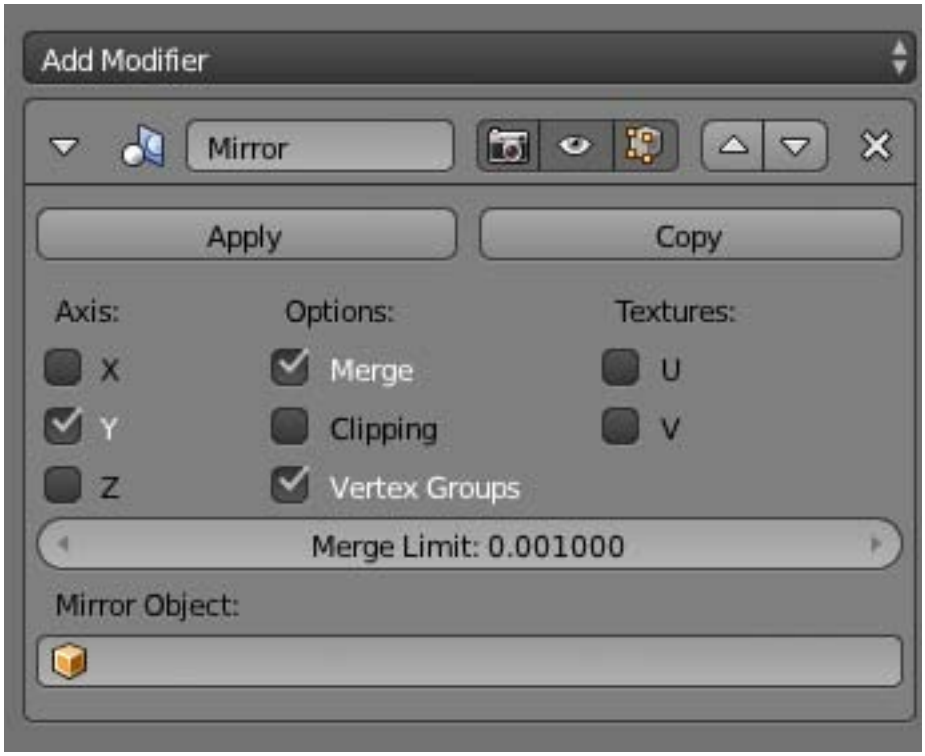


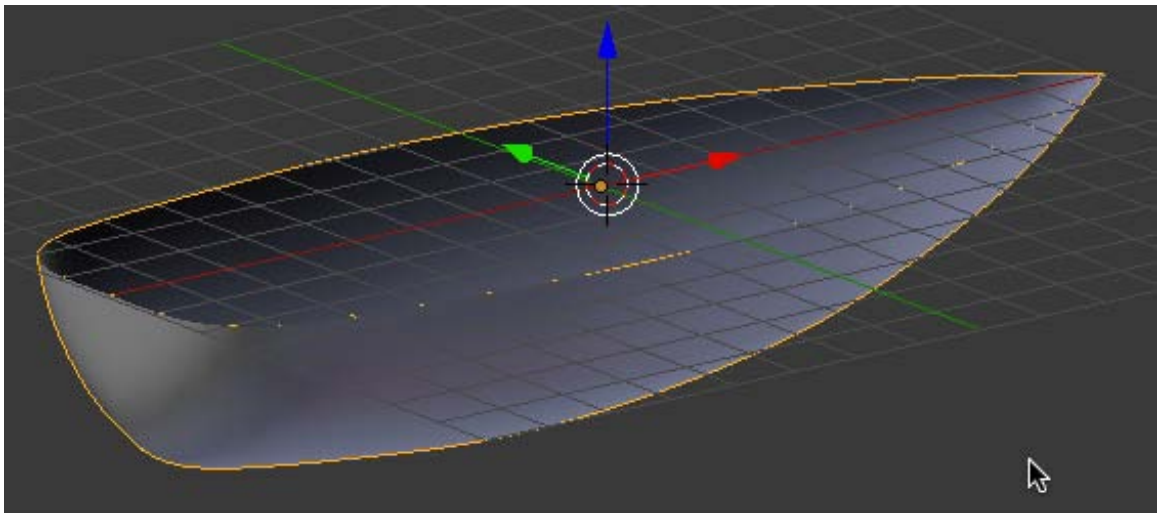
Tab out of edit mode.
Name this object “Hull”.



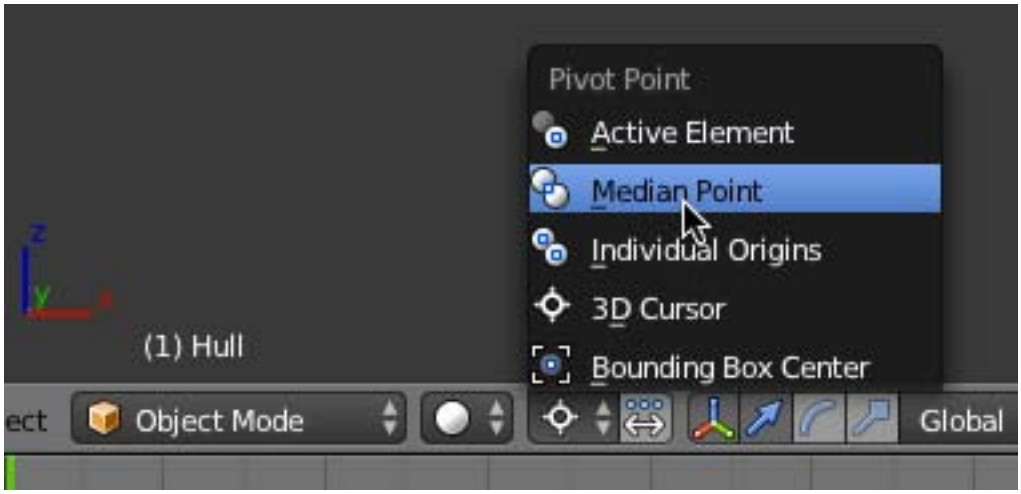
With the Hull object selected, click on the Modifier editor in the right properties panel and add a Mirror modifier to the object.

Select the Y Axis – Merge and Vertex Groups checkboxes.



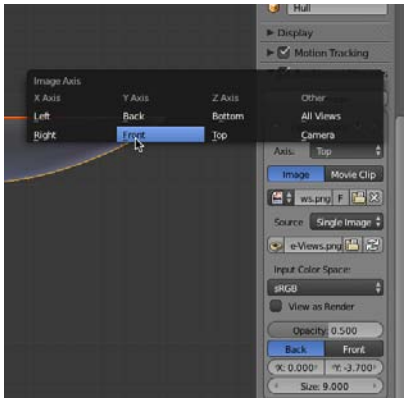


Change the Pivot Point back to “Median Point.

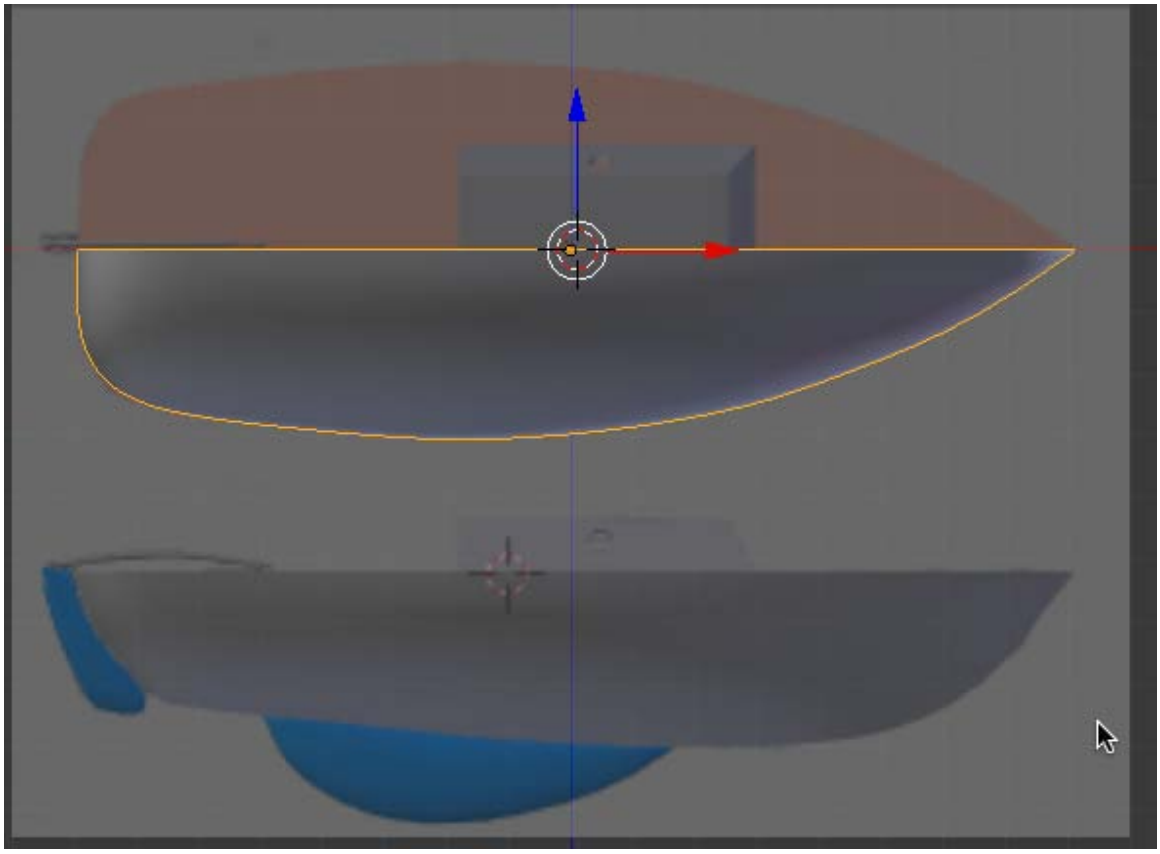


Save your Blender file.

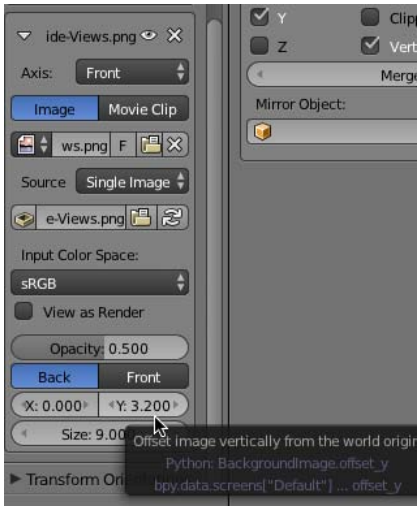
Switch to Front View (NUMPAD-1)
In the Background Display panel (in the right notations properties panel) click on the

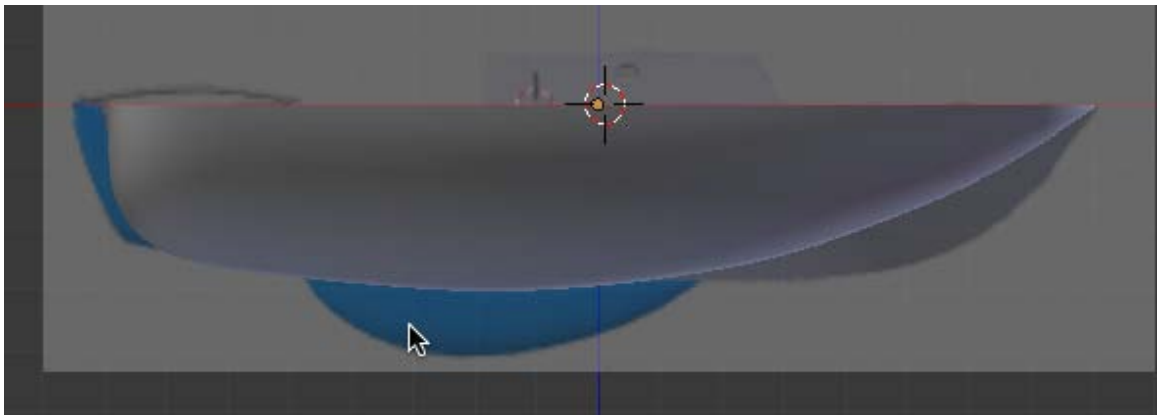


This will display the Background Image in the Front View (and remove it from the Top View).



Set the Y offset to 3.2 This should align the Hull object with the bottom background image.

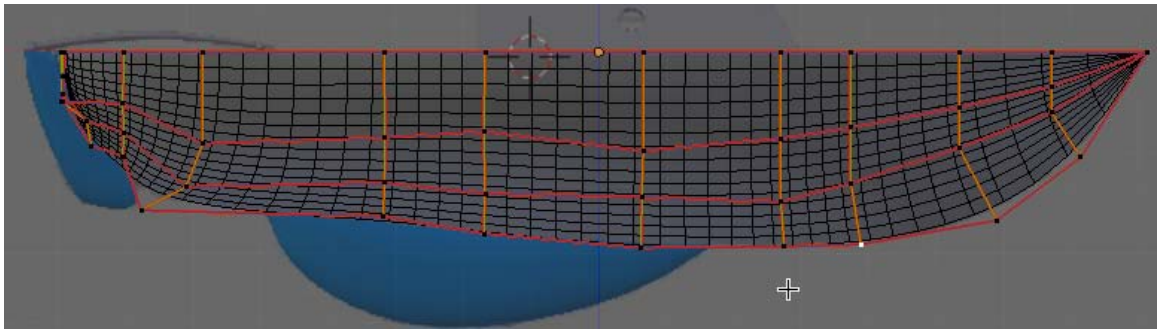




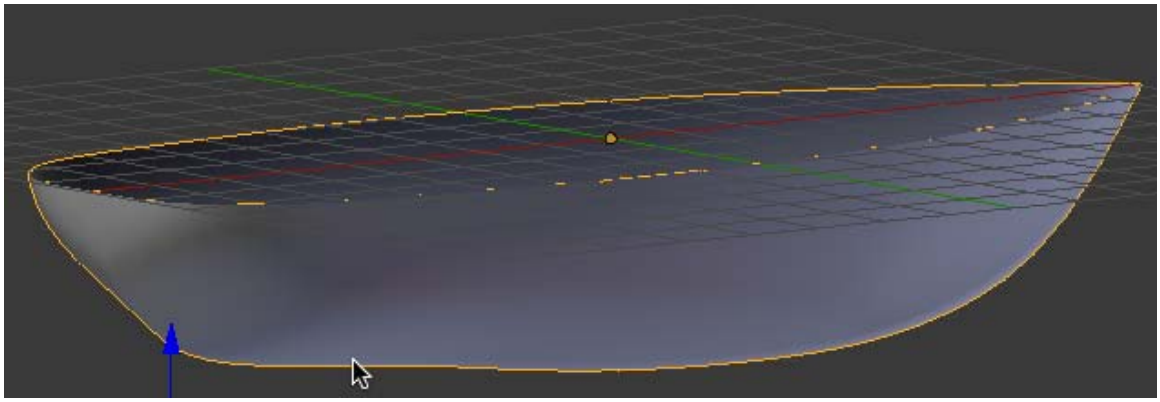
Select the Hull object. TAB into Edit Mode.

Press the ZKEY to go into Wireframe mode.

Adjust the control vertices so that the shape of the Hull object conforms to the bottom background image. Note: You may have to adjust many of the control vertices to accomplish this.

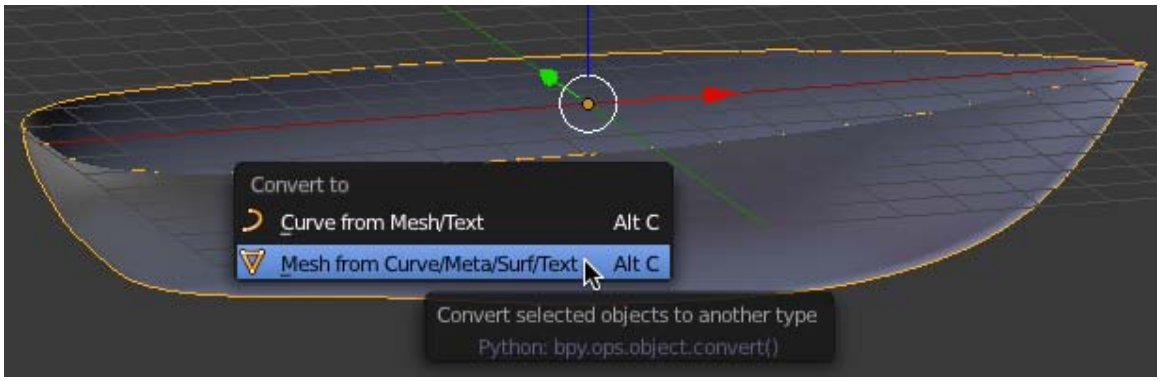


Tab out of edit mode. Press the ZKEY to return to Solid Shading mode.

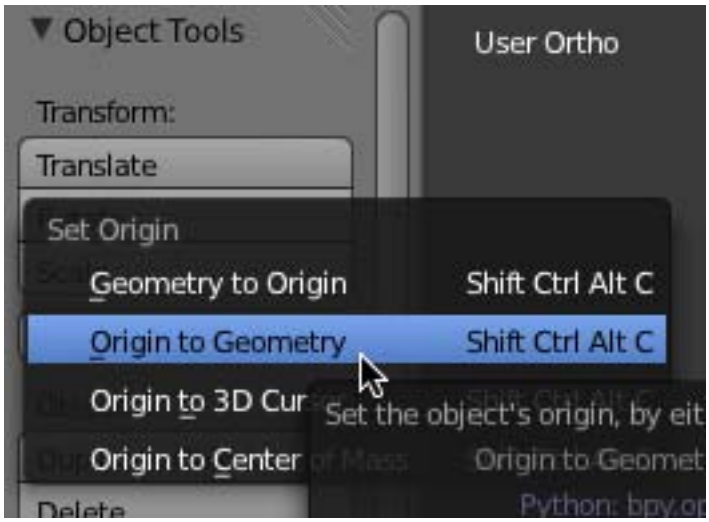


Save your Blend file.

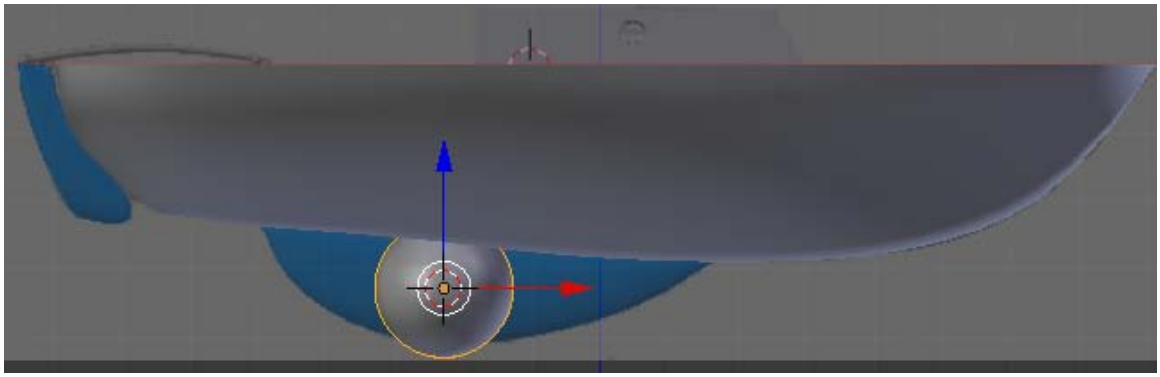
Select the Hull object and press ALT-C and convert the NURBS Surface object into a Mesh object.



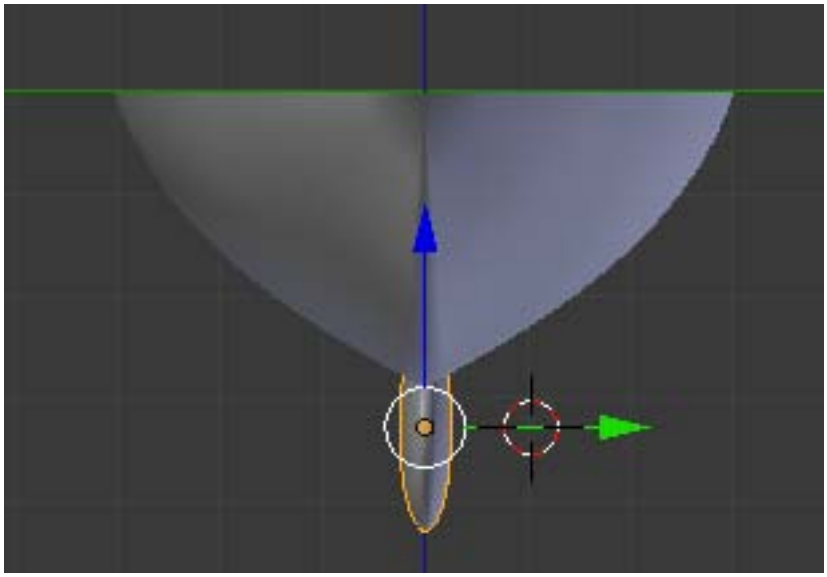
With the Hull object selected, press the “Origin” button in the right Tool panel and select “Origin to Geometry”.



Go to Front View. Place your 3D cursor in the center of the blue keel, press Shift-A and add a NURBS Surface Sphere object to the scene.



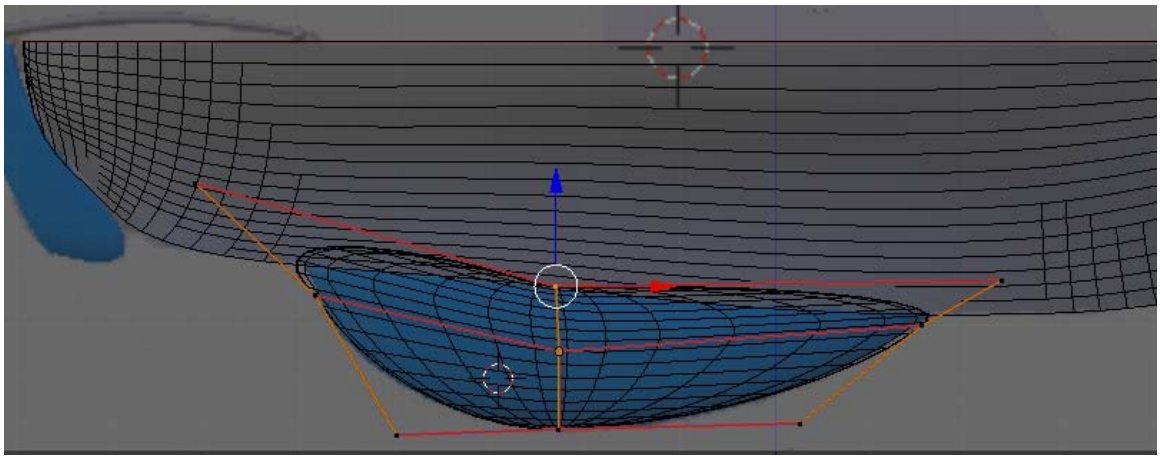
Go to side View (NUMPAD-3). Move the object to the center of the Hull and scale the object down along the Y axis as shown below.



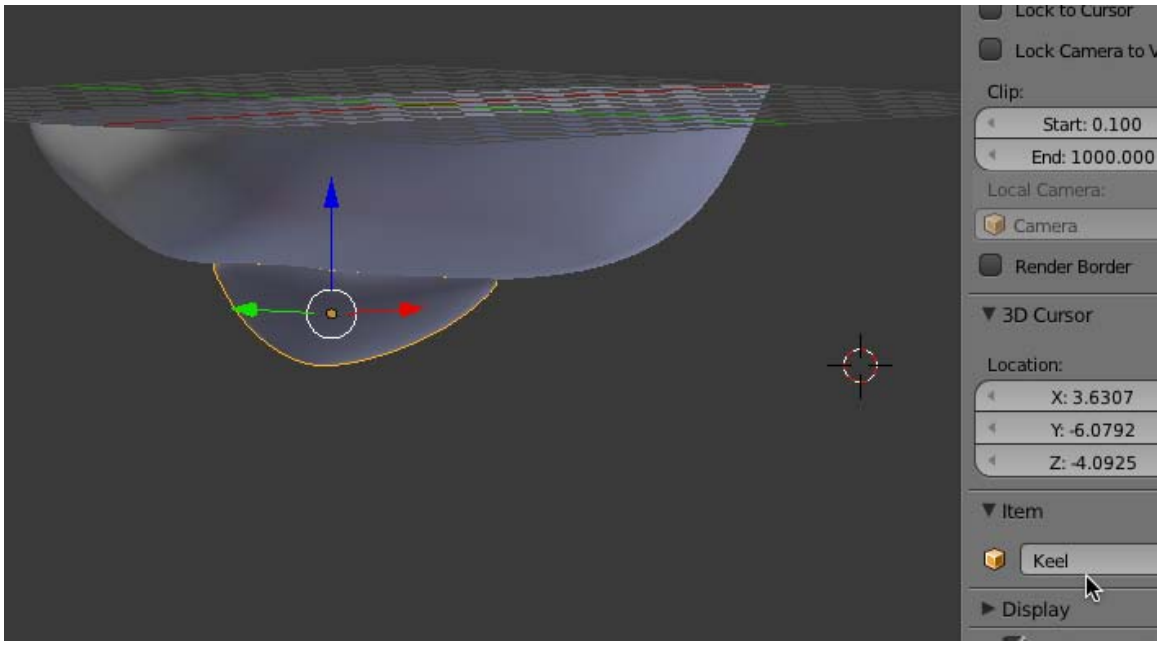
Go to Front View. Tab into Edit mode.

Press the ZKEY and go into wireframe display mode.

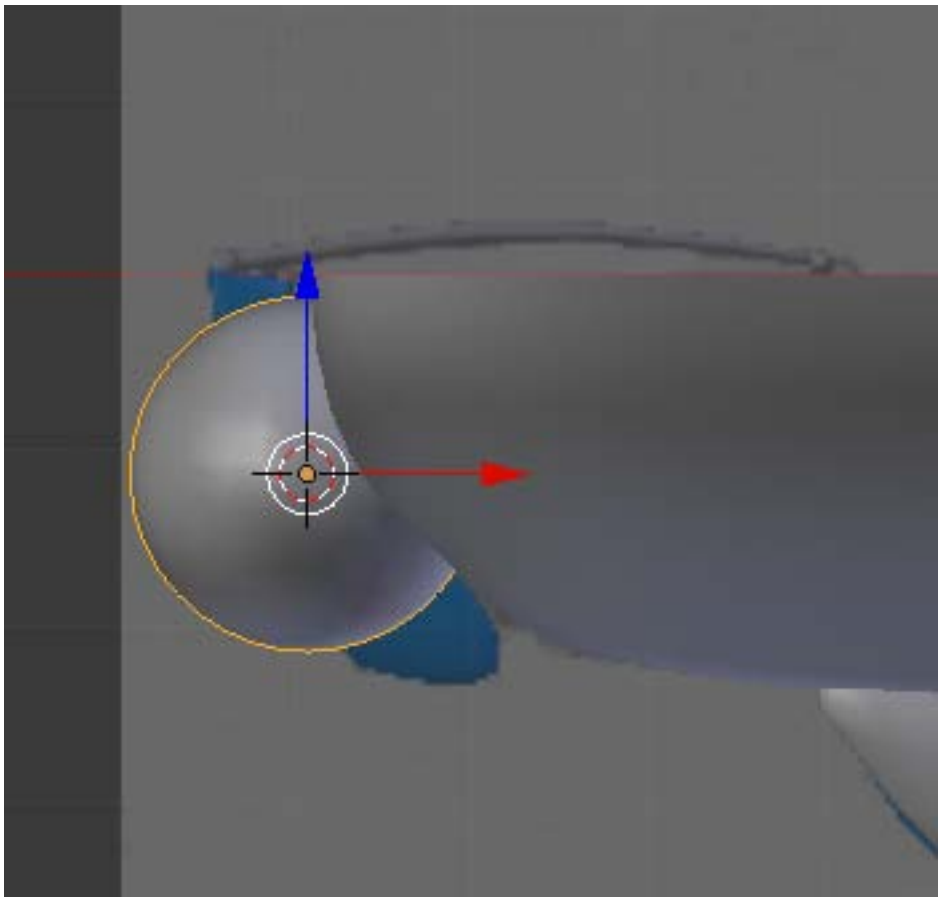
Adjust the control vertices to shape the object to the keel as shown below. NOTE: You will need to box select sets of the control vertices so that you can move sets of control vertices into position. It is OK id the object projects a small bit through the Hull object.



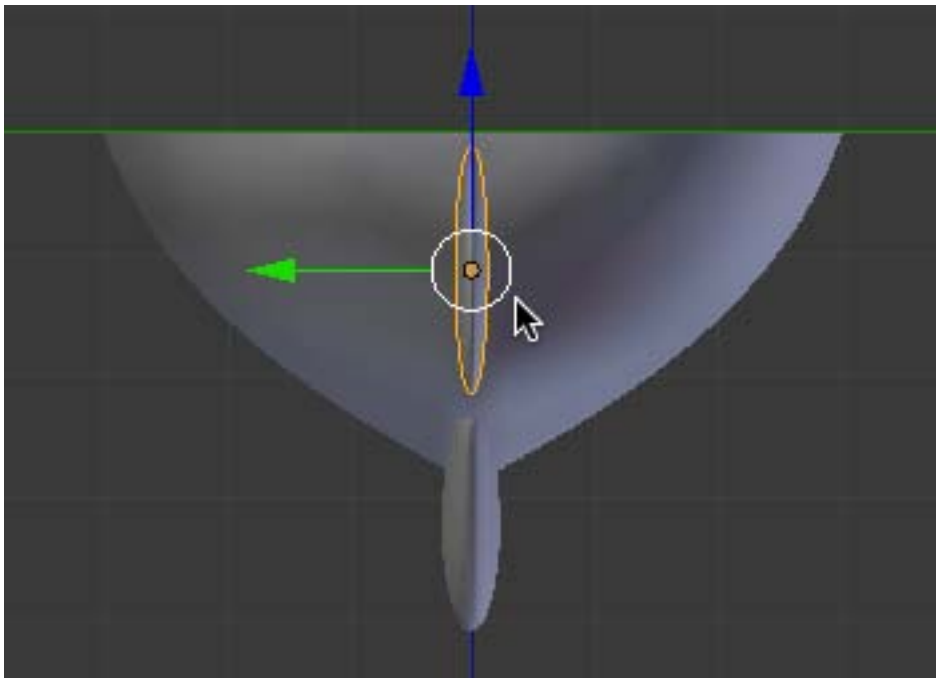
Tab out of Edit Mode. Press the ZKEY to return to solid shading mode. Name this object "Keel"



Go to Front View. Place your 3D cursor in the center of the blue rudder, press Shift-A and add a NURBS Surface Sphere object to the scene.



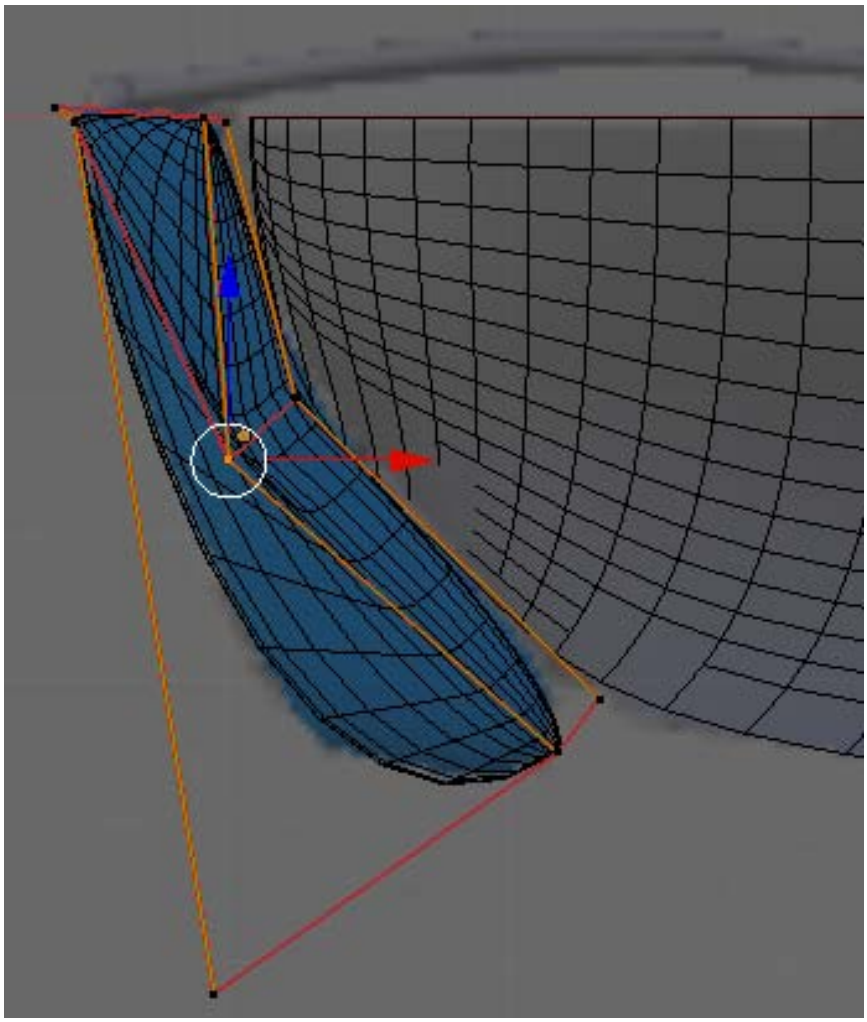
Go to left side View (CTRL-NUMPAD-3). Move the object to the center of the Hull and scale the object down along the Y axis as shown below.



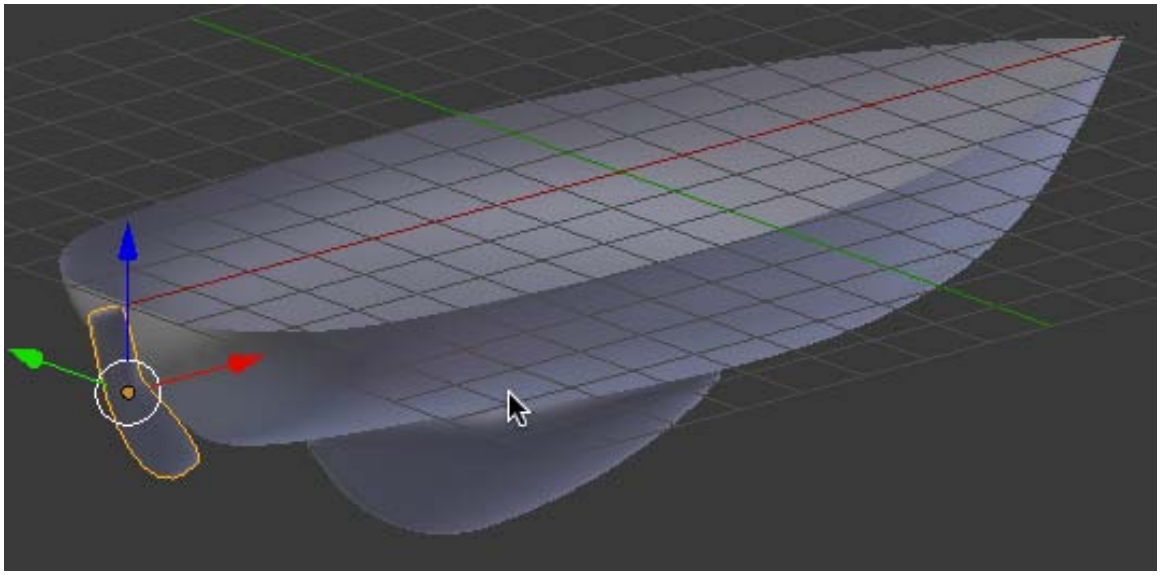
Go to Front View. Tab into Edit mode.

Press the ZKEY and go into wireframe display mode.

Adjust the control vertices to shape the object to the rudder as shown below. NOTE: You will need to box select sets of the control vertices so that you can move sets of control vertices into position.

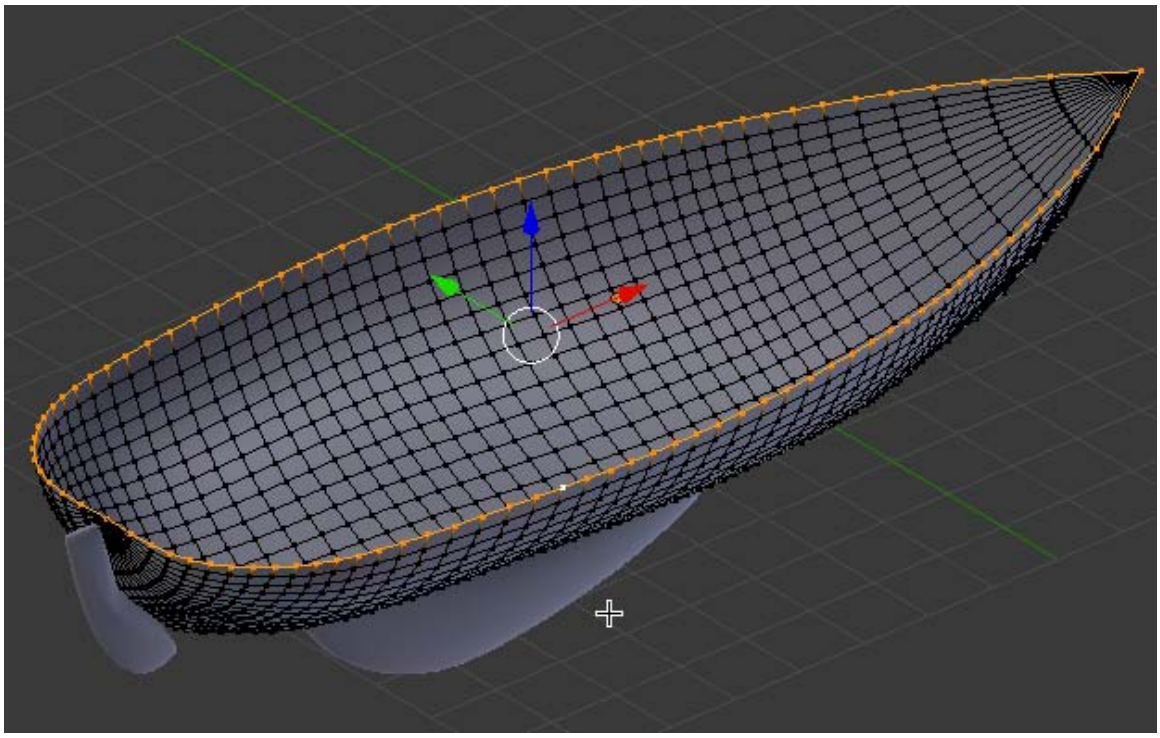


Tab out of Edit Mode. Press the ZKEY to return to solid shading mode. Name this object "Rudder".

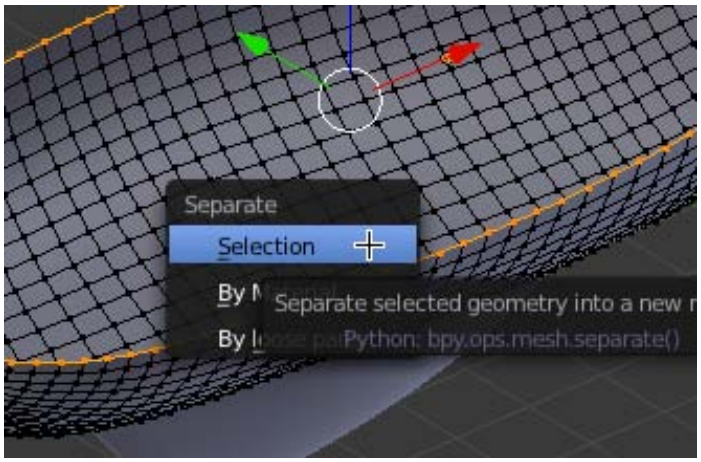


Save your .blend file.

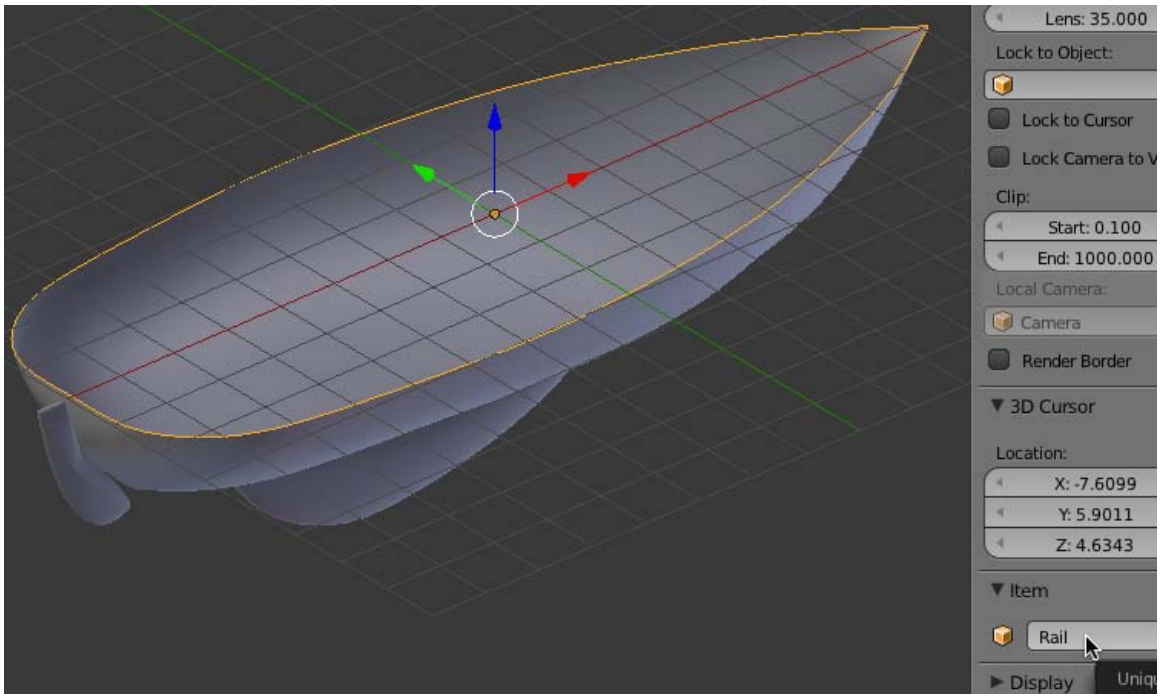
Select the Hull object. Tab into Edit mode.
Holding down the ALT KEY select one of the top vertices of the hull. This will select the whole ring of vertices as shown below.



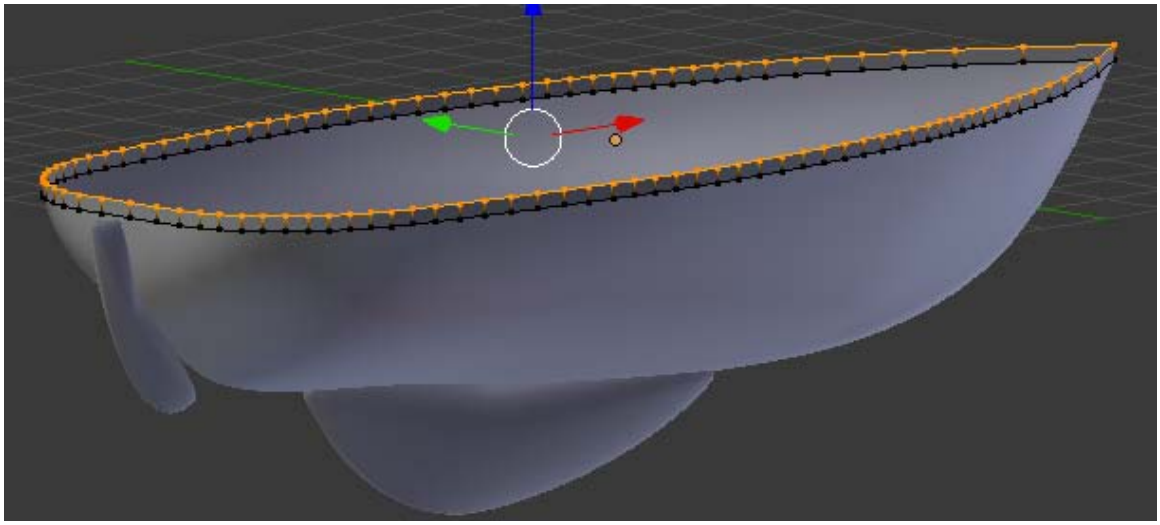
With the top row of vertices selected, press SHIFT-D, then Enter, This will create a duplicate set of vertices in the same position.
With the new set of vertices still selected, press the PKEY and Separate the Selection



This will create a new object named Hull.001. Select this object and rename it “Rail”

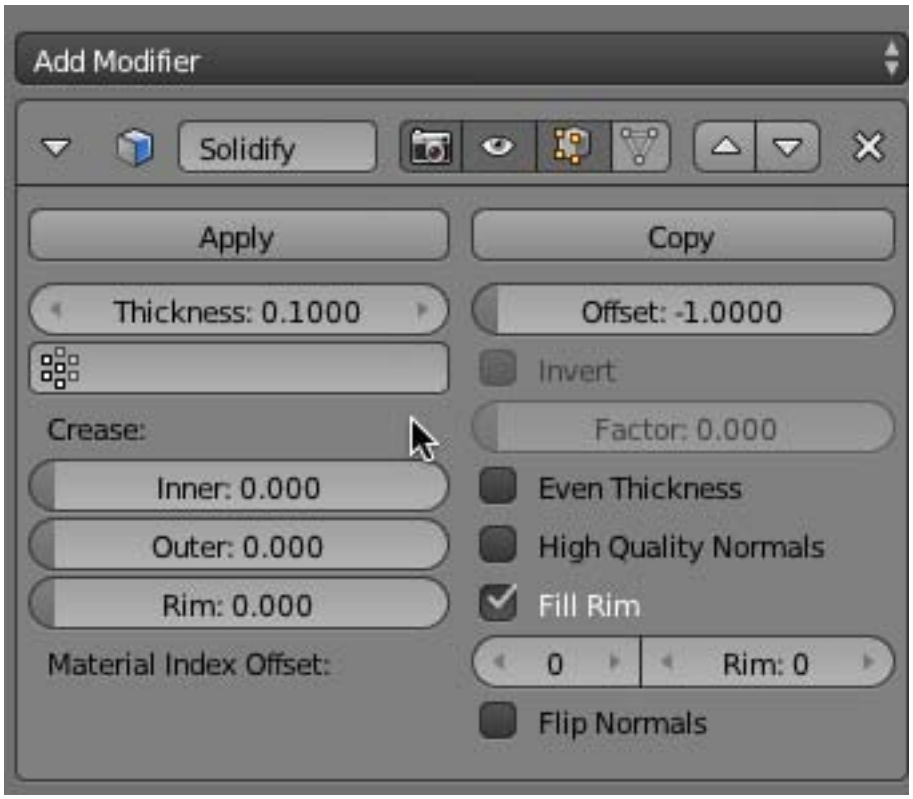


Select the Rail object and Tab into Edit mode. With all of the vertices selected, press the EKEY followed by the Z KEY and extrude the vertices up a small bit along the Z axis.

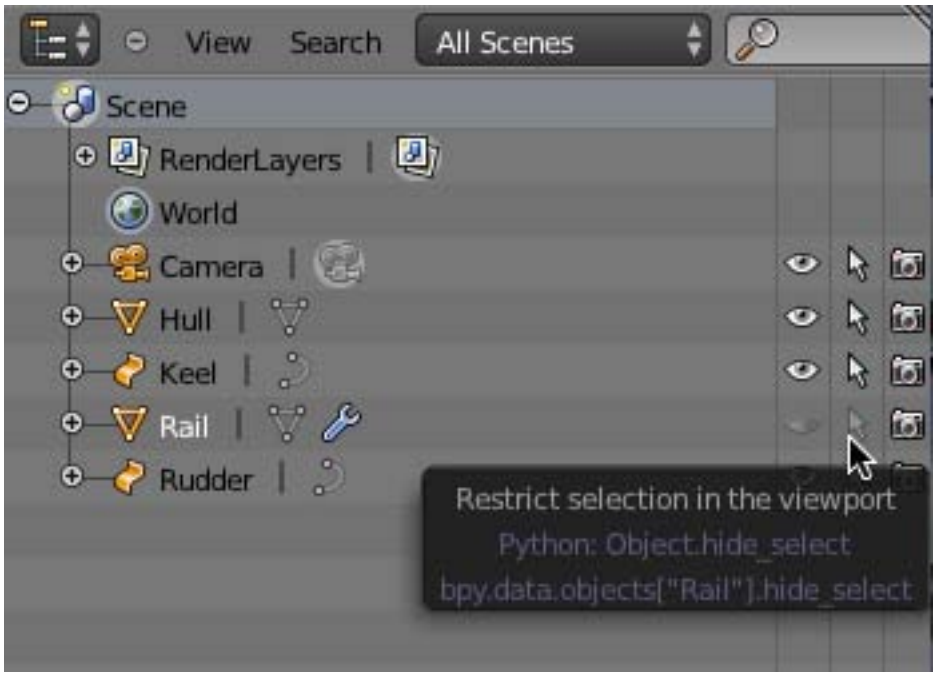


Tab out of edit mode. With the Rail object still selected open the Modifier editor and add a Solidify modifier.

Set the Thickness controller to .1

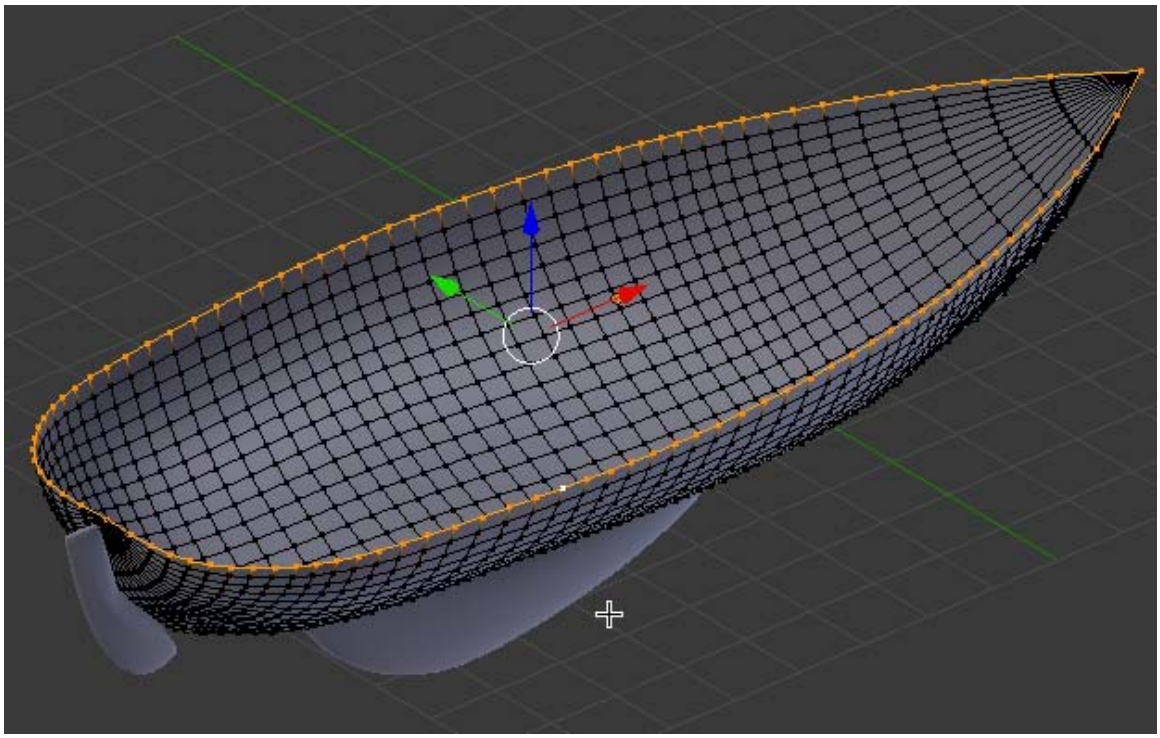


In the Outliner panel, turn off (hide) the Rail object and make it un-selectable.



Select the Hull object. Tab into Edit mode.

Holding down the ALT KEY select one of the top vertices of the hull. This will select the whole ring of vertices as shown below.



With the top row of vertices selected, press SHIFT-D, then Enter, This will create a duplicate set of vertices in the same position.

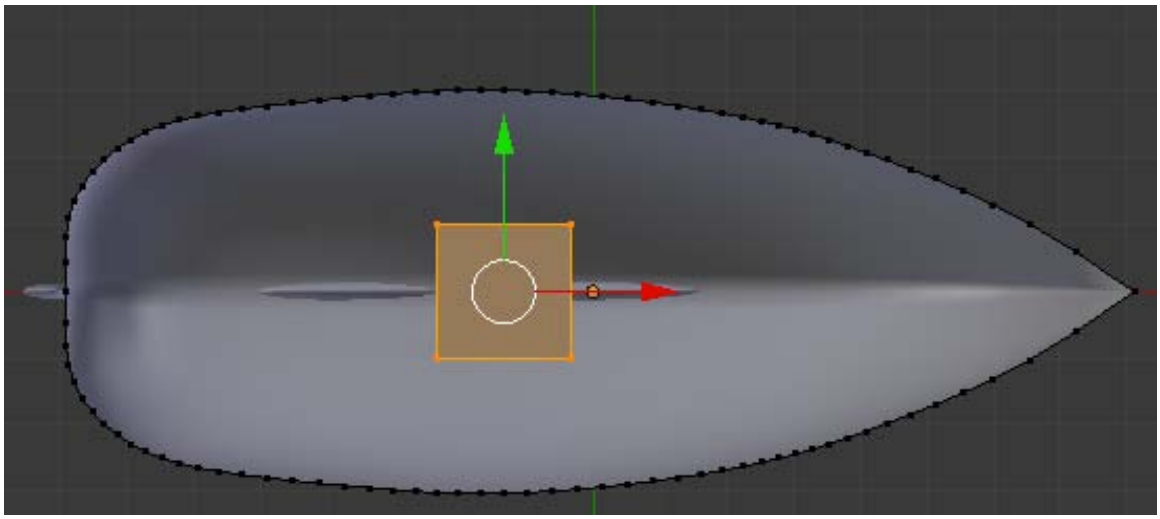
With the new set of vertices still selected, press the PKEY and Separate the Selection

This will create a new object named Hull.001. Select this object and rename it “Deck”

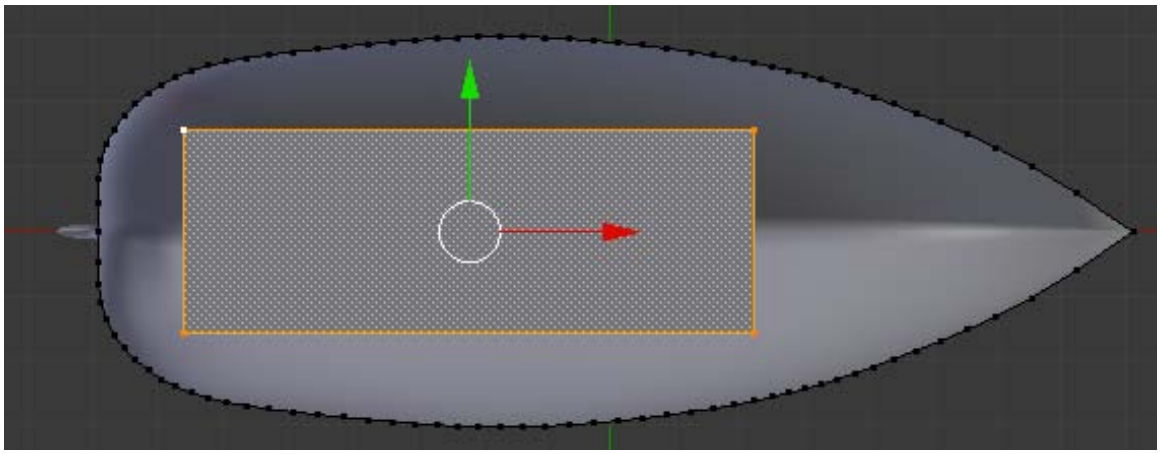
Select the Deck object and Tab into Edit mode. Go to Top View.

With the Deck object vertices all selected. Press Shift-S (Snap) and snap your 3D cursor to the selection. This will place your 3D cursor in the same plane as the Deck vertices.

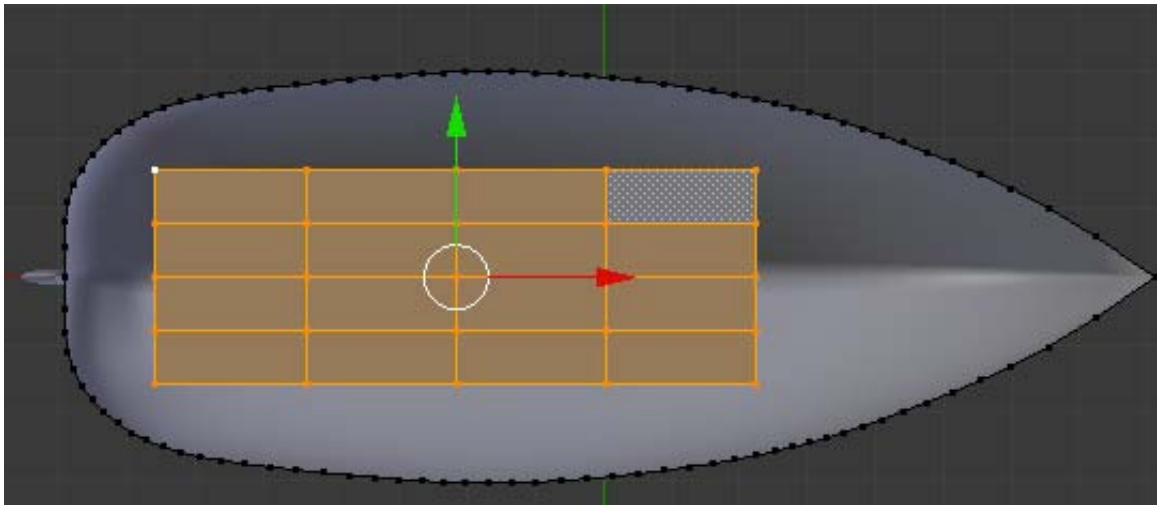
Press SHIFT-A and add a plane object to the scene (since this was added in edit mode, it is part of the Deck object).



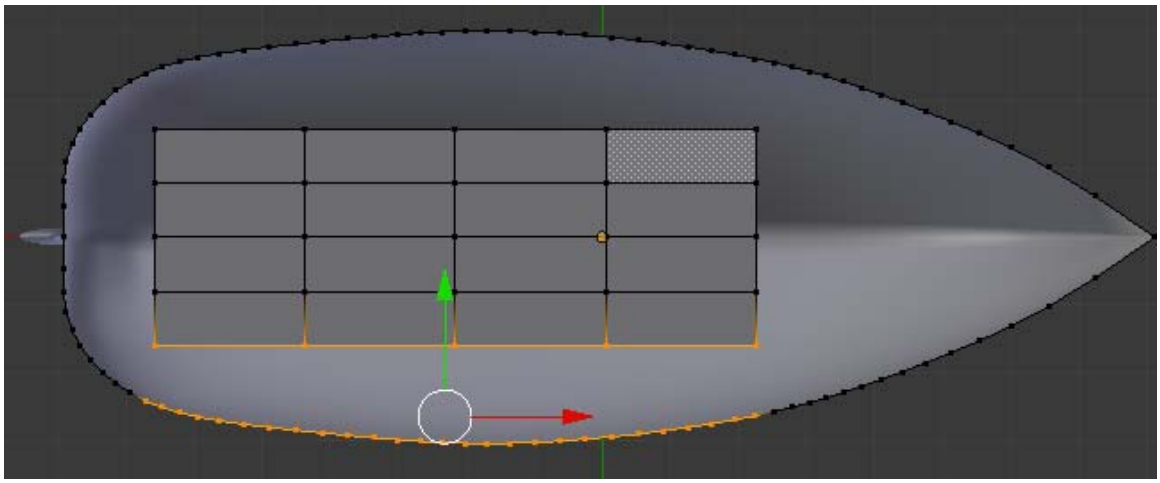
Scale the plane along the X and Y axis and place as shown below.



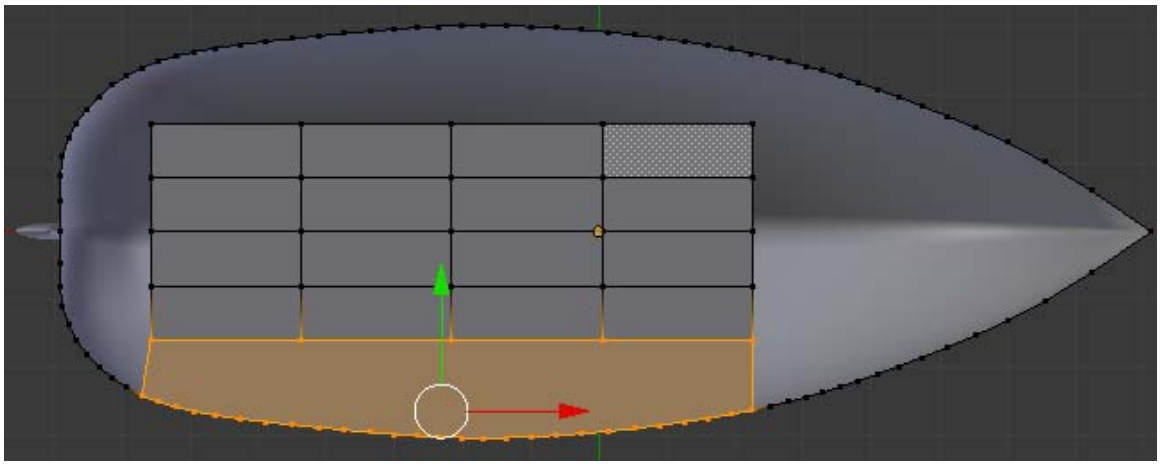
With the 4 vertices still selected, subdivide the plane twice (Click on subdivide button in the left tool panel twice).



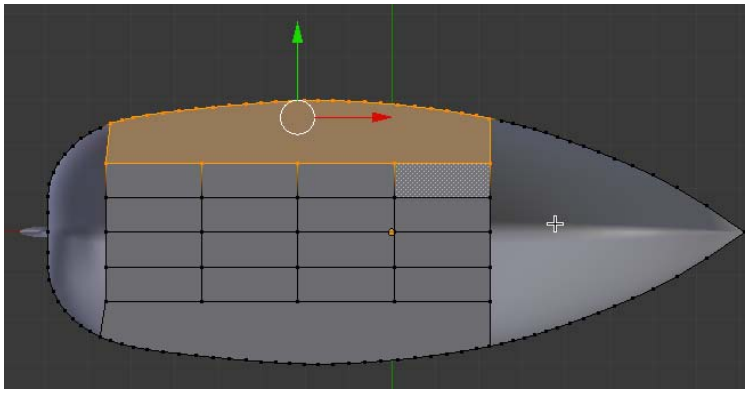
Press the AKEY to deselect the vertices. Box select a group of vertices as shown below.



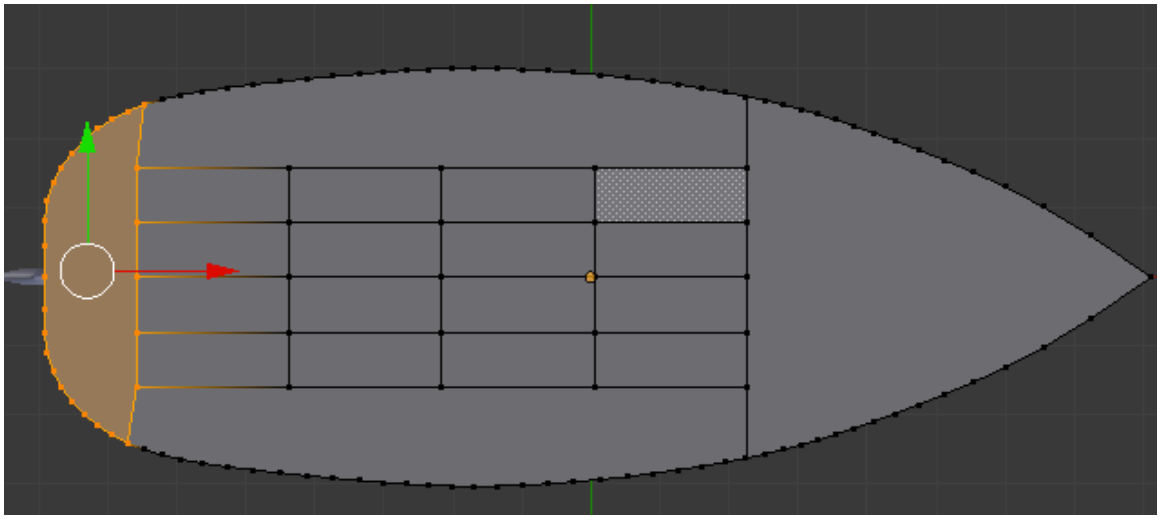
Press the FKEY to make a face for this area.



Do the same on the top



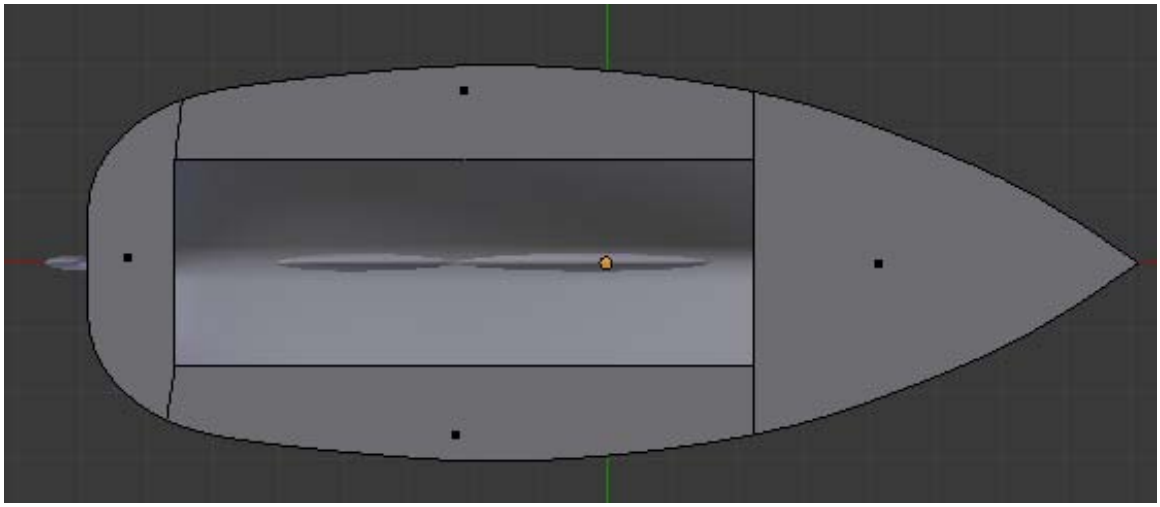
Do the same on both sides.



This creates a Deck top face.

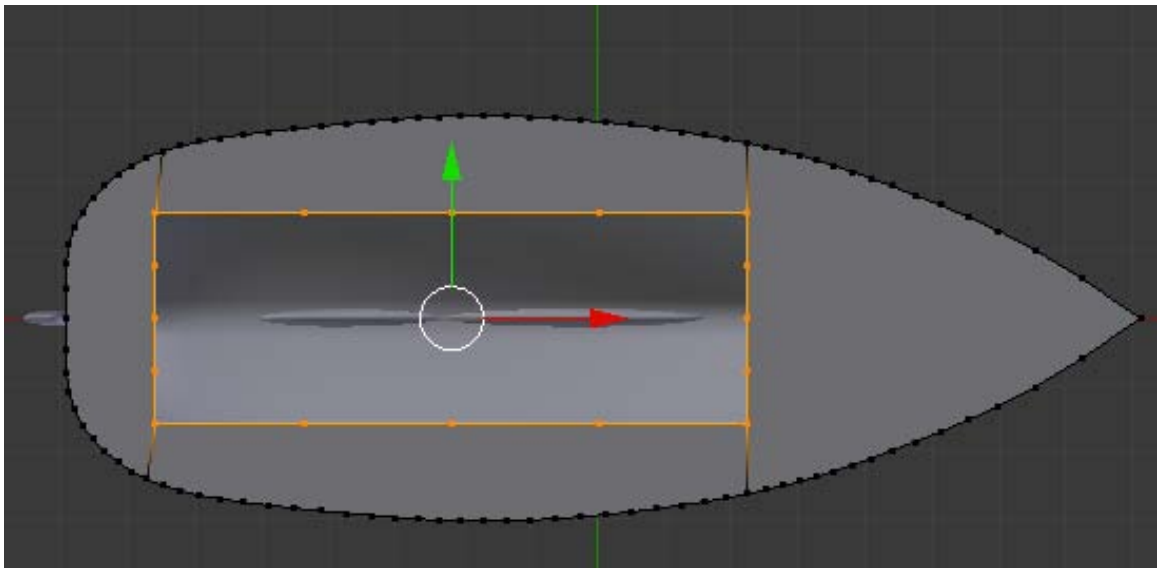
Go to Face select mode.

Select the faces of the plane and delete them (XKEY – Delete Faces).

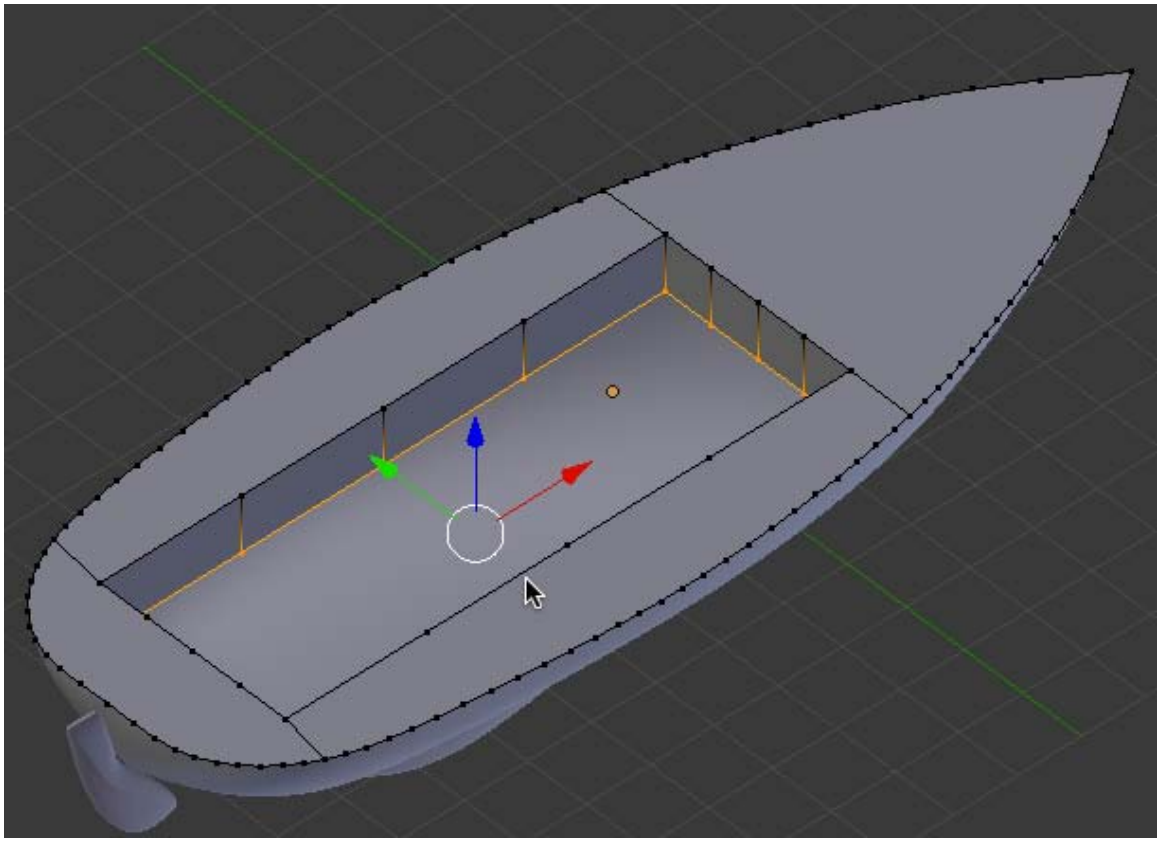


Go to Vertex select mode.

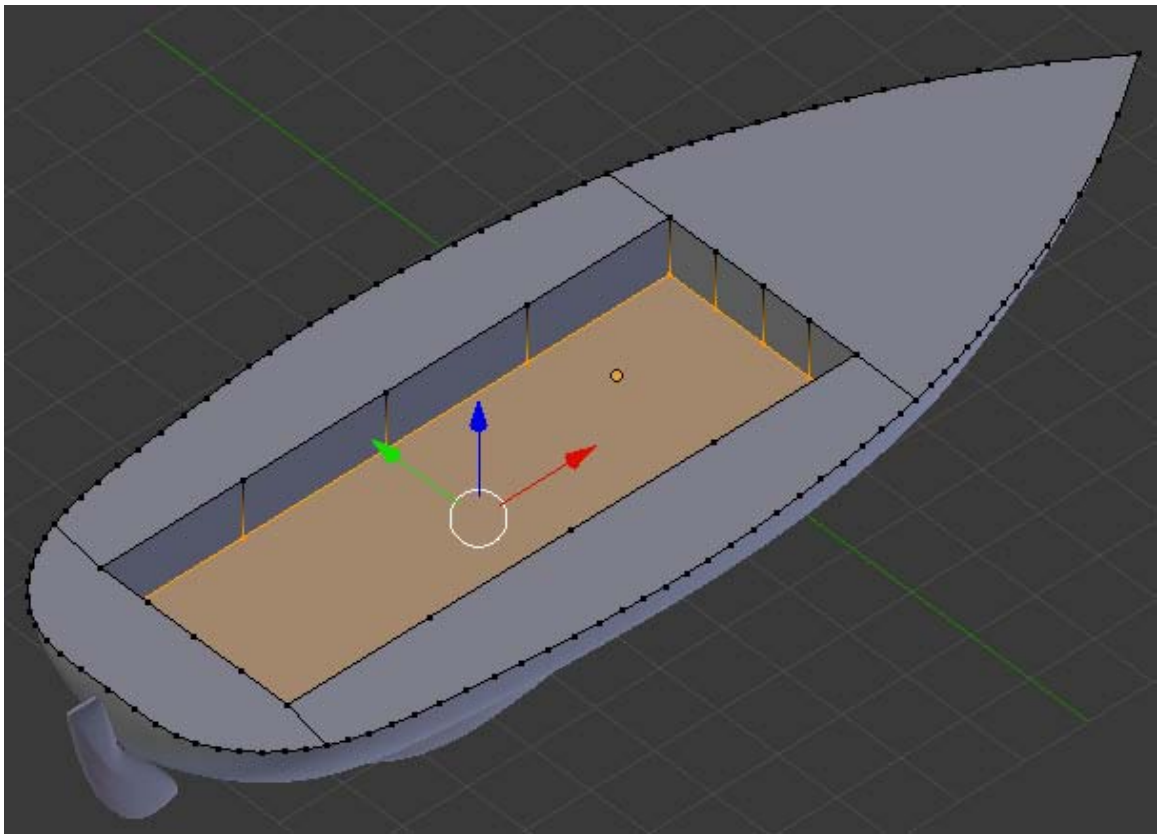
Box select all of the plane vertices as shown below.



Rotate your view so you can see the hull more dimensionally. Press the EKEY followed by the ZKEY and extrude the vertices down a bit as shown below.



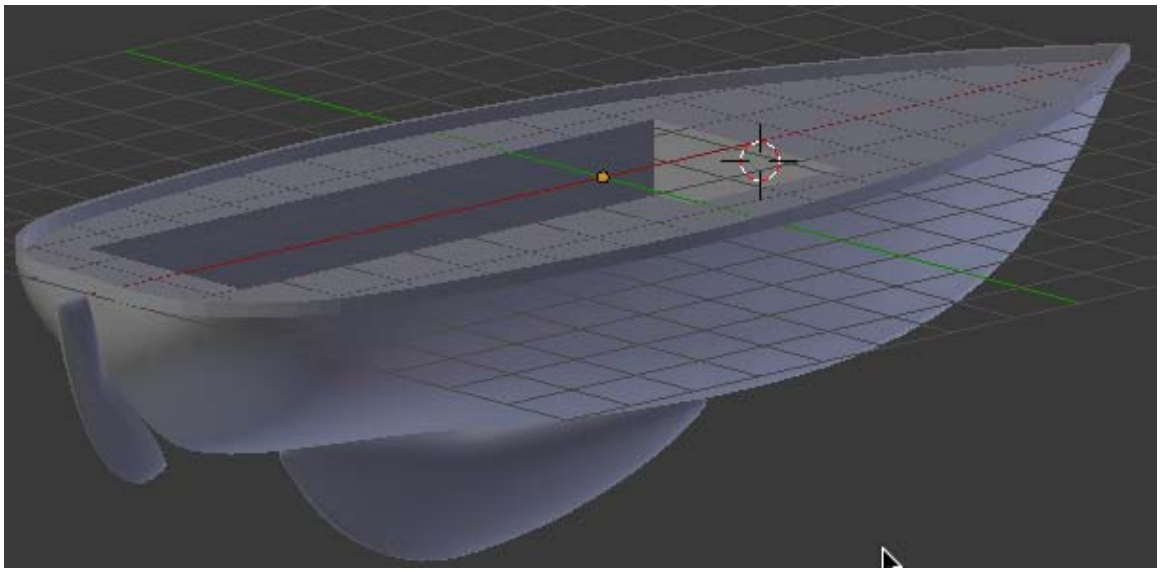
Then press the FKEY to make a bottom face on the extruded vertices.



Tab out of edit mode.

In the Outliner panel, unhide the Rail object and make it selectable.

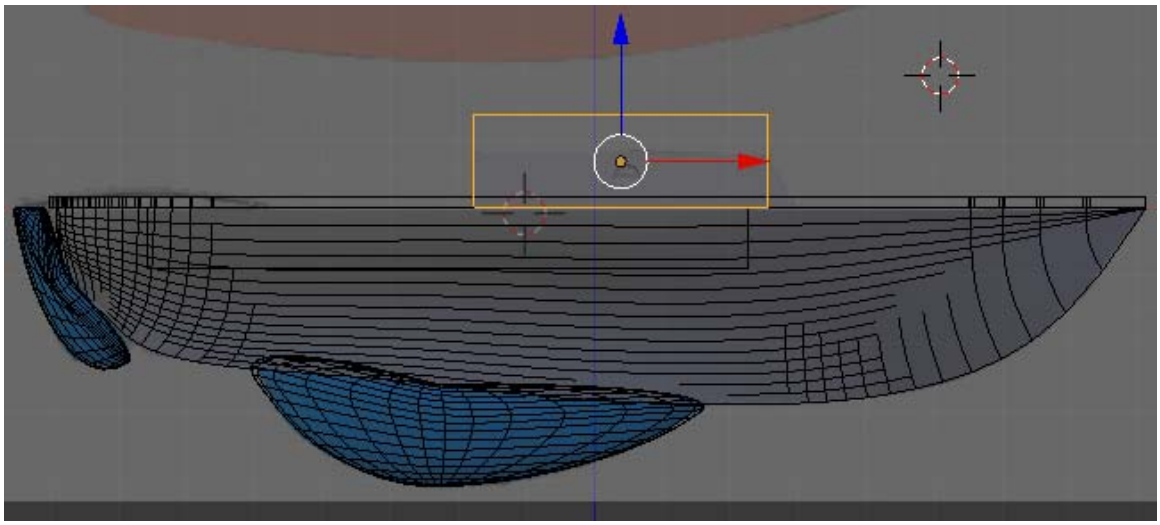
Save your .blend file.



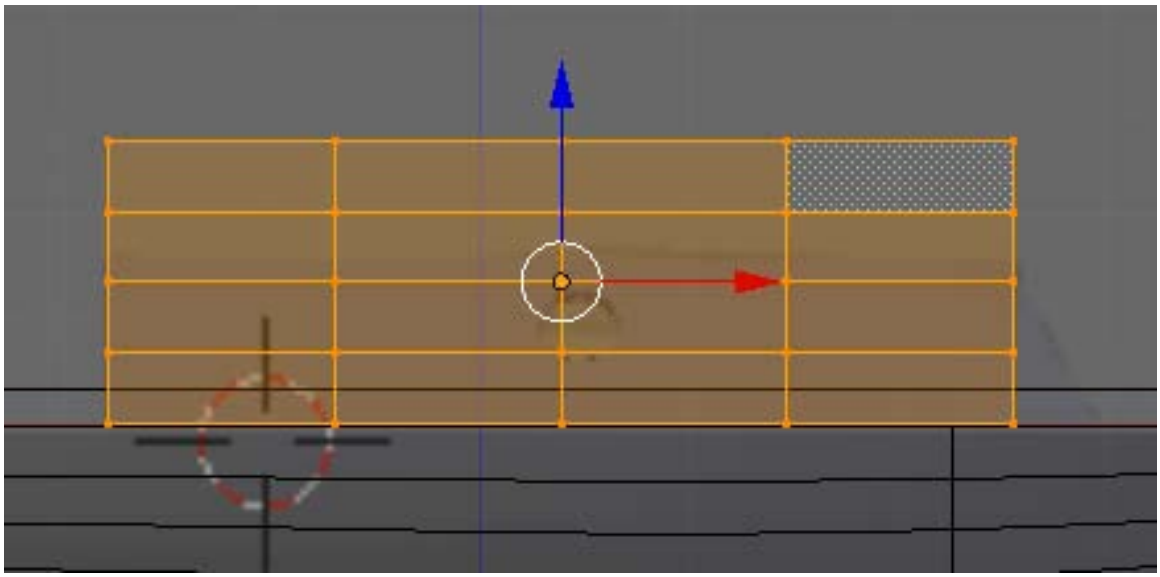
Go to Front View. Place your 3D cursor above the sailboat, press SHIFT-A and add a plane object.

Go to Wireframe display mode.

Rotate the plane object 90 degrees around the X axis. Scale the plane object as shown below.

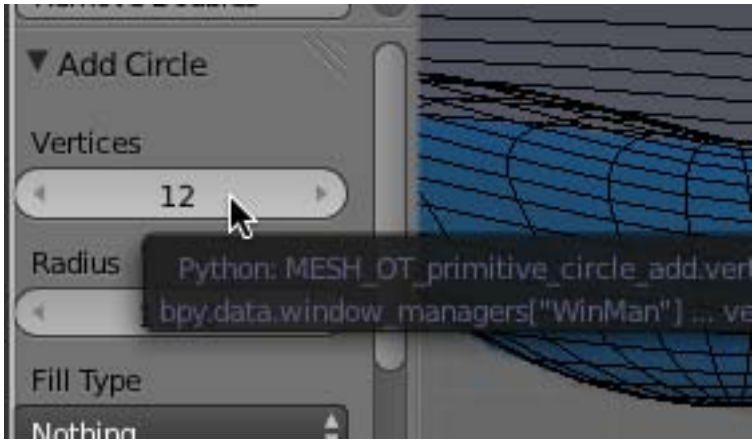


Tab into edit mode. With all of the vertices selected, subdivide twice.



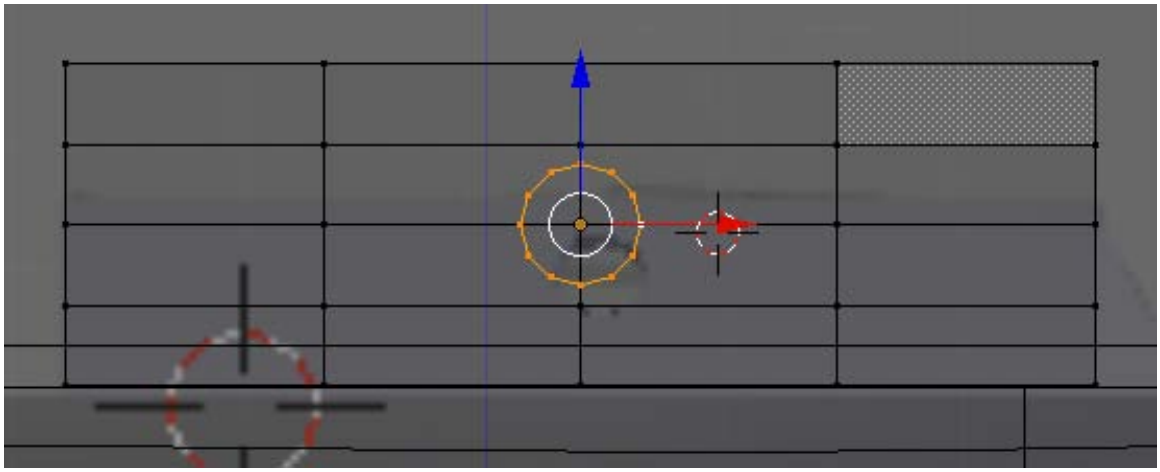
With all of the vertices still selected, press SHIFT-S (Snap) and snap your 3D cursor to the selected.

Deselect the vertices (AKEY). While still in Edit mode, press SHIFT-A and add a circle object. In the left tool panel set the number of vertices for the circle object to 12.

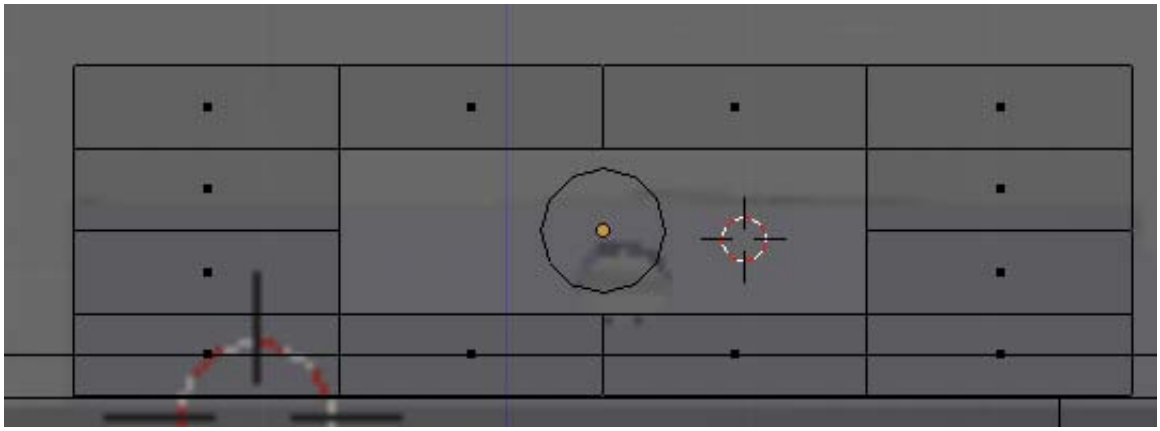


With the circle vertices still selected, rotate them about the X axis 90 degrees (RKEY 90 XKEY Enter)

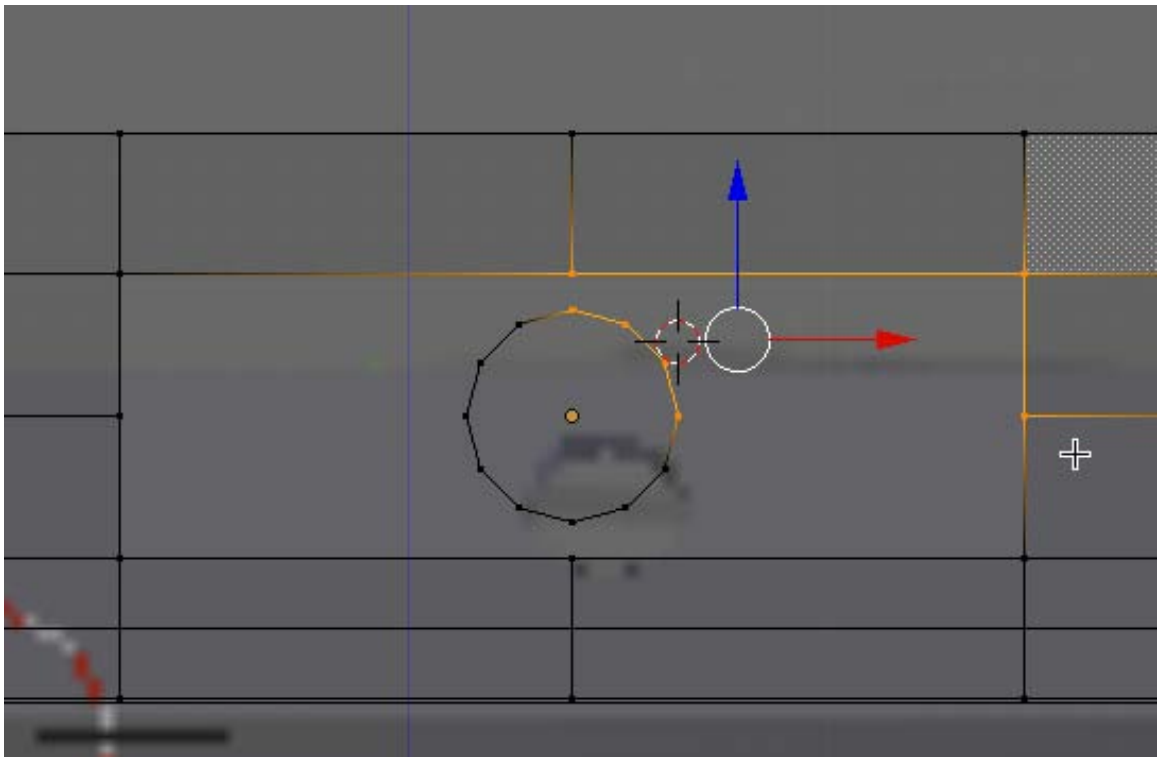
Scale the vertices down and place them as shown below.



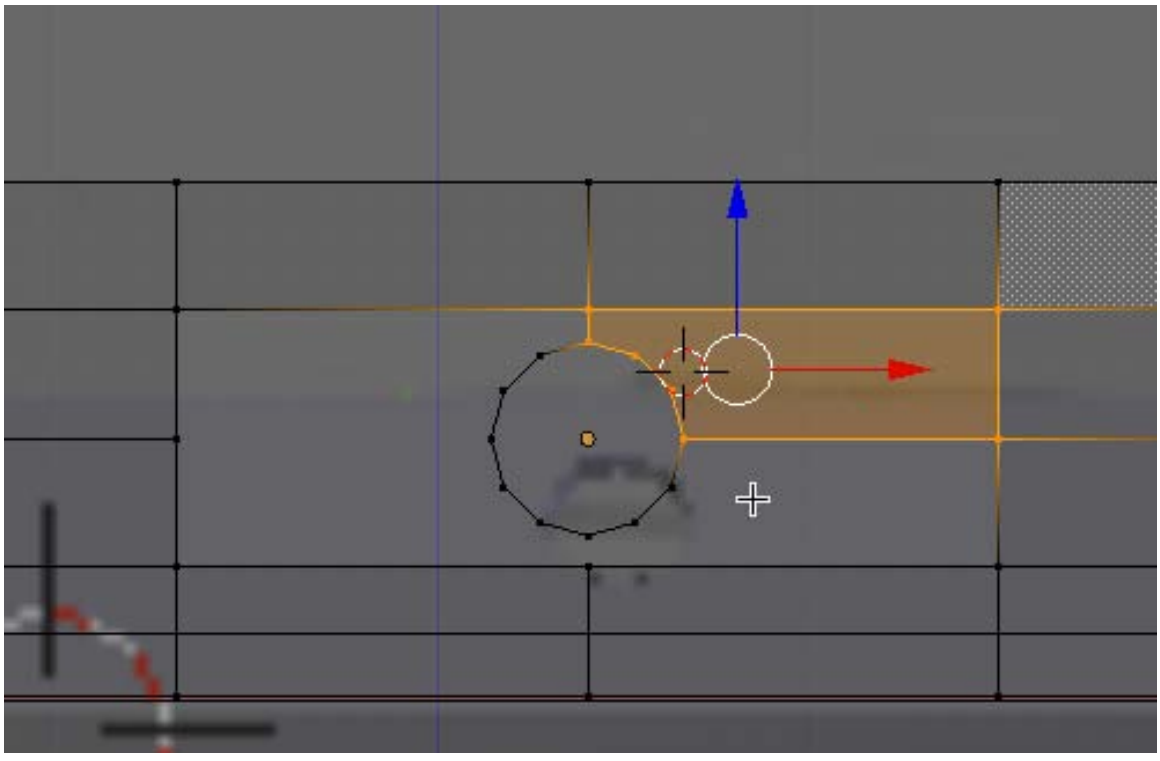
Go to Face select mode. Select the 4 center plane faces and delete them as shown below.



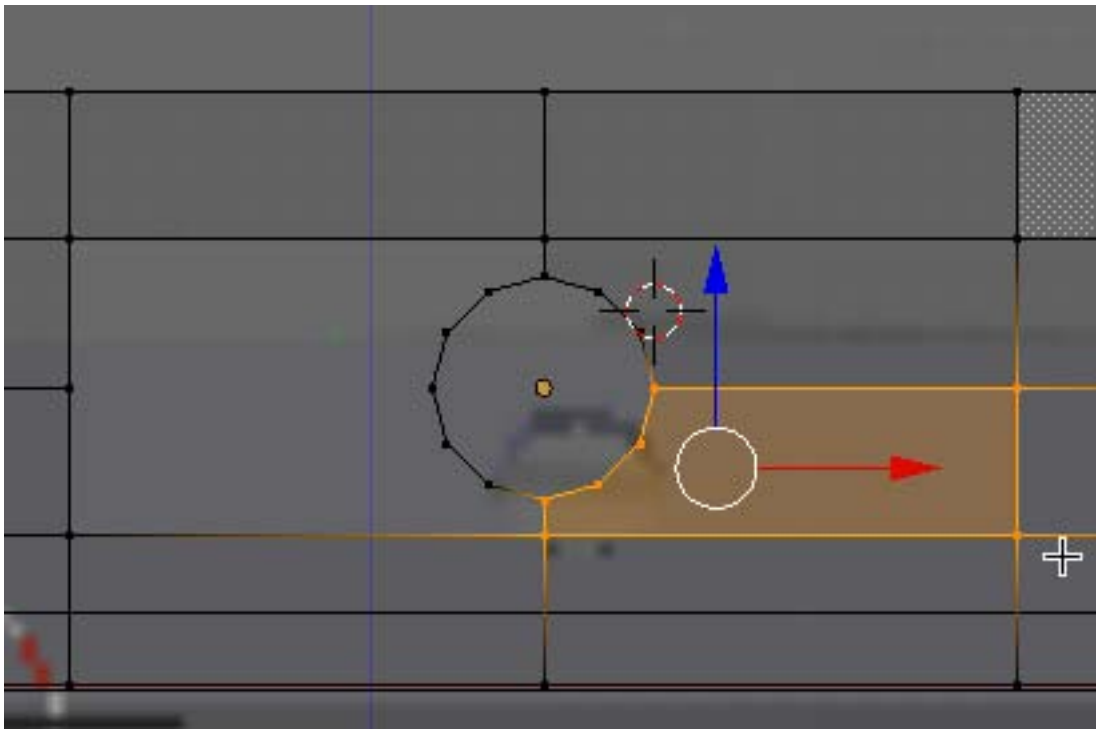
Go to Vertex select mode. Box select the upper right quadrant of vertices as shown below.



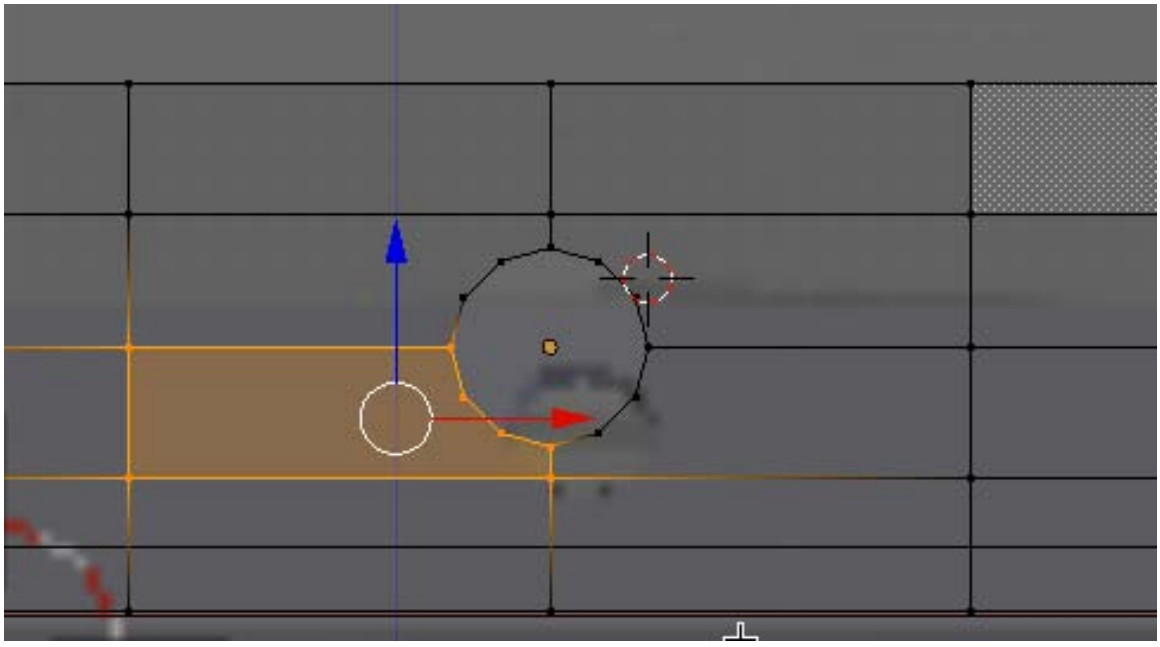
Press the FKEY to create a face.



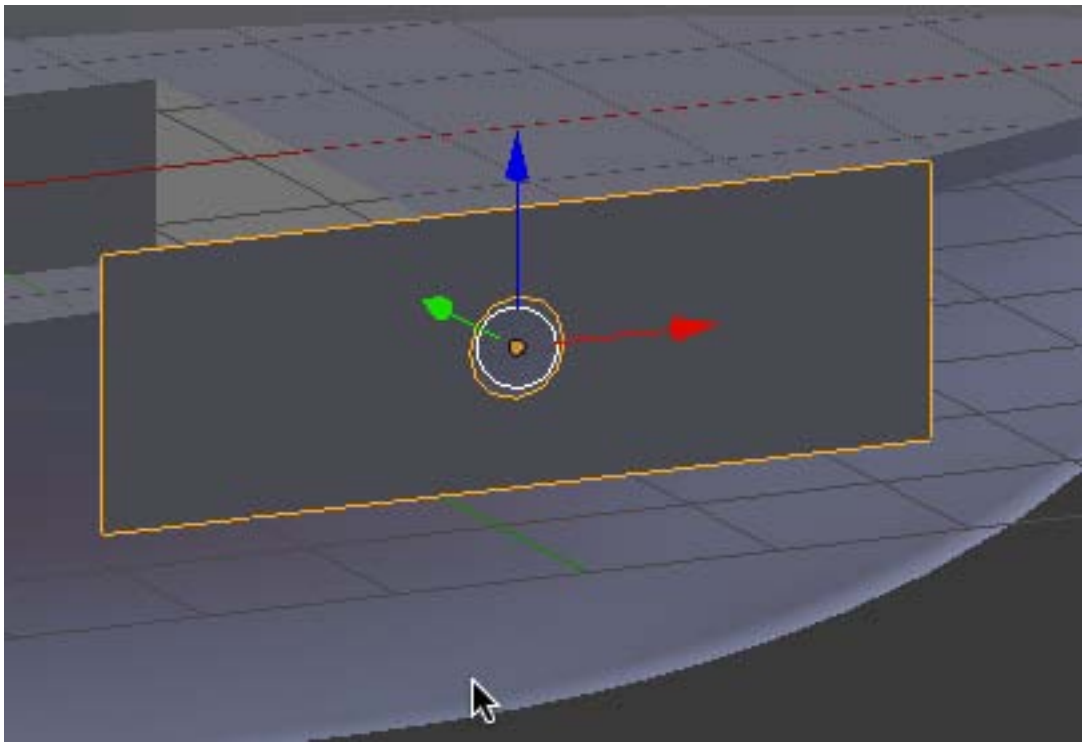
Select the lower right quadrant of vertices and do the same.



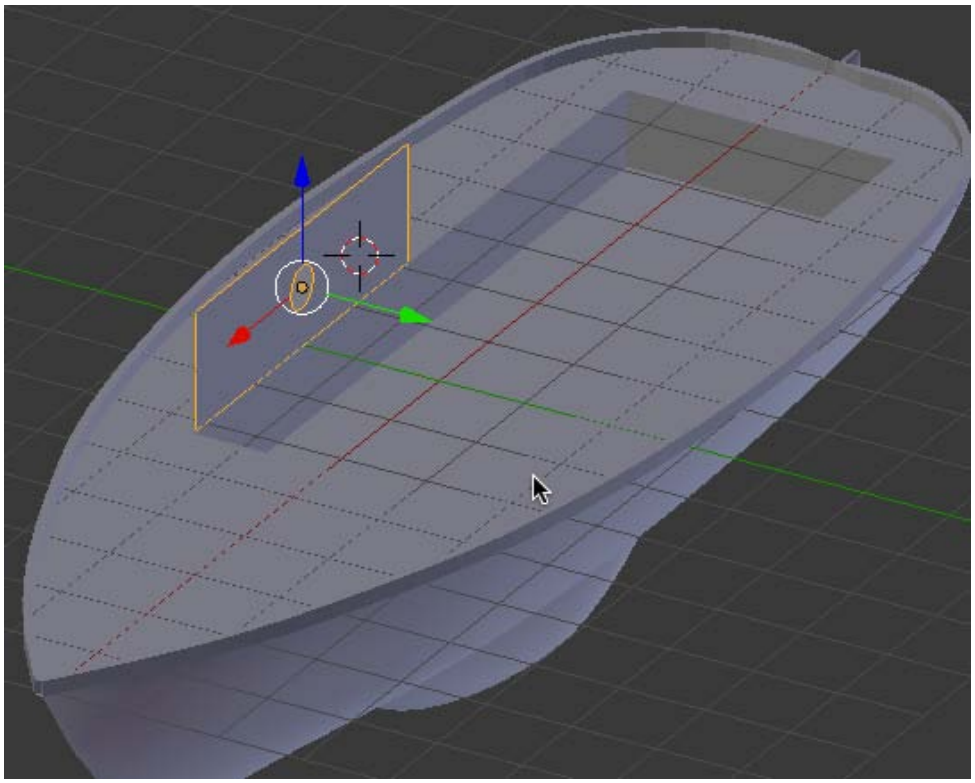
Do the same to the upper left and lower left quadrant of vertices.



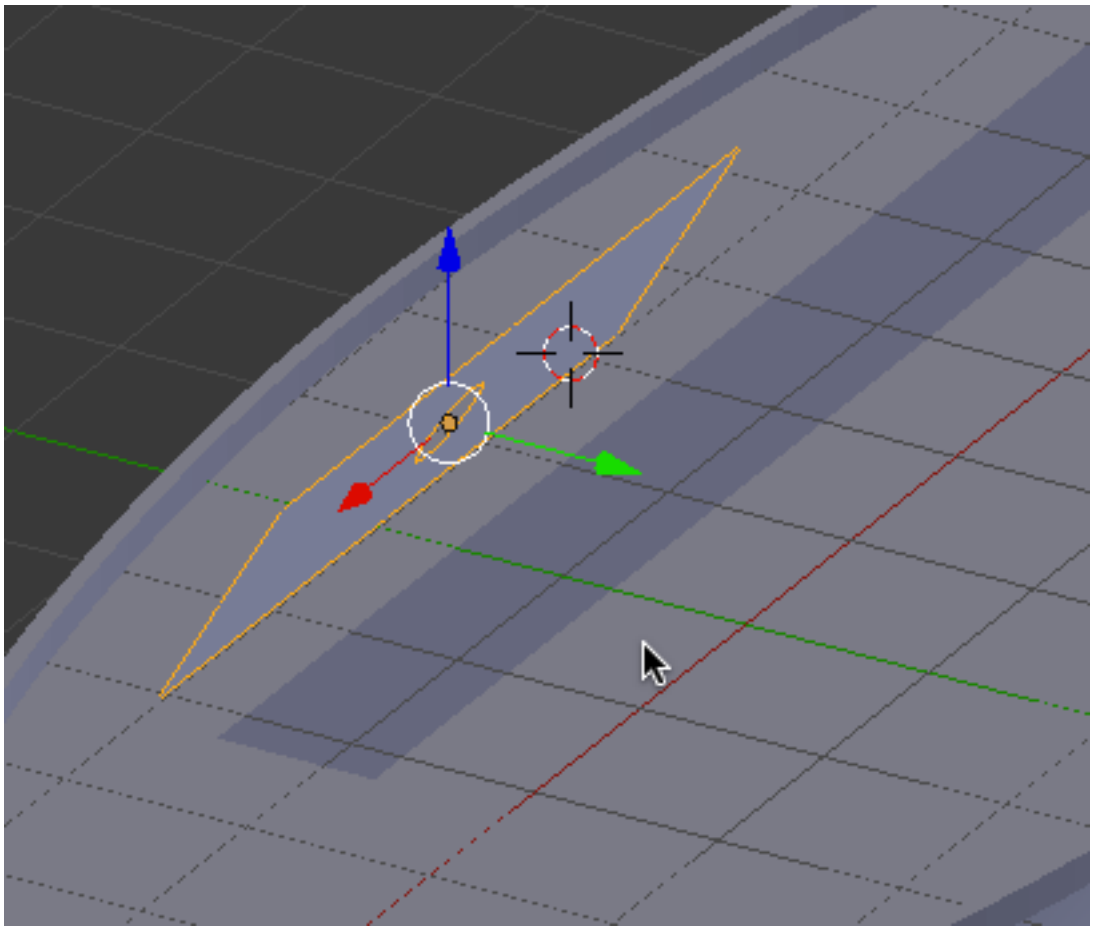
We now have a flat plane with a hole in the center. Tab out of edit mode. Go to solid display mode.



Name this object “Cabin”. Move the cabin object along the Y axis until it sits at the edge of the deck hole as shown below.

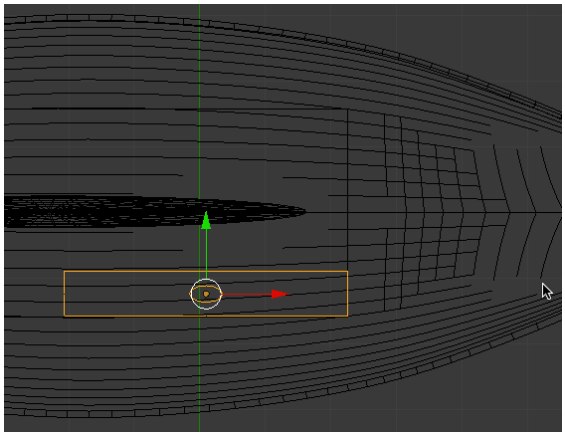


Rotate the Cabin object -30 degrees about the X axis (RKEY -30 XKEY Enter)



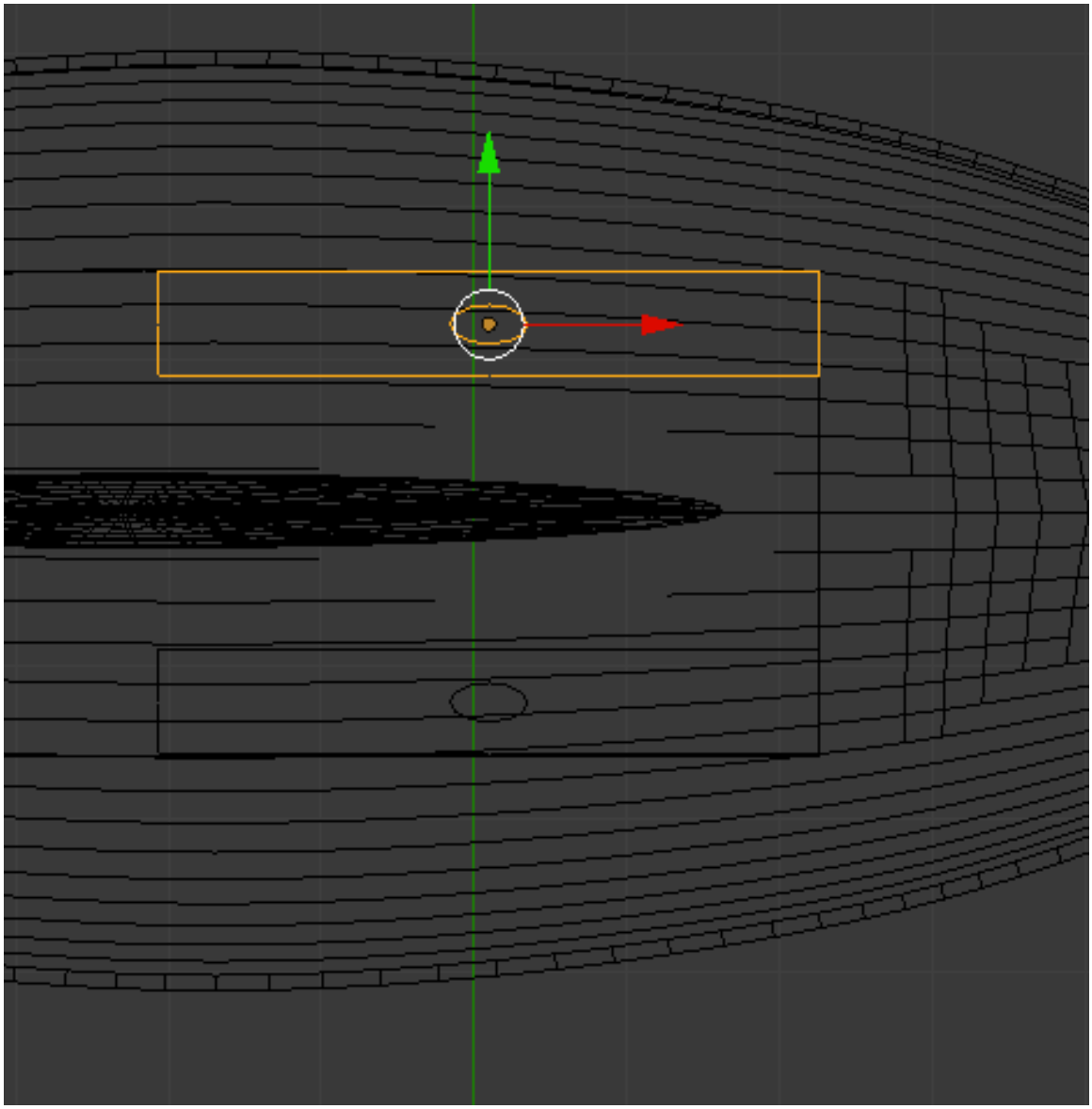
Go to Top View. Go to Wireframe display mode.

Move the Cabin object along the Y axis until it sits at the edge of the Deck hole as shown below.



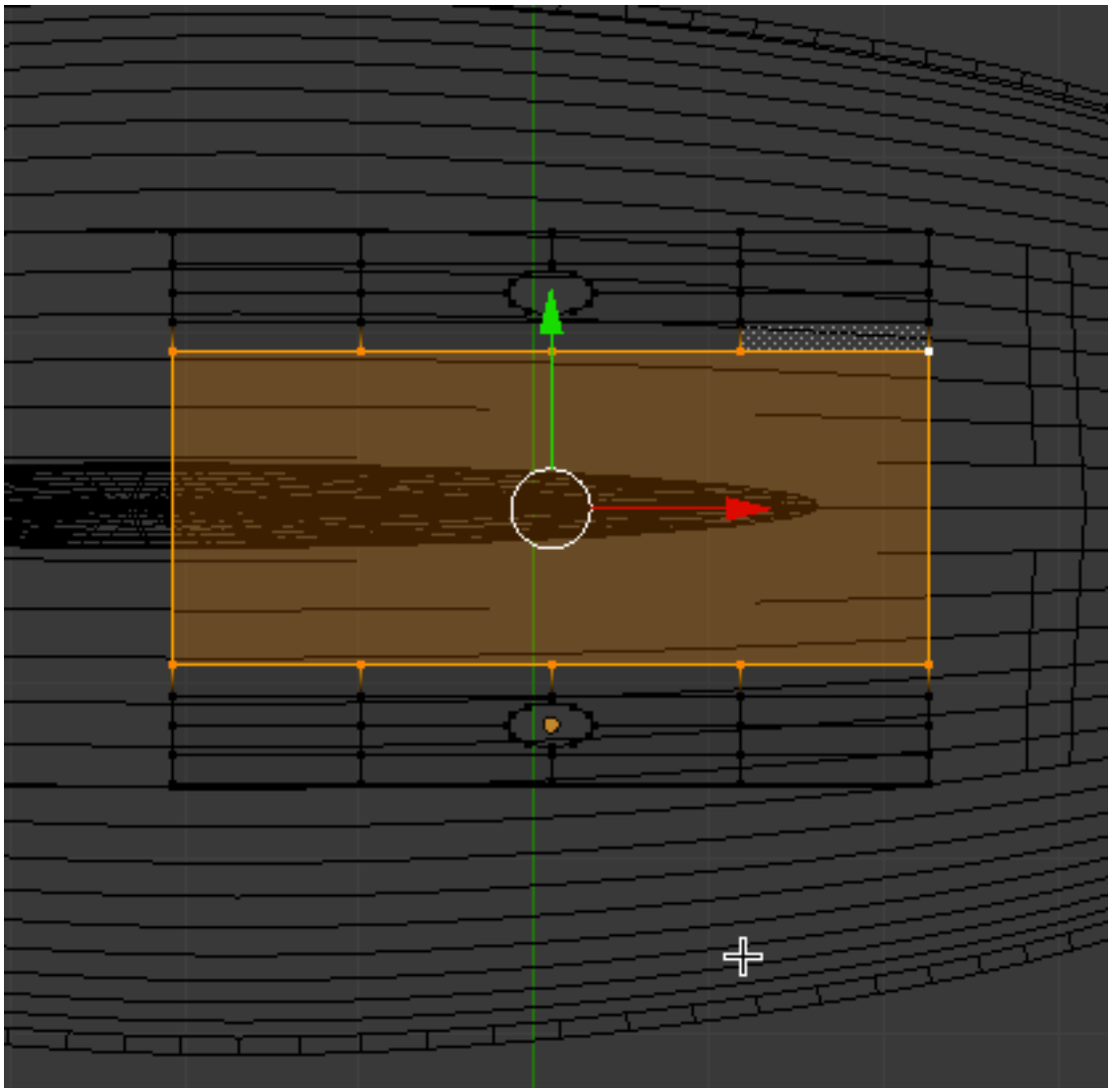
With the Cabin object selected in object mode, press SHIFT-D and make a duplicate object. Move this object up along the Y axis.

Rotate the object 60 degrees about the X axis (RKEY 60 XKEY Enter) then move it to the edge of the Deck hole as shown below.

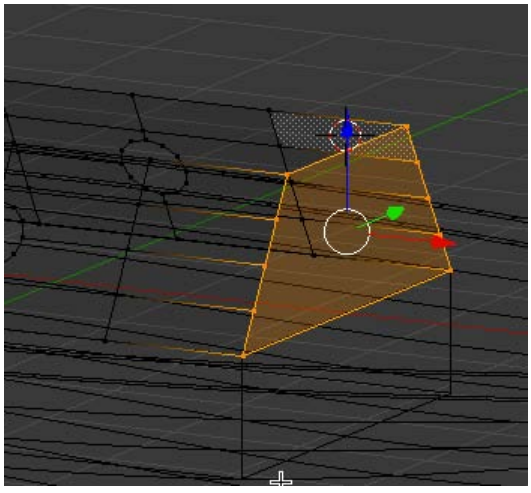


With this object selected, hold down your SHIFT key and add the Cabin object to the selection. Press CTRL-J and join the objects into one object named Cabin.

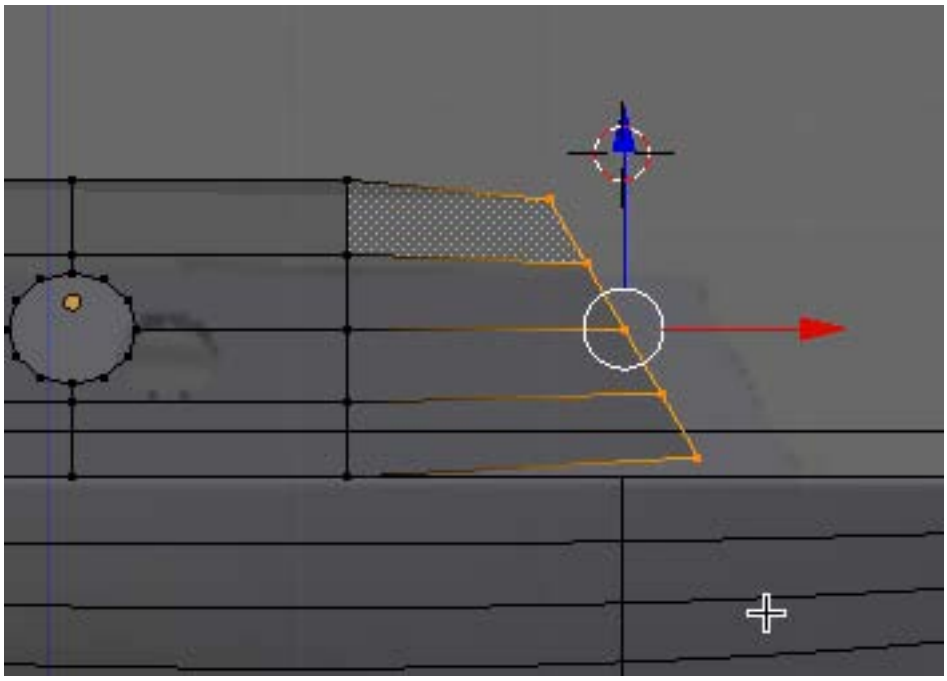
Tab into Edit mode. Select the top 10 vertices and press the FKEY to make a face as shown below.



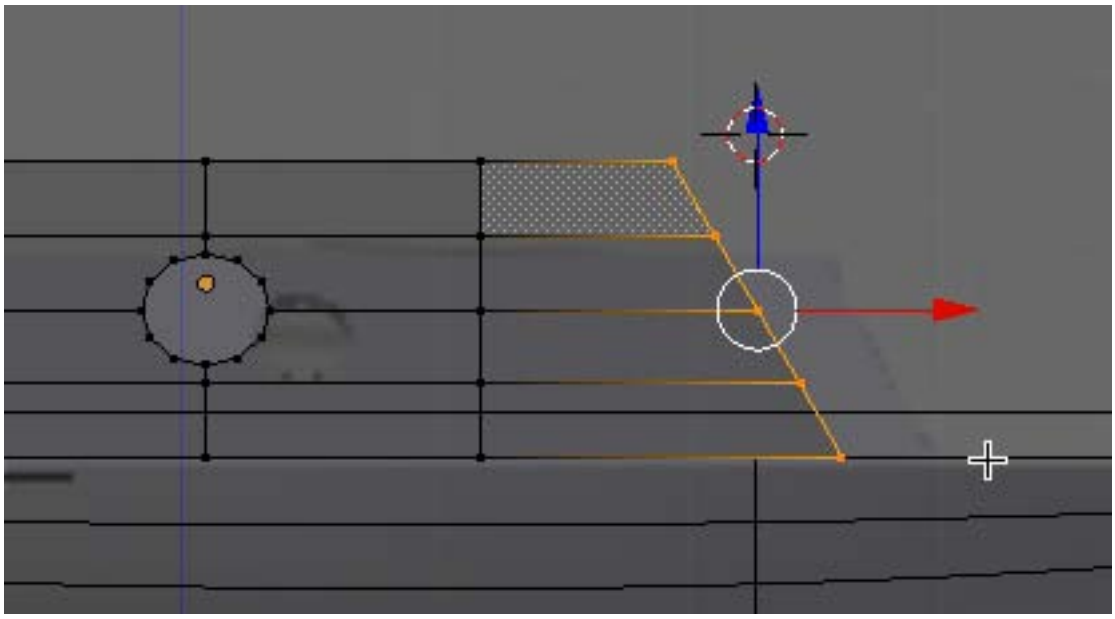
Select the vertices on the bow side of the Cabin object and press the FKEY to make a face.



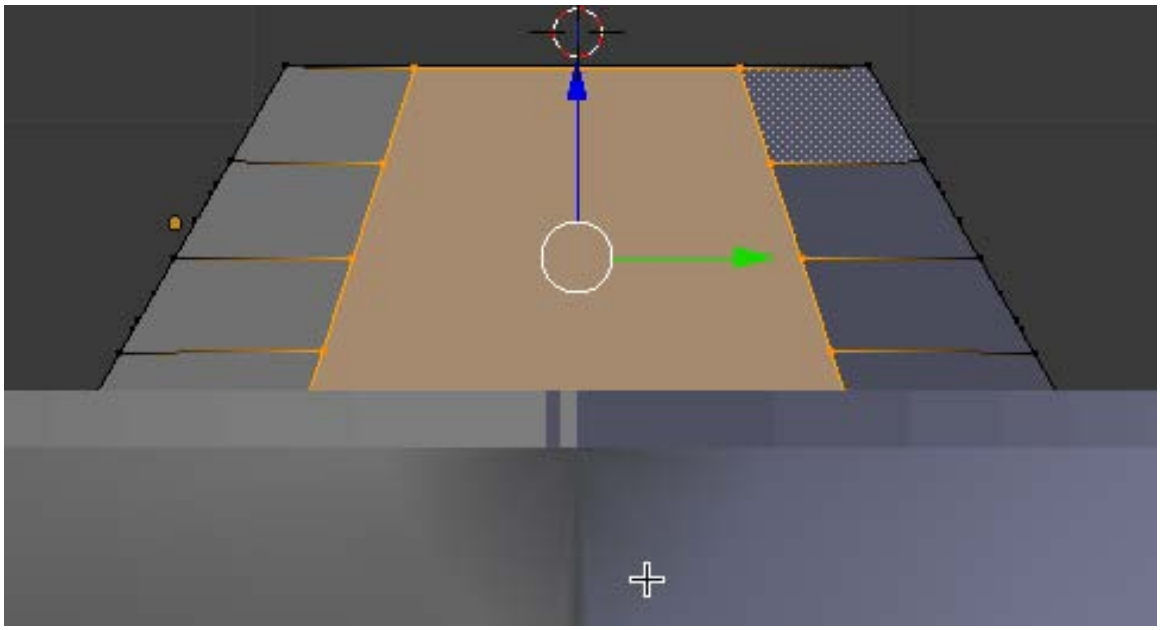
In Front View, rotate the vertices -30 degrees around the Y axis.



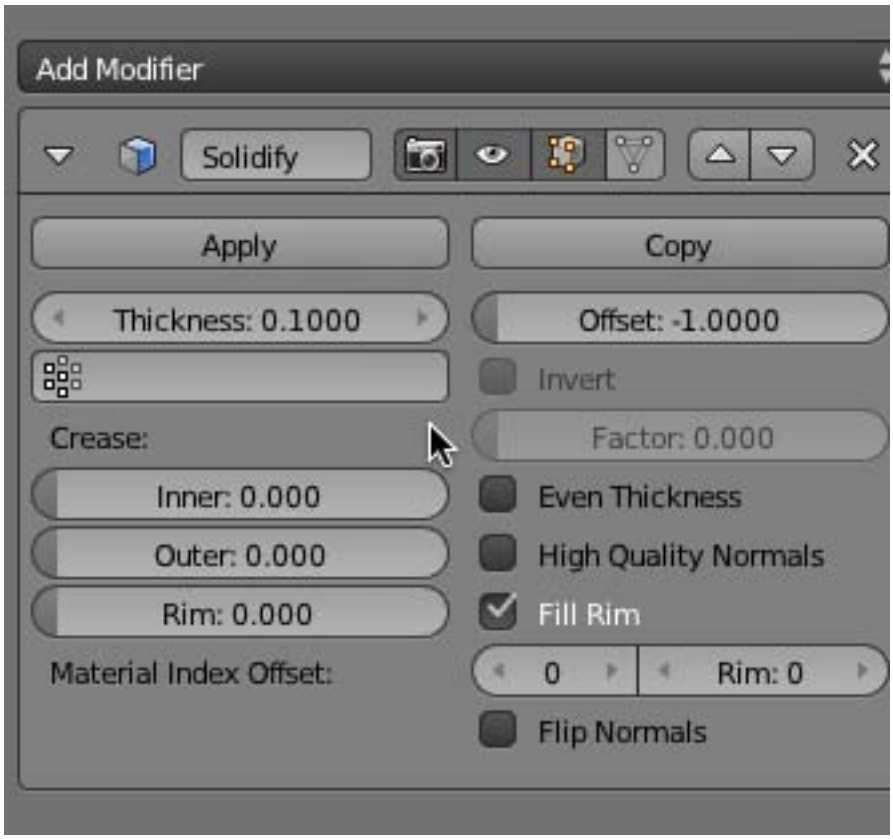
Press the SKEY and scale the vertices up a bit as shown below.



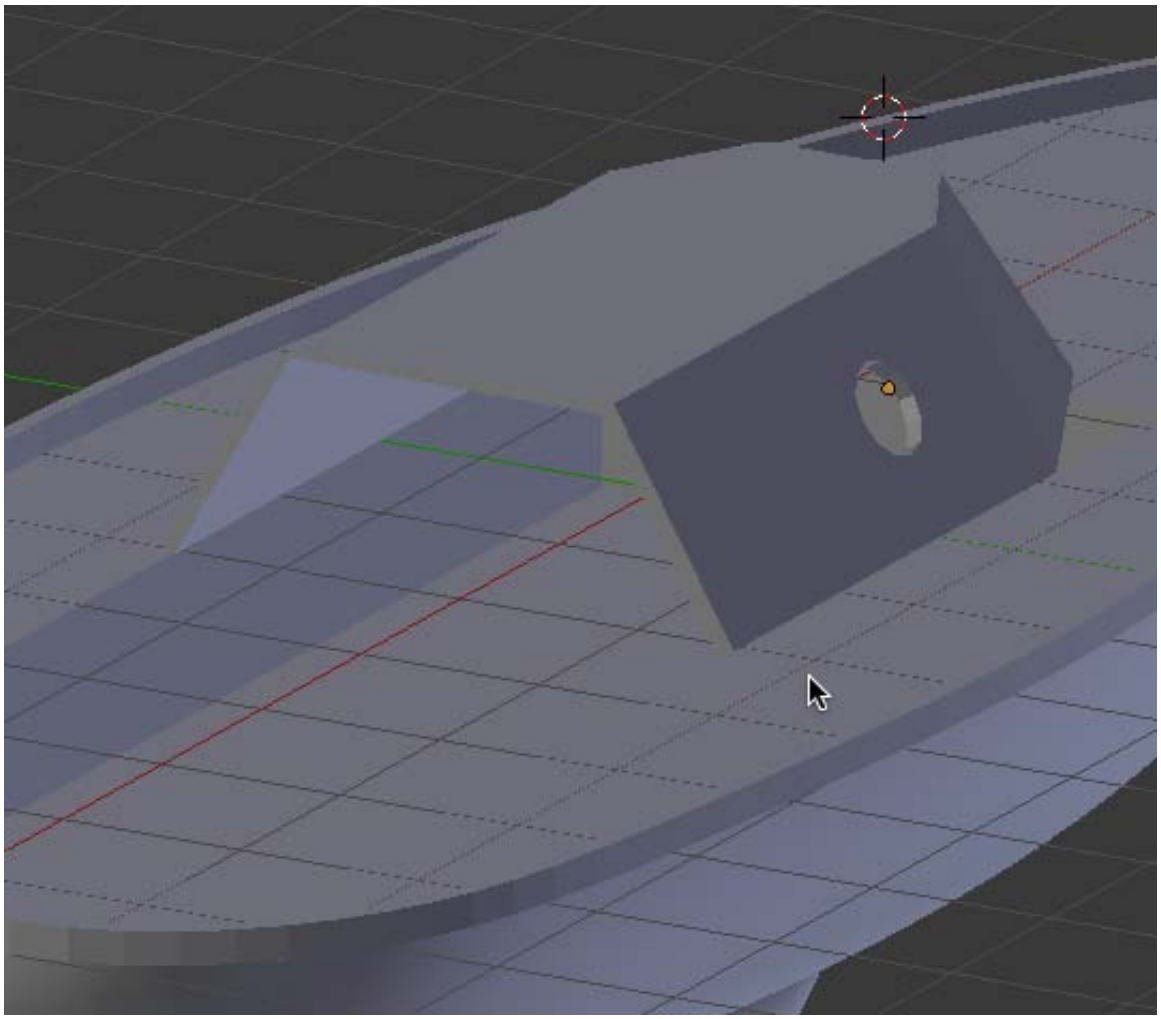
Go to Side View and scale the vertices down along the Y axis as shown below.



Tab out of edit mode. Go to Solid Shading mode. Add a Solidify modifier to the Cabin object. Se the Threshold controller to .1



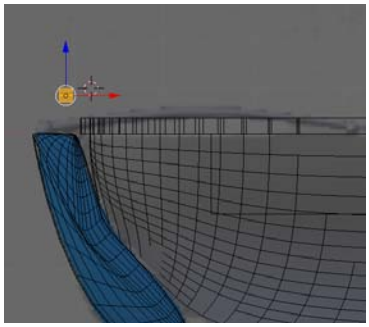
Save your .blend file.



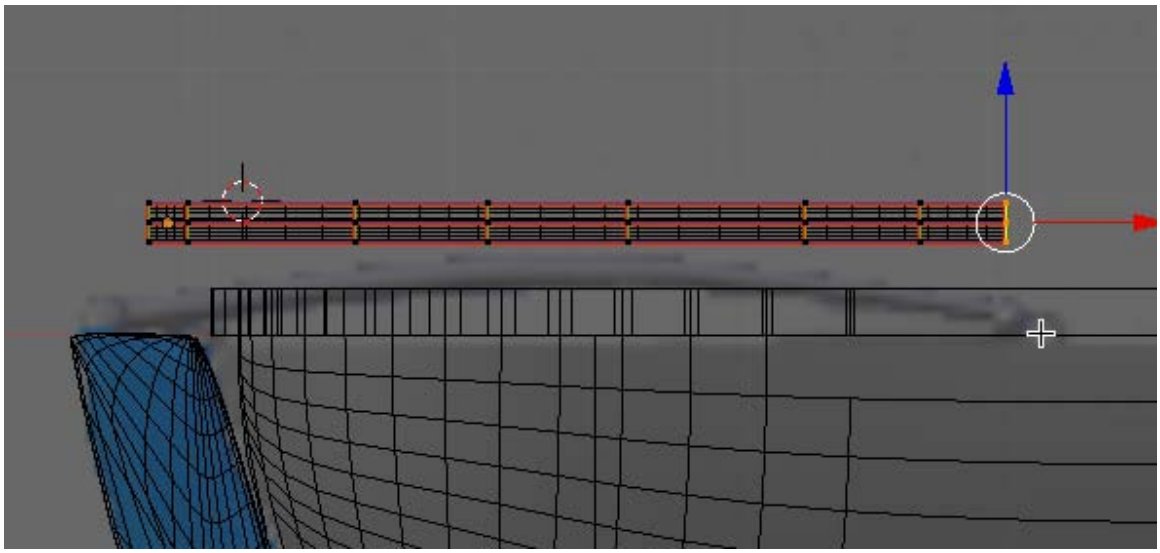
Go to Front View. Go to Wireframe display mode. Zoom into the aft part of the sailboat.

Place your 3Dcursor above the rudder and add a NURBS Surface Cylinder object to the scene. Name this object “Rudder Handle”

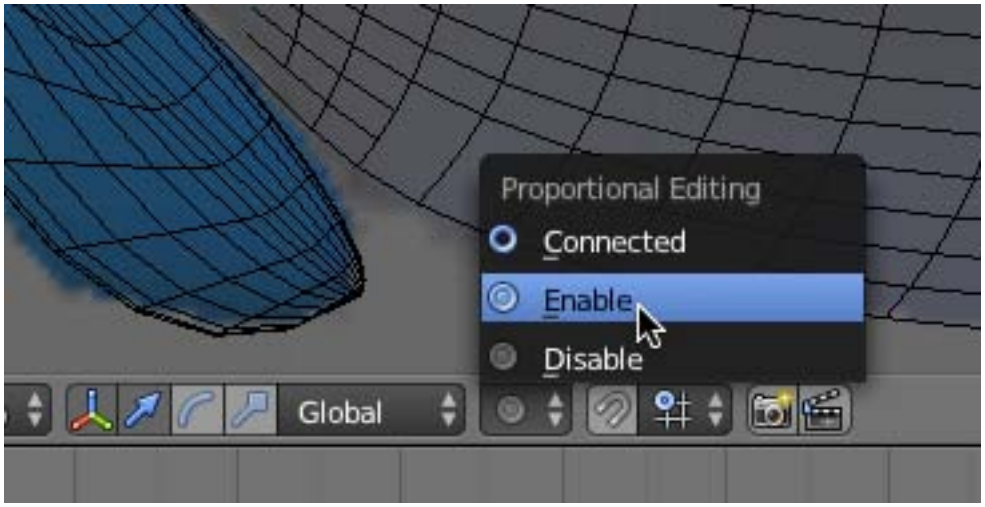
Rotate it 90 degrees around the Y axis and scale it down as shown below.



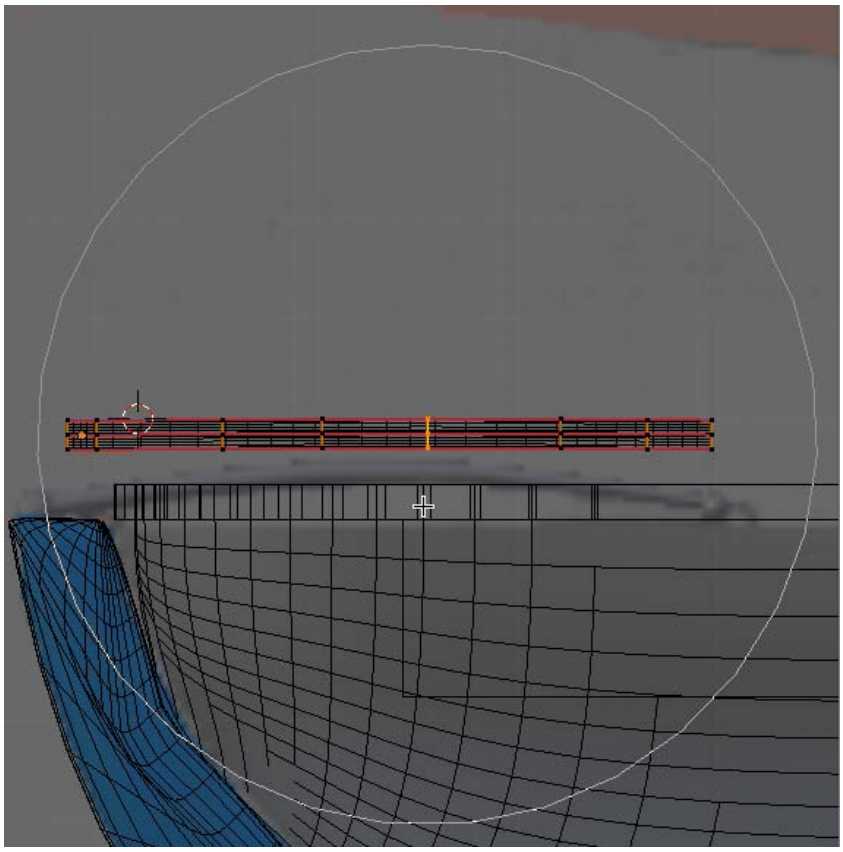
Tab into edit mode. Select the far right control vertices and extrude them a number of time along the X axis as shown below.



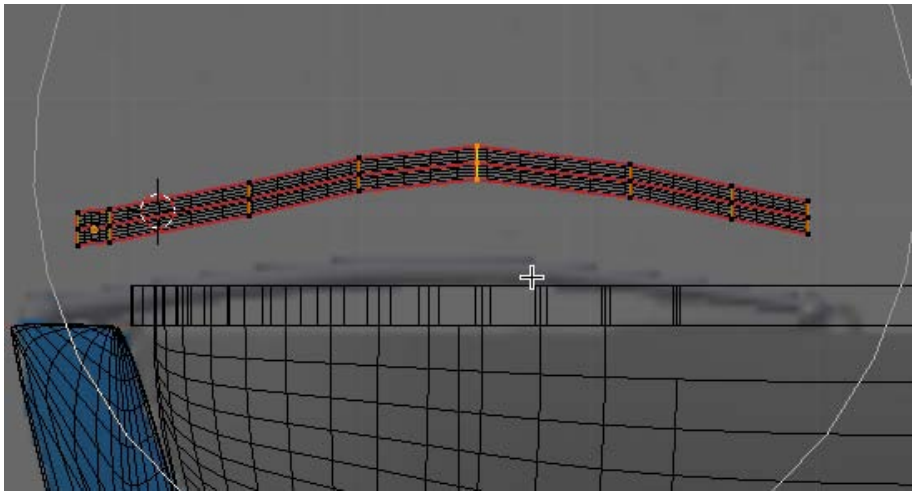
Box select the center control vertices. Switch to Proportional Editing.



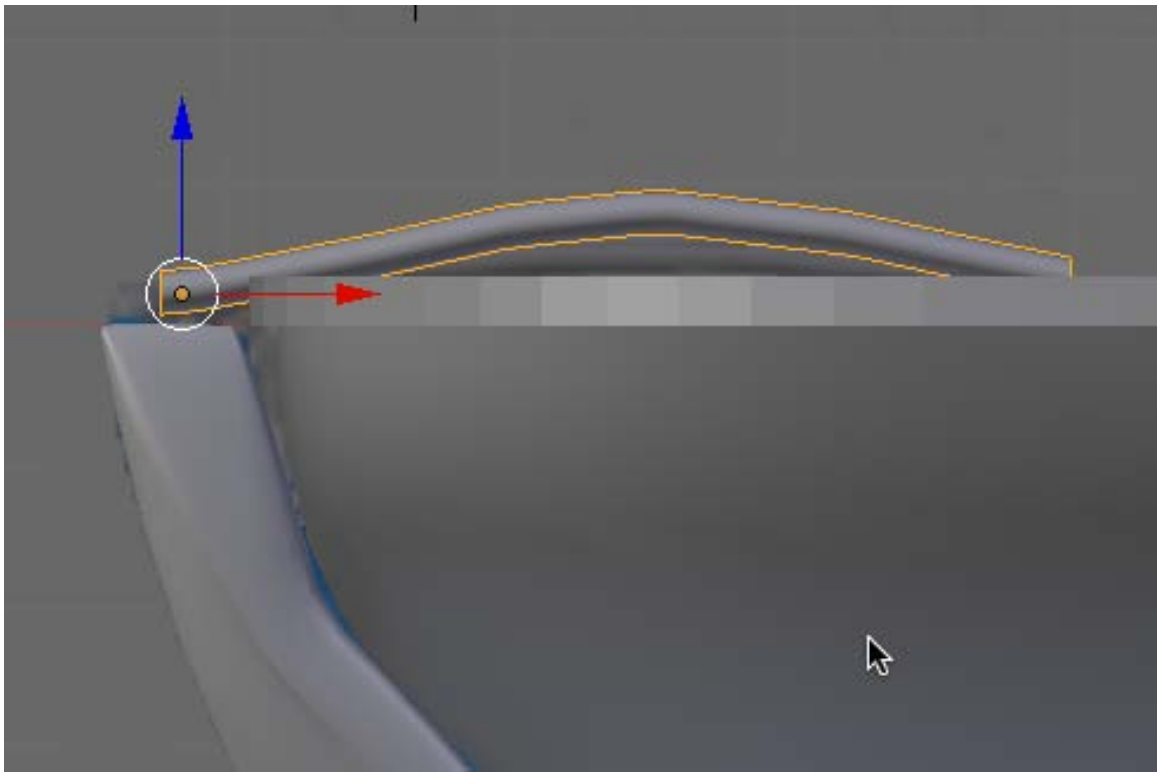
Press the GKEY and make sure the influence circle encompasses the object.



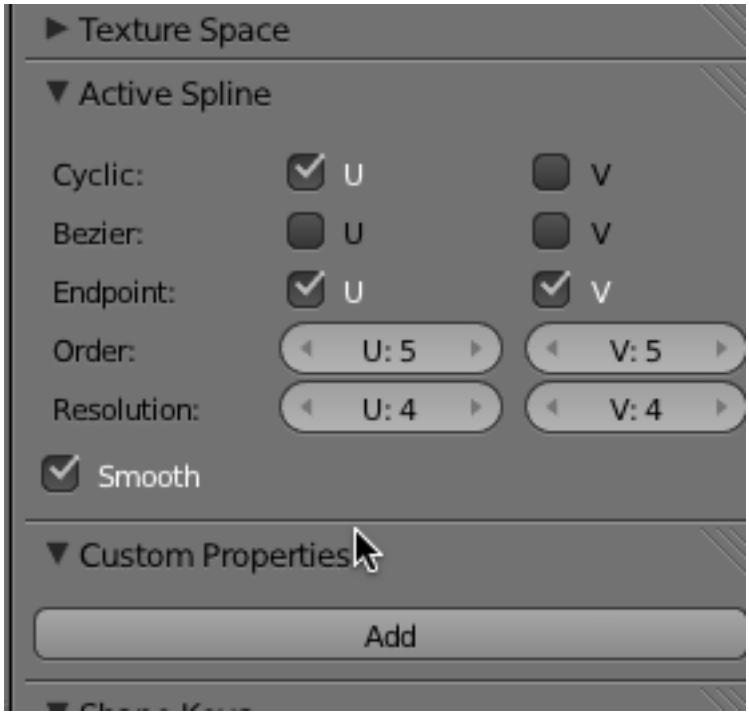
Move the control vertices up a bit to create a curve in the Rudder Handle object as shown below.



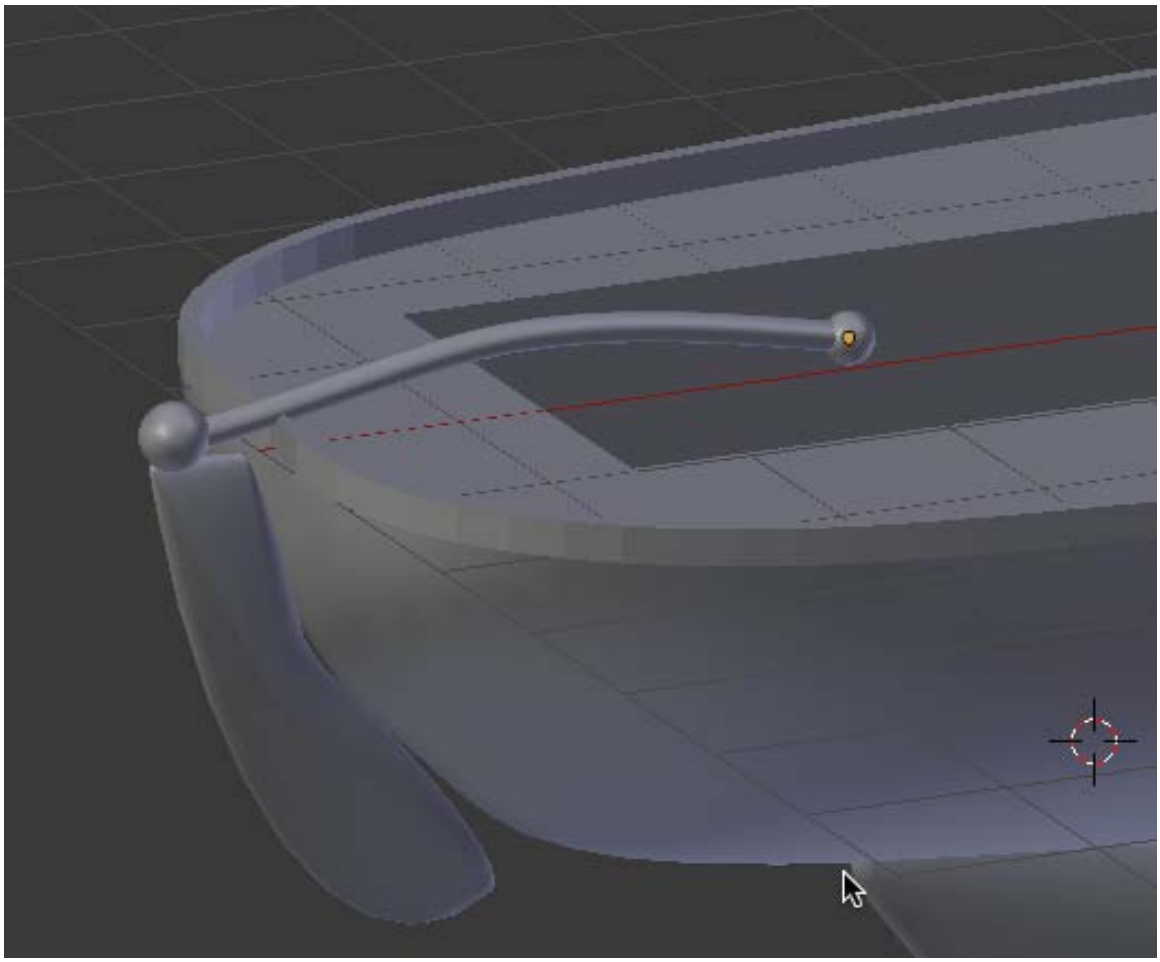
Tab out of Edit mode. Go to Solid Shading Mode. Place the Rudder Handle object as shown below. Check this from various views to make sure it is positioned correctly.



Open up the Object Data Editor and in the Active Spline panel set the U and V Order to 5 and checkmark the U and V Endpoint checkboxes.

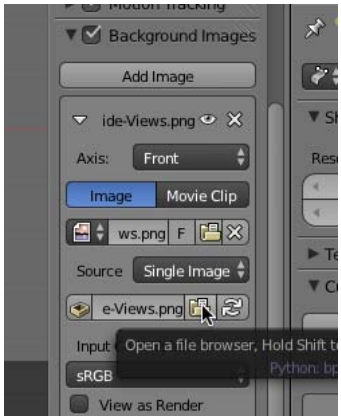


Add a NURS Surface Sphere (or a Mesh UV Sphere) to either end of the Rudder Handle object. Name the objects “Rudder Sphere 1” and “Rudder Sphere 2”.



Save your .blend file.

Go to Front View. In the Background Display panel in the right notations properties panel click on the Open File Browser button.



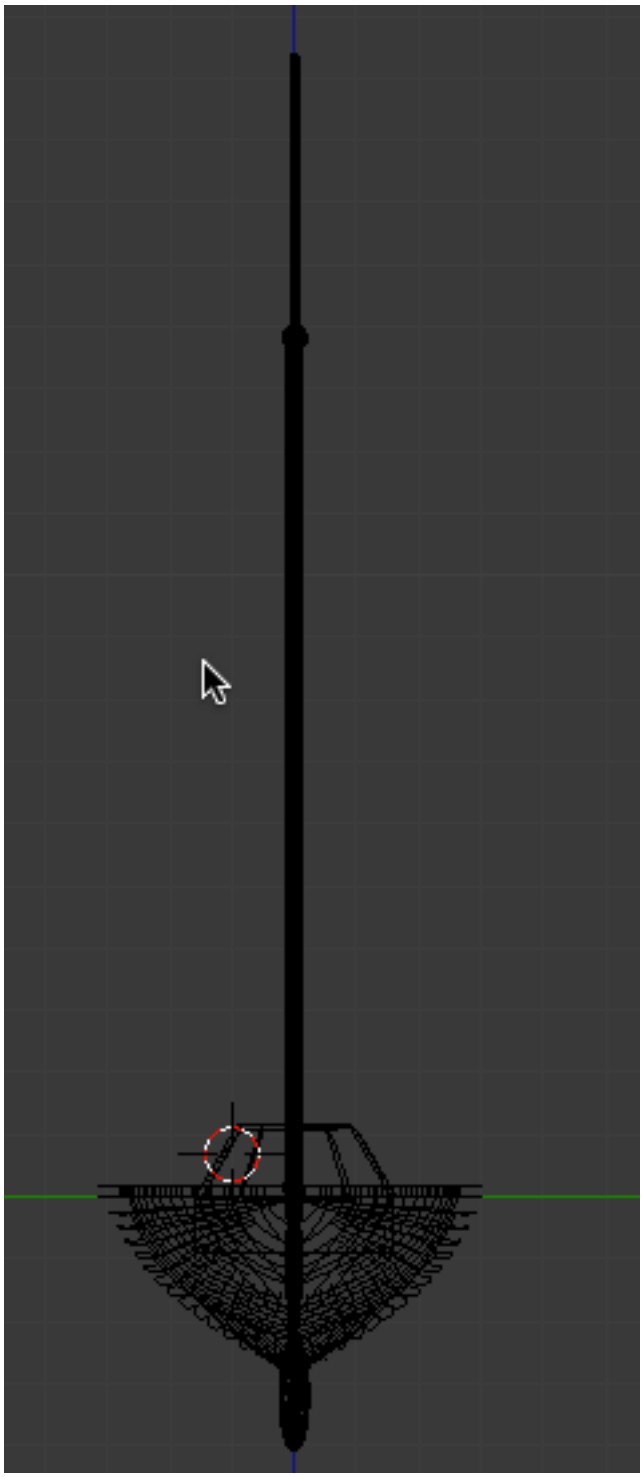
Open the “Sail_Plan.png” image file. (You can download this image file from the course site.) This replaces the existing Background image with this new background image.

Go to Wireframe display mode. Adjust the X and Y offset and the Image Size to align the background image with the sailboat. Here are my settings. Yours may be a bit different.

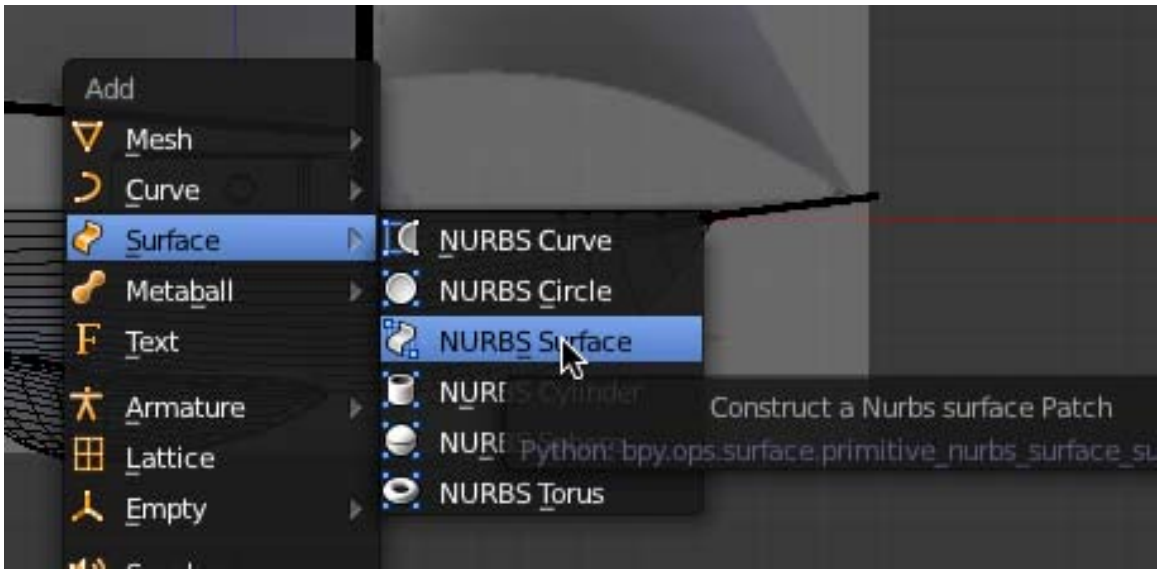

Background Images
Add Image
ide-Views.png
Axis:
Front
Image
Movie Clip
ws.png
F
Source
Single Image
ail_Plan.png
Input Color Space:
sRGB
View as Render
Opacity: 0.500
Back
Front
X: 0.700
Y: 6.700
Size: 10.100

Model the center mast and the 3 sail spars using Mesh Cylinder objects. Name them “Mast”, “Spar 1”, “Spar 2” and “Spar 3”. Put a sphere on top of the Mast object and name it “Mast Sphere”.

Make sure to check the objects positions in side view to make sure they are all aligned in the center of the sailboat.



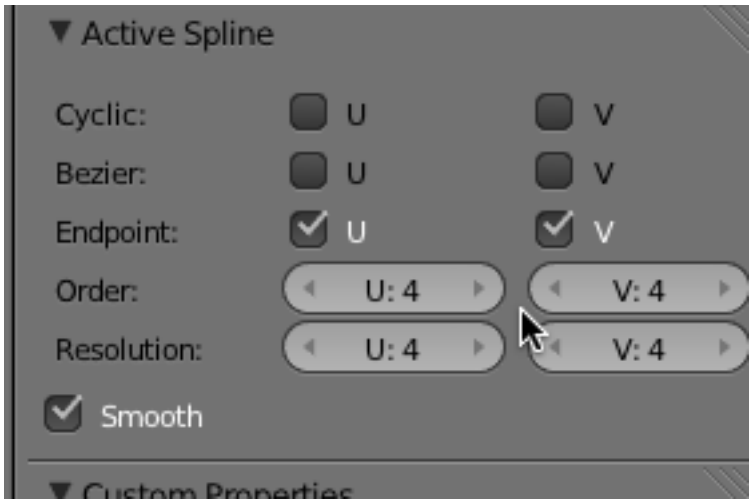
Go to Front view. Place your 3D cursor in the center of the left sail. Press SHIFT-A and add a NURBS Surface (Patch) to the scene.



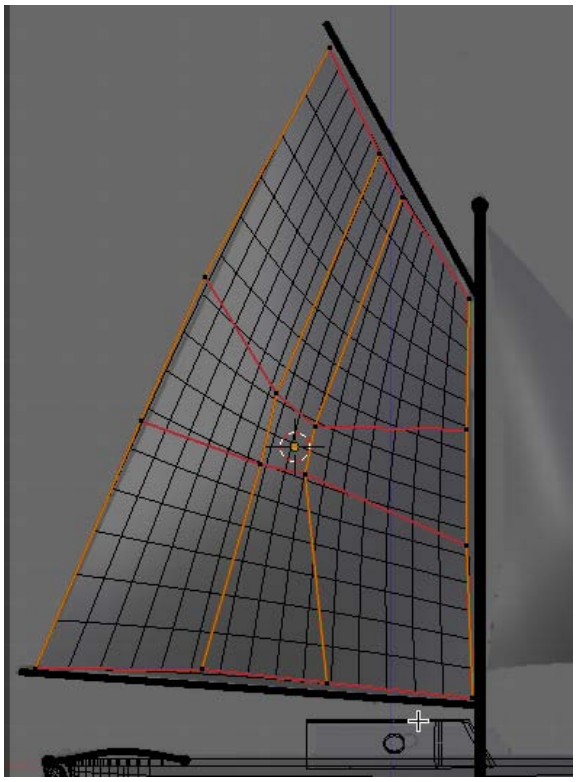
Rotate the NURBS Surface Patch object 90 degrees around the X axis.

Tab into edit mode. Select one of the Control Vertices and open the Active Spline panel in the Object data editor.

Checkmark the U and V endpoint checkboxes.

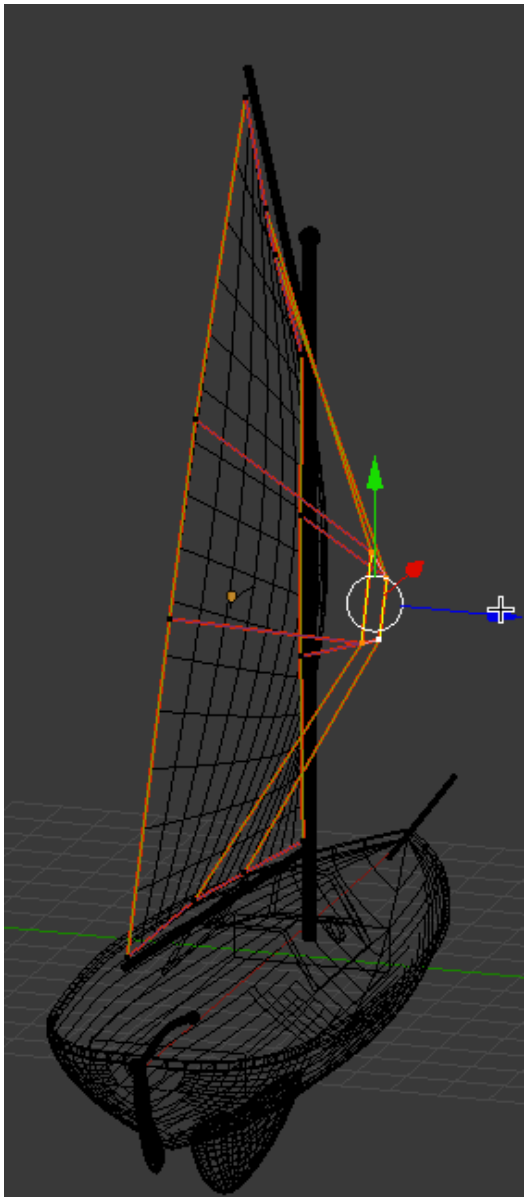


Select and Grab (GKEY) each Control Point and position it to make the sail as shown below.



Tab out of Edit mode and go to Side View. Make sure the Sail is aligned in the center of the sailboat.

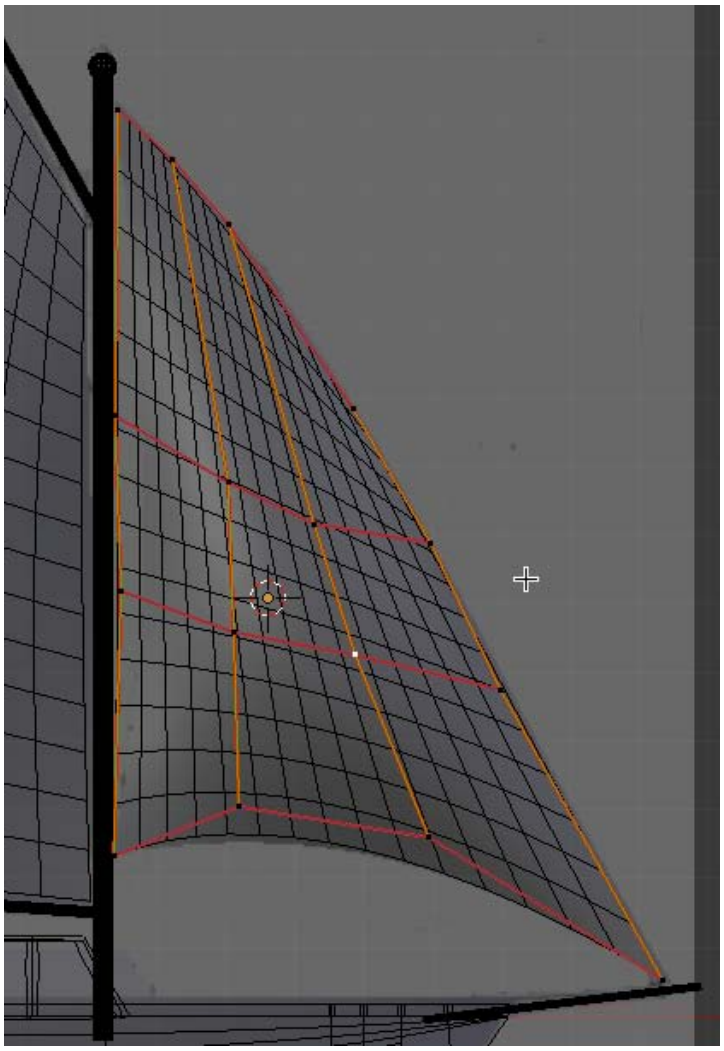
Tab back into Edit mode. Select the 4 inner control vertices and move them out a bit along the Z axis to give the sail a bit of a bow as shown below.



Tab out of Edit mode. Name this object “Sail 1”.

Go back to Front view. Place your 3D cursor in the center of the right sail. Add another NURBS Surface patch. Rotate it 90 degrees about the X axis.

Tab into edit mode. In the Active Spline panel checkmark the U and V checkboxes. Adjust the Control vertices to make the sail. Note this is a triangle so you need to space out 2 sides of the Patch on one side of the sail as shown below.



Tab out of Edit mode and go to Side View. Make sure the Sail is aligned in the center of the sailboat.

Tab back into Edit mode. Select the 4 inner control vertices and move them out a bit along the Z axis to give the sail a bit of a bow as you did on the other sail.

Tab out of Edit mode. Name this object “Sail 2”. Go to Solid Shading mode.

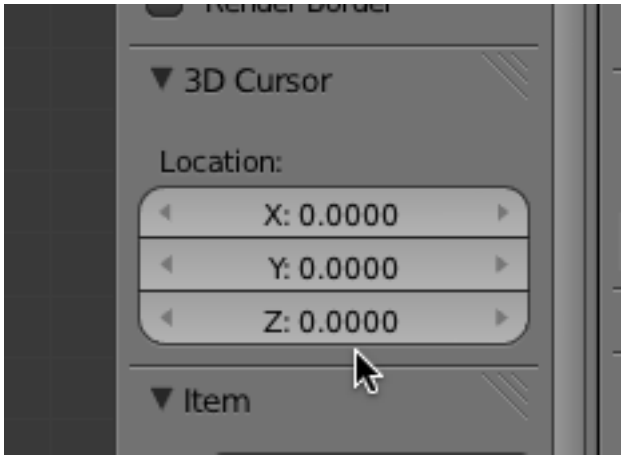
Save your .blend file.

Go to Front View. Uncheck the background Image checkbox. Select the Keel object. Hold down your SHIFT Key and add all of the other objects to the selection EXCEPT the Hull. Finally add the Hull object to the selection LAST.

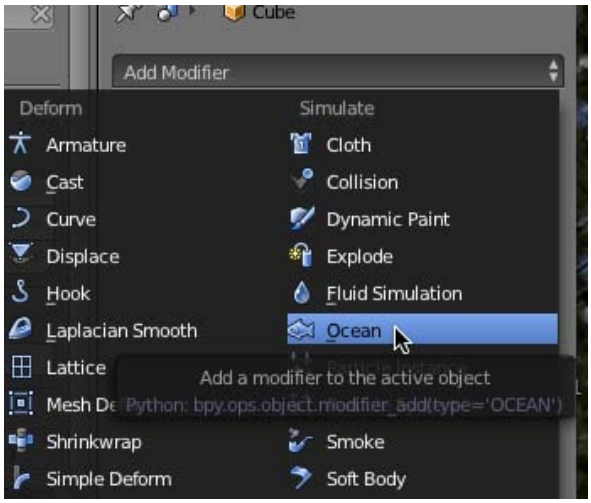
Press CTRL-P and make the Hull object a parent to all of the other Sailboat objects.

You should now be able to move the entire sailboat by selecting and moving the Hull object.

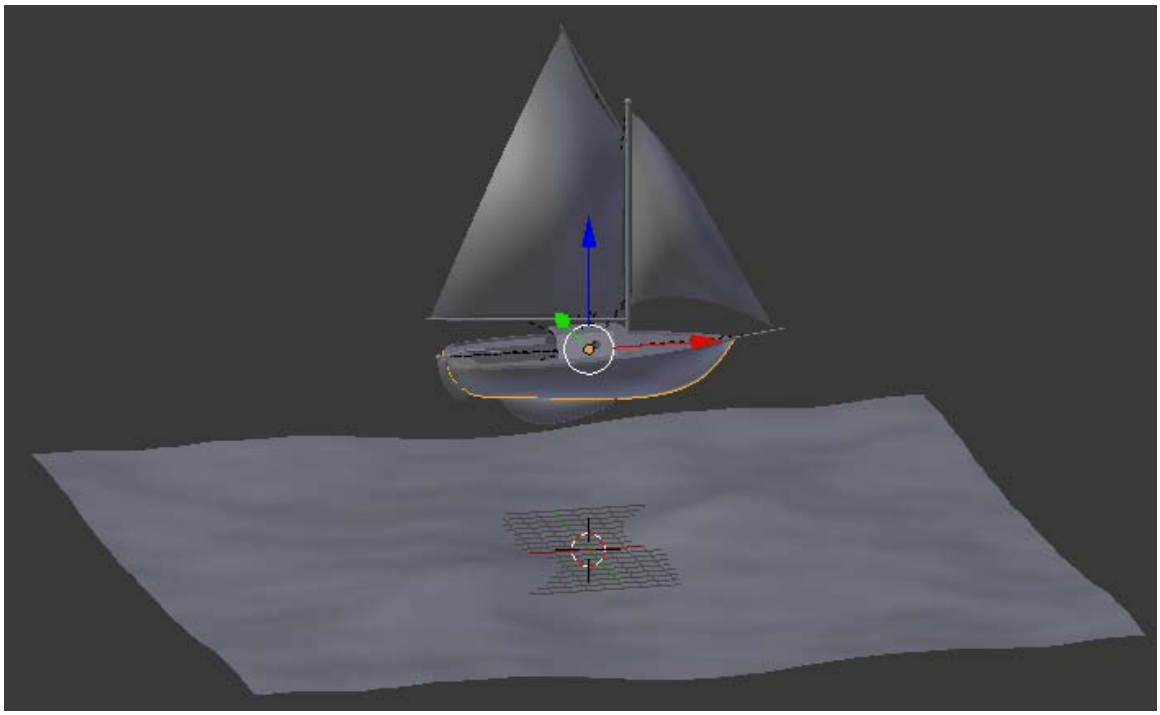
Using the Notation Properties panel on the right, set your 3D cursor to X,Y,Z = 0



Pres SHIFT-A and add a Cube object. Open the Modifier Editor and add an Ocean Modifier to the Cube object.



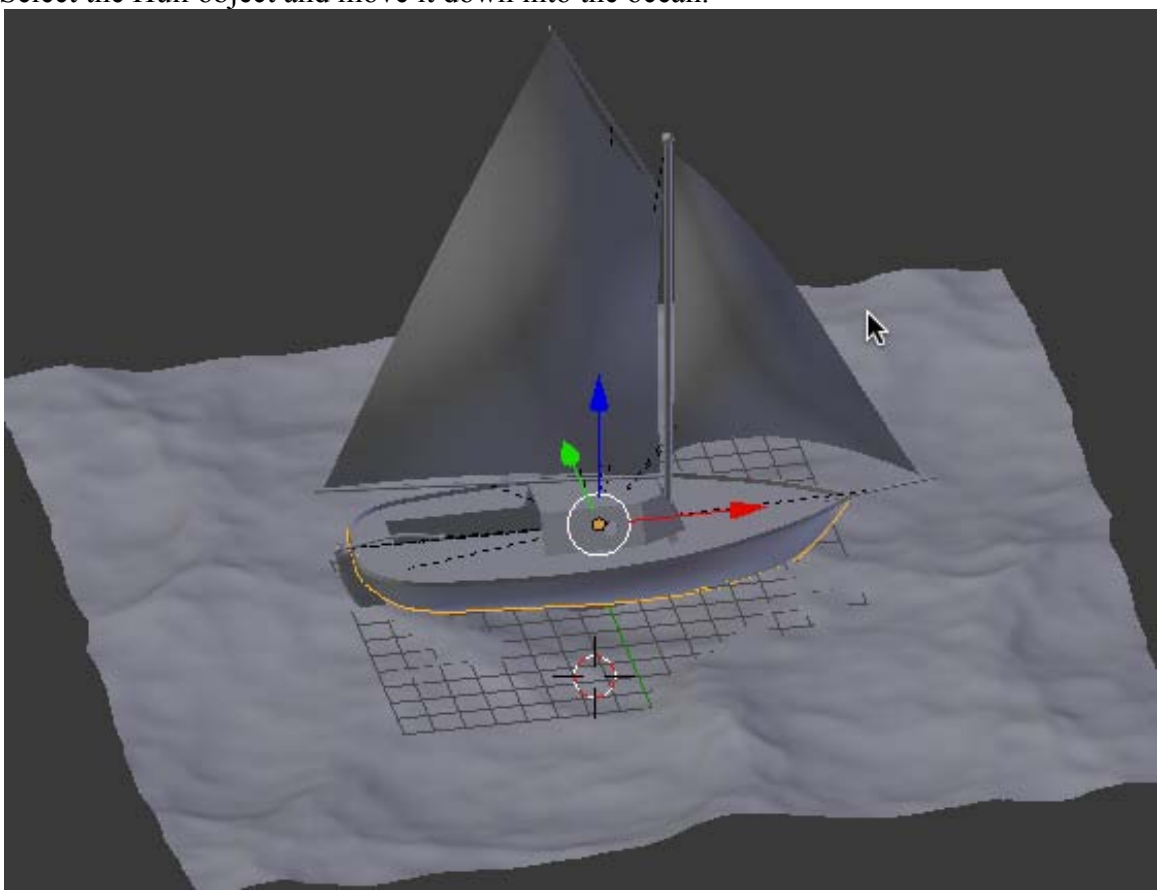
This creates an ocean-like object. Name this object “Ocean”. Select the Hull object and move the sailboat above the Ocean object.



Select the Ocean object. In the ocean modifier panel set the controllers as shown below.

I will not explain the various controls here. You can find much information about the blender Ocean modifier online.

Select the Hull object and move it down into the ocean.



In the Timeline Editor, make sure you are on Frame #1.

Select the Ocean object. In the ocean modifier panel, place your cursor over the "Time" controller button and press the IKEY. This turns the button yellow and inserts a Keyframe on frame #1 for the ocean effect.

In the Timeline Editor, go to Frame 250.

In the ocean modifier panel, change the “Time” controller to 10.

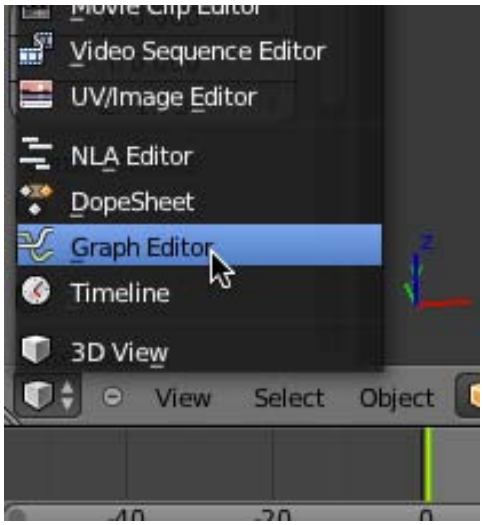
Place your cursor over the “Time” controller button and press the IKEY. This turns the button yellow and inserts a Keyframe on frame #250 for the ocean effect.

Go back to Frame 1. In the Timeline Editor, press the play button and play the animation.

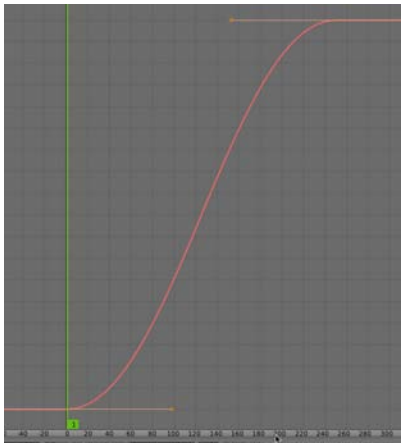
Note the animation of the ocean.

Stop the animation and go back to Frame 1. Make sure the Ocean object is still selected.

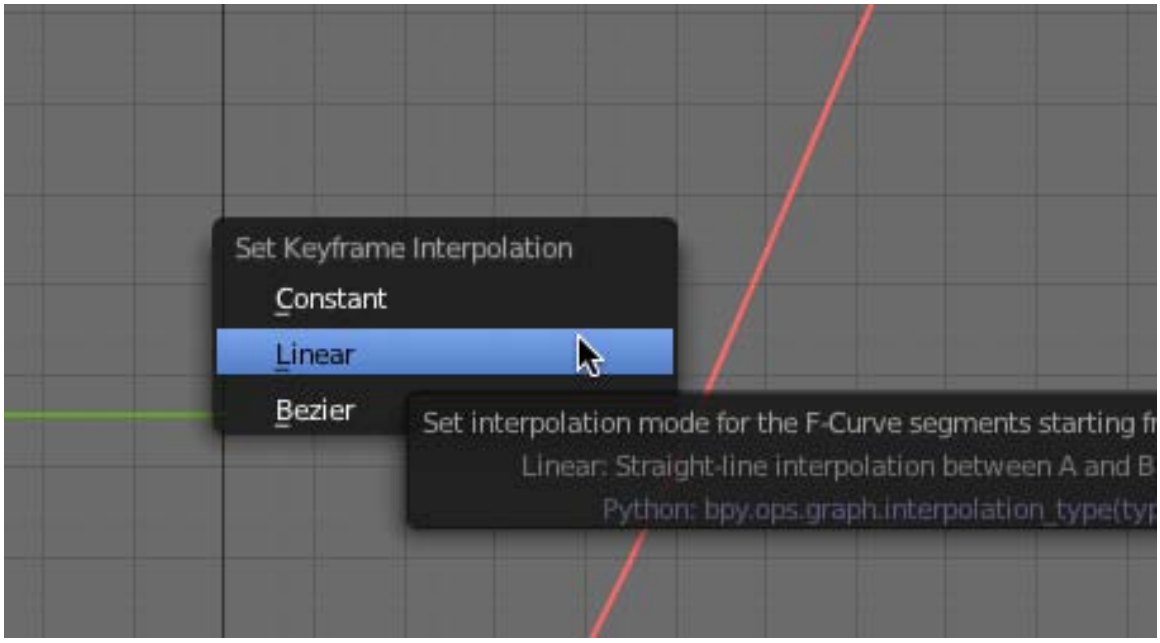
To make this a bit smoother, change your 3D Viewport Window to the Graph Editor Window.



This displays the animation curve for the ocean. Click View / View All

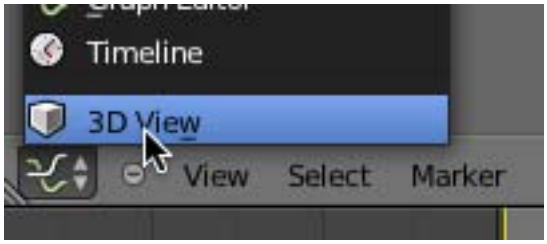


Press the TKEY and select “Linear”.



This will turn the animation curve into a straight line and the ocean will animate at a constant speed over the 350 frames.

Go back to the 3D viewport



Play the animation to see the difference.

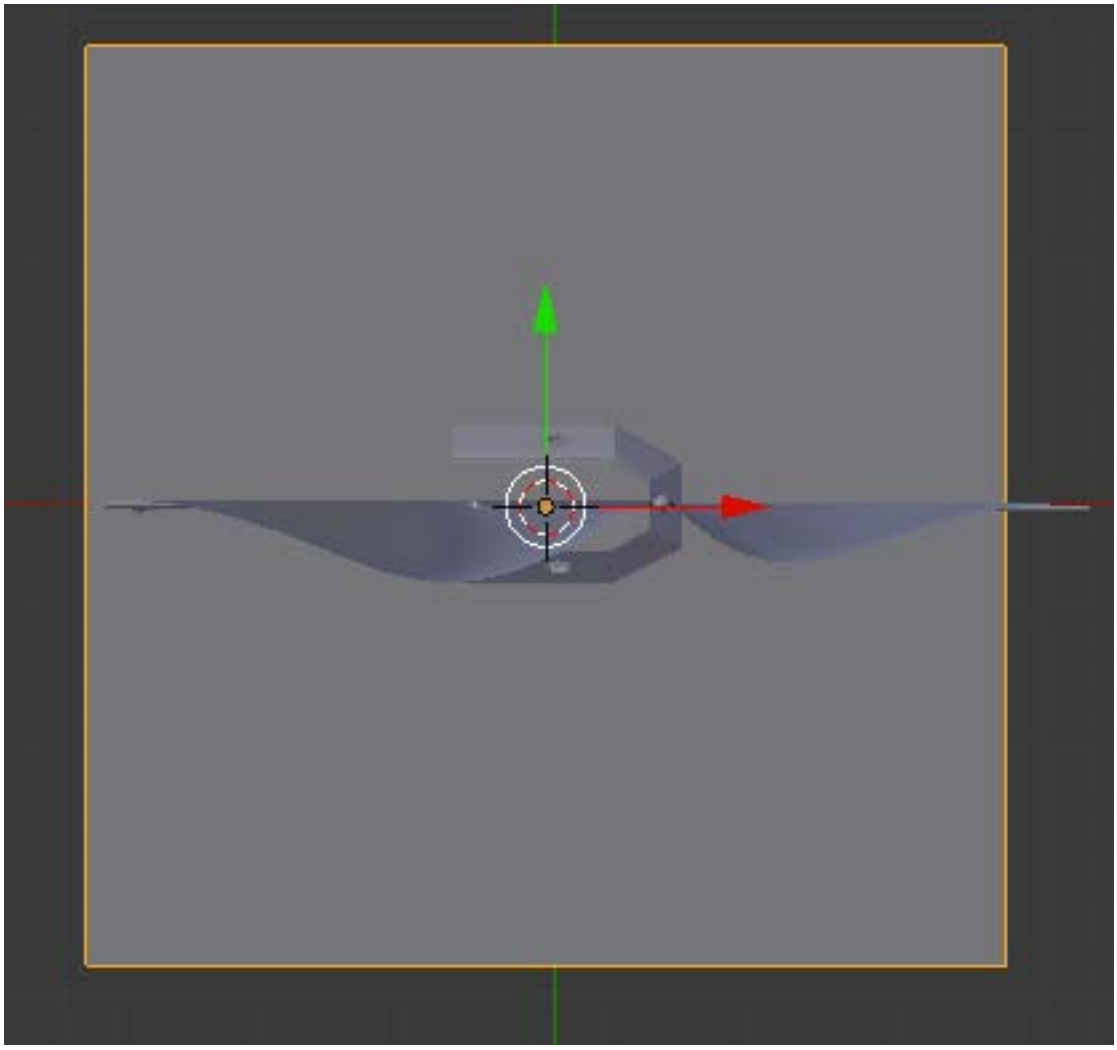
Stop the animation. Go back to Frame #1 and save your .blend file.

We will make the sailboat float upon the Ocean object and react to the waves in a plausible manner.

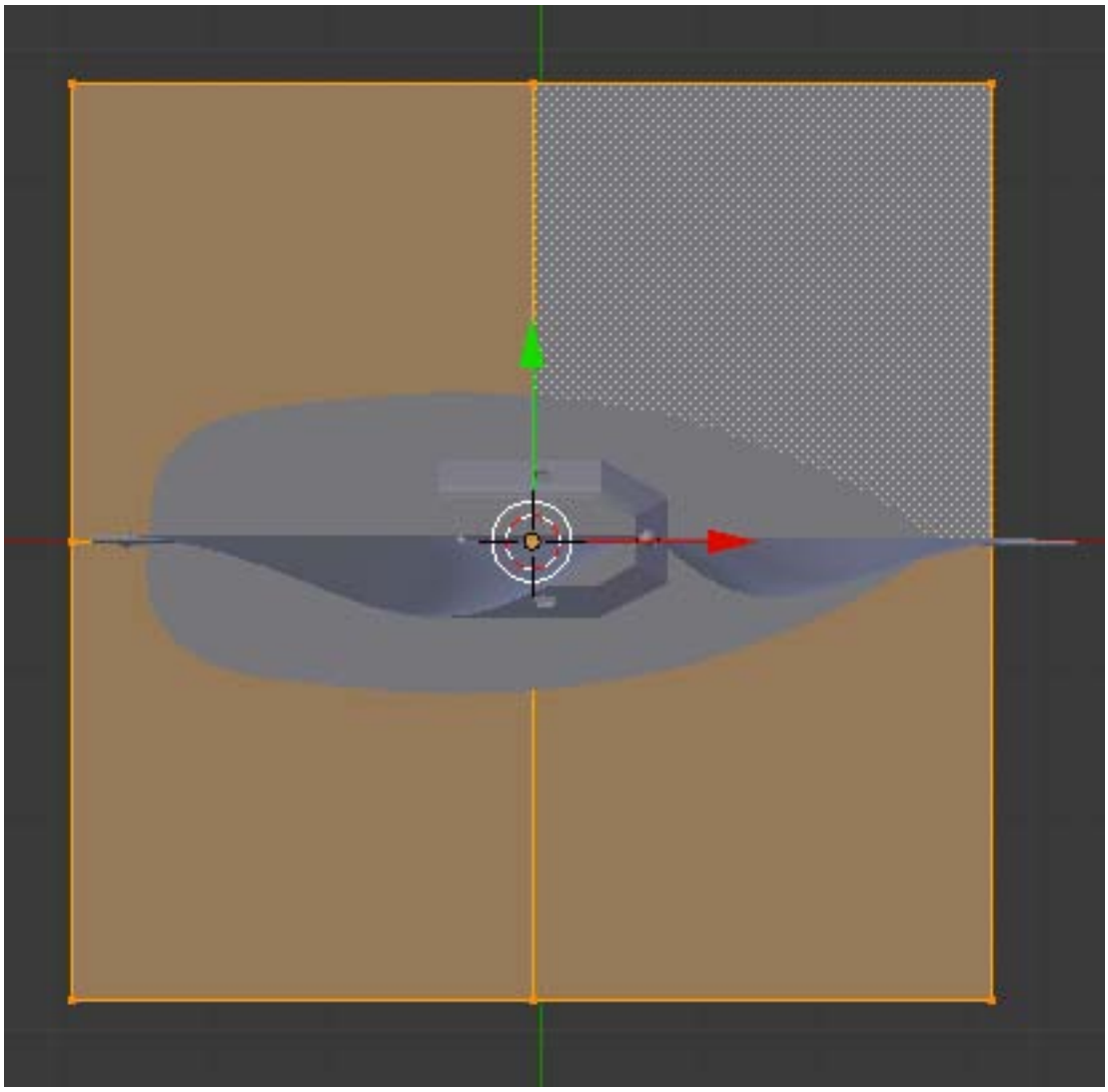
To do this we will use some of Blender's Physics controls.

Go to Top View. In the Outliner panel, hide the Ocean object.

In Top view place your 3D cursor in the center of the sailboat. Press SHIFT-A and add a Plane object. Press the SKEY and scale up the plane object as shown below.

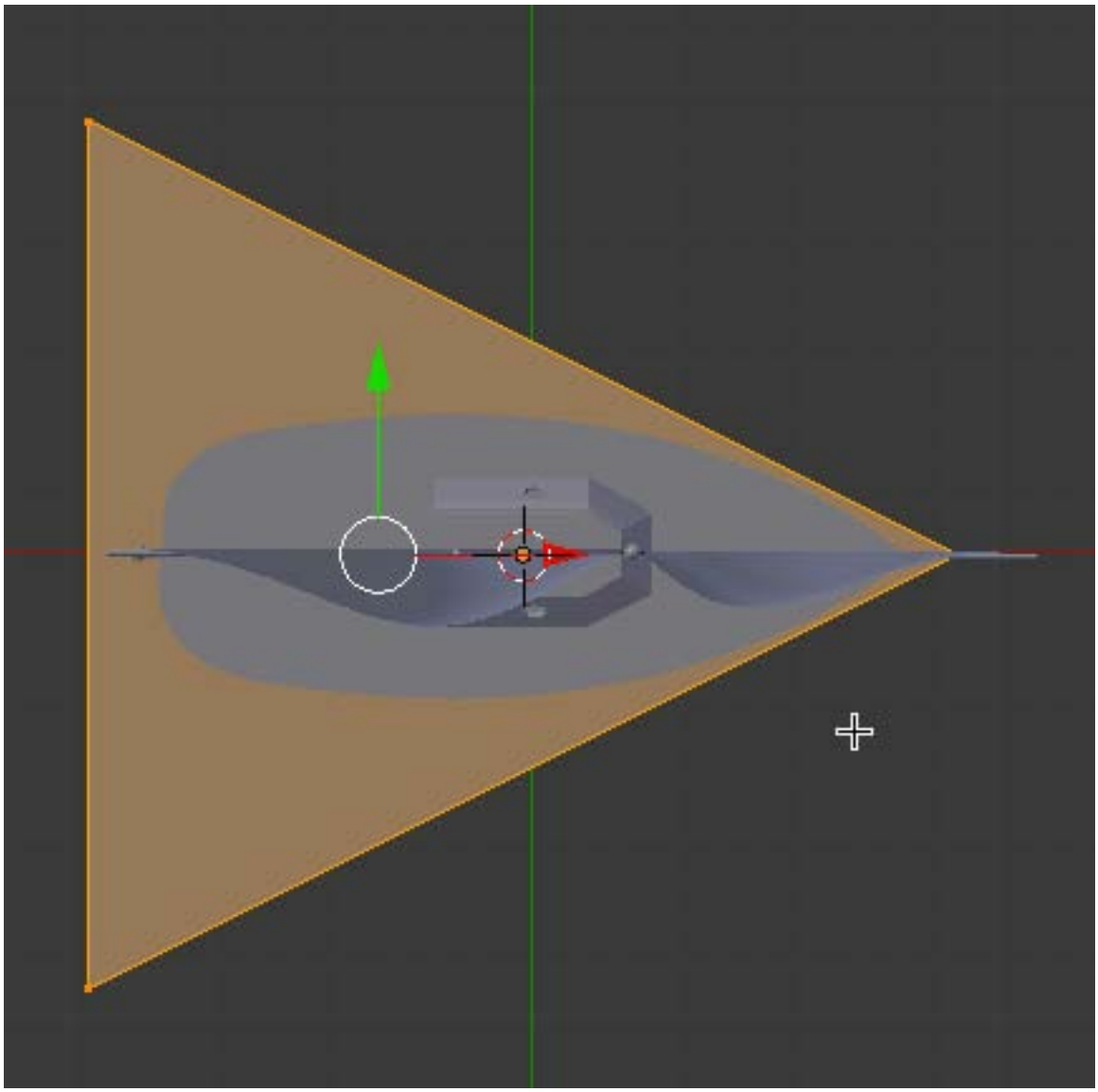


Tab into edit mode. With the 4 Plane vertices selected, subdivide the object.

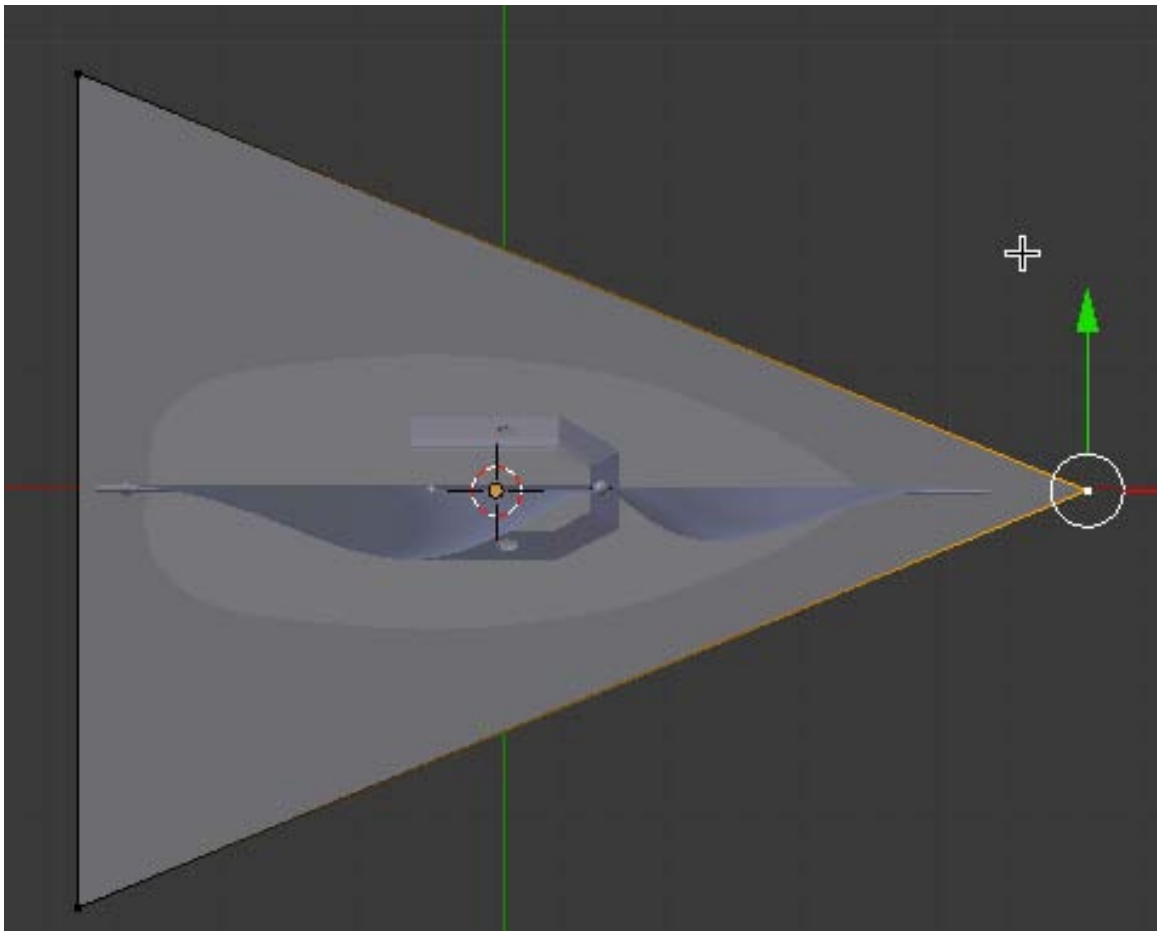


Select the center vertex on the left, hold down your SHIFT KEY and add the 3 center vertices to the selection then add the top right and bottom right vertices to the selection.

Press the XKEY and delete these vertices. This leaves 3 vertices hanging out in space. Select these 3 vertices and press the FKEY to form a face.



Select the far right vertex and move it a bit out along the X axis as shown below.



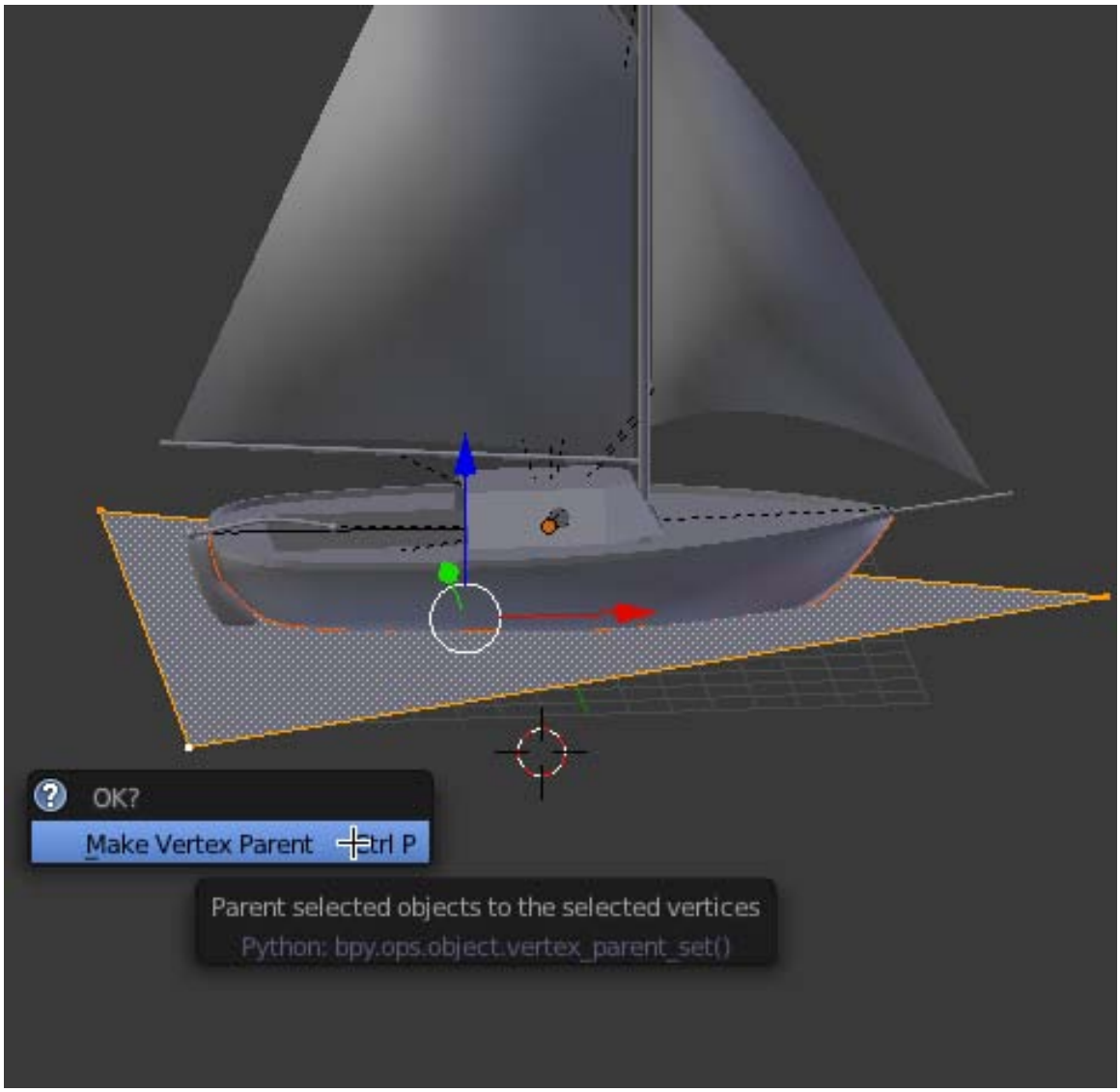
Tab out of Edit mode. Go to front view and move the Plane object up along the Z axis as shown below.

Select the Hull object, hold down your SHIFT KEY and add the Plane object to the selection.

Press CTRL-P ---- BUT DO NOT CONFIRM THE PARENTING

INSTEAD Tab into Exit mode and select the 3 Plane vertices.

Then press CTRL-P again and select “Make Vertex Parent”.

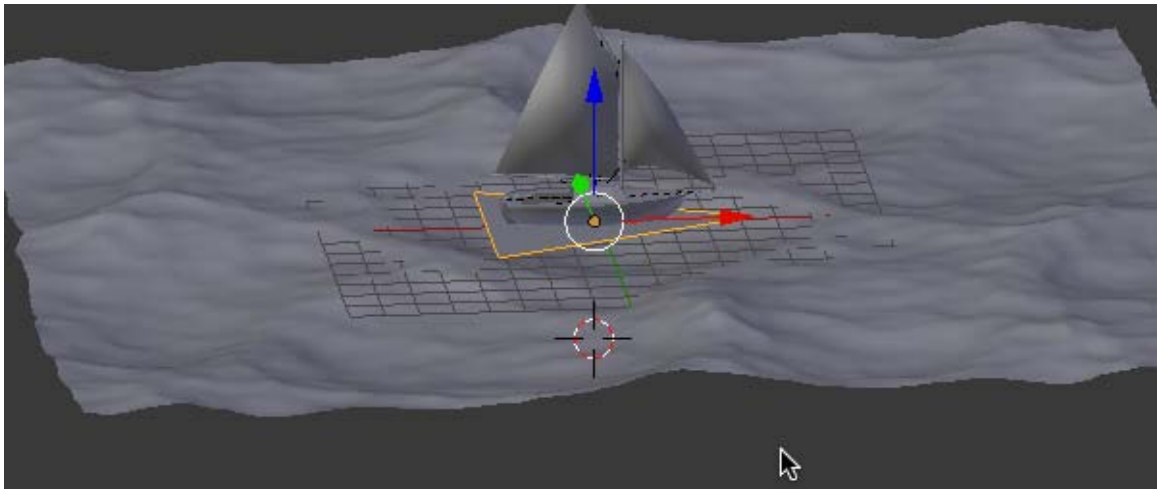


Tab out of edit mode. The Plane object (actually its vertices) are now the parent of the Hull object (and thus the parent of the whole sailboat.

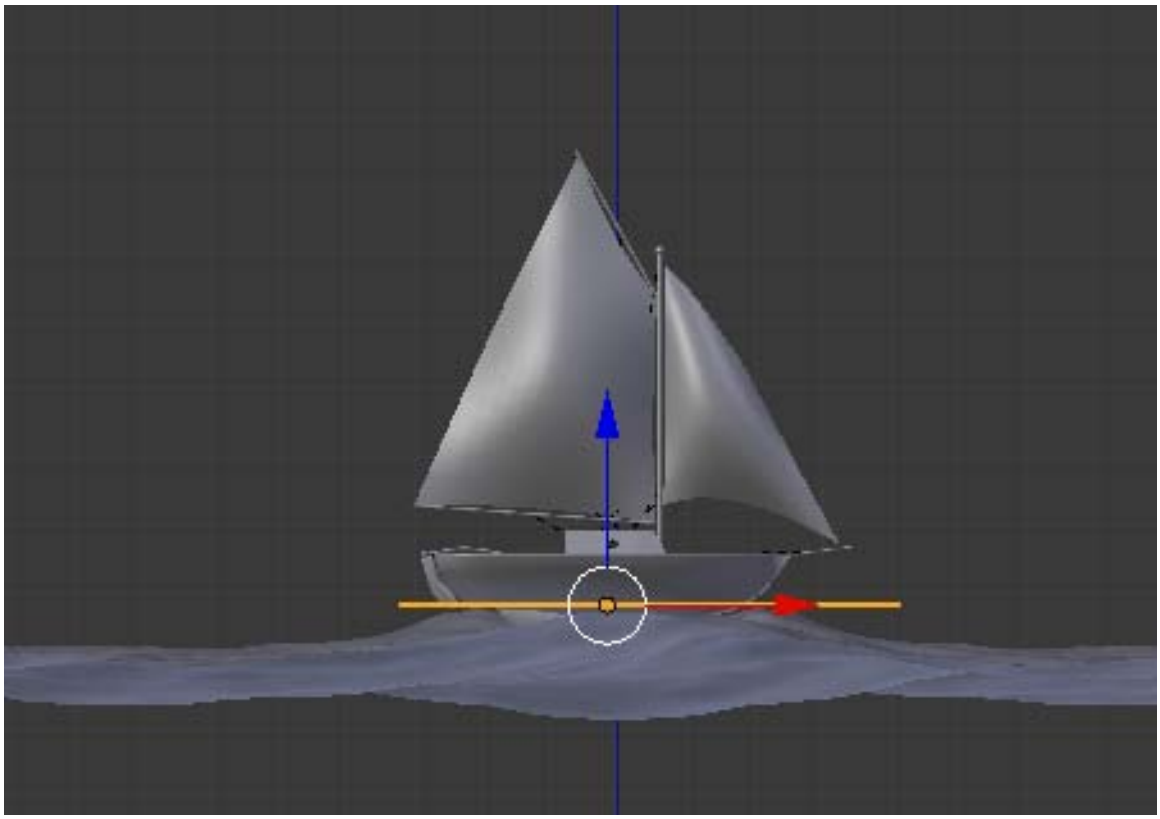
You can move the whole sailboat by selecting and moving the Plane object.

In the Outliner panel, unhide the Ocean object.

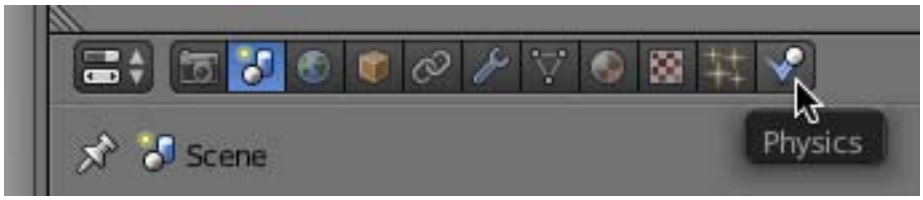
Select the Plane object and move the sailboat down into the Ocean object. Press the SKEY and scale the Plane (and thus the sailboat) as shown below.



Make sure you are in frame 1. Go to front view and raise the plane object slightly above the Ocean object.

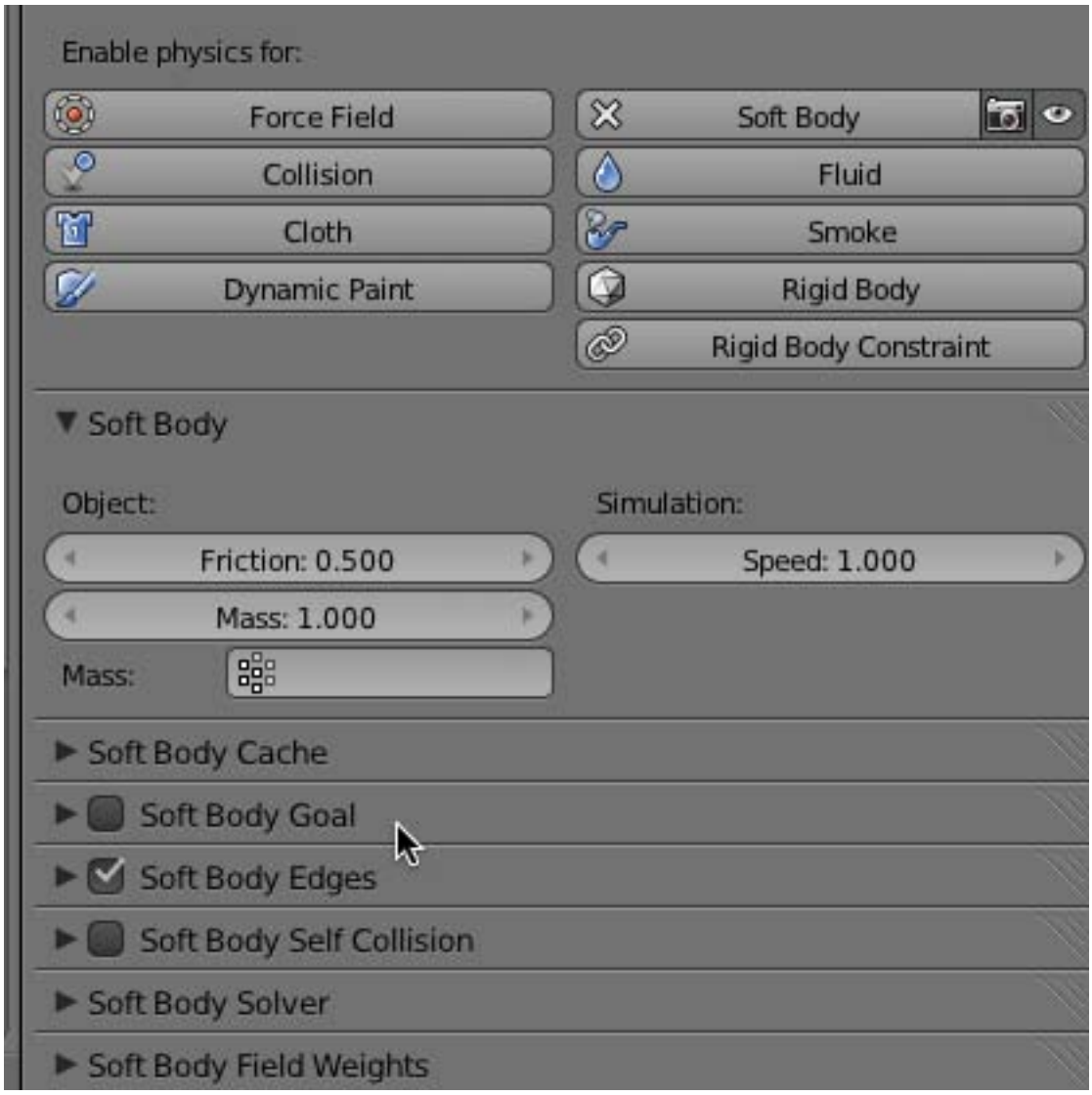


With the Plane object selected click on the Physics Editor in the Right properties panel.



Click on the Soft Body button, which will activate it.

Uncheck, the Soft Body Goal checkbox.



Select the OCEAN OBJECT.

In the Physics panel press the “Collision” button, which will activate it.

NOTE: We have added a Soft Body Physics effect to the Plane and a “Collision” Physics effect to the Ocean object.

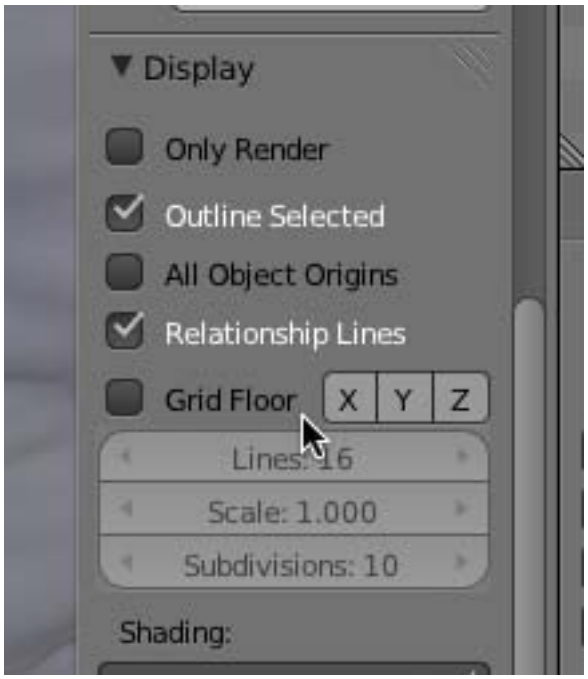
This will cause the plane object (upon pressing the play animation button) to fall downward (along the Z axis) until it collides with the Ocean object. As the ocean object changes its mesh the Plane object will react to the collision and thus the sailboat will rock and bob with the waves.

In the Timeline Editor, play the animation.

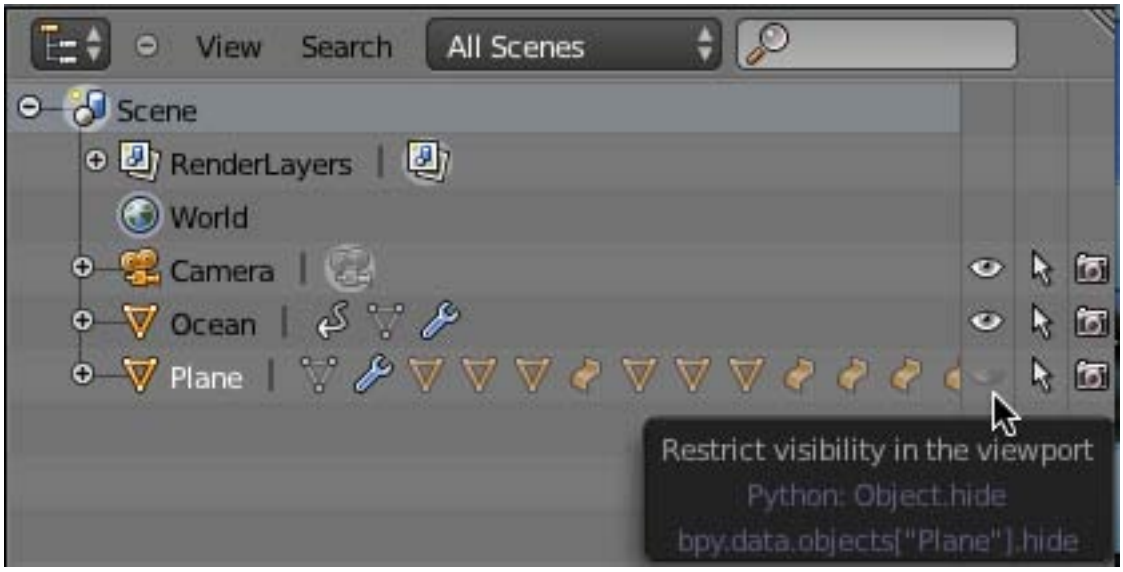
NOTE: You may have to stop the animation, go back to frame 1, select the Plane object, and adjust the height it is above the Ocean object. The closer it is to the Ocean object on frame 1 the less severe the initial collision will be. I set mine quite close to the surface of the Ocean object.

Stop the animation. Go to Frame 1.

In the notations properties Display panel on the right turn off the display of the Grid Floor and uncheck the X and Y Lines.



In the Outliner panel hide the Plane object.



Play the animation. The Plane and grid lines are hidden from the display.

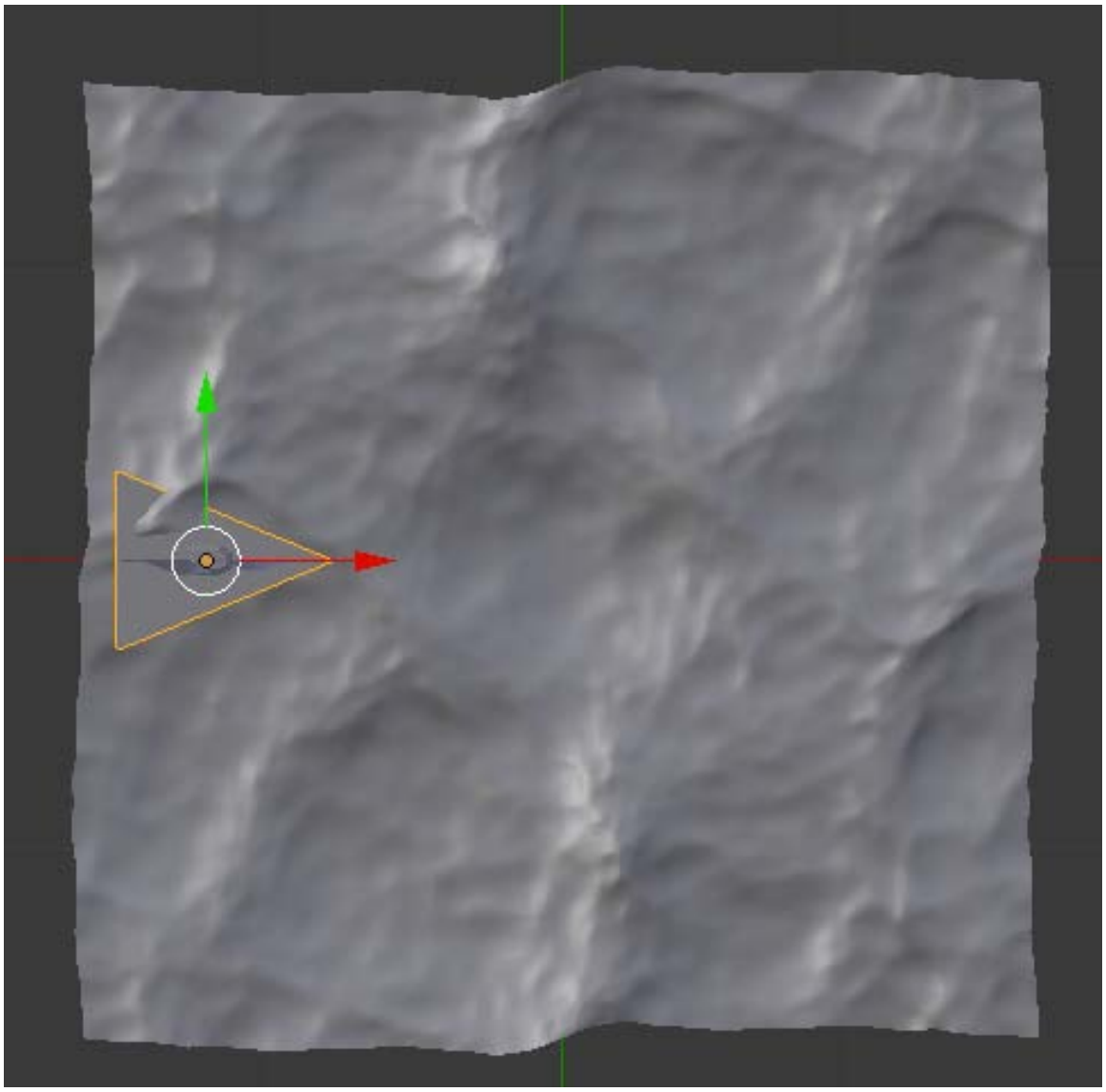
Stop the animation. Go back to frame #1

Save your .blend file.

The next step is to animate the location of the sailboat. Go to Top view.

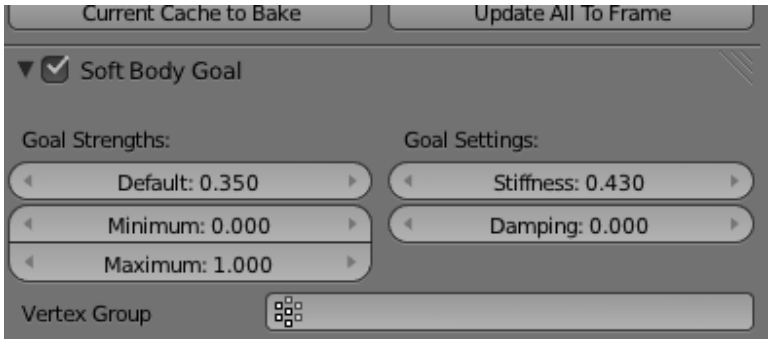
In the Outliner Panel un-hide the Plane object.

Select the Plane object and move it to the left of the Ocean object as shown below.



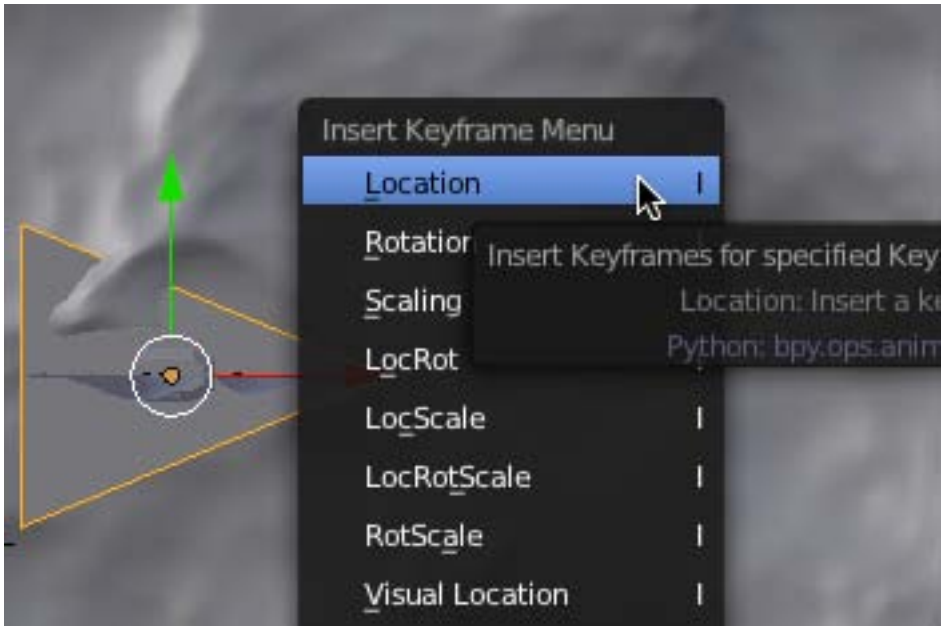
With the Plane object selected, go to the Physics editor and checkmark the “Soft Body Goal” checkbox and open up the panel.

Set the Default to .350 and set the Stiffness to .430



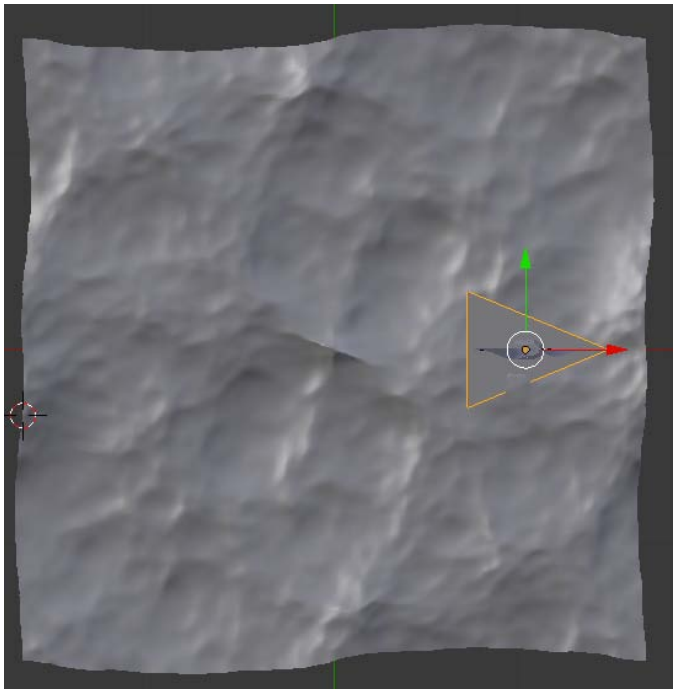
Note: We could not have this “Soft Body Goal” box checked when the plane was in a stationary position but now need it to animate the Plane.

With the Plane object selected and your cursor in the 3D viewport, AND ON FRAME #1, Press the IKEY and insert a Location keyframe on frame #1 for the Plane object.



Go to Frame 250.

Select the Plane object and move it to the right side of the Ocean as shown below.



Press the IKEY and insert a Location Keyframe for the Plane object on frame 250.

Rotate your display a bit for a more dimensional view.

Play the animation.

Again, you may have to stop the animation and go back to frame 1, select the Plane object and adjust its height above the Ocean object.

When you are satisfied, stop the animation and go to frame 1.

To smooth out the animation, select the Plane object and go to the graph editor.

Select the animation curve, press the TKEY and make it Linear (just like we did with the Ocean animation).

When you are satisfied, stop the animation and go to frame 1.

In the outliner Panel, hide the plane object and make it un-selectable and un-renderable.

Save your .blend file.

For this tutorial, we will apply simple colored material to the Sailboat and Ocean. Select each object (except the Plane), go to the Materials Editor, Click on the Diffuse color swatch and adjust the Red, Green and Blue color sliders as follows:

Hull (Brown) R=.208, G-.076, B=0
Rail (Tan) R=.897, G=.358, B=.085
Rudder/Keel/Rudder Handle (Dark Brown) R=.240, G=.036, B=.036
Deck (Reddish Brown) R=.138, G=.051, B=0
Spheres (Gold) R=.335, G=.593, B=.047
Cabin (Bronze) R=.458, G=.161, B=0

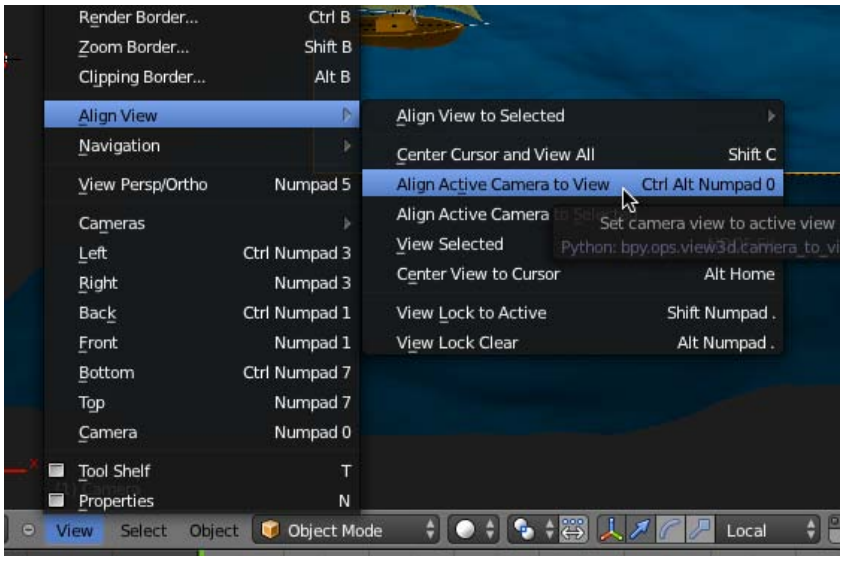
Sails (Medium Yellow) R=1, G=1, B=.258
Mast/Spars (White) R=1, G=1, B=1
Ocean (Blue Green) R=0, G=.131, B=.246

Save your .blend file.

Go to Front view. Add Layer #2 (We placed the Blender Camera object on layer #2 at the start of this tutorial).

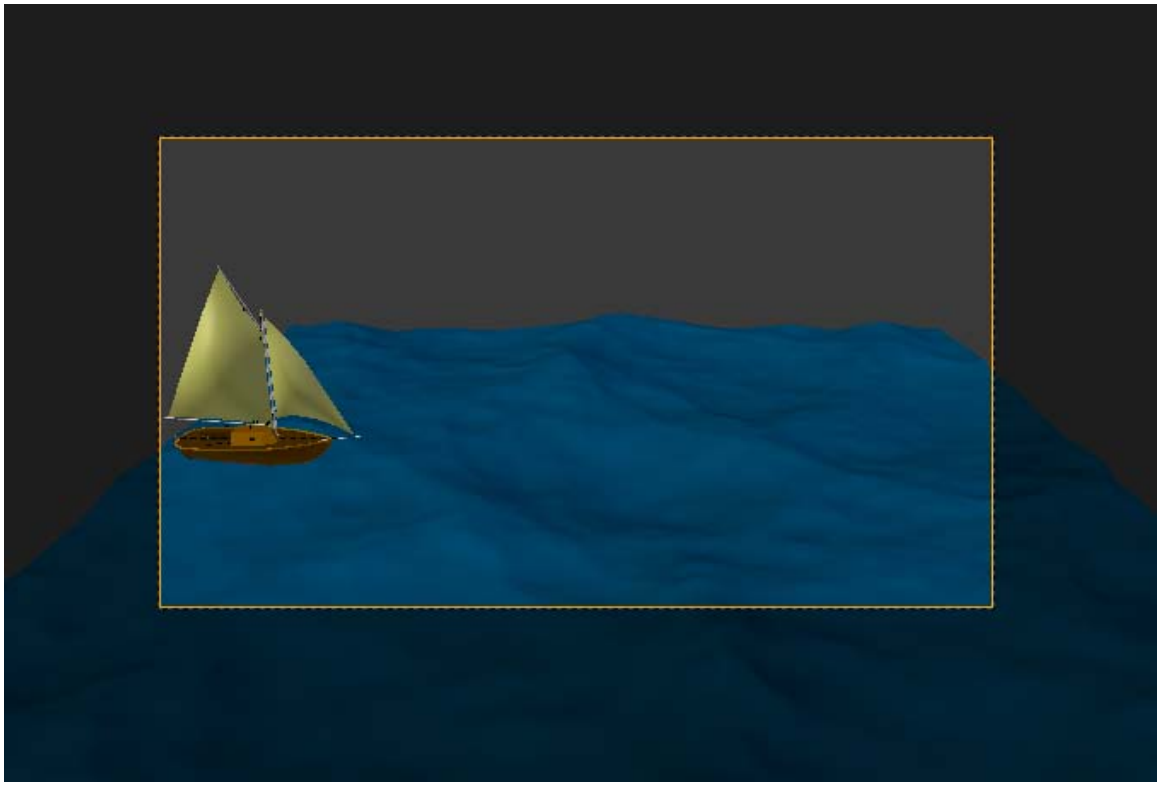
Go to Perspective View (NUMPAD-5). Rotate your view a bit to expose more of the ocean.

Press View / Align View / Align Active Camera to View.

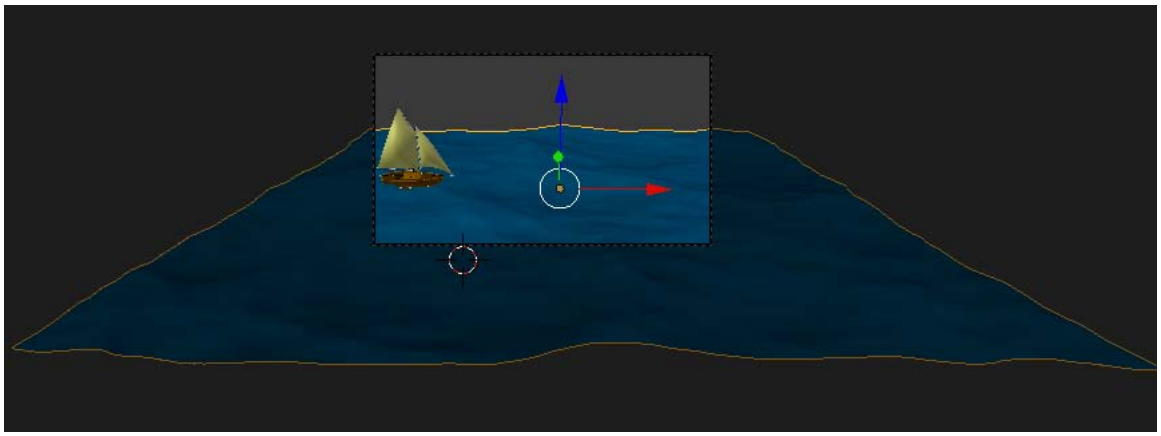


This will align the camera to the perspective view. Note: you may have to select the Camera object (you can do this in camera view by selecting the camera rectangle) and move it or you may have to press SHIFT-F (which in camera view) to zoom in or out (using your mouse).

Try to set your camera (WHILE IN FRAME 1) to look something like shown below:



Next, you will probably need to select the Ocean object (while still in camera view) and scale it (SKEY) along the X axis.

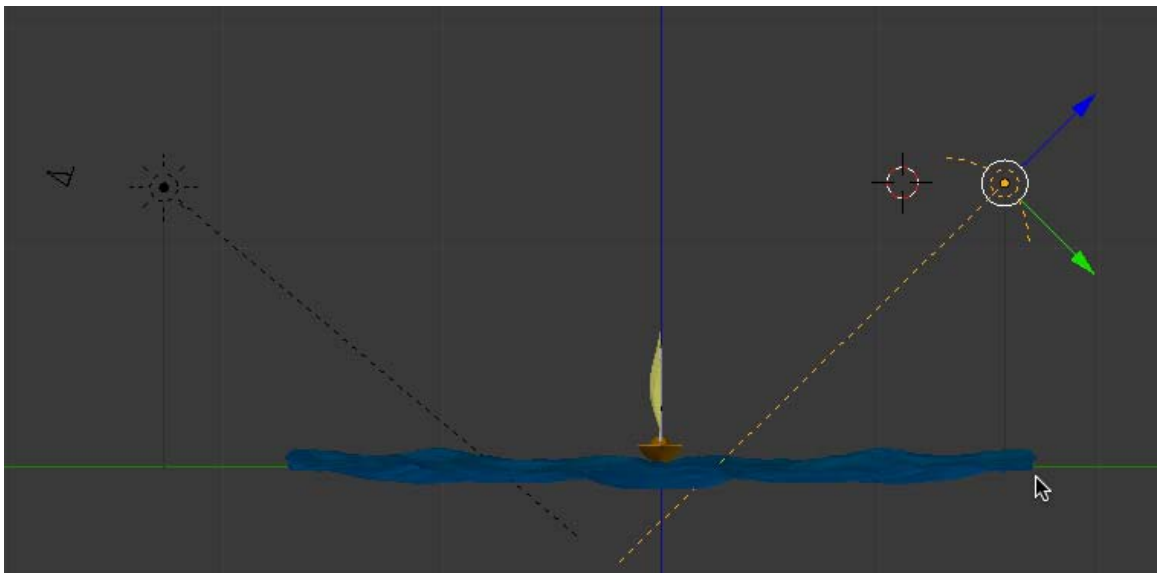


Make sure the sailboat animation from left to right and the ocean effect are all within the Camera view.

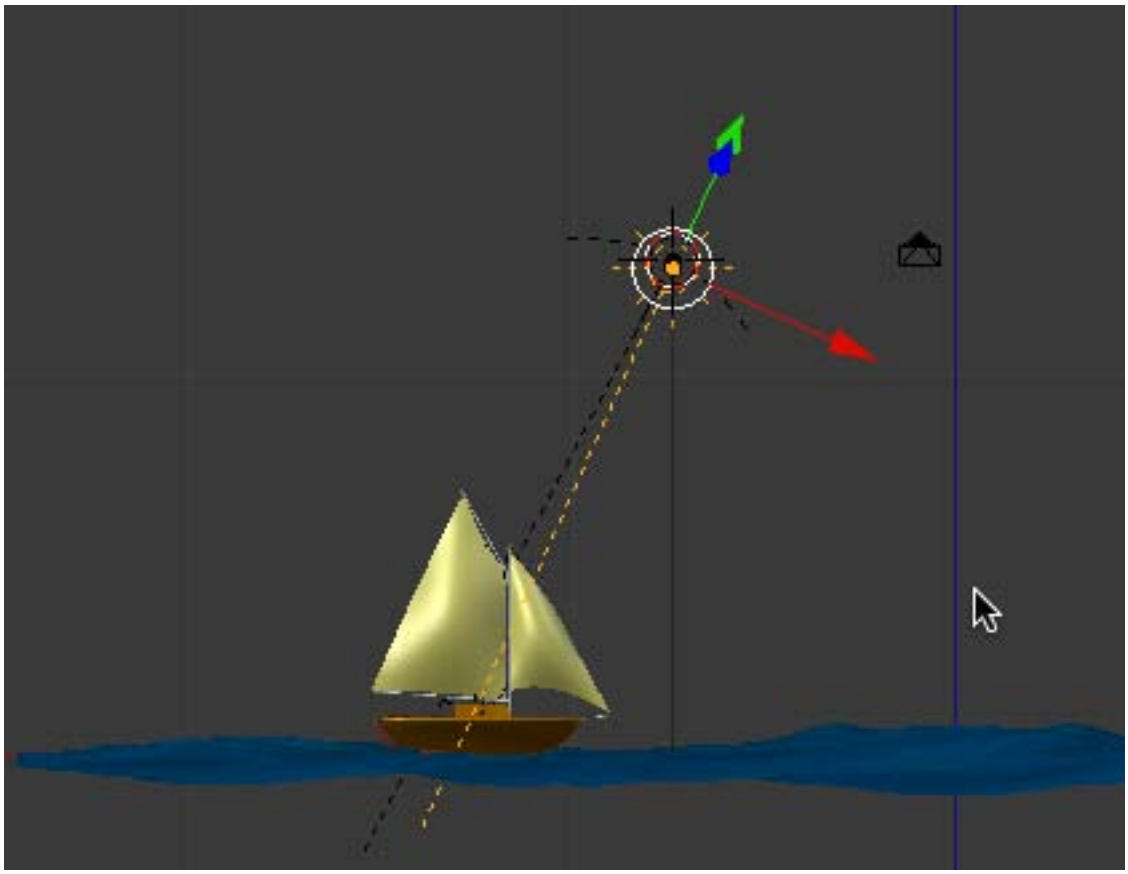
Note: When you scale the Ocean object, the waves are a bit diminished (because of the scale). You may want to slightly increase the “Choppiness” setting on the Ocean modifier. I increased mine to 1.4

Save your .blend file.

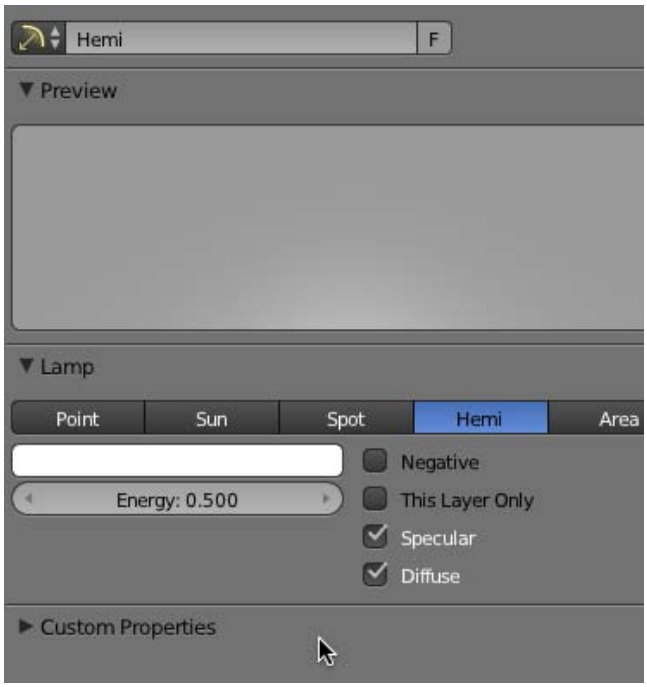
Go to Side View. Go to Frame #1. Add a Sun Lamp object on the left (near the camera) and a Hemi lamp on the left. Rotate the lamps as shown below.



Go to Front View and rotate the lamps as shown below.



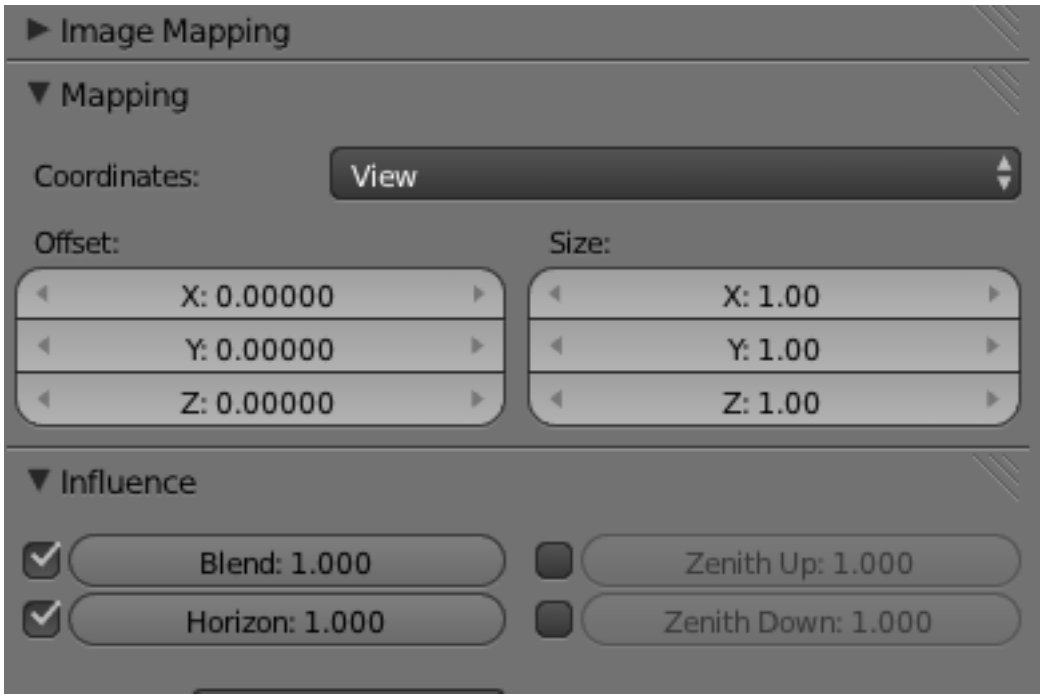
Select the Hemi Lamp object. Open the Object Data editor and set the Energy to .5



Open the World editor. Checkmark the Paper Sky and Blend Sky checkboxes.

Go to the Texture Editor. Click the New button and change the Type to “Image or Movie”. Click on the Open button and select the RedSky.jpg image (This file can be downloaded from the course site).

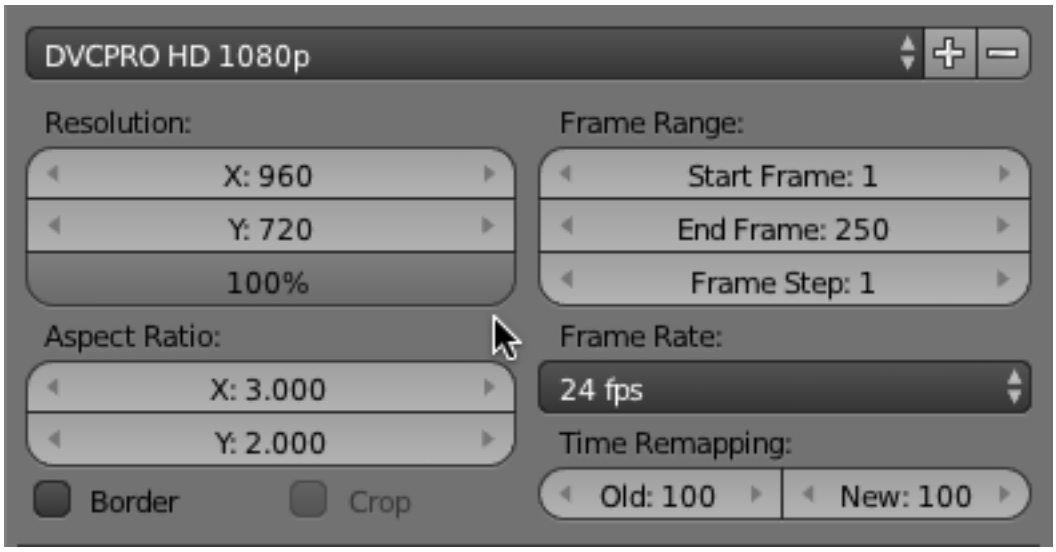
In the Mapping Panel, make sure both the “Blend” and “Horizon” boxes are checked.



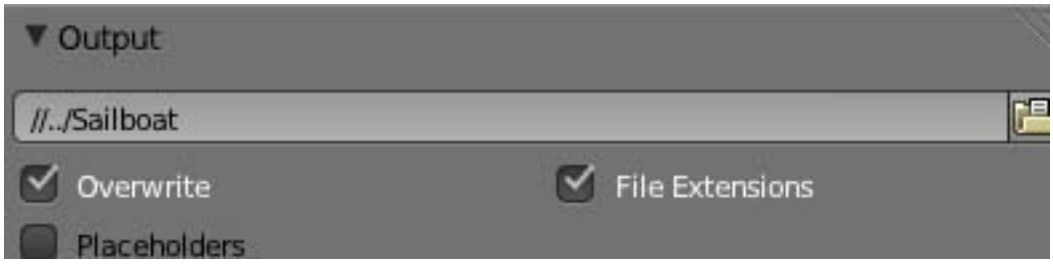
Here is a rendering of my scene taken at Frame # 90

To render a video of the animation, open the Render Editor in the right Properties panel.

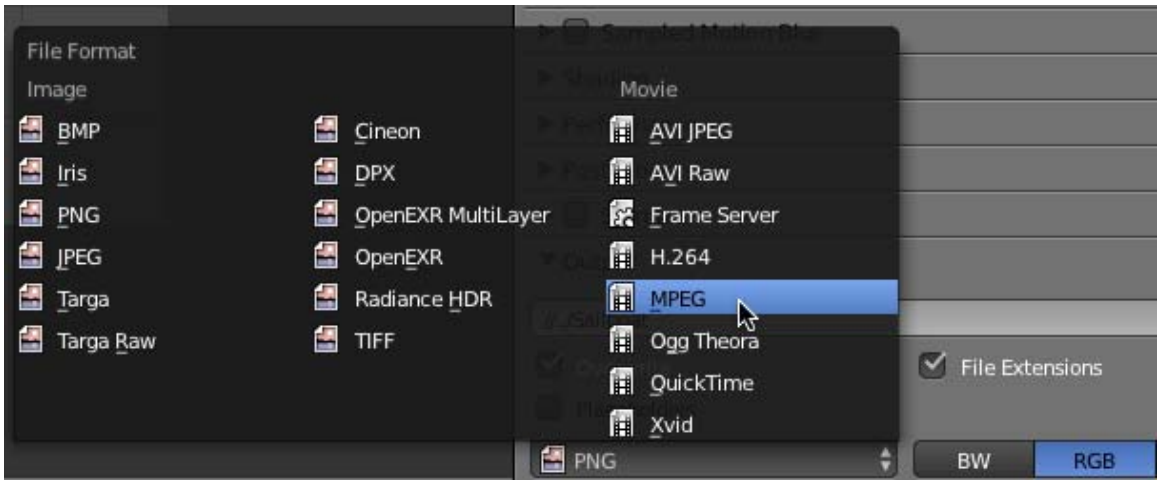
Set the Resolution to X=960, Y=720



In the Output panel, click on the Open browser button. Select your desktop as the location for the video file to be saved. Name the file “Sailboat” then click “Accept”.



Select MPEG as the file output.



In the Encoding panel, select MPEG-4 as the Format.

Save your .blend file.

To render the animation, press the Animation button in the Rendering panel.

A completed copy of the .blend file named “NURBS_Sailboat.blend” is available on the course site.